Pandemic Influenza: Avian Flu Preparedness in New Hampshire

A Briefing for the City and Town Emergency Response Officials
April 20, 2005

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Avian Flu
Outline of the Briefing

- Overview of influenza
- National preparedness activities
- New Hampshire’s preparedness activities
- Questions/Discussion
Overview of Influenza
What is Influenza?

- Influenza is an illness caused by a virus.
- The virus is named the Influenza virus.
- The influenza or “flu” virus causes symptoms we think of as a cold.
- There are many other viruses capable of causing cold-like symptoms.
Virus Structure

Viral Nomenclature

A / Sydney / 184 / 93 (H3N2)

How is the Virus Transmitted?

- Airborne spread
- May persist hours in the environment
- Direct contact
Are There Different Types of Flu?

- There are a few types of influenza.
  - Influenza A and B are most common

- Influenza is further characterized by the structure of the virus:
  - Influenza A H1N1
  - Influenza A H3N2
  - Influenza A H5N1 – the “Avian Flu”
Routine Influenza Season

- Each year the virus circulates throughout the world
- Each year minor changes in the virus occur, triggering the next year’s flu season
- In most healthy persons, the immune system protects them from severe disease
- The result is a mild cold
Routine Influenza Season

- The result, however, is far more serious for some people:
  - Elderly
  - Young children
  - Persons with serious medical illnesses

- Each year ~40,000 persons in the US die of “routine” influenza
Average Annual Influenza Morbidity and Mortality

- Influenza virus infections: 3,300 per 10,000
- Acute respiratory illness: 2,600 per 10,000
- Medically attended illness: 1,200 per 10,000
- ARD Hospitalizations: 12 per 10,000
- Deaths: 1 per 10,000

What is a Pandemic?

- Emergence & spread of brand new influenza virus

- The new virus emerges from animals, most typically birds

- A pandemic occurs when the virus is able to be transmitted person-to-person and results in widespread outbreaks:
  - (Near) simultaneous global outbreak
  - Elevated rates illness & death
Mechanisms of Influenza Virus Antigenic “Shift”

15 HAs
9 NAs

Non-human virus

DIRECT

Human virus

Reassortant virus
What is a Pandemic?

- An Influenza pandemic is not a short term crisis; it may last a couple of years

- An Influenza pandemic will come in waves that may follow each other or overlap
Pandemics & Pandemic Alerts
19th - 21st Centuries

- 1891-92 H3
- 1918-19 “Spanish Flu” H1N1
- 1957 “Asian Flu” H2N2
- 1968 “Hong Kong Flu” H3N2
- 1976 Fort Dix “Swine Flu” episode
- 1977 “Russian Flu” H1N1
- 1997 Avian influenza A (H5N1)
- 2004 Avian influenza A (H5N1)
Timeline of Emergence of Influenza Viruses in Humans

- **1918**: Spanish Influenza
- **1957**: Asian Influenza
- **1968**: Russian Influenza
- **1977**: Hong Kong Influenza
- **1997**: Avian Influenza
- **2003**: H9 H7 H5
- **1998/9**: Pandemic vaccines
- **1918**: Regular vaccines
Infectious Disease Mortality, United States--20th Century

Strategy for the Control and Prevention of Routine Influenza

- Global and national surveillance
  - Monitor activity and impact
  - Identify new viruses for vaccine
  - Detect novel viruses posing a pandemic threat

- Activities to reduce health impact
  - Education
  - Vaccination of those at highest risk for severe illness
  - Use of rapid tests and antiviral agents
  - Investigation and control of outbreaks
National Preparedness Activities for Avian Flu
Key Issues in Planning

- Public and private sector vaccine purchase and distribution
- Priority groups for early vaccine and antiviral chemoprophylaxis and therapy
- Maintaining quality medical care
- Limiting economic impact
- Volunteers and workforce
- Isolation and quarantine enforcement and population based services
- Education and Communication strategies
US Pandemic Influenza Preparedness & Response plan was released on August 26, 2004

