Diagnostic Sampling:

Collection, Packaging, and Shipping Overview

During an animal disease emergency, diagnostic sampling will be needed to determine the disease as well as identify infected animals. This handout will overview basic points to be aware of when collecting and packaging diagnostic samples and shipping requirements.

The specific sample type and collection method used will depend on the disease of concern, the species of animal(s) involved and the diagnostic tests to be performed.

Before You Begin

- Test specifications from laboratory
  - Samples needed, any special media
  - Temperature
- Gather all supplies
  - Pre-label specimen containers
- Gather PPE
  - Coveralls, footwear, gloves
  - Respirators, face shields

Labeling

- Pencil, waterproof ink – Write clearly and legibly!
- Ability to trace sample
  - Animal, group, or premise identification
  - Sample type
  - Swab location
  - Tissue or organ
  - Date

Sample Collection & Handling

- From individual animals, not groups
  - Unless specified by receiving laboratory
- Prevent sample degradation
  - Selective or transport media
  - Ice packs or dry ice
  - At least 1:10 ratio of sample:formalin
- Prevent contamination
  - PPE
    - Disposable gloves
  - Disposable equipment
    - Needles, syringes, blades
  - Biosecurity
    - Disinfection

Preventing Breakage and Spills

- Pad primary sample container(s)
- Primary watertight barrier
- Absorbent material
- Secondary watertight material
- Rigid outer material (box)
- Do not pack formalin in same box with non-formalin samples

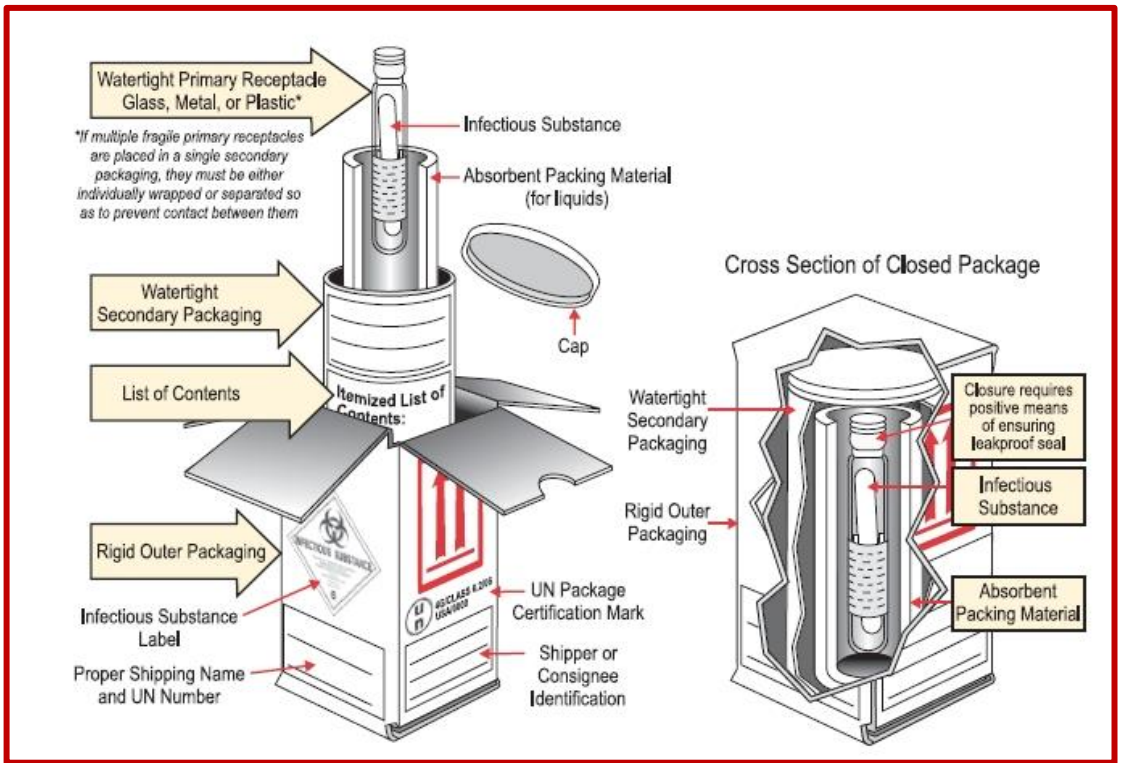
Temperature

- Maintain "cold chain" – necessary temperature from time of collection until arrival at diagnostic laboratory
- Samples shipped on ice should have a layer such as bubble wrap between the sample and the ice packs to prevent freezing of the sample
- Use only ice packs, picnic packs, or sealed ice containers; never ship with cubed or crushed ice
- Samples shipped on ice should arrive at the diagnostic lab within 24 hours
- Packages shipped with dry ice are considered dangerous goods, and may not be accepted by some carriers
- Dry ice may inactivate some viral samples

