

Coronavirus Postmortem Examination (Necropsy) Sample Inventory Check List and Photo Log

Notes: The scientific name of the new strain of coronavirus is SARS-CoV-2. In people, the disease caused by the virus is commonly referred to as COVID-19. Because we are addressing the virus itself in the context of animal health, we refer to it as SARS-CoV-2.

The necropsy sample inventory is to provide a centralized inventory of necropsied animals and samples to aid in sample collection and tracking, sample disposition, and sample analysis. The sample inventory list also includes a photo log for necropsy photos.

General Information

- For any animal testing non-negative for SARS-CoV-2, contact USDA-NVSL to discuss necessary next steps and confirmatory testing: NVSL.DVL.Heads@usda.gov or (515)337-7551 (during business hours)
- This sample inventory list is designed to assist prospectors who may not routinely perform necropsies and/or provide guidance to individuals who may perform a necropsy on a SARS-CoV-2 positive (or suspected positive) animal.
- The sample inventory list is not intended to replace necropsy forms, sample submission forms, or any other internal forms utilized in clinical, diagnostic laboratory, or research facilities. This list is a supplemental form to aid in assessment of collected samples for tracking purposes.
- The sample inventory list is comprehensive and can be utilized for limited sample and tissue collection (i.e. cosmetic necropsies) or during complete necropsies where more robust tissue collection occurs.
- A complete necropsy and collection of a full set of samples and tissues is optimal but not always feasible. **If a complete postmortem examination cannot be performed, sample collection should be focused on the respiratory and digestive systems.**
- The document can be printed or filled out in MS Word. Mark the appropriate check boxes including samples not collected.

Necropsy and Ancillary Diagnostic Testing in a SARS-CoV-2-positive or Suspected Animal

- Safety of the collector supersedes sample collection, and appropriate personal protective equipment (PPE) should be donned prior to tissue collection. PPE for personnel conducting the necropsy should include a facemask, eye protection (i.e. face shield, goggles), gloves, and protective outerwear (gown or coveralls); N95 Respirator or suitable alternative is recommended for aerosol producing procedures (i.e. bone saws). Information on personal protective equipment can be found at the following:
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html#collection>
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html#biosafety>
Veterinary-specific guidance can be found at:
https://www.cdc.gov/coronavirus/2019-ncov/community/veterinarians.html#anchor_1588434194380
- Collection for virology and histopathology should be based on the laboratory protocols where samples will be submitted. A suggested supply list is detailed below. Information on swabs may be found at:
https://www.aphis.usda.gov/animal_health/one_health/downloads/faq-sapho-on-companion-animal-testing.pdf
and information on appropriate personal protective equipment
at:http://www.usdatraining.com/powerpoint_docs/FADD_Manual_digital.pdf

Swabs:

Swabs should be collected prior to necropsy. In order of precedence and pending availability of the swabs, the following locations should be sampled: nasal cavity, oropharyngeal cavity, trachea, and rectum. When possible, swabs should be placed in appropriate viral transport media (i.e. universal VTM, BHI, PBS saline, or saline). However, “dry” swabs can be used as an alternative when transport media is not available. Swabs may be held at 4 °C for up to 72 hours.

Tissues:

When a complete set of tissues cannot be collected, the necropsy should be focused on the respiratory, digestive, and hemolymphatic systems. The priority/essential tissues are indicated in the sample inventory table below. Samples should be collected in 10% neutral buffered formalin for histopathology; and “dry” in cryovials, whirlpaks, or other containers for archiving and/or future diagnostic tests. A minimum of 50 grams should be collected; large samples are not required. Tissue samples should be kept at -80 °C, ideally, but can be kept at -20 °C. For samples kept at less than -20 °C, your state veterinarian should be contacted regarding transfer to a facility with a -20 °C or -80 °C freezer.

Sample Inventory List Disposition:

Once the necropsy is completed, please send this checklist and if available, results of coronavirus testing to: Vet-LIRN@fda.hhs.gov. In the subject line, please format it as “Necropsy Sample Inventory List- Institution-Date-Species”. We also encourage submission of the necropsy report or summary, to include clinical history and photos a summary or completed medical records detailing clinical history, clinical signs, treatment, photos (pdf, jpg, tiff, png; please no Photoshop extensions). SARS-CoV-2 test results can be sent when available.