Purposes of the plan

• Define preparedness needs
• Provide guidance to State/local health departments and health care organizations for planning
• Outline coordination and implementation of a response
• Identify key issues that remain to be resolved
U.S. Pandemic Influenza Preparedness Activities

- Enhanced surveillance
- Vaccine security and supply
- Antiviral drugs
- Research activities
- Support to State/local preparedness
Pandemic Planning

- Planning is for the worst case scenario
- Health care system is better able to respond than ever before
- Resources are better coordinated and better prepared at all levels
- New Hampshire has been planning for this since 1997
Potential Avian Flu Impact in U.S.*

- Up to 200 million persons infected
- 38 – 89 million clinically ill
- 18 – 42 million requiring outpatient care
- 314,000 – 733,000 hospitalized
- 89,000 – 207,000 deaths

* Influenza Branch, Centers for Disease Control and Prevention
Current Avian Flu Activity in the World
Current Avian Flu Activities

• Widespread outbreak in Southeast Asia fowl farms
• Most recent country: North Korea
• Culling of birds continues
• No efficient human to human transmission
• Human cases limited to three countries
New Hampshire’s Avian Flu Preparedness Activities
Potential Impact in NH*

- Up to 852,000 persons infected
- 168,000 – 384,000 clinically ill
- 72,000 – 180,000 requiring outpatient care
- 1,200 – 3,600 hospitalized
- 360 – 1,000 deaths
  - 200 deaths occur annually from “routine” flu

* Influenza Branch, Centers for Disease Control and Prevention
NH Preparedness

- First Flu pandemic plan produced in 1999
- Plan updated in 2004
- DPHS improved experience in emergency management
  - SARS
  - Smallpox vaccination program
  - Hepatitis A clinics after Taco Bell incident
  - Emergency antibiotic distribution for meningitis cluster
  - 2004 Flu vaccine shortage
State of New Hampshire
Interim Influenza Pandemic
Epidemiologic and Surveillance Plan

New Hampshire Communicable Disease Epidemic Control Committee
VERSION: 1.0, 15 December 2004
NH Preparedness

- Linked closely with state bioterrorism emergency response preparedness activities
- Planning with BEM for Statewide ESF Drill
- Statewide vaccination and surge capacity planning
- Surveillance improvements
- Public Health Laboratory improvements
- Influenza pandemic plan constantly updated by Public Health
Immediate Plans

- Statewide drill to mobilize local clinics
- Hospital surge planning
- Local emergency preparedness
- Legal preparedness
- Laboratory preparation
- Volunteer readiness
- Updates to decision makers
Key Issues
Vaccine Availability

• Availability of vaccine
  – Optimally, first doses for general population available ~4 months after reference strain is developed
  – Weekly delivery of ~3 m doses from U.S. production
Antiviral Drug Stockpile & Availability

- Antivirals in the Strategic National Stockpile
- Antivirals in the private sector
Maintaining Quality Medical Care

• The challenge
  – High demand for services
  – Staff absenteeism

• Health care system planning & preparedness
  – Community-level planning
    • Need for coordination
    • HRSA funding
  – Providing care in non-traditional facilities
Interventions to Decrease Disease Transmission

- Infection control in hospitals and LTCF
  - Respiratory and contact precautions

- Travel restrictions & community strategies
  - Impacts hypothesized but not proven
  - Goal of slowing transmission until vaccine is available
Quarantine/Isolation

• Definitions:
  – Isolation – restriction for those with a disease.
  – Quarantine – restriction for those exposed or incubating disease.

• Authority provided under RSA 141-C
Potential Local Emergency Management Roles

- Conducting vaccination or antiviral clinics
- Supporting hospital surge
- Maintaining isolation/quarantine
- Communications
It's time again for everyone's least favorite game... Fear of the Week!

Today, we welcome John Smiddlesdorf, a dairy farmer from Wisconsin... John, give 'er a spin!!

Pandemic Flu
Questions and Discussion