Local Response to Zoonotic Disease Outbreaks: Tabletop Scenario Exercise Training

3RD Edition

A Way In

Connecting the Dots

With support from:
The Ohio State University Extension and The Centers for Disease Control and Prevention
OBJECTIVES

✓ Prepare human and animal health professionals and local responders for a major zoonotic disease outbreak with significant impact at the local level

✓ Discuss the roles/responsibilities of different agencies and professionals during the early stages of a major outbreak involving human and animal disease, with serious public health and agricultural implications

✓ Prepare for trending social media/public panic and to respond to familiar, unfamiliar, suspicious, and potentially significant circumstances at the local level

✓ Provide an environment conducive to networking and connection-building amongst participants from multiple disciplines and backgrounds

Demographics by Discipline

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>34</td>
</tr>
<tr>
<td>EMA</td>
<td>25</td>
</tr>
<tr>
<td>EMS</td>
<td>3</td>
</tr>
<tr>
<td>Fire</td>
<td>4</td>
</tr>
<tr>
<td>Government Administration</td>
<td>3</td>
</tr>
<tr>
<td>Higher Education</td>
<td>5</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
</tr>
<tr>
<td>Public Health</td>
<td>239</td>
</tr>
<tr>
<td>Public Safety Communication</td>
<td>1</td>
</tr>
</tbody>
</table>

>400 PH Professionals Trained
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 PM</td>
<td>Welcome and Program Description</td>
<td>Drs. Harpster &amp; Hoet</td>
</tr>
<tr>
<td>1:10 PM</td>
<td>Zoonosis 101 - Ohio Reporting System</td>
<td>Dr. Hoet</td>
</tr>
<tr>
<td>1:20 PM</td>
<td>State and Federal Agencies Involved in Zoonotic Outbreaks and Response in Ohio</td>
<td>Drs. Singh, Summers &amp; Skorupski</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Scenario Description and Logistics</td>
<td>Dr. Harpster</td>
</tr>
<tr>
<td>1:45 PM</td>
<td><em><strong>Break</strong></em></td>
<td></td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Discussion of Scenario #1</td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td>- Break into Groups</td>
<td></td>
</tr>
<tr>
<td>3:10 PM</td>
<td><em><strong>Break</strong></em></td>
<td></td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Discussion of Scenario #2</td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td>- Break into Groups</td>
<td></td>
</tr>
<tr>
<td>4:15 PM</td>
<td>Groups Report Out on Scenarios</td>
<td>Participants</td>
</tr>
<tr>
<td>4:40 PM</td>
<td>Summary of the Scenarios</td>
<td>Dr. Hoet</td>
</tr>
<tr>
<td>4:55 PM</td>
<td>Closing Remarks</td>
<td>Dr. Harpster</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>
Zoonoses 101
&
Ohio Reporting System
ZOONOSES 101

CLASSIFICATION OF HUMAN COMMUNICABLE DISEASES BASED ON SOURCE OF INFECTION

Anthroponoses

Sapronoses

Zoonoses

Human Reservoir

Environmental Reservoir
ZOONOSES (Greek “zoon” = animal, “noses” = diseases) are diseases and infections that are transmissible under natural conditions between vertebrates animals and humans.

1. A Vertebrate Animal as Reservoir

2. Infectious Agent

3. A Susceptible Human

4. Transmission under Natural Conditions

RABIES
UK’s ‘Zika’ affects 1 in 1,000 babies

A fourth person in Massachusetts has contracted EEE, the rare but dangerous mosquito-borne virus

Several mosquito pools in Franklin County latest positive for West Nile virus

'Superbug' fears: Drug-resistant Salmonella confirmed

STOPPING EBOLA
THE RISKS AND REALITIES OF THE OUTBREAK
REPORTING ZOONOTIC DISEASES IN OHIO

In Ohio, over 45 to 49% of human diseases reportable to the Ohio Department of Health are considered zoonoses and declared to be dangerously contagious and infectious to the public health.

