



# Biosecurity:

## Overview

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During an animal health emergency, controlling the spread of diseases to other animals, premises and responders will be necessary. This is accomplished through the use of biosecurity measures.

### Biosecurity

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A series of management practices to prevent the introduction and spread of pathogenic agents.

- **Bioexclusion:** prevent the introduction of disease onto a premises considered non-infected
- **Biocontainment:** Prevent disease spread off a premises considered infected

### Biosecurity and ICS

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- **Biosecurity Group of ICS**
- **Biosecurity Officer**
  - Experienced veterinarian or consults with one
  - Develops site-specific biosecurity plan
  - Trains personnel on biosecurity protocols
  - Ensures appropriate biosecurity measures used
- **Biosecurity Team Members**
  - Front line assistance in containing and controlling outbreak
- **All responders should receive a biosecurity briefing upon arrival**

### Routes of Transmission

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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)

### Basic Biosecurity Elements

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- Start biosecurity procedures quickly
- Awareness of biosecurity measures
- Understand disease transmission routes
- Prevent disease spread by
  - Movement of animals
  - Movement of personnel
  - Movement of equipment

### Movement Control and Restriction

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

- **Stop movements**
- **Movement restrictions**
  - Any animals from a premises confirmed or suspected of the disease;
  - Any animals that have had contact with infected or suspected animals;
  - Any susceptible animals near the infected or suspected premises; **and**
  - Any transport vehicles that do not meet biosecurity standards (e.g., C&D procedures).
- **Personnel**
  - Restrict access
  - Control movement on and off premises
  - Log book for those allowed to access
  - Post highly visible signage describing biosecurity protocols and designating Perimeter Buffer Area, Line of Separation, and Biosecurity Work Zones
- **Vehicles**
  - Park in areas away from animal locations
  - Clean and disinfect before entering and exiting premises

## Isolation

- **Infected or exposed animals should be housed in separate areas**
- **Proper carcass disposal of euthanized or dead animals.**

## 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**
  - Disposable Outerwear: Tyvek® coveralls, gloves, boot covers, masks
  - Reusable Outerwear: Cloth coveralls, rubber boots, goggles
- **Doff PPE before returning to Cold Zone**
  - Leave disposable items on premises or place in designated area
  - Clean/disinfect reusable items on site
- **Wash hands**

## Cleaning and Disinfection (C&D)

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 and Wildlife 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

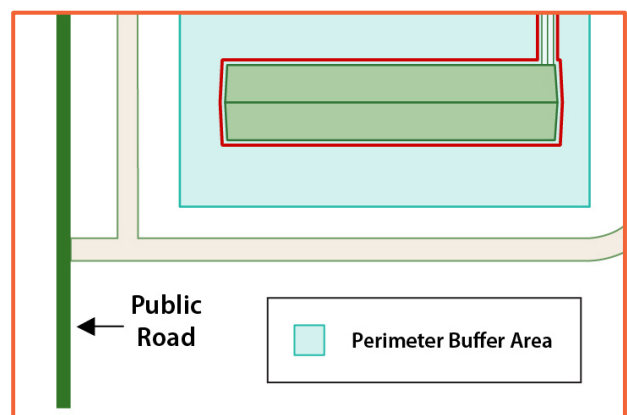
Wildlife may carry disease agents on and off of the property and infect additional susceptible animals.

- **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 Lines

On-site, biosecurity lines are established to act as a barrier to reduce the spread of disease on-site.

- **Perimeter Buffer Area (PBA)**, [light blue shading], is the outer control boundary set up around the perimeter of the premises or building to reduce the potential for contamination of the area around the buildings.
  - Designate PBA with fencing, flags, ropes
  - Non-essential vehicles should not enter
  - Vehicles and equipment that are not cleaned and disinfected should not enter
  - Personnel training on purpose and boundaries
- **Line of Separation (LOS)**, [red line around the green production barn], consists of the building walls separating the animals from the outside, and is established to isolate animals from potential disease sources.
  - Clearly marked line at entry site of building
  - Cleaning and disinfection protocols must be completed prior to movement across the LOS (entry and exit)



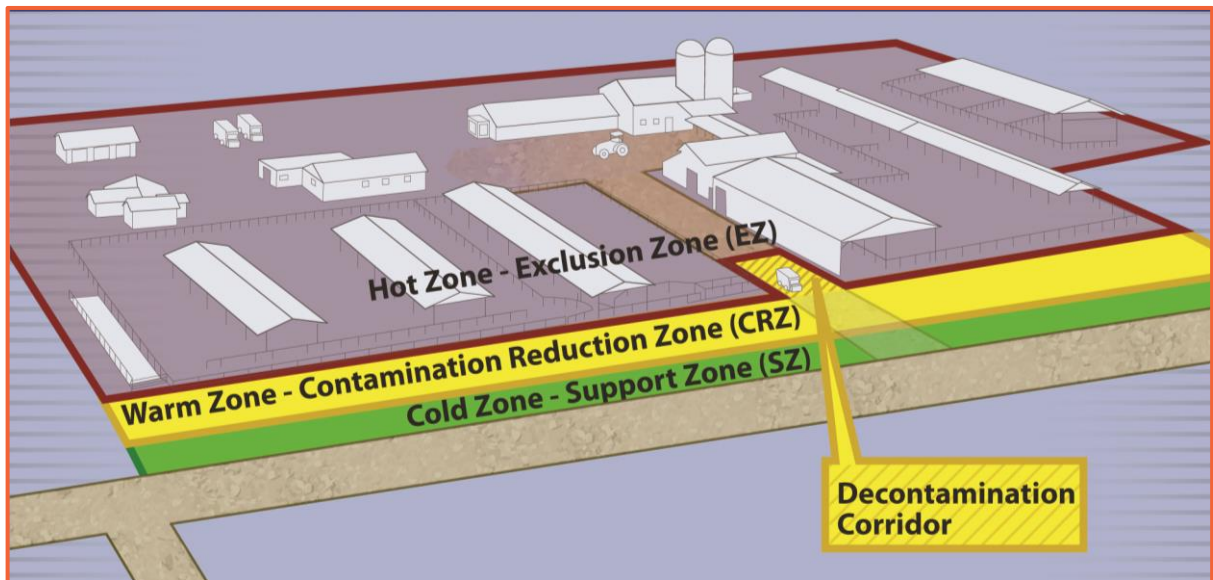
## Biosecurity Work Zones

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.

## Biosecurity Work Zones



## Additional Resources

USDA Foreign Animal Disease Preparedness (FAD PReP) Biosecurity Guidelines  
[http://www.aphis.usda.gov/animal\\_health/emrs/nahems.shtm](http://www.aphis.usda.gov/animal_health/emrs/nahems.shtm)

Poultry Biosecurity Officer Information Manual  
<http://www.poultrybiosecurity.org/>

Additional Just-In-Time Trainings  
<http://www.cfsph.iastate.edu/Emergency-Response/just-in-time-training.php>

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