Vaccination During Animal Disease Emergencies

Overview
Basic Mechanics

Vaccines in Animals

- Disease prevention intervention
- Regulated by the U.S. Department of Agriculture, Center for Veterinary Biologics
  - Veterinary biologics for commercial use must be produced at a USDA-approved establishment, and be demonstrated to be pure, safe, potent, and efficacious

National Veterinary Stockpile

- Established through HSPD 9
- Countermeasures for damaging animal diseases
- Deployment within 24 hours

Types of Vaccines

- Types
  - Modified live vaccines (MLV)
  - Killed inactivated vaccines
- Withdrawal times
- Use determined by
  - Disease
  - Species
  - Vaccine availability
  - Approval for use

Vaccine Administration

- Single use disposable syringes
- Automatic multi-dose syringes
- Bottle-mount syringe (automatic self-filling syringe)
- Parenteral
  - Intramuscular
  - Subcutaneous
- Intranasal
- Needle-free injection
- Ocular
- Oral
- Spray/topical

VACCINE HANDLING
Maintaining a Cold Chain

- Stays within appropriate temperature range
- If not...
  - Loss of potency or effectiveness
  - Changes not visually apparent
- Refrigeration, freezing
  - Avoid freeze-thaw cycles
- Avoid light

Vaccine Storage Units

- Dedicated appliances to store vaccines
- Avoid door, drawer
- Limit door opening
- Monitor temperatures
- Secure power supply

Diluents

- May be stored separate from vaccine
- Guidelines for reconstitution
- Diluents are NOT interchangeable
  - Between vaccine types
  - Between manufacturers
  - Between lots

Maintaining Sterility in Multi-Dose Vials

- Do not remove rubber stopper
- Antiseptic before piercing
- New needle before piercing
- Do not submerge vial into melted ice/water
- Label when opening/reconstituting

Receiving Vaccines

- Inspect immediately upon arrival
  - 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
- Check for damage
- Expiration date
If the Cold Chain is Broken

- Any indication that a proper temperature has not been maintained:
  - Mark the vaccine “DO NOT USE”
  - Contact supervisor or other authority for further instructions
  - Do NOT immediately discard the vaccine unless directed to do so

Vaccination Strategies During an Outbreak

- Dependent upon
  - Scope of the outbreak
  - Objectives
  - Population at risk
  - Nature of the disease
  - Resource availability
  - Geographic considerations
  - Trade restrictions
  - Resource availability

Suppressive vs. targeted vaccination

Depopulation

PREVENTING DISEASE TRANSMISSION DURING VACCINATION

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

Preventing Disease Transmission During Vaccination

- Needle sticks
- Vaccine exposure
- Sharps disposal
- Animal hazards
  - Livestock handling, restraint
- Environmental hazards

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
Resources

- USDA Foreign Animal Disease Preparedness (FAD PReP) Guidelines: Vaccination for Contagious Diseases

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