AVIAN INFLUENZA MONITORING

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WHAT IS AVIAN INFLUENZA?

- Refers to a collection of strains of influenza viruses that cause disease in birds (H5N1, H7N9, H5N6, H9N2, etc.)
  - High pathogenic avian influenza (HPAI)
    - Highly contagious
    - High mortality rate (90-100%)
  - Low pathogenic avian influenza (LPAI)
    - Less contagious
    - Less severe, rarely fatal
    - Certain subtypes known to be more likely to mutate into HPAI – H5 and H7
PRIOR OUTBREAKS IN THE UNITED STATES

1924
· H7 HPAI outbreak was detected in and contained to East Coast live bird markets

1983-84
· H5N2 HPAI outbreak in chickens, turkeys, and guinea fowl in the northeastern United States
  · 17 million birds destroyed

2004
· H5N2 HPAI outbreak in chickens in Texas limited to one flock
HPAI OUTBREAKS IN BIRDS
JAN. 1, 2015 – DEC. 31, 2015

In the United States
- 232 flocks
- 50,400,000 birds
- 21 states
HPAI OUTBREAKS IN BIRDS
JAN. 1, 2016 – JULY 31, 2015

In the United States

• 1 flock
• 43,000 birds
• 1 state
AVIAN INFLUENZA IN HUMANS

- Both HPAI and LPAI can cause disease in humans
- First human case of H5N1 avian influenza occurred in 1997 in Hong Kong
  - Coincided with an HPAI outbreak in birds
  - Total of 18 human cases
    - Case fatality 18% in children and 57% in adults
    - All had contact with infected birds
- In 2013, H7N9 causes 3 human cases in China
854 lab-confirmed cases of human infection H5N1
• 450 deaths
• 53% mortality rate
793 lab-confirmed cases of human infection H7N9 viruses
- 319 deaths
- 40% mortality rate
Why do we care?

- Epidemics or pandemics can arise if viruses adapt to spread efficiently from person-to-person
- Immunologically naïve population
- Development of a vaccine would take at minimum 2 months
- Will illness be mild? Severe? Who will it affect?
GUIDANCE PROVIDED TO USDA/APHIS EMPLOYEES AND CONTRACTORS

- Upon mobilization
  - Description of the monitoring plan
  - List of signs and symptoms consistent with influenza
  - Instructions to report symptoms to Safety Officers immediately

- At demobilization
  - Instructions for reporting illness to the state/local public health office of their state of destination
  - Workers/Safety Officers provide detailed contact information to CDC for each demobilizing employee
GUIDANCE TO STATE AND LOCAL HEALTH DEPARTMENTS

- Share responsibility with USDA/APHIS and Contractor Safety Officers for monitoring **ALL** individuals responding to an HPAI flock in their state
- Responsible for monitoring of demobilized responders returning to their state
- CDC would notify states daily of demobilizing responders via Epi-X
Local health departments would contact responders within 24 hours of arrival to assess for symptoms and establish level of exposure.

LHDs would monitor for signs and symptoms for 10-days:
- Fever or feeling feverish and/or chills
- Cough
- Runny or stuffy nose
- Eye tearing, redness, irritation
- Sneezing
- Sore throat
- Difficulty Breathing
- Shortness of breath
- Fatigue
- Muscle or body aches
- Headaches
- Nausea
- Vomiting
- Diarrhea
- Seizures
- Rash

LHDs would ensure prompt testing of any symptomatic responders.

State health departments will notify CDC immediately of any responders eligible for testing.

State health departments will send a daily line list of any avian influenza PUIs.
USDA sends CDC a list of demobilizing responders.

CDC notifies states via Epi-X of all responders returning to their state.

State central office assigns responder to their local jurisdiction based on Epi-X notification.

LHDs contact responders for daily monitoring for 10-day incubation period.
DEMOBILIZED AVIAN INFLUENZA RESPONDER MONITORING SUMMARY

January 2016 Dubois County Outbreak
TIMELINE OF EVENTS

1/14/16
First flock HPAI H7N8+ (IN)

1/16/16
8 flocks LPAI H7N8+ (IN)

1/19/16
1st responder released to TX

1/27/16
Epi-X (n=1)

1/28/16
Epi-X (n=16)

1/29/16
Epi-X (n=10)

1/31/16
LRN test (Hou)

2/1/16
LRN test (Hou)

2/3/16
Last responders released to TX

2/5/16
LRN test (Hou)

2/5/16
LRN test (Har)

2/10/16
Epi-X (n=4)

2/13/16
Last TX responder finishes monitoring

2/22/16
All Indiana farms released from quarantine

1/26/16
Epi-X (n=1)

1/14/16
Responders start arriving in IN

1/29/16
LRN test (Hou)

1/31/16
LRN test (Hou)

2/13/16
Last TX responder finishes monitoring

2/22/16
All Indiana farms released from quarantine
NUMBER OF RESPONDERS BY REGION

<table>
<thead>
<tr>
<th>HSR</th>
<th>Number of Responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/5S</td>
<td>72</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>9/10</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Grand Total</td>
<td>88</td>
</tr>
</tbody>
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- HSR 6/5S: 82%
- HSR 8: 2%
- HSR 9/10: 1%
- HSR 11: 15%
AVIAN INFLUENZA MONITORING IN THE REAL WORLD

- LHDs attempt to contact responders within 24 hours of Epi-X notification
  - Some Epi-X notifications arrive several days after responders arrive
  - Many have incomplete contact information.
  - Notification does not detail individuals risk exposures
- Responders prove very difficult to contact
  - Some report being unaware of monitoring requirements
  - Other indicated they have been told not to talk about their activities

41% Not Contacted
59% Contacted
AVIAN INFLUENZA MONITORING IN THE REAL WORLD

• Initially, LHDs attempted to conduct risk assessment but found nearly all would fall in the high risk category
  • Low risk – involved in response activities but no contact with birds
  • Some risk – exposure to birds while wearing adequate PPE at all times
  • High risk – exposure to birds with a known break in PPE or unknown level of PPE coverage at any time
AVIAN INFLUENZA MONITORING IN THE REAL WORLD

• Many individuals report symptoms on initial contact
• CDC recommends a low-testing threshold
  • Test for seasonal and novel influenza by PCR at DSHS lab or LRNs
  • At DSHS all Influenza A unsubtypeable forwarded to CDC for further testing
  • Culture testing should not be done
• Collecting swabs proves to be difficult
  • Many of the demobilized responders lack health insurance
  • Demanding jobs with the inability to ask off work
  • May be collected by health department but N-95 respirator PPE recommended
SYMPTOMATIC INDIVIDUALS

- PUIs should be provided antiviral treatment as soon as possible

- PUIs needing care at a healthcare facility should be placed under airborne isolation precautions

- During Jan 2016 response most individuals did not need medical care
9 individuals identified to have symptoms eligible for testing
  • 7 individuals tested for influenza and novel influenza
  • 2 refused testing

All tested PUIs negative for flu and novel flu
RESOURCES

- https://www.dshs.texas.gov/AIResponderMonitoring.aspx
  - Monitoring Documents
  - Guidance
  - Monitoring Call Checklist
  - Symptom Tracking Form
  - Responder Notification of Travel Form
  - Case Investigation Form
  - Laboratory Testing Guidance
  - Infection Control Guidance
QUESTIONS?