Vaccination During Animal Disease Emergencies:
Overview

Vaccination procedures may be part of animal disease emergency response activities. Responders should have a basic understanding of vaccination principles to ensure effective efforts.

Vaccine Principles

▶ Modified live or killed vaccines
▶ Types used determined by disease, species, availability and approval for use
▶ Administration
  • Parenteral: intramuscular or subcutaneous most common
  • Other: intranasal, needle-free, ocular, oral, spray or topical
▶ Withdrawal times
  • Vaccines used in food animals are subject to mandatory withdrawal times before the animal can enter the food chain.
  • Withdrawal times begin once a vaccine is administered.
  • The withdrawal time for a vaccine will be specified in the vaccine product license.

Vaccine Handling

▶ Maintaining a Cold Chain
  • System used to ensure that vaccines stay within an appropriate temperature range.
  • Excessive heat/cold can damage a vaccine, reduce its potency, or render it completely ineffective.
  • Most vaccines do not have detectable changes in appearance that indicates they have been damaged or stored improperly.
  • Devices available to indicate if temperatures have either exceeded or dropped below recommended range.
  • Some vaccines are intended to be refrigerated, while others may be frozen.
    ○ Do not freeze vaccines that are intended to be refrigerated.
    ○ Avoid repeated freeze-thaw cycles.
  • Some vaccines are sensitive to light; store in their boxes until ready for use.

▶ Vaccine Storage Units
  • Use dedicated refrigerators or freezers; they should not house food or drink.
  • Avoid temperature fluctuations in the unit
    ○ Limit number of times door is open
    ○ Do not leave door open longer than necessary.
  • Do not keep vaccines in the doors or vegetable drawers.
  • Measure and record temperature inside the storage unit at least daily.
  • Ensure a secure power supply. Avoid power strips or outlets controlled by a wall switch, as these circuits may inadvertently be shut off.

▶ Diluents
  • Follow label guidelines for reconstitution
  • Diluents are NOT interchangeable
    ○ Between vaccine types
    ○ Between manufacturers
    ○ Between lots
▶ Maintain Sterility of Multi-Dose Vials
  • Do not remove rubber stopper
  • Wipe with antiseptic before piercing
  • Use a new needle before piercing
  • Do not submerge vial into melted ice/water
  • Label with date/time opened or reconstituted
▶ Receiving Vaccines
  • Inspect immediately upon arrival for:
    ○ Signs of physical damage
    ○ Expiration date
    ○ Sufficient diluent included
    ○ Cold chain maintained
▶ Transporting Vaccines
  • Maintain cold chain
  • Diluents should travel with corresponding vaccines
  • Note packing time
▶ If the Cold Chain is Broken
  • Any indication that a proper temperature has not been maintained:
    ○ Mark the vaccine “DO NOT USE”
    ○ Contact supervisor for further instructions
    ○ Do NOT immediately discard the vaccine unless directed to do so

Just-In-Time training materials can be found at http://www.cfsph.iastate.edu/Emergency-Response/just-in-time-training.php
Preventing Disease Transmission During Vaccination

- Maintain basic biosecurity
  - Wash hands
  - Wear gloves
  - Use new needle
  - Disinfect reusable equipment
  - Dispose of trash on-site
  - Wear disposable shoe covers/boots

Record Keeping

- Individual and/or group animal IDs
- Name, address of animal owner
- Species, age, sex, breed of animals
- Date of vaccination
- Route, location of vaccination
- All vaccine information
- Include withdrawal time

Personal Safety When Vaccinating

Responder safety is the highest priority.

Be cognizant of risks

- Needle sticks
  - Needlestick injuries are one of the most common hazards when vaccinating.
  - To avoid injury and minimize risk, do not recap needles.
- Vaccine exposure
  - Some modified live vaccines can infect personnel and many killed vaccines use adjuvants which can cause severe tissue reactions.
  - If vaccine exposure is suspected, seek medical attention.
- Sharps disposal
  - Properly dispose of used needles in an approved sharps container.
- Animal hazards
  - Use proper handling and restraint techniques when working around animals; have sufficient assistance when restraining animals for vaccination.
- Environmental hazards
  - Beware of direct and indirect environmental hazards, such as falling due to slippery surfaces.
  - Heat stress or cold-related illness may also occur due to temperature extremes.
  - Comply with incident requirements regarding PPE and equipment

Additional Resources

USDA Foreign Animal Disease Preparedness (FAD PReP) Guidelines and Standard Operating Procedures: Vaccination for Contagious Diseases

Development of this educational material was by the Center for Food Security and Public Health at Iowa State University through funding from the Multi-State Partnership for Security in Agriculture MOU-2011-HSEMD-012. June 2012. Revised July 2014.

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