

Selection of Specimens for Swine

Animals selected for laboratory analysis should be free from antibiotic therapy and in an early or acute disease stage. Selected tissues should be collected as aseptically as possible. A meaningful history of the disease outbreak and a tentative diagnosis, based upon clinical evaluation, should be included. Laboratory test results are directly affected by the selection, preparation, handling, and shipment of selected specimens.

Preparation & Collection of Tissues/Samples:

1. Tissues-Fresh

Aseptically collect approximately 2x4 inch samples and place in a plastic bag. Sample visible lesions with adjacent normal tissue. Double bag in Whirl-pak® bags. Do not mix swabs, intestines, or brains with other tissues in one single bag. Transport with 2-3 cold packs.

Collect sections of small and large intestine. The selected, clearly identified, samples should be double bagged and sealed in Whirl-pak bags to prevent spillage. Do not cut the loops of intestines open. The sample should be refrigerated and cooled thoroughly prior to shipping. Avoid shipping whole pigs and over weekends.

2. Swabs

2.1 Aerobic culture

Commercial swabs with Stuart's or Amies transport media is recommended to prevent desiccation.

2.2 Anaerobic culture

Port-A Cult® (BBL) or other anaerobic transport system. (The Port-A Cult® tube can be used for anaerobic, facultative, and aerobic bacteria.) For abscesses or exudates use a capped syringe with needle removed.

2.3 Nasal Swabs-Bacterial Suspect

The external nares and internal nostrils are cleaned with a moist towel to remove common contaminants. (Use swabs with transport media such as Amies or Stuart's). Insert swab into the pre-cleaned nasal cavity and rotate. Upon successful sample collection, the swab is inserted into the accompanying sterile plastic sheath. The ampule located at the end of the sheath is gently crushed, releasing transport medium.

2.4 Nasal Swabs-Viral Suspect

Prepare nostrils and sample as in bacterial suspect. For viral swabs use Viral Culturette® (Becton Dickinson #4361514) or equivalent.

Note: Use of the incorrect swab and media may jeopardize the ability to detect or culture the offending pathogen. For bacterial isolation, avoid using Mycoplasma or viral media which contain antimicrobials and may inhibit growth of the desired pathogen. Avoid using bacterial culture media to isolate viruses or Mycoplasma organisms.

*Identify all swabs with the following:

- Building or site
- Animal identification number
- Fluids, exudates/aspirates, tracheal washes, urine

3. Histopathology

3.1 Preparation of Tissue for Fixation

Multiple sites or types of lesions, to include both normal and diseased tissue and a sample at the line of demarcation, should be taken. **The sections should be 2cm thick. The small size of the tissue results in rapid and complete penetration of the fixative.**

Selected tissues should be cut with a sharp scalpel since the squeezing action of scissors crushes and tears tissue. The tissue should be rinsed briefly with 0.85% NaCl to remove adhering blood, since blood will retard fixation. Autolysis or freezing will make samples unsuitable for proper evaluation. Place tissues in double Whirl-paks. Identify bags if multiple animals are submitted. Do not use narrow mouth bottles to submit fixed tissues.

3.2 Volume of Fixative

The selected tissues should be fixed in 10% neutral buffered formalin. Use 10 times the volume of the tissues being fixed to assure good perfusion of the sample and to maintain the tissue architecture.

3.3 Formula of Fixative

37-40% formaldehyde	100 mL
Distilled water	900 mL
Sodium phosphate, monobasic monohydrate	4.0 g
Sodium phosphate, dibasic anhydrous	6.5 g

3.4 Tissue Selection for Histopathology

Check the recommended samples in the guideline table. If the cause of death is unknown, submit samples exhibiting

3.4 Tissue Selection for Histopathology

Check the recommended samples in the guideline table. If the cause of death is unknown, submit samples exhibiting gross lesions including heart, liver, lung, kidney, spleen, various levels of the gastrointestinal tract, mesenteric lymph nodes and brain.

Note: All hollow organs (intestine or uterus) should be gently flushed with 10% formalin without disturbing the mucosal lining before placing in the formalin bag. Be sure to take proper precautions when handling formalin.

Identification and Handling of Blood Samples:

4. Collection of Blood Samples

- 4.1 Collect in sterile tubes. Serum separator tubes work well. Follow the manufacturer's directions. Based on the number of tests requested, 1 mL – 3 mL of nonhemolyzed serum is required.
- 4.2 Fill vacutainer tubes $\frac{3}{4}$ full and allow to stand at room temperature for an hour to permit a solid clot to form and retract.
- 4.3 Pipette the serum into sterile tubes with snap caps (3 mL plastic tubes with snap caps, Falcon #2054, are recommended). Make sure caps are securely closed.
- 4.4 Use permanent markers and underline the I.D. numbers (e.g. 16 vs. 91).
- 4.5 Do not freeze whole blood or samples with the clot remaining.
- 4.6 Contaminated or toxic samples cannot be used in virus isolation tests. **Do not use brucellosis test tubes!**

5. Identification of Samples on the Request Form

- 5.1 Identify the tubes on the submission request form according to the different age groups. Remember to write the age. Start with the youngest group.
- 5.2 Clearly specify the test(s) requested on the submission form.
- 5.3 When sending paired sera, identify the acute samples from the convalescent samples on the tube and on the request form.

6. Packing Specimens

To avoid leaking in transit, double bag ALL samples. Whirl-pak bags or equivalent are recommended. Wrap sample bags and 2-4 ice packs in absorbent paper (e.g. newspaper). Place the package into a styrofoam container. Completed submission forms should be inserted in a bag in case of leaking. Avoid mixing intestinal samples with other tissues. If you need more information about shipping specimens to Newport's Diagnostic Laboratory, please call us at 800-220-2522.

7. Mailing

Newport Laboratories provides free returnable cardboard cartons with a styrofoam lining designed for sample submission. Submission forms are available for microbiology and serology testing. Call us at 800-220-2522 to request submission form(s) or shipper containers. Submission forms are also available online at www.newportlabs.com under the "Diagnostic Services" tab. Samples should be submitted by the fastest means possible to avoid deterioration of specimens. Next day or overnight delivery is preferred. The most reliable mailing services that we have found are listed below:

- United Parcel Service (UPS)
- Airborne Express
- Fed Ex
- DHL
- Spee-Dee
- U.S. Parcel Post (only as a final option)

8. Laboratory Hours

The Newport Diagnostic Laboratory is open for service from 8:00 A.M. to 5:00 P.M. (CST) Monday through Friday, with the exception of holidays. Mail is received on Saturdays and those holidays when the postal service and/or private delivery companies are operating.

9. Diagnostic Shipping Address



Newport Diagnostic Laboratory
1524 Prairie Drive • PO Box 938
Worthington, MN 56187

Submission forms available online at www.newportlabs.com under the "Diagnostics" tab.