Disease Reporting In Ohio
Linking animal and human health

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Bureau of Infectious Disease Control
Ohio Department of Health

“One Medicine”
Coined by Calvin Schwabe in the 1960s to focus attention on the commonality of human and veterinary health interests.
One medicine is the science of health and disease without considering species differences between humans and animals.
This approach has added value which could not be achieved by each discipline alone.

Zoonotic Diseases
- Diseases that are transmitted from animals to humans

Animal Health
Public Health
Human Health

Animal Diseases & Human Health
- 62% of known human infectious diseases have an animal origin (877/1,415 diseases)
- 75% of emerging pathogens are considered zoonotic
- Over 50% of the Class A & B Agents are zoonotic

Animal Diseases: Bioterrorism Agents

Class A Agents
- 83% Zoonotic
  - Anthrax
  - Botulism
  - Plague
  - Smallpox
  - Tularemia
  - Viral Hemorrhagic fevers

Class B Agents
- 54% Zoonotic
  - Brucellosis
  - Glanders
  - Melioidosis
  - Psittacosis
  - Q Fever
  - Ricin
  - Typhus fever
  - Viral encephalitis
  - Toxins
  - Food Safety Threats
  - Water Safety Threats

Who is Monitoring Animal Diseases in Ohio

PRIMARY
Ohio Department of Agriculture
USDA, APHIS Veterinary Services

SECONDARY
Ohio Department of Natural Resources
Ohio Department of Health
USDA, APHIS Wildlife Services
OSU College of Veterinary Medicine
Ohio Veterinarians
Veterinary Oath

I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of livestock resources, the promotion of public health and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

Mission Statements

ODNR

dedicated to conserving and improving the fish and wildlife resources and their habitats, and promoting their use and appreciation by the public so that these resources continue to enhance the quality of life for all Ohioans.

ODA

to provide regulatory protection to producers, agribusinesses and the consuming public; to promote Ohio agricultural products in domestic and international markets; and to educate the citizens of Ohio about our agricultural industry.

ODH

to protect and improve the health of all Ohioans by preventing disease, promoting good health and assuring access to quality health care.

How we are different

<table>
<thead>
<tr>
<th>ODNR</th>
<th>ODA</th>
<th>ODH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus: Wildlife – Protect fish &amp; game</td>
<td>Focus: Livestock – Safe food supply – Protect markets</td>
<td>Focus: People – Transmission to Humans – Animals as reservoirs sentinels</td>
</tr>
<tr>
<td>Regulation – Controlled hunting</td>
<td>Regulation – Movement – Quarantine – Euthanasia</td>
<td>Management – Standards – Local enforcement</td>
</tr>
<tr>
<td>Regional Reporting</td>
<td>Centralized Reporting</td>
<td>Local Reporting</td>
</tr>
<tr>
<td>Respond to events</td>
<td>Lab Confirmed</td>
<td>Suspect cases</td>
</tr>
<tr>
<td>Public Record</td>
<td>Public Record</td>
<td>Confidentiality</td>
</tr>
</tbody>
</table>

Disease Surveillance & Control

How we are similar

Animal Health
- Herd Health
- Biosecurity
- Agroterrorism
- Dangerously Contagious & Infectious Diseases
- Practice Epidemiology

Human Health
- Population Medicine
- Infection Control
- Bioterrorism
- Reportable Diseases
- Practice Epidemiology

EPIDEMIOLOGY

The study of disease and spread of disease in a community

- Why apply epidemiology to animal diseases
  - Good Surveillance = Early recognition = timely response
  - Identify causation to implement prevention measures
  - Way to measure prevention success

- Knowing background disease prevalence is critical in order to identify the abnormal.

- Having a denominator
  - Diseased individual/population (rates)
  - Lab positive/number tested (% positive)
  - Compare with other populations (National average)

Who is Interested in What Diseases?

- USDA; Veterinary Services
  - Foreign Animal Diseases & Regulatory diseases (mandatory)
  - OIE List (voluntary)

- Ohio Department of Agriculture (mandatory)
  - List of Dangerous & Contagious Diseases
  - Regulated conditions of livestock (brucellosis, TB)
  - Foreign Animal Disease (FAD)

- ODNR: Division of Wildlife (voluntary)
  - Unusual morbidity & mortality

- State & Local Public Health (mandatory)
  - List of reportable diseases of humans
  - Animal Rabies
An accredited veterinarian shall immediately report to the Veterinarian-in-Charge and the State Animal Health Official all diagnosed or suspected cases of a communicable animal disease for which a APHIS has a control or eradication program in 9 CFR chapter I, and all diagnosed or suspected cases of any animal disease not known to exist in the United States as provided by Sec. 71.3(b) of this chapter.

