Surveillance

During Animal Disease Emergencies
Overview

- Ongoing, systematic collection, analysis, and interpretation of health-related data
- Essential for planning, implementation, and evaluation
- Disease prevention and control measures

Role of Surveillance

- Estimate location and distribution
- Detect infected animals/premises
- Monitor changes
- Facilitate response planning
- Evaluate outbreak control strategies
- Prove location is free of the disease

What You Will Need To Know

- Target disease
  - Organism
    - Animal only
    - Zoonotic
  - Level of PPE
  - Biosecurity
  - Incubation period
    - Trace back
    - Trace forward
- Transmission route
  - Trace additional cases
  - How pathogen spreads
    - Animals
    - Fomites
    - Vectors

What You Will Need To Know

- Type of data needed
  - Visual Inspection
  - Diagnostic testing
  - Survey - Review records
    - Vaccination status
    - Environmental exposure
    - History

Data Collection

- Sample parameters
  - Susceptible animals
    - Including wildlife
  - Population size
  - Sampling method
  - Sample size
  - Sampling frequency
  - Sampling unit
    - Individual
    - Pooled samples
Case Definition

- Clinical criteria
  - Clinical signs in individuals
- Epidemiological criteria
  - Mortality rates
  - Morbidity rates
- Laboratory criteria
  - Screening test
  - Confirmatory test
- Definition should include
  - Species
  - Location
  - Time

Just In Time Training for Animal Health Emergencies Surveillance During Animal Health Emergencies:

Case Classification

- Negative Case
  - No clinical signs
  - No positive lab results
- Suspect Case
  - Has clinical signs
  - No confirmed lab result
- Presumptive Positive Case
  - Has clinical signs
  - Has a positive lab result
- Confirmed Positive Case
  - Agent has been isolated and identified

Case Classification and Case Definition Example

- Highly Pathogenic Avian Influenza (HPAI)
  - Suspect Case
  - Bird/animal with clinical signs consistent with HPAI
  - Presumptive Positive Case
  - Bird/animal with clinical signs consistent with HPAI AND a positive laboratory result AND additional epidemiology indicative of HPAI
  - Confirmed Positive Case
  - Bird/animal that has clinical signs consistent with HPAI AND from which HPAI was isolated and identified in a USDA laboratory

Premises Classification

- Infected Premises
  - A presumptive positive or confirmed positive case exists
- Contact Premises
  - Susceptible animals exposed directly or indirectly to IP
- Suspect Premises
  - Susceptible animals under investigation for clinical signs compatible to case definition
- At-Risk Premises
  - Geographically close to infected premises
  - Susceptible animals but none have clinical signs compatible with disease
- Free Premises
  - No contact with infected premises and no suspect case

Contact Tracing

- Trace-backs
  - Tracing origin of animals brought onto infected premises
- Trace-forwards
  - Tracing locations of animals that have left infected premises and might be infected
Contact Tracing

- Complete contact tracing will include:
  - Animals
  - Vehicles
  - People
  - Food products
  - Animal products
- Take into account modes of transmission

Biosecurity and Safety

- Biosecurity:
  - Prevent spread
- Safety:
  - Zoonotic disease
- Personal Protective Equipment:
  - Coveralls, boots, gloves
  - Zoonoses: masks or respirators
  - Sample collection: goggles or face shield
- Disinfection

Public Interaction

- Access to private premises:
  - Owners may react differently
- Guidelines:
  - Travel in teams
  - Cell phones are necessary
  - Introduce yourself and purpose
  - Avoid confrontation
  - Leave if safety concerns exist

References

- USDA Resources for Conducting Animal Health Surveillance
  - Surveillance and Data Standards
  - Guidelines for Developing Animal Health Surveillance Plans
    - [http://www.aphis.usda.gov/vs/nahss/resources.htm](http://www.aphis.usda.gov/vs/nahss/resources.htm)

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