Pandemic Influenza

Be Informed. Get Prepared.

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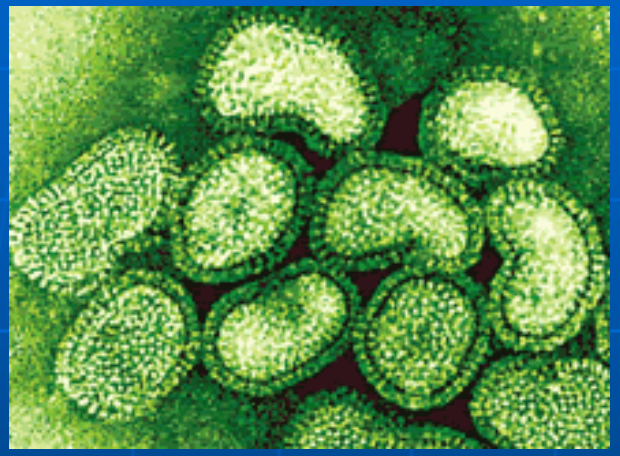
www.hss.energy.gov/HealthSafety/avian.html

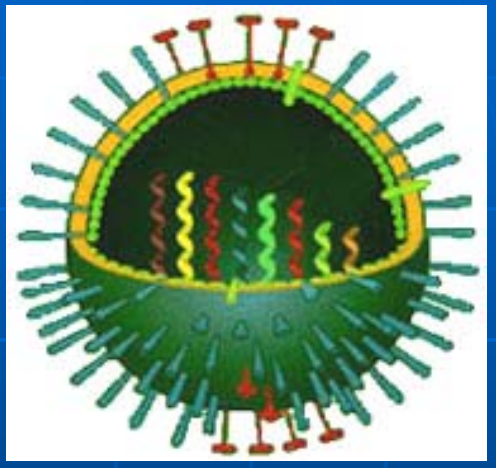
Bird Flu or Avian Influenza

- Infects domesticated chickens, turkeys, ducks and a variety of birds, including migratory waterfowl (and sometimes other species)
- Highly contagious virus
- Two strains
  - Low pathogenic – mild
  - High pathogenic – almost always fatal
- Spread by contact with bird secretions

  Saliva, nasal secretions, feces
- Virus can remain infectious for 3 months

H5N1 Influenza Virus Strain





Viral particle is round and made up of RNA which provides the code for the surface protein

The surface has protrusions of either H (hemagglutinin) or N (neuraminidase) proteins

Minor changes in the structure of these proteins may mean the difference between a benign disease or a killer

FLU SYMPTOMS

F.A.C.T.S.

Fever (102-104 F) lasting several days

Aches / pain

Chest discomfort (severe / pneumonia)

Tiredness / Exhaustion

Sudden onset

Headache

Fatigue lasting 2 – 3 weeks

Sore throat

What is a Pandemic?

- A PANDEMIC is a global disease outbreak. A flu pandemic occurs when a new influenza virus emerges
- Currently H5N1 is not easily spread from human to human
- H5N1 has the potential to adapt into a strain contagious in humans
- Due to the new strain, people have no pre-existing immunity; it is likely that the disease will be serious and deadly
- Once a contagious virus emerges, it is expected to circle the world in about 3 months; all countries will be affected

20th Century Influenza Pandemics

- 1968 – 1969 Hong Kong Flu (H3N2)
  - Genes from human and avian influenza
  - 34,000 deaths in the US, primarily the elderly
- 1957- 1958 Asian Flu (H2N2)
  - Genes from human and avian influenza
  - 70,000 deaths in the US, 1st wave, primarily children
- 1918 - 1919 Spanish Flu (H1N1)
  - Origin of virus unknown (started in US)
  - 500,000 deaths in the US, primarily 20 -35 year olds
  - 40 - 50 million deaths world wide
  - 2.5 % of those infected died

1997 – Hong Kong

Bird flu virus transmitted directly from birds to people

18 cases (6 deaths)

2003 – 2004

- **Outbreaks in chickens in Vietnam, Thailand, Korea, Japan , Cambodia, Laos, Indonesia, China**
- **100 million chickens died from the virus or were killed in an attempt to prevent its spread**
- **W.H.O. reports tiger and leopard deaths in a zoo in Thailand**
- **Over hundred human cases reported in Vietnam, Cambodia, Thailand and Indonesia; people exposed to sick birds**

277 Human Cases of Avian Influenza A (H5N1) Reported As of March 1, 2007
Mortality Rate 60%

Azerbaijan 8 (5), Cambodia 6(6) China 23 (14)
Djibouti 1 (0), Egypt 23 (13), Indonesia 81(63)
Iraq 3(2), Lao 1(0), Nigeria 1(1), Thailand 25 (17)
Turkey 12(4), Vietnam 93(42)

200?
H5N1 Pandemic

- 5 - 15 % clinically ill with **seasonal flu**
  - 36,000 deaths
- 25 - 50% clinically ill in a **pandemic**
  - Potentially 80 million ill
  - Potentially 800,000 deaths
- 51 – 81 million deaths (96% in undeveloped countries)

Occupational Exposure to Pandemic Influenza

Risk levels dependent on:

- whether job requires close proximity to people potentially infected with the virus, or
- whether job requires repeated or extended contact with known or suspected sources of virus

Occupational Risk Levels

- **Very High** – health care employees performing aerosol-generating procedures on patients; lab personnel handling specimens
- **High** – healthcare and support staff exposed to suspected pandemic patients
- **Medium** – employees with high-frequency contact with the general population
- **Lower** – employees with minimal occupational contact with the general public and other co-workers

