



United States Department of Agriculture

Animal and Plant
Health Inspection
Service

Veterinary Services

JUNE 2020

SARS-CoV-2

Case Definition – June 18, 2020 *subject to change as situation evolves*

(Notifiable Emerging Disease)

1. Disease Information

1.1 General disease and pathogen information: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes the disease known as COVID-19 in humans, is an enveloped, positive sense, single-stranded RNA virus that belongs to the family Coronaviridae. Based on phylogenetic analyses, SARS-CoV-2 is currently believed to originate from an animal host (likely a bat); however, investigations are ongoing. Since its introduction to human populations, SARS-CoV-2 has been spreading predominantly human to human. At this time, evidence is lacking to support companion animals as a source of infection for SARS-CoV-2, however; mounting evidence suggests that SARS-CoV-2 may be spread from an infected person to some animal species.¹

1.2 Clinical Signs: Although the clinical spectrum of illness for this virus remains largely undefined in animals, clinical signs more likely to be compatible with SARS-CoV-2 infections in mammals may include a combination of the following:²

- Fever
- Coughing
- Difficulty breathing or shortness of breath
- Lethargy
- Sneezing
- Nasal discharge
- Ocular discharge
- Vomiting
- Diarrhea

2. Laboratory criteria: The decision to test any animal for the SARS-CoV-2 virus will be made collaboratively between local, state or federal public health and animal health officials³, or between federal agencies⁴, using a One Health approach. As an OIE reportable disease in animals, confirmation of SARS-CoV-2 infection is performed at the USDA APHIS VS National Veterinary Services Laboratories (NVSL).

2.1 PCR: Oral, nasal and rectal/fecal swabs are recommended per OIE. Store oral and nasal swabs in separate vials of viral transport media and maintain the cold chain at 2-8°C.

¹ For more information see the [OIE COVID-19 Q&A](#)

² For more information see [CDC COVID-19 and Animals](#)

³ For more information see [FAQ for State Animal and Public Health Officials on Animal Coronavirus Testing](#)

⁴ Federal officials will consult on decisions concerning animals maintained in federal facilities or on federal lands

- 2.2 Serology:** blood samples may be collected; remove from clot prior to storage. Serum may be frozen at -20°C.
- 2.3 Virus characterization:** genomic sequence generated either direct from diagnostic sample or from virus isolate.

3. Case definition and reporting criteria*

- 3.1 Suspect case:** Animal determined to have an epidemiologic link with a confirmed human COVID-19 patient, SARS-CoV-2 infected animal, or other exposure of public and animal health concern. If the animal is clinical, other potential causes of illness have been ruled out by a veterinarian.
- 3.2 Presumptive positive case:** Animal tests positive by SARS-CoV-2 real time RT-PCR OR detection of SARS-CoV-2 antibody by a test intended for use in that species.
- 3.3 Confirmed positive case:** All confirmatory testing will occur at NVSL. SARS-CoV-2 real time RT-PCR and sequence confirmation of virus either direct from sample or from virus isolate OR demonstration of SARS-CoV-2 neutralizing antibody.
- 3.3.1** An animal **may be** excluded as a confirmed case after review of all available case information if any of the following applies:
- An alternative diagnosis can explain the illness fully.⁵
 - Antibody to SARS-CoV-2 is undetectable in a serum specimen obtained at least 14 days after initial test or onset of illness.
 - Test result(s) are poorly or not repeatable, and resampling is either not possible, or testing from resampling is negative.

*Given the emerging nature of SARS-CoV-2 and the speed at which tests have been developed, laboratories should select test(s) appropriate for the sample type and interpret results in the context of all available information for each case. Collection of additional sample(s) from the animal and testing for virus neutralizing antibody is recommended where test result(s) are poorly repeatable and/or approach the limit of detection for an assay.

⁵ Factors that may be considered when assigning alternate diagnoses include the strength of the epidemiologic evidence for SARS-CoV-2 exposure, the specificity of the alternate diagnostic test, and the compatibility of the clinical presentation and course of illness for the alternative diagnosis.