Diseases Notifiable to the OIE

- Multiple species diseases (23)
- Cattle (15)
- Sheep & Goat (11)
- Equine (11)
- Swine (9)
- Avian (14)
- Lagomorph (2)
- Bees (6)
- Fish(10)
- Molluscs (7)
- Crustaceans (7)
- Other (2)

Diseases Notifiable to the OIE Examples

- Multiple species
  - Anthrax, Bluetongue, Brucellosis, FMD, Leptospirosis, Screwworm, Q Fever, Rabies, RVF, Trichinellosis, Tularaemia, VS, WN fever
- Cattle
  - Anaplasmosis, Babesiosis, BSE, TB, BVD, IBR, MCF
- Sheep & Goats
  - Caprine arthritis, Pleuropneumonia, Chlamydia, B. ovis, Scrapie, Pox, Salmonella abortusovis
- Equine
  - African horse sickness, CEM, Dourine, EEE, WEE, Influenza, Rhinopneumonitis, EVA, Glanders
- Swine
  - African Swine Fever, Hog Cholera, Nipah, Cysticercosis, PRRS, SVO, TGE

Animal Diseases Having an APHIS Control or Eradication Program

<table>
<thead>
<tr>
<th>Disease</th>
<th>Species considered in program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brucellosis</td>
<td>swine, bovine, cervidae</td>
</tr>
<tr>
<td>Chronic Wasting Disease</td>
<td>Cervidae (deer, elk)</td>
</tr>
<tr>
<td>Equine Infectious Anemia</td>
<td>Equine</td>
</tr>
<tr>
<td>Equine Viral Arteritis</td>
<td>Equine</td>
</tr>
<tr>
<td>Johne's</td>
<td>bovine</td>
</tr>
<tr>
<td>Pseudorabies</td>
<td>swine</td>
</tr>
<tr>
<td>Scrapie</td>
<td>ovine and caprine</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Bovine and cervidae</td>
</tr>
</tbody>
</table>

ODA, Animal Industry (ORC 901:1-21-02)

Dangerously Contagious or Infectious Diseases

- Anthrax
- Bluetongue (ovine, caprine)
- Brucellosis (Brucella abortus, Brucella melitensis, Brucella suis)
- Ceratomyxosis
- Contagious equine metritis
- Eastern equine encephalomyelitis
- Equine infectious anemia
- Foot and mouth disease
- Foot typhoid
- High path avian influenza
- Hog cholera
- Infectious encephalomyelitis (poultry)
- Infectious hematopoetic necrosis
- Infectious laryngotracheitis (other than vaccine induced)
- Infectious pancreatic necrosis
- Infectious salmon anemia
- Mycoplasma gallisepticum, turkeys
- Mycoplasma synoviae, swine
- Mycoplasma synoviae, turkeys
- Mycoplasma synoviae, turkeys
- Poultry (chlamydiosis or mycoplasmosis)
- Poultry paramyxovirus (other than Newcastle)
- Proliferative kidney disease
- Pseudorabies (Aujeszky's disease)
- Psoroptic cattle scabies
- Psoroptic sheep scabies
- Rabies
- Scrapie
- Salmonella pullorum
- Transmissible spongiform encephalopathies
- Tuberculosis (mycobacterium bovis)
- Viral hemorrhagic septicaemia
- Vesicular exanthema
- Venezuelan equine encephalomyelitis
- Whirling Disease

Ohio Department of Natural Resources
Division of Wildlife

- Authorities limited to animals indigenous to Ohio
- Report to District Wildlife Officer or Region Office
  - Unusual die off of birds and game animals
  - CWD in deer
  - Illegally acquired animals

1-800-Wildlife
Ohio Department of Health
Zoonotic Disease Program

- Reporting Initiated at the local level
  - Local health department, to ODH, to CDC
  - City & County LHD listings
    http://www.odh.ohio.gov
- Veterinary required to report
  - Mammal bites (rabies exposures)
  - Both human & domestic animals
  - Rabies Suspect Animals
  - Suspect human cases of reportable diseases (Psittacosis, Leptospirosis, Brucellosis)

Ohio Public Health Regions

Public Health Animal Disease Surveillance
Rabies

Ohio Animal Rabies

Bats
Skunks
Raccoons
Other Animals

Public Health Animal Disease Surveillance
Animal Bites
as reported to Ohio local health departments, 2005 (N = 19,522)

Public Health Animal Disease Surveillance

Tick-borne Diseases

Ixodes scapularis
aka ‘Deer Tick’ or ‘Black-Legged Tick’
21 collected from 16 Ohio counties

1987 – Present

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Dogs and Cats Involved in Human Bites/Rabies Exposures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Bite Rate *</td>
<td>169</td>
<td>179</td>
</tr>
<tr>
<td>% Dogs Owned</td>
<td>86%</td>
<td>88%</td>
</tr>
<tr>
<td>% Cats Owned</td>
<td>67%</td>
<td>58%</td>
</tr>
<tr>
<td>% Dogs Vaccinated</td>
<td>44%</td>
<td>57%</td>
</tr>
<tr>
<td>% Cats Vaccinated</td>
<td>30%</td>
<td>37%</td>
</tr>
</tbody>
</table>

