Avian Influenza (AI)
National & International Update

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Introduction

• AI Biology & Epidemiology
• AI Outbreaks
• International Trade and OIE Standards
• Domestic AI Program Development
• H5N1 Situation
AI Biology & Epidemiology
AI Biology – Risk Factors

• Wild waterfowl and shorebirds serve as natural reservoir for Low Path AI (LPAI) – Backyard and commercial poultry at risk of exposure
• H5 & H7 LPAI can mutate to High Path AI (HPAI)
• AI transmission can occur from poultry to swine and/or humans
Transmission of AI to Humans

Historically, H1, H2, H3 human pandemics have followed adaptation of AI viruses to swine.

Recently, H5 and H7 human infections have resulted from direct transmission from poultry (Asia; The Netherlands; Canada).
AI Outbreaks

STOP
DISEASE CONTROL ISOLATION
ADMISSION TO
AUTHORIZED PERSONNEL
ONLY
HPAI Occurrences Outside of the USA

- Mexico: 1995 (H5N2)
- Australia: 1997 (H7N4)
- Southeast Asia: 1997 – 2005 (H5N1)
- Italy: 1999-2000 (H7N1)
- Chile: 2002 (H7N3)
- Netherlands: 2003 (H7N7)
- British Columbia: 2004 (H7N3)
- Central Asia: 2005 (H5N1)
  - Russia, Kazakhstan, Mongolia, Tibet
AI in the Live Bird Markets

• Low pathogenicity H7N2 AI (LPAI) has been isolated frequently from live bird markets in the NE since 1994.
  – Approximately 120 markets in NY, NJ and New England
  – Approximately 25 million birds marketed annually
• LBMs also present in TX, CA, FL, MN and probably other States
State control programs require marketing of AI negative birds.

Courtesy of Dr. Ernie Zirkle
H5/7 AI in Commercial Flocks Linked to Live Bird Marketing Systems in the U.S.

- **LPAI: (H7N2)**
  - 1996-98: PA (47 flocks, 2.5 M birds)
  - 2001: CT (1 flock, 16,000 birds)
  - 2001-02: PA (7 flocks)
  - 2002: VA, WV, NC (210 flocks, 4.7 M birds)
  - 2003: CT (4 flocks, 4.5 M layers)
  - 2004: DE, MD (3 flocks, about 500,000 birds)
  - 2004: TX (H7N3; 2 flocks)

- **HPAI: (H5N2)**
  - 2004: TX (1 flock)
International Trade
16 countries currently have trade bans on U.S. poultry products because of LPAI

– Argentina, Brazil, India, Korea, South Africa & South Korea: entire US
– Colombia: 10 States (CA, CT, DE, MD, ME, MI, NJ, NY, PA, TX)
– Mexico: 9 States (CA, CT, DE, MD, MO, NC, NJ, PA, TX)
– Iceland: TX
– Cuba: All Northeastern States & CA
– China: CT & RI
– Kazakhstan: DE & TX
– Kenya: DE
– Japan: CT, NJ
– Peru: (CA, CT, DE, MD, NJ, PA, RI, TX)
– Russia: Certain Counties in NC & IN
New OIE Chapter on AI
Adopted May 2005

• Avian influenza
  – Notifiable AI (NAI)
    • HPAI, and all H5 and H7 regardless of pathogenicity detected in *poultry*
    • All other subtypes are *not* reportable
  – Compartmentalization
    • Geographic/management

• Commodity trading recommendations
  • Trade measures appropriate to risk
  • Based on country/zone/compartment status
  • Allows trade in poultry meat and eggs from LPNAI zone

• Surveillance for NAI is critical to reduce trade interruptions
Domestic AI Program Development
Protection of Domestic Flocks and Adherence to International Standards

- Must be based on national surveillance and control programs.
- Active and Passive surveillance currently conducted by various means
- USDA is developing:
  - National NLPAI monitoring program for all aspects of the commercial poultry industry
  - National NLPAI prevention and control program for the live bird marketing system
Commercial poultry program

• NPIP - The National Poultry Improvement Plan
  – LPAI programs for chicken & turkey breeders are already in place (“U.S. Avian Influenza Clean” program)
  – H5/H7 LPAI program for production flocks was adopted at the July 2004 Biennial conference and regulations are under development
Commercial poultry program (cont.)

