



Animal &
Plant Health
Agency

APHA Briefing Note 09/21

SARS-CoV-2 in Animals – Case Definition, Testing and International Reporting Obligations

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Text highlighted in yellow has changed from version 3.

Purpose

To provide advice to veterinarians and veterinary diagnostic laboratories on testing for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in animals, including the case definition for non-domestic species kept in captivity.

The new regulatory framework¹ makes SARS-CoV-2 in mammals reportable in UK since February 2021. The purpose of this note is to advise on the regulatory and professional obligations for testing and reporting of positive test results to the Animal and Plant Health Agency (APHA) in GB, and the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland, as the relevant competent authorities. It also outlines the UK's international reporting obligations to the World Animal Health Organisation (OIE).

N.B. This note is applicable to ALL veterinary practitioners including Official Veterinarians (OVs) and diagnostic laboratories considering SARS-CoV-2 testing.

To be read in conjunction with:

- APHA Briefing Note [10/20](#) Advice for Veterinarians and their Clients on Pets and COVID-19.
- Published guidance on [Working safely during coronavirus \(COVID-19\): guidance from Step 4 - Guidance - GOV.UK \(www.gov.uk\)](#) Background

¹ [The Zoonosis \(Amendment\) \(England\) Order 2021](#)
[The Zoonosis Amendment \(Coronavirus\) \(Scotland\) Order 2021](#)
[The Zoonosis \(Amendment\)\(Wales\) Order 2021](#)
[The Zoonosis \(Amendment\) Order \(Northern Ireland\) 2021](#)

1. There is emerging evidence that some animals can become infected with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (the causative agent of COVID-19) following close contact with infected humans (a reverse zoonosis).
2. Globally, given the huge number of people that have been infected, only a small number of cases of naturally acquired SARS-CoV-2 infections in animals have been reported, the majority of which had had contact with infected households or people. The majority of animal species where SARS-CoV-2 has been isolated are *Mustelidae*²(particularly farmed mink); pet cats and dogs; large cats and; non-human primates kept in captivity.³ Given the recent isolation of SARS-CoV-2 in Asian small clawed otters in captivity, and the theoretical susceptibility of wild *Mustelinae* to infection by SARS-CoV-2, they have been included in the case definition below
3. There have been confirmed historical infections in one cat in the UK and one dog in the British Isles, both from households with COVID-19 infected humans. The cat had been co-infected with another respiratory virus and made a full recovery; the dog was euthanised on welfare grounds due to a pre-existing illness. We still consider human-to-human transmission is responsible for the burden of disease in the UK.
4. Government is aware that there is increasing interest amongst owners, veterinary practitioners, universities, and veterinary diagnostic laboratories in testing for SARS-CoV-2 in animals.
5. Testing for SARS-CoV-2 should only be undertaken where it is in the interest of the health and welfare of the animal.
6. The animals which have tested positive for SARS-CoV-2 to date have generally shown only mild respiratory signs and gastrointestinal distress. In the absence of a specific treatment for the virus, testing for SARS-CoV-2 has not and should not result in altering case management.
7. Collecting samples from animals must only be undertaken with due consideration to the published guidance on [Working safely during coronavirus \(COVID-19\): guidance from Step 4 - Guidance - GOV.UK \(www.gov.uk\)](#) and any additional guidance on this matter issued by the Royal College of Veterinary Surgeons.
8. The detection of infection with SARS-CoV-2 in animals meets the criteria for reporting to the World Animal Health Organisation (OIE) (of which the UK is a member country) as an emerging infection in accordance with the OIE Terrestrial Animal Health Code.
9. SARS-CoV-2 is a reportable disease in animals in the UK. Veterinarians have now a regulatory obligation to report positive test results to the competent authority (in GB, to the Animal and Plant Health Agency, APHA. In Northern Ireland, to the Department for Agriculture, Environment and Rural Affairs, DAERA). This obligation includes the reporting of any positive results from UK pets, received from a foreign private laboratory, by the UK PVS submitting the sample to these laboratories located abroad.

If you wish to consider testing an animal for SARS-CoV-2

10. Government does not offer a diagnostic service for SARS-CoV-2 infection in animals.

² The *Mustelinae* family belongs to the Mustelidae order and includes animals such as ferrets, polecats, mink, weasels, stoats, ermine, martens, and wolverines, but this is not an exhaustive list.