REPORTING ZOONOTIC DISEASES IN OHIO

Human with Reportable Communicable Disease

- WHO
- FDA
- CDC
- ODH
- LOCAL HEALTH DISTRICTS
REPORTING ZOONOTIC DISEASES IN OHIO

Human with Reportable Communicable Disease

- Doctor or Public Health Professional
  - Class A => Immediately
  - Class B => Weekly
  - Class C => Only in Outbreaks

Local Health District

Ohio Department of Health

CDC

WHO

Rabid Animal

Veterinarian

Human Exposure to Important Zoonosis

CDC

Trigger investigation and intervention

Trigger intervention and reporting in the Ohio Disease Reporting System (ODRS)

Trigger support, intervention**, and reporting in the Morbidity and Mortality Weekly Report (MMWR)

Trigger support, and reporting to member countries
### Reporting Zoonotic Diseases in Ohio

32% of agricultural relevant animal diseases reportable to the Ohio Department of Agriculture are considered zoonoses.
REPORTING ZOONOTIC DISEASES IN OHIO

Animal with Reportable Communicable Disease

OIE

USDA APHIS

ODA

Farmers and Veterinarians
REPORTING ZOONOTIC DISEASES IN OHIO

Animal with Reportable Communicable Disease

Farmer
Veterinary Practitioner

Veterinary Medical Officers (VMO)
Ohio Department of Agriculture
USDA-APHIS-VS Ohio

USDA-APHIS-VS

OIE

Trigger investigation and intervention
Trigger intervention and reporting in the National Animal Health Reporting System (NAHRS)
Trigger support and reporting to member countries

Reportable Disease or Foreign Animal Disease
REPORTING ZOONOTIC DISEASES IN OHIO

ODA and USDA,APHIS,VS Cooperative Programs
Veterinary Medical Officer Assignments

9 Veterinary Medical Officers (VMO)
10 Animal Health Technicians (AHT)

State Veterinarians
USDA-APHIS-VS Assistant Director

Dr. Rosspert
Dr. Yoakam
Vacant

Dr. Spellmire
Dr. Davis
Dr. Ita
Dr. Frew

Dr. Carey
Dr. Wildeh

Hively
Luginbill
Reynolds
Sims
Young
WHO DO YOU CALL IN CASES OF ANIMAL ASSOCIATED ISSUES IN OHIO?
1. Provide veterinary expertise in regards to domestic animal issues

2. Rabies in humans and animals
   - Consultations, exposure recommendations
   - Support USDA Wildlife Services with Oral Rabies Vaccination Program

3. Vector borne disease surveillance and control
4. **Assist with human reportable zoonotic investigations and outbreaks**

5. **Provide public health perspective to veterinary/ agriculture professionals**

6. **Develop Ohio-specific Policy and Recommendations**

7. **Training & Public Education on Zoonotic Diseases**
   
Protect and promote the health and safety of Ohio’s livestock and poultry industries

1. Control and eradicate Reportable Animal Disease in Ohio

2. Provides Veterinary Diagnostic Laboratory Services
   • Animal Disease Diagnostic Laboratory (ADDL)

3. Perform Foreign Animal Disease (FAD) Investigations

4. Provides quick response in the event of an reportable animal disease outbreak
5. In Charge of **Livestock Care Standards**

6. Control of **Agricultural Animal Movement**

7. Enforcement of the **Ohio Dangerous Wild Animal Act**

8. Enforcement of the **Commercial Dog Breeders Act**
   - High Volume Dog Breeder and Dog Retailer Licensing
   - Registration of Dog Rescues

8995 East Main Street. Reynoldsburg, OH 43068-3399  animal@agri.ohio.gov
9. Mortality Disposal (of agricultural animals)
10. Surveillance of Chronic Wasting Disease in cervids

Dennis M. Summers, DVM, DACVPM
Asst. State Veterinarian
Acting-Chief, Division of Meat Inspection
1. Control and eradicate National Reportable Animal Disease

2. Investigation of possible Foreign and Emerging Animal Diseases

3. Protection and enhancement of International Trade (Control of Animal Importation and exportation)
1. Primary organization to Respond to “All Hazards” Emergencies involving animals - Federal Level

A. Traditional Role on Supporting State/Local Efforts
   • Trained personnel
   • Funding/Indemnity
   • Equipment/Supplies
   • Emergency Response Expertise
   • Data management System
   • Other Resources
1. Primary organization to Respond to “All Hazards” Emergencies involving animals - Federal Level

B. Shared Leadership/Shared Response (State Counterpart)

C. Primary Responder
   • Secretarial/ Presidential Emergency Declaration
- FBI Cleveland Division (CV):
  - Northern 40 Counties
  - SA Seamour
- FBI Cincinnati Division (CI):
  - Southern 48 Counties
  - SA Maier
- Contact either as needed
FBI Roles and Responsibilities – Agroterrorism

FBI is dual-hatted: investigations and intelligence

• Lead agency for acts of terrorism and WMD – working with USDA and ODA (others)
• Intent, attempts, and hoaxes

FBI HQ (WMD Directorate and Lab) supports the Field (WMD Coordinators)
FBI Roles and Responsibilities – Agroterrorism

Threat Credibility Evaluations (TCE)
• Conducted with partner agencies (LE, PH, Ag, others as needed)
• Assess credibility and impact of threat (and if necessary, determine response)

Early notification and interagency communication is key
• Informal contacts and relationships mutually beneficial
ANY QUESTIONS?
Scenario Description and Logistics
Background

Scenario

• Interactive tabletop exercises ➤ realistic zoonotic disease outbreak scenarios

• Focused on early stages of an outbreak involving a mysterious infectious agent of unknown origin

• Follow a timeline of events until response enter in full mode
Throughout the timeline, a question(s) pertaining to the appropriate public health response are posed.