Suggested Supplies:

- Viral Transport Media (universal VTM, BHI, PBS saline, or normal saline
- Cryovials (2.0, recommended); alternative – 3-5 mL vacutainer tubes or whirl Pak
- Swabs (see link above for approved swabs)
- Gauze (for separating out serum from heart blood)
- Cassettes/laundry tags/other tissue identifiers for formalin fixed tissue
- 10% Buffered Formalin
- Sterilized scissors
- 20 or -80 °C freezer for samples kept beyond 48 to 72 hours

How to Fill Out the Form

The sample inventory list is extensive, but each necropsy may present with a need for additional sampling for other possible causes of death. The sample inventory list is broken down into three parts:

1. Target/priority samples for virology and histopathology
2. Non-target samples
3. Photolog

Collected samples should be indicated with the check boxes. Samples are as follows:

1. Swabs – please indicated the storage media: universal, BHI, PBS + Saline, Saline, or Other
2. Formalin Fixed Samples – FO
 - a. Any additional samples can be indicated on the blank rows.
3. Frozen Samples – FR
 - a. Indicate the temperature of storage.
 - b. Samples do not need to be stored at each temperature.**

Sample Disposition

The location of the samples should be indicated to include the laboratory where the necropsy was performed of if samples are shipped for analysis at NVSL or other locations.

Questions

Please contact Vet-LIRN@fda.hhs.gov if there are any questions about the list.

Animal Information

Animal ID: _____ Species: CN FEL BOV EQ Other _____
 Age ___ Y M D Sex: M F MN FS Pregnant Breed (no abbreviations) _____
 SARS-CoV-2 Status: ND Pending Neg Pos: Presumptive Confirmed
 Pos Samples: Fecal Oropharyngeal Nasal Blood Lab: _____

Lab Information

Necropsy Facility (Name, location): _____ Date of Necropsy Click or tap to enter a date.
 Pathologist/Prosector: _____ Phone #: _____
 E-mail: _____
 Items sent: Sample Inventory List Necropsy Report Medical Records/Summary Photos

Target Swabs and Priority Tissues

Tissue Sample	Sample Disposition	Sample Location/Comments
Oropharyngeal Swab and Histo (swab caudal to hard palate)	Swab: <input type="checkbox"/> U <input type="checkbox"/> BHI <input type="checkbox"/> PBS <input type="checkbox"/> Sa <input type="checkbox"/> Other <input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Nasal Swab/Nasa Mucosal (Histo)	Swab: <input type="checkbox"/> U <input type="checkbox"/> BHI <input type="checkbox"/> PBS <input type="checkbox"/> Sa <input type="checkbox"/> Other <input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Feces	Swab: <input type="checkbox"/> U <input type="checkbox"/> BHI <input type="checkbox"/> PBS <input type="checkbox"/> Sa <input type="checkbox"/> Other FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Tracheal Swab/trachea (Histo)	Swab: <input type="checkbox"/> U <input type="checkbox"/> BHI <input type="checkbox"/> PBS <input type="checkbox"/> Sa <input type="checkbox"/> Other <input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Bronchus <input type="checkbox"/> L <input type="checkbox"/> R <input type="checkbox"/> NOS	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Lung <input type="checkbox"/> L <input type="checkbox"/> R <input type="checkbox"/> NOS	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Tonsil (T)	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Mediastinal Lymph Node (T)	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Mesenteric Lymph Node (T)	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Spleen	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Heart	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Liver	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Kidney	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Pancreas	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Small Intestine (T with location)	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Brain (freeze- cerebrum, cerebellum, brainstem)	<input type="checkbox"/> FO FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	
Heart Blood (serum)	FR: <input type="checkbox"/> 4 <input type="checkbox"/> -20 <input type="checkbox"/> -80	

Non-Priority Tissues

Tissue Sample	Sample Disposition	Sample Location/Comments
Adrenal Gland <input type="checkbox"/> L <input type="checkbox"/> R <input type="checkbox"/> NOS	<input type="checkbox"/> FO	
Aorta/Pulmonary Artery	<input type="checkbox"/> FO	
Axillary Lymph Node (T)	<input type="checkbox"/> FO	
Colon	<input type="checkbox"/> FO	
Diaphragm	<input type="checkbox"/> FO	

Tissue Sample	Sample Disposition	Sample Location/Comments
Digit	<input type="checkbox"/> FO	
Esophagus	<input type="checkbox"/> FO	
Eye <input type="checkbox"/> L <input type="checkbox"/> R <input type="checkbox"/> NOS (include optic nerve)	<input type="checkbox"/> FO	
Gall Bladder	<input type="checkbox"/> FO	
Ovary	<input type="checkbox"/> FO	
Parathyroid Gland	<input type="checkbox"/> FO	
Peripheral Nerve/location:	<input type="checkbox"/> FO	
Pituitary Gland	<input type="checkbox"/> FO	
Prescapular Lymph Node (T)	<input type="checkbox"/> FO	
Skeletal Muscle	<input type="checkbox"/> FO	
Skin	<input type="checkbox"/> FO	
Spinal Cord <input type="checkbox"/> C <input type="checkbox"/> T <input type="checkbox"/> L (tag if multiple locations)	<input type="checkbox"/> FO	
Testis <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> FO	
Tongue	<input type="checkbox"/> FO	
Ureter	<input type="checkbox"/> FO	
Urinary Bladder	<input type="checkbox"/> FO	
Uterus	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	
Other:	<input type="checkbox"/> FO	

Photo Log

Picture ID #	Organ	Description or Morphologic Diagnosis