³ For an exhaustive list of animal species please visit [Coronavirus \(COVID-19\): advice for people in England with animals](#)

11. If you wish to consider private testing this should only be undertaken where it is in the interest of the health and welfare of the animal.
12. It should be noted that under the Veterinary Surgeons Act 1966 sampling and testing should generally provide a benefit to the animal i.e. be of diagnostic and treatment value. Sampling to answer research investigations is regulated by The Home Office under The Animal (Scientific Procedures) Act 1986, though clinical research may also be conducted, under appropriate ethical review.
13. Government advises that testing should only be considered in animals which meet all four of the criteria set out in the following case definitions. These have been assessed based on the current scientific knowledge of SARS-CoV-2 infection in animals:

Case Definition 1

The animal is a domestic Felid, Canid or *Mustelinae*²;

AND

It is exhibiting a combination of the following clinical signs as determined by a veterinary professional:

- ✓ respiratory infection
- ✓ gastrointestinal infection
- ✓ fever

AND

Other common diagnoses have been considered and discounted as determined by a veterinary professional.

AND

The animal has had confirmed contact with a suspect or known human case of COVID-19 within three weeks of developing its clinical signs.

Case Definition 2

The animal is a non-domestic species of large felid, non-human primate and any *Mustelinae* kept in captivity (including those *Mustelinae*² kept in research facilities)

AND

Has died from unexplained death OR it is exhibiting/has exhibited before death a combination of the following clinical signs as determined by a veterinary professional:

- ✓ respiratory infection
- ✓ gastrointestinal infection
- ✓ fever

AND

The animal has had contact with a confirmed case of SARS-CoV-2 (human or animal) within three weeks of its death or developing its clinical signs

14. For animals within the remit of Case Definition 1, private testing should take place as per guidance in paragraphs 20-26. For animals within the Case Definition 2, testing should take place as per guidance in paragraphs 27-33.

² The *Mustelinae* family includes animals such as ferrets, polecats, mink, weasels, stoats, ermine, martens, and wolverines, but this is not an exhaustive list.

15. In instances where the animal being considered for SARS-CoV-2 testing is from other mammalian species not included in the case definitions in paragraph 14, the attending

veterinarians should contact Officials by telephone (see section 23 for contact telephone numbers) to discuss the application of the above case definitions.

16. Testing undertaken at private laboratories should be based on the detection of SARS-CoV-2 viral RNA in animals via polymerase chain reaction (PCR) (typically a reverse transcriptase quantitative PCR assay (RT-qPCR)) or an equivalent assay.
17. Based on current scientific knowledge **oropharyngeal and rectal swabs are the only suitable specimen types** for the detection of SARS-CoV-2 infection in animals. Faecal and vomitus samples or swabs of the animal's coat/fur or other environmental swabs are NOT suitable due to the potential for environmental contamination.
18. Serological assays are coming onto the commercial market for SARS-CoV-2; however, these assays currently have poor validation, low specificity and sensitivity, and their use to test animals is not recommended. In addition, serological assays used to detect antibodies would demonstrate past infection only and therefore would not be of diagnostic or treatment value to the animal (see note above regarding the Veterinary Surgeons Act).
19. The receiving laboratory should be capable of retaining the sample or nucleic acid extraction from the specimen pending the test result. Laboratories should store the sample in a manner appropriate to maintaining its integrity and traceability. In the event of a positive result, the sample/nucleic acid extraction may be required to be sent to the Animal and Plant Health Agency (APHA) Weybridge Laboratory where secondary/confirmatory testing (in accordance with international standards) will be undertaken.

What you will need to do if you undertake SARS-CoV-2 testing of species within Case 1 definition

20. Veterinarians should ensure clients and diagnostic laboratories used are aware of the following actions when test results are known .
21. **If the results are negative:** you have no further obligation to report these results to the competent authority. Veterinarians should continue case management as appropriate to the animal's condition.
22. **If the results are positive,**
 - a. Reports of a positive result, including those obtained from UK samples sent to laboratories located abroad, should be communicated to the competent authority. This should be made immediately by telephone using the number for the administration in which the tested animal resides (see below). You should be prepared to provide information on the animal and its testing as outlined in Annex A. All information provided will be handled with appropriate confidentiality.
 - i. **England** : Defra Rural Services Helpline on 03000 200 301
 - ii. **Wales:** Animal and Plant Health Agency Regional Office Wales on 0300 3038268
 - iii. **Scotland:** your local Field Services Office
 - Ayr** on 03000 600703
 - Galashiels** 03000 600711
 - Inverness** 03000 600709
 - Inverurie** 03000 600708
 - Perth** 03000 600704