Vaccines

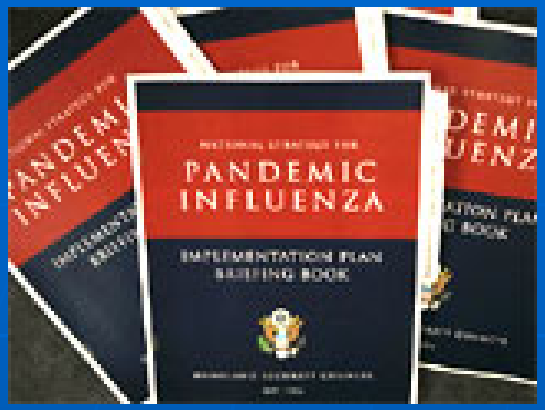
- There is NO VACCINE to protect one against the H5N1 virus; can't be produced until the pandemic emerges
- Developing pre-pandemic vaccines based on the lethal H5N1 (20 million doses stockpiled and to be distributed by Feds)
- Currently techniques are being developed to improve production capacity and to develop ways to expand supplies
- Initial stockpiles will go to priority groups: essential services, health care providers, public safety workers
- 4-6 months to develop a vaccine for the rest of us (300 million)
- You must get a seasonal flu vaccine!

Antiviral Drugs

- Tamiflu ™ and Relenza™ - N-inhibitors: Interfere with viral neuraminidase enzymes found on the surface of the virus
  - Reduces severity of symptoms, duration, and contagiousness.
  - Prevents infection
- Concerns
  - Must be used within first 48 hours
  - Expensive - $90/5 doses
  - Virus may mutate
  - Doses not known
  - Very limited supply; 25 million courses stockpiled

Challenges and Preparation

- Pandemic outbreaks may include up to 3 “waves” lasting 6 to 8 weeks separated by months
- Essential services you depend on may be disrupted (banks, government offices, health care facilities, transportation, etc.)
- Food and water supplies may be interrupted and limited
- Being able to get to work may be difficult or impossible
- Schools and daycare may be closed to limit the spread of flu and help prevent infection in children
- Medical care for people with chronic illness may be disrupted as doctors offices and hospitals are overwhelmed



The Government Pandemic Effort

- November 05: President releases *National Strategy for Pandemic Influenza*
  - Clarifies roles and responsibilities of the government
  - Each Agency plan to develop plans and cover 4 areas:
    1. Protecting the health of employees
    2. Maintaining essential function during times of significant absenteeism
    3. Supporting the Federal response
    4. Communicating guidance to stakeholders
- November 06 “Checklist of key elements of Influenza Operations Plan” distributed.
  - DOE certified it is addressing the applicable elements, Dec 06

DOE's Pandemic Planning

- Deputy Secretary memo issued March '06 assigning responsibilities for the development of Pandemic Influenza Preparedness Plan
- Chief Health, Safety and Security to chair and organize biomedical expertise through the Biologic Effects Monitoring Team (BEMT)

Biologic Effects Monitoring Team

- Evaluates infectious disease threats
- Formulates recommendations to protect the health of DOE employees and the mission
- Promotes worker health education
- Coordinates the Departments response related to health issues

DOE Contingency of Operations

Basic Continuity Operations Plan (COOP) concepts are applicable BUT traditional COOP plans (relocating personnel or function) may not work

- Absenteeism may run as high as 40% across the complex
- Interruption of utilities, deliveries, supplies
- Long term - months vs. 30 days
- Medical response capabilities overwhelmed
- Protect employees from disease, especial those at high risk

COOP response will be activated based reported cases and transmission

Developing a DOE Preparedness Plan

- Review Continuity of Operations Plan
  - Identify Mission Essential Functions
  - Prepare “3 deep”
  - Establish accountability – employees call in
- Promote Employee Assistance Programs
- Social distancing
  - Telework/flexiplace
  - Adjust work hours to minimize contact
- Quarantine healthy workers
- Educate/Promote public health measures
  - www.hss.energy.gov/HealthSafety/avian.html
- Stockpile/provide surface disinfectants (alcohol/bleach)
- Exercise the plan

Psychological and Psychosocial Issues

- During a pandemic, psychological distress responses can include: grief, anger, fear , depression, and psychosomatic illness
- Fear or dread of disease can lead to changes in behavior
- Stigmatization, discrimination manifest in antisocial behavior: avoidance, segregation, abuse, violence against people and property
- Fear of being socially marginalized may cause people to deny early clinical symptoms and delay medical care

Countermeasures

- Behavioral and habit changes reinforced through communication and training
- People ahead of mission
- Measures to support personnel in critical functions
- Communication – credible, reliable, and accurate
- Group leadership – key to maintaining a physically and mentally healthy workforce

Protect Yourself from the Flu

- Avoid close contact with people who are sick; if you are sick, stay at home
- Cover your mouth and nose when sneezing or coughing. If you do not have a tissue, it is best to sneeze or cough into your sleeve rather than into your hands: www.coughsafe.com
- Wash your hands often with soap and water or alcohol based gel
- Avoid touching your eyes, nose, and mouth; viruses are easily spread through these routes
- Stay Healthy: Stay well rested, engage in regular physical activity, manage your stress, drink plenty of fluids, and eat nutritious food
- Children are major contributors to flu infection. Teach them to good hygiene.

Tips to help you prepare for an Influenza Pandemic

www.pandemicflu.gov

- Have a 2-3 week supply of food and water
  1 gallon water/day per person

  Non-perishable food items – canned/dried foods; pet food
  hand-operated can opener
- Prescription and non-prescription drugs
- First aid kit, soap, bleach
- Plans for senior citizens and people with disabilities
  Who will care for the sick?
- Practice good hygiene