


Surveillance During Animal Disease Emergencies Overview




Surveillance

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

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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



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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

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What You Will Need To Know

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

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Data Collection

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



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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

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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

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Case Classification and Case Definition Example

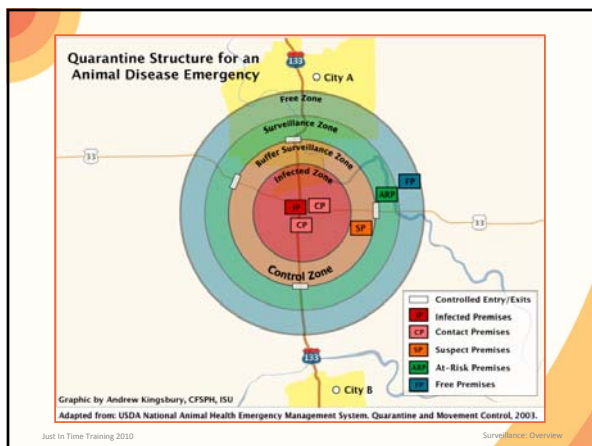
- Highly Pathogenic Avian Influenza (HPAI)
 - **Suspect Case**
 - Bird/animal with clinical signs consistent with HPAI
 - **Presumptive Positive Case**
 - Bird/animal with clinical signs consistent with HPAI **AND** a positive laboratory result **AND** additional epidemiology indicative of HPAI
 - **Confirmed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

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Premises Classification

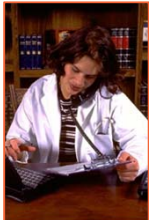
- **Infected Premises**
 - A presumptive positive or confirmed positive case exists
- **Contact Premises**
 - Susceptible animals exposed directly or indirectly to IP
- **Suspect Premises**
 - Susceptible animals under investigation for clinical signs compatible to case definition
- **At-Risk Premises**
 - 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

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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



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Contact Tracing

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



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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



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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

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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>
- Animal Disease Surveillance Survey Systems, MD Salman Editor. 2003. Blackwell Publishing, Ames


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