Participants will discuss the issue presented to them from their points of view, expertise and/or experience.
• A facilitator in each group will help the participants to examine the facts and analyze the situation

• The facilitators will provide the ideal answer/decision based on:
  • Expert opinions / heads of official agencies
  • The law and Regulations
  • Emergency Plans

QUESTION #1
IS THIS OF PUBLIC HEALTH CONCERN THAT REQUIRES FURTHER ATTENTION? WHY OR WHY NOT?
Group Discussions

• Form **groups of 6 people**
  • Groups will be formed by counting off

• After introductions, each group must designate
  * A Reader
  * A Presenter/Scribe

• Each person should answer questions in the scenario
  • Whomever has the prop must speak!
INSTRUCTIONS

Group Discussions

• Each group will be assigned their own room or space

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td><strong>Discussion of Scenario #1 - Break into Groups</strong></td>
<td>Participants</td>
</tr>
<tr>
<td>3:10 PM</td>
<td><em><strong>Break</strong></em></td>
<td></td>
</tr>
<tr>
<td>3:20 PM</td>
<td><strong>Discussion of Scenario #2 - Break into Groups</strong></td>
<td>Participants</td>
</tr>
<tr>
<td>4:15 PM</td>
<td><strong>Groups Report Out on Scenarios</strong></td>
<td>Participants</td>
</tr>
</tbody>
</table>
Closure or Wrap up Session

• After concluding the scenario:
  • Each group will have 2-3 minutes (max!!) to answer these questions:
    • Who needed to be involved? (both from the public health and veterinary sides)
    • What did you learn about the situation?
    • What was the main lesson to take away from this exercise?
Group Discussion
Groups Report
on Scenarios
For RIFT VALLEY FEVER

• In 2-3 minutes:
  • Who needed to be involved? (both from the public health and veterinary sides)
  • What did you learn about the situation?
  • What was the main lesson to take away from this exercise?
GROUPS REPORT ON SCENARIOS

For AVIAN INFLUENZA

- In 2-3 minutes:
  - Who needed to be involved? (both from the public health and veterinary sides)
  - What did you learn about the situation?
  - What was the main lesson to take away from this exercise?
Closure or Wrap up Session
A Way in ....

Rift Valley Fever
Human-Public Health Response

Hospital calls LHD:
- Girl patient has VHF signs
- Family has traveled to Africa
- Report suspect case
- Sample submitted to CDC

Aug. 1st (F) 2:00PM

Aug. 4th (M) 11:00AM

Aug. 4th (M) 4:00PM

Aug. 5th (T) 8:00AM

Aug. 8th (F) 9:00AM

Aug. 11th (M) 8:00AM

Aug. 13th (W) 12:00PM

Wildlife Surveillance

Animal - Ag Response

Multi-agency meeting held
EOC & JIC start
All agencies begin their response
Mass press release JIC; mounting rumors

Siblings & Farm workers test RVF (+).
Other trip members being interviewed

Multi-agency meeting
No bioterrorism
Suspect AUTOCHTHONOUS OUTBREAK

Public calling wanting to cancel events
Edu. risk reduction
Vector mitigation

Support Surveillance

“Girl at the City Hospital has Ebola”
“VHF is a hospital with very high fever. It’s in Africa.”
“Don’t go near the hospital; someone has Ebola!”
“Tried to avoid the hospital; heard the same rumors: ‘heavily infected.”
“Haven’t we got Ebola here?”

“Haven’t we got Ebola here?”

CDC confirms RVF (+)
Call agencies to set up meeting
LHD begins investigation with thorough interview: Multiple key clues discovered

RVF (+)
Control measures
FAD Plan implemented
OIE notified

“O.D.A & USDA VS visit farm & collect RVF samples
No cattle movement in Hx or new additions

“ODA & USDA VS visit farm & collect RVF samples
No cattle movement in Hx or new additions

Wildlife Surveillance

Cont. Surveillance

“A kid at the City Hospital has Ebola!”
“I heard there’s a person with weird bleeding disease at City Hospital who was in Africa”
“Don’t go near City Hospital ‘cuz someone has Ebola!”
“I heard doctors called the CDC because someone has Ebola”
“How did we get Ebola here?”
A WAY IN FOR RVF:

Early May 2018
OH Dairy Farm Has Drop in Milk Production, Increase in Abortion Rates, Increased Calf Mortality.