* per 100,000 human population
Public Health Animal Disease Surveillance
West Nile Virus


<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human cases</td>
<td>108</td>
<td>12</td>
<td>61</td>
</tr>
<tr>
<td>Fatalities</td>
<td>8 (7.4%)</td>
<td>2 (16.7%)</td>
<td>2 (3.3%)</td>
</tr>
<tr>
<td>Positive counties</td>
<td>44</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Mosquitoes tested</td>
<td>488,033</td>
<td>398,832</td>
<td>390,010</td>
</tr>
<tr>
<td>Pools tested</td>
<td>19,863</td>
<td>14,202</td>
<td>14,705</td>
</tr>
<tr>
<td>Positive pools</td>
<td>796 (4.1%)</td>
<td>874 (6.2%)</td>
<td>1,373 (9.3%)</td>
</tr>
<tr>
<td>Birds tested</td>
<td>2,611</td>
<td>3,286</td>
<td>1,817</td>
</tr>
<tr>
<td>Positive birds</td>
<td>249 (9.5%)</td>
<td>107 (3.3%)</td>
<td>84 (4.6%)</td>
</tr>
<tr>
<td>Horses tested</td>
<td>327</td>
<td>145</td>
<td>84</td>
</tr>
<tr>
<td>Horses positive</td>
<td>106 (32.4%)</td>
<td>9 (6.2%)</td>
<td>15 (17.0%)</td>
</tr>
</tbody>
</table>

Bird Surveillance

Surveillance for West Nile virus – Ohio Department of Health
• Songbirds
• Spring and Summer focus

Surveillance for Avian Infection
• Primarily involves waterfowl and poultry
• Ohio Department of Agriculture
• Poultry, backyard flocks, pet birds
• ODA and USDA Wildlife Services (ODA testing)
• Wild birds
• Fall and Winter focus
• Plans still being developed, all in progress

Ohio Animal Disease Reporting Workgroup
Ohio Department of Agriculture
Ohio Department of Natural Resources
USDA,APHIS Veterinary Services
USDA,APHIS Wildlife Services
OSU College of Veterinary Medicine
Ohio Veterinary Medical Association

More timely information sharing & Collaboration
Enhanced animal disease reporting
Early recognition = Early response

OADRW Initiatives

• Create a Memorandum of Understanding between cooperators to share information and work together
• Enhance animal disease surveillance in Ohio
  – This conference
  – Survey of Ohio Veterinarians
  – Explore novel avenues for animal syndromic surveillance
  – Develop a disease reporting reference document
  – Develop and pilot a web-based animal disease reporting module

Reporting Reference Document

<table>
<thead>
<tr>
<th>Condition or Disease</th>
<th>Reporting Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthrax</td>
<td>Clinically suspected cases in any livestock are to be immediately reported to ODA. Any suspected human illness or positive laboratory result is required to be reported to the LHD immediately.</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>Clinically suspected cases in livestock are to be immediately reported to ODA. Voluntary reporting to the Ohio Brucellosis Program via telephone or fax is encouraged, especially where potentially infected animals may enter the pet market. Any suspected human illness or positive laboratory result is to be reported to the LHD.</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>Reporting of a confirmed case in livestock to ODA via telephone is on a voluntary basis. Voluntary reporting of presumptive/confirmed cases in pets is recommended to the LHD when there are human health concerns. By humans, any suspected human illness or positive laboratory result is to be reported to the LHD.</td>
</tr>
<tr>
<td>Lyme disease</td>
<td>Reporting of presumptive/confirmed animal cases to the local health department is voluntary. Lumbar punctures and cerebrospinal fluid examination may be useful for identifying areas where infected ticks may be present. Lyme disease also infects humans; human cases are required to be reported to the local health department.</td>
</tr>
</tbody>
</table>
Fact Sheet Structure
- Reporting Information
- Clinical description
- Lab Testing
- Case definition
- Comments
- For additional Info

Animal Disease Reporting Web Site
Basic Requirements
- Meet multiple agency needs
  - Voluntary and mandatory reporting
- Have value to reporters
  - Timely summary reports
  - ID diseases that are important to practitioners
- Must be a secure site
- Compatible with existing/future systems
- Avoid identifiers unless necessary
- Must be user friendly (simple & quick)

OADRS Core Fields
- Report on clinical signs
- Administrative ID
- Species
- Breed
- Sex
- Age
- Production Class
- Number Sick
- Number Dead
- Total Species Group
- Disease Differential
- Other Differential
- Major Clinical Signs
- Other Clinical Signs
- Location
- Zip Code
- To Lab Screen
- Case Management

Query & Reports
- Annual summaries
- Reporters have access to own information
- Reporters create simple customized reports
  - Query by geographic area, disease, time, and species

OADRWG Status Report
- MOU – last signatory
- Veterinary Survey & Reporting document
  - End of year
- Web Reporting
  - Pilot 2007
  - Any Volunteers?
- New Focus
  - Avian Influenza

Questions?
Disease Reporting In Ohio
Linking animal and human health