Biosecurity:

Overview

During an animal health emergency, controlling the spread of diseases to other animals, premises and responders will be necessary.

Biosecurity

Biosecurity involves a series of management practices designed to prevent the introduction and spread of pathogenic agents onto or off of an animal production or housing premises.

- Prevent introduction into animal populations
- Prevent further spread to other animals, premises or responders

Biosecurity and ICS

- **Biosecurity Group Supervisor:** Ensure appropriate biosecurity measures implemented; Develops site-specific biosecurity plan
- **Biosecurity Team Members:** Front line assistance in containing and controlling outbreak
- **All responders should receive a biosecurity briefing upon arrival**

Basic Biosecurity Elements

- Awareness of importance
- Understanding of disease transmission routes
- Movement control and restriction
- Personal Protective Equipment
- Isolation of animals

Routes of Transmission

Pathogenic agents can be spread from animal-to-animal through a variety of ways.

Direct contact–physical contact of susceptible animal with infected animal or pathogen

Fomites–indirect transfer of pathogens by inanimate objects (e.g., equipment, clothing, footwear, vehicles)

Aerosol–inhalation of droplets containing pathogens

Oral–ingestion of pathogenic agents (e.g, contaminated food or water, licking or chewing on contaminated object

Vectors–spread by insects capable of transferring the pathogen (e.g., mosquito, biting midge)

Route of Transmission	Possible Biosecurity Measures
Direct Contact	Isolation of infected animals; personal protective equipment
Fomites	Cleaning and disinfection procedures; personal protective equipment
Aerosol	Isolation of infected animals; personal protective equipment
Ingestion	Cleaning and disinfection procedures
Vectors (e.g., insects)	Pest management procedures

Movement Control and Restriction

Movement control and restriction efforts will be necessary to minimize the spread of pathogens by any number of items, including infected animals, vehicles on the site, and even response personnel.

- **Animals**
  Movement restriction measures should include:
  - Any animals from a premises confirmed or suspected of the disease;
  - Any animals that have had contact with infected or suspected animals within at least 2 incubation periods of the disease of concern;
  - Any susceptible animals near the infected or suspected premises, until veterinary evaluation has occurred; **and**
  - Any transport vehicles that do not meet biosecurity standards (e.g., proper C&D measures).
- **Personnel**
  - Visitors to infected premises should be restricted or tightly controlled
  - Control movement on and off premises
  - Log book for those allowed to access
  - Post signs at premises boundary
- **Vehicles**
  - Potential fomite transfer
  - Park in designated areas away from animal locations
  - Clean and disinfect before entering and exiting premises

Personal Protective Equipment

- **Two functions**
  - Prevent further spread of disease off premises and between location on the premises
  - Protect responders in situations involving zoonotic diseases
- Don PPE prior to entry into area
- Once on infected premises, do not return to Cold Zone until PPE doffed:
  - Disposable items left on premises or placed in designated area
  - Clean/disinfect reusable items on site

Cleaning and Disinfection (C&D)

Establish for animal housing areas, vehicles, equipment and PPE used on the site. The proper C&D procedure is a 2-step process.

- **Cleaning**
  - Remove all organic matter (e.g., manure, dirt, feed, etc.)
  - Wash and rinse
- **Disinfection**
  - Use proper concentration
  - Allow proper contact time
  - Read safety precautions
  - Wear appropriate PPE

Vector Control

Insect vectors (e.g., mosquitoes, biting midges) capable of spreading disease agents will need to be control to limit the spread of some diseases.

- **Source reduction:** Prevent egg laying, minimize vegetation (e.g., mowing)
- **Control adults:** Insecticides (spraying, fogging, baiting)
- **Minimize animal interaction:** Screens on buildings, animal treatment

Wildlife Control

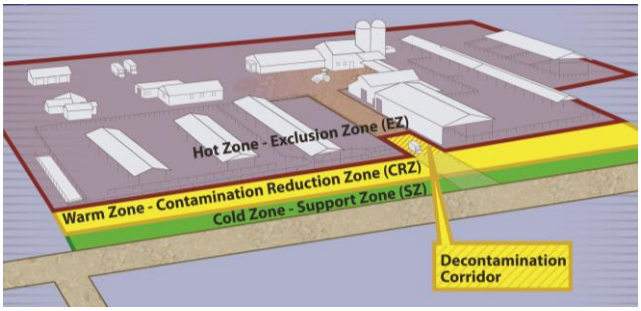
Wildlife may carry disease agents on and off of the property and infect additional susceptible animals.

- Keep animals isolated from wildlife contact
- Ensure boundary measures are checked regularly and maintained
- Store food in a way that does not attract wildlife

Biosecurity Work Zones

These work zones apply to personnel and vehicle traffic onto the site as deemed necessary.

- The **Hot Zone or Exclusion Zone (EZ):** potentially contaminated or unsafe area (e.g, infected animal premises). PPE must be worn in this area.
- The **Warm Zone or Contamination Reduction Zone (CRZ**): also a high risk area due to the potential for exposure to pathogens and chemical disinfectants. PPE must be worn in this area.
- The **Decontamination or Decon Corridor:** area between Hot Zone and Warm Zone. Personnel decontamination and equipment disinfection occurs here. Teams exit and enter the site through this corridor **(through Control Access Points)**.
- The **Cold Zone or Support Zone (SZ):** clean/ uncontaminated area of the site; should be no exposures to hazardous conditions; support functions are based here. Donning of PPE prior to entry into the Hot Zone occurs here.



Additional Resources

USDA Foreign Animal Disease Preparedness (FAD PReP) Biosecurity Guidelines
http://www.aphis.usda.gov/animal_health/emergency_management/downloads/nahems_guidelines/fadprep_nahems_guidelines_biosecurity.pdf

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