- iv. **Northern Ireland:** DAERA on 0300 200 7840 / 0300 2007852 or contact your local Divisional Veterinary Office.
 - b. Where relevant, the Official coordinating your report will discuss with you the need to contact public health officials in your area.
 - c. You (the private veterinary surgeon (PVS)) should be prepared to take additional samples from the animal and submit these to the APHA Weybridge laboratory for secondary testing. Details of how to submit the sample will be provided by the Official coordinating your report. Samples requested will typically be:
 - I. Oropharyngeal and rectal swabs
 - AND
 - II. 2ml of clotted blood
 - d. In addition, where possible, you (the PVS) should arrange for the original sample to be sent from the laboratory at which the positive sample was achieved to the APHA Weybridge laboratory for confirmatory testing. Details of how to submit the sample will be provided by the Official coordinating your report.
23. Sampling and postage costs of submitting additional samples will be at your (the PVS/clients) cost. The laboratory costs of conducting any secondary/confirmatory testing will be paid for by Government.
24. Results of the secondary/confirmatory testing conducted by APHA Weybridge, and any other relevant information, will be made available to you (the PVS). It is your (the PVS) responsibility to share these results with your client. Where relevant, the Official coordinating your report will discuss with you the need to contact public health officials in your area.
25. Secondary/confirmatory testing may not be required if the report does not meet the case definition outlined above. Additional samples from the animal for confirmatory testing may also not be required if the initial samples were collected at post-mortem, or the animal has since died or otherwise is not available for retesting. Submission of the original sample from which the positive test result was obtained may, however, still be required in these instances. The Official who answers your report call will make this assessment and inform you of the result (either during the initial call or during a subsequent call-back) and inform you of any subsequent requirements to submit samples for secondary/confirmatory testing (as outlined above).
26. Samples from other animals in the household in direct contact with the reported case may also be considered as suitable for secondary testing. The Official coordinating your report will inform you of any requests to also submit samples from these animals for testing at APHA Weybridge.

What you will need to do if you undertake SARS-CoV-2 testing of species within Case 2 definition

27. If you suspect SARS-CoV-2 in animals within Case definition 2, you (the PVS) should communicate this to the competent authority. This should be made as soon as possible by telephone using the number for the administration in which the animal resides (see below). You should be prepared to provide information on the animal as outlined in Annex B. All information provided will be handled with appropriate confidentiality.

- i. **England** : Defra Rural Services Helpline on 03000 200 301
- ii. **Wales**: Animal and Plant Health Agency Regional Office Wales on 0300 3038268
- iii. **Scotland**: your local Field Services Office
 - Ayr** on 03000 600703
 - Galashiels** 03000 600711
 - Inverness** 03000 600709
 - Inverurie** 03000 600708
 - Perth** 03000 600704
- iv. **Northern Ireland**: DAERA on 0300 200 7840 / 0300 2007852 or contact your local Divisional Veterinary Office.

28. Where relevant, the Official coordinating your report will discuss with you the need to contact public health officials in your area.

29. You (the private veterinary surgeon (PVS)) should be prepared to take samples from the animal and submit these to the APHA Weybridge laboratory for testing. Details of how to submit the sample will be provided by the Official coordinating your report. Samples requested will typically be:

III. Oropharyngeal and rectal swabs

AND

IV. 2ml of clotted blood

30. Sampling and postage costs of submitting additional samples will be at your (the PVS/clients) cost. The laboratory costs of conducting any testing will be paid for by Government.

31. Results of the testing conducted by APHA Weybridge, and any other relevant information, will be made available to you (the PVS). It is your (the PVS) responsibility to share these results with your client. Where relevant, the Official coordinating your report will discuss with you the need to contact public health officials in your area.

32. Secondary/confirmatory testing may not be required if the report does not meet the case definition outlined above. Additional samples from the animal for testing may also not be required if the animal has since died or otherwise is not available for testing. The Official who answers your report call will make this assessment and inform you of the result (either during the initial call or during a subsequent call-back) and inform you of any subsequent requirements to submit samples for testing (as outlined above).