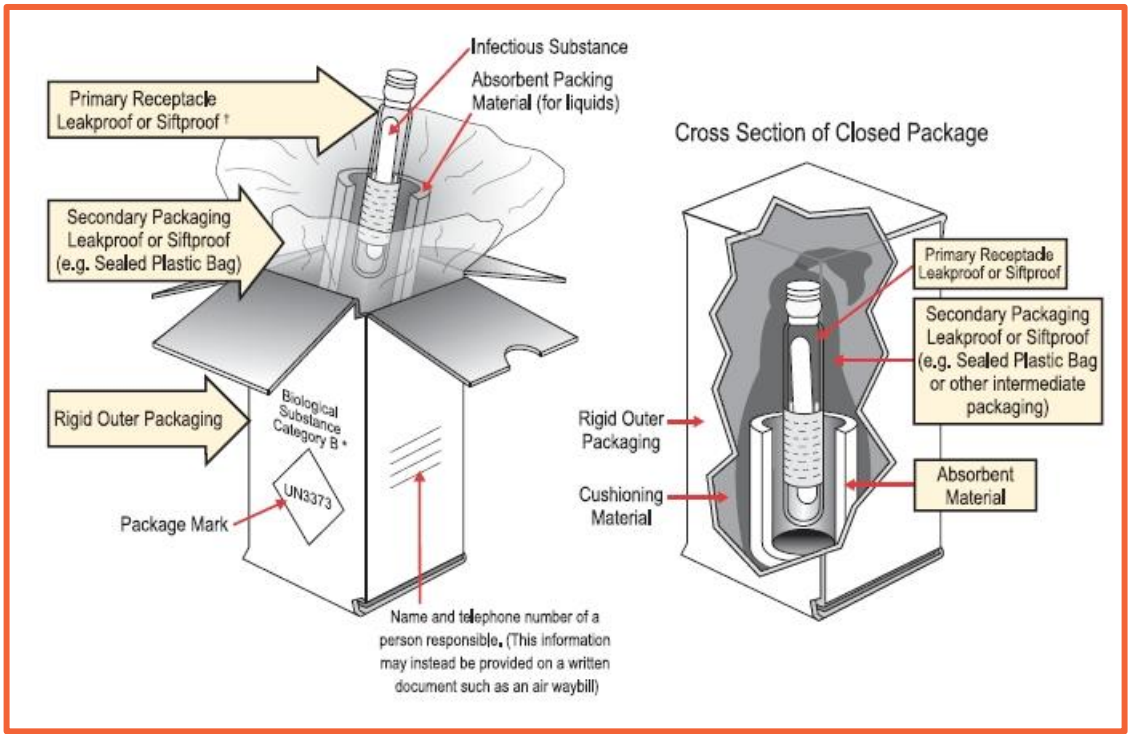
Packaging

- Place solid or liquid specimen in leak-proof primary container. Label content.
- Place primary containers inside flexible (sealable plastic bag or rigid) secondary container. Place absorbing material inside of the secondary container.
- Place secondary container in approved insulated waterproof flexible or rigid shipping container. Place ice packs inside shipping container.
- Place case history and submission forms in sealed plastic envelope inside of shipping container. Seal shipping container. Ensure appropriate package marks on the shipping container. Ship.
- Category A requires watertight packaging.

Category A Infectious Substances



Category B Infectious Substances



Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. "Transporting Infectious Substances Safely" at http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Transporting_Infectious_Substances_brochure.pdf

Diagnostic Laboratories

- Testing must be performed at either the USDA-APHIS-VS-NVSL (National Veterinary Services Laboratories) or other APHIS-approved facility
- **NVSL-Ames:** USDA-APHIS-NVSL, 1920 Dayton Avenue, Ames, IA 50010 -- 515-337-7266
- **NVSL-FADDL-NY (Plum Island):** USDA-APHIS-FADDL, 40550 Route 25, Orient, NY 11957 -- 631-323-3256

  www.aphis.usda.gov/animal_health_lab_info_services/
- National Animal Health Laboratory Network (NAHLN) and testing that they are approved to perform can be found at

  www.aphis.usda.gov/animal_health/nahln/labs.shtml

USDA-APHIS NVSL Diagnostic Sample Prioritization

- Priority 1: High Suspicion - Highly likely FAD/EDI
  - Call before submitting
- Priority 2: Intermediate Suspicion - Possible
- Priority 3: Low Suspicion - Unlikely
- Priority A: Animals being held pending results
  - Call before submitting

Sample Shipping Categories

Samples collected during an animal disease emergency will need to be sent to the USDA National Veterinary Services Laboratory for diagnostics.

The transport of biological materials is regulated by the Department of Transportation Hazardous Materials Regulation

- **Category A: Infectious substances,**
  - **Affecting animals only: UN 2900**
  - **Affecting humans: UN 2814**
- **Category B infectious substances (UN 3373)**

Quantity Limitations for Shipping

	Passenger aircraft/rail	**Cargo aircraft**
Category A: Infectious substances	50 ML or 50 g	4 L or 4 kg
Category B	4 L or 4 kg	40 L or 4 kg

Additional Resources

- **USDA-APHIS National Veterinary Services Laboratories**
  http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth?1dmy&urile=wcm%3apath%3a%2Faphis_content_library%2Fsa_our_focus%2Fsa_animal_health%2Fsa_lab_information_services%2Fsa_about_nvsl%2Fct_about_nvsl
  - USDA-APHIS-VS Guidance 12001.1: Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents (FAD/EDI) http://nvap.aphis.usda.gov/animal_health/lab_info_services/downloads/VSG_12001.pdf
- **Department of Transportation**
  - 49 CFR 172: Pipeline and Hazardous Materials Safety Administration, Department of Transportation – Hazardous Materials Regulations. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr172_main_02.tpl
  - Transporting Infectious Substances Safely http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Transporting_Infectious_Substances_brochure.pdf

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