• New provisions for establishing the LPAI program within NPIP for commercial production flocks
  1. AI Monitored flock and State certification programs
  2. Guidelines for State diagnostic surveillance programs
  3. Guidelines for State initial response and containment plans
1. AI Monitored flock and State certification programs:
   – Broilers & Turkeys – AI monitoring based on slaughter plant serology
     • Minimum 11 birds per shift (chickens) or 60 birds per month (turkeys)
   – Table egg layers – AI monitoring based on annual flock serology
     • 11 birds or eggs per house, at least 30 days prior to slaughter
   – Biosecurity, sanitation, and separation from non-participating flocks required
2. Guidelines for State Diagnostic Surveillance Program:

- Low Path Avian Influenza would be a disease reportable to the State
- All Laboratories (private, state, and university) would test for AI in all submitted cases of respiratory disease, unexplained egg production drops, and unexplained severe mortality

Courtesy: Drs. Tablante & Bautista
Commercial poultry program (cont.)

3. Guidelines for State initial Response and Containment Plan - State should establish:

- Procedures for reporting H5/H7 LPAI
- Standing emergency disease management committee
- Procedures for handling and investigating suspicious cases
- Adequate diagnostics
- Quarantine, monitoring and movement controls
- Minimum biosecurity plan followed by all commercial producers
- Plans for disposal of infected flocks
- Plans for cleaning and disinfection of premises; and repopulation
- Vaccination plan if applicable
- Public awareness and education programs for AI
Commercial poultry program (cont.)

• Other issues:
  – Depopulation/controlled marketing and indemnification if positive facilities found
    • $18 M in indemnity funds currently available
  – Provides for Vaccination
    • Vaccine bank under development
      – 40 M doses of H5/7 killed antigen, with further expansion planned
    • OIE proposed changes allow for vaccination
      – Discrimination between vaccinated and infected animals (DIVA)
Live Bird Market System (LBMS) Program

- Uniform Standards published in October 2004
- Standards provide guidelines for markets, dealers and producers:
  - Licensing requirements and education
  - Bird testing and recordkeeping
  - Sanitation and biosecurity
  - Surveillance and inspections
  - LPAI positive facilities
- States must require participation
LBMS Program (cont.)

- Implementation status
  - Currently have cooperative agreements with 10 states
  - State MOUs under development

- Bird identification study
  - To determine when premises, lot, and individual bird ID is preferable
  - Evaluate/refine available identification tags to maximize effective use in hatchling and mature birds
  - To address labor, cost, and record keeping
  - To evaluate how ID can assist in tracing infected birds within the LBMS
H5N1 Situation and USDA’s Response
H5N1 in Poultry in 2005*

- Total of 13 countries that have reported H5N1 HPAI virus since the end of 2003 [Vietnam, Cambodia, Lao, PDR, Thailand, China, Indonesia, Japan, South Korea, Malaysia, Russia, Kazakhstan, Tibet and Mongolia].

  - **Russia:**
    - Initial report on July 24, 2005 in backyard chickens, turkeys, ducks, and geese in Novosibirsk,
    - Siberia; positive for H5N1 virus.

  - **Kazakhstan:**
    - Initial report on August 5, 2005 in domestic ducks and geese; confirmed H5N1 virus.

  - **Tibet:**
    - China reported to OIE on August 10, 2005 H5N1 virus in breeding hens.

  - **Mongolia:**
    - Initial report on August 12, 2005. Only reported in migratory birds - confirmed H5N1 by SEPRL, Athens, GA.

*As of August 5, 2005*
Human Cases of H5N1 2004-2005*

- 112 confirmed human H5N1 cases, 57 deaths
  - Cambodia: 4 confirmed, 4 fatal
  - Thailand: 17 confirmed, 12 fatal
  - Vietnam: 90 confirmed, 40 fatal
  - Indonesia: 1 confirmed, 1 fatal
  ➢ Overall case fatality: 51%

*As of August 5, 2005.
H5N1 Highly Pathogenic Avian Influenza
USDA Response

• Domestic activities
  – Import restrictions in place since 2003
  – Heightened awareness at import sites
  – Domestic program development will increase surveillance
  – Public education campaign for AI and END
    • “Biosecurity for the Birds” campaign
H5N1 Highly Pathogenic Avian Influenza
USDA Response (cont.)

www.aphis.usda.gov/vs/birdbiosecurity

BIOSECURITY FOR THE BIRDS CAMPAIGN
Providing international assistance

- Collaborating with HHS and US Agency for International Development (USAID) to develop unified US Government response to address HPAI in Asia
  - $25 million requested
  - USDA advice and assistance in surveillance, laboratory capacity and diagnostics, vaccination issues, culling, disposal, among others, in collaboration with FAO and OIE
Thank you for your attention!

For more information, visit our website at [www.aphis.usda.gov](http://www.aphis.usda.gov)