33. Samples from other animals in the premises in direct contact with the reported case (i.e. in the same cage or enclosure) may also be considered as suitable for secondary testing. The Official coordinating your report will inform you of any requests to also submit samples from these animals for testing at APHA Weybridge.

Annex A – Epidemiological and Test Information Required at the Time of the Telephone Report

This information should be collected in advance of making the initial telephone report call on receipt of a positive private SARS-CoV-2 test result, to avoid unnecessary delays. Ideally this information should be recorded when considering testing. All information provided will be handled with appropriate confidentiality

1. The species (and if appropriate, type) of animal from which the sample was taken.
2. The age and sex of the animal from which the sample was taken.
3. History of clinical signs of the animal(s) concerned.
4. The specimen type(s) from which the positive test result(s) were obtained (in addition to details of any samples where negative results were obtained from the same animal).
5. Any other animals in contact/displaying clinical signs.
6. Were any other animals in the household in which the animal resides previously tested and if so, with what result? (Including details of any samples where negative results were obtained from these animals).
7. The address where the specimen(s) were taken, and the name, address, and phone number/email address of the owner/person in charge of the animal (or property if the animal is part of a commercial/charitable organisation).
8. The date of sampling and the date the specimens(s) were analysed by the laboratory (if available), and the name and address of the laboratory.
9. The organism considered to be detected.
10. Details of any other differential diagnostic testing of the animal(s) which has been undertaken.
11. The name, address and phone number/email address of the veterinarian making the report.
12. Confirmation that there was no reason to suspect that the specimens(s) were cross-contaminated (by an infected person or environment) while being taken.
13. The COVID-19 status of the people in the animals' household (e.g. confirmed human case(s), suspected human case(s)), including how the onset and duration of symptoms in people relates to the onset of signs in the animal. We do not need to know which household member was ill – just that a household member or members were ill. Where relevant, we will discuss with you the need to contact public health officials in your area.
14. If known – the assay platform used by the laboratory, and the number of cycles (commonly expressed as a C_t or C_q value) needed or viral copy number used to generate the positive result (these figures indicates the amount of viral RNA present in the sample).

Annex B – Epidemiological Information Required at the Time of the Telephone Report

This information should be collected in advance of making the initial telephone report call regarding SARS-CoV-2 in species within Case Definition 2, to avoid unnecessary delays. Ideally this information should be recorded when considering testing. All information provided will be handled with appropriate confidentiality

1. The species (and if appropriate, type) of animal
2. The age and sex of the animal
3. History of clinical signs of the animal(s) concerned.
4. Details, if available, of any samples taken from the same animal.
5. Any other animals in contact/displaying clinical signs.
6. Were any other animals in the same premises in which the animal resides previously tested and if so, with what result? (Including details of any samples where negative results were obtained from these animals; the date any previous animal confirmed cases specimens(s) were analysed by the laboratory (if available), and the name and address of the laboratory)
7. The address where the specimen(s) were taken, and the name, address, and phone number/email address of the owner/person in charge of the animal (or property if the animal is part of a commercial/charitable organisation).
8. The date of sampling
9. The organism considered to be detected.
10. If known for animals– the assay platform used by the laboratory, and the number of cycles (commonly expressed as a C_t or C_q value) needed or viral copy number used to generate the positive result (these figures indicates the amount of viral RNA present in the sample).
11. Details of any other differential diagnostic testing of the animal(s) which has been undertaken.
12. The name, address and phone number/email address of the veterinarian making the report.
13. Confirmation that there was no reason to suspect that the specimens(s) were cross-contaminated (by an infected person or environment) while being taken.
14. The COVID-19 status of the people in the animals' premises (e.g. confirmed human case(s), suspected human case(s)), including how the onset and duration of symptoms in people relates to the onset of signs in the animal. We do not need to know who was ill – just that person(s) in close contact with the animals was either ill or that person(s) was suspected to be in contact with a human COVID-19 case. Where relevant, we will discuss with you the need to contact public health officials in your area.
15. If known for people – the assay platform used by the laboratory, and the number of cycles (commonly expressed as a C_t or C_q value) needed or viral copy number used to generate the positive result (these figures indicates the amount of viral RNA present in the sample).