4H lambs acutely ill, died

June 2018
July 2019

December 2019

August 2019
OH Dairy Farm Has Drop in Milk Production, Increase in Abortion Rates, Increased Calf Mortality.

4H lambs acutely ill, died

Hospital calls LHD:
- Girl patient has VHF signs
- Family has traveled to Africa
- Report suspect case
- Sample submitted to CDC

Aug. 1st (F)
2:00 PM

Aug. 4th (M)
11:00 AM
Objectives

RVF as a model:

- Response to a Zoonotic, vector-borne, agricultural related disease
- Minimized agricultural and economic impact of a FAD
- Prevent it for becoming endemic in wildlife; vector control
- How to manage social media panic to Zoonotic/FAD

- Foreign animal disease
- Viral Hemorrhagic Fever
- USDA, HHS – Select Agent
- Susceptible hosts:
  - Sheep, cattle, goats, wild ruminants, humans
- Primary Vector:
  - Mosquitoes (Aedes, Culex)
- Human infection:
  - Mosquito bites, exposure to animal tissue/blood
A WAY IN FOR RVF RESEARCH...

Rift Valley fever virus and European mosquitoes: vector competence of Culex pipiens and Stegomyia albipicta (= Aedes albopictus)

M. Brustolin, S. Talavera, A. Hunez, C. Santamaria, N. Jaffar, D. de la Rua, A. Gaitán, M. Robledo, A. Tellez, A. Martin

Planning for Rift Valley fever virus: use of geographical information systems to estimate the human health threat of white-tailed deer (Odocoileus virginianus)-related transmission

Sravan Kakani, A. Desirée LaBeaud, Charles H. King

Center for Global Health and Diseases, Case Western Reserve University, Euclid Avenue, Cleveland, OH 44106-7286, USA
Planning for Rift Valley Fever (RVF) requires accurate information systems to estimate the human health threat of white-tailed deer (Odocoileus virginianus)-related transmission.

Sravan Kakani, A. Desirée LaBeaud, Charles H. King

Center for Global Health and Diseases, Case Western Reserve University, Euclid Avenue, Cleveland, OH 44106-7286, USA
Connecting the Dots
Avian Influenza
Agroterrorism
Press release
Personnel monitoring expanded to all premises
3 individuals ill – flu A tests positive
Testing submitted for subtyping

LHD receives call from ODH
Begins Flu monitoring in people exposed
Now personnel from 5 farms needs to be monitored
250 people

Local HD, ODH, ODA, EMA, CDC, USDA, local authorities, FBI Conference

Subtyping results – Human Influenza A (H3N2)

Sept 1

Sept 4

Sept 5

Sept 6

Aug 29

Morbid./Mort. continue to increase
ODA informed
AI testing submitted

H7 (+) => ODA, ODH, Authorities conf. call
Possible intentional release => disgruntled employee?
Need to monitor for human cases.
Animal response underway

5 farms now H7 (+)
Tire tracks, trespassing events, UNKNOWN carcasses found
Law enforcement contacted

Original farm: HPAI H7N9 AGROTERRORISM SUSPECTED

LHD, ODH, CDC
Full investigation conducted for suspect agroterrorism

Law Enforcement

Law Enforcement

Investigation, control, depopulation on all premises: HPAI (H7N9) Asian Lineage

ODA, USDA

Animal - Ag Response
CONNECTING THE DOTS:

- Not the expected, natural AI we know:
  - **Agroterrorism**
    - Agent is sponsored to spread HPAI H7N9 infected carcasses, items on farms
    - Economic hit & trade implications

> “Experts have estimated that for a terrorist group to develop a nuclear weapon could cost them a billion dollars….But to develop a very good biological arsenal you would need about ten million dollars and a very small lab and a master’s degree in chemical engineering.”

55
Objectives
Avian Influenza as a Bioterrorism Threat

- Importance of considering bioterrorism, intentional disease introduction (law enforcement involvement, public message)
- Agency assistance in investigation by authorities (evidence, chain of custody)
- Importance of swift response and inter-agency communication (public health, agriculture industry, economy risk)
ANY QUESTIONS?
Final Message to take home!
Local Response to Zoonotic Disease Outbreaks: Tabletop Scenario Exercise Training
3RD Edition


THANK YOU