

PREPARING FOR AN INFLUENZA PANDEMIC

**MN ISAC Seminar
June 7, 2006**

Influenza Pandemics: Why We Need to be Concerned & Potential Consequences of an Influenza Pandemic

**Robert Einweck
Preparedness Coordinator**

**Saint Paul-Ramsey County Department of Public
Health**

Prepare. Practice. Participate.

Overview of Concern

- Influenza is an annual occurrence causing an estimated 36,000 US deaths annually and more than 200,000 hospitalizations, and an estimated cost of over \$10 billion annually in US
- A pandemic could dwarf this impact: 100's of thousands of deaths, millions of hospitalizations, 100's of billions in direct and indirect costs.

(source: National Strategy For Pandemic Influenza, US Homeland Security Council)

Pandemic of 1918-1919

- At least 40 million deaths
- Half of those dying were in their 20's to 40's, a death toll as many as 8 to 10% of all young adults alive at that time
- More people died of flu in a year than the Black Death in the middle ages killed in a century
- More died in 24 weeks than AIDS has killed in 24 years



Photo courtesy of the National Museum of Health & Medicine
Prepare. Practice. Participate.



Photo Courtesy of the National Museum of Health & Medicine

Prepare. Practice. Participate.



Photo Courtesy of the National Archives

Prepare. Practice. Participate.



Photo Courtesy of the National Archives

Prepare. Practice. Participate.



Prepare. Practice. Participate.



Public gathering places were ordered closed by the leaders of many major cities.

Other 20th Century Influenza Pandemics

- Asian Influenza of 1957, with an estimated 2 million deaths worldwide, including 70,000 in the US
- Hong Kong Influenza of 1968, with an estimated 1 million deaths worldwide, including 34,000 in the US

**The World May Be on the
Brink of Another Pandemic**
[World Health Organization (WHO), 2005]

It Is Not a Matter of IF but WHEN

- All countries will be impacted
- Medical supplies will be inadequate
- Significant numbers of deaths will occur
- Economic and social disruption will be great
- Every country must be prepared
- WHO will alert the world when the pandemic threat increases

Epidemiology of Influenza

- Respiratory Infection, not gastro-intestinal
- Viral (not treatable with antibiotics)
- Transmission: spread through contact with respiratory droplets, possible airborne spread
- Infectious period- 1-2 days prior to symptoms and during first 7 days of symptoms

Avian Influenza

- Viral infection of birds
- Believed to be spread by co-mingling of wild and domestic birds
- All species thought to be susceptible
- Controlled by culling infected and exposed birds (Over 200 million birds destroyed to date)
- Containment of domestic birds

H5N1 Virus in Birds- Over 50 countries

- Central Europe (Austria, Denmark, France, Germany, Italy, Sweden, Switzerland, United Kingdom)
- Eastern Europe (Albania, Azerbaijan, Bosnia, Bulgaria, Croatia, Czech Republic, Georgia, Greece, Hungary, Kazakhstan, Poland, Romania, Serbia, Slovakia, Slovenia, Ukraine)
- Africa (Burkina Faso, Cameroon, Cote d'Ivoire, Djibouti, Egypt, Nigeria, Niger, Nigeria, Sudan)
- Middle East (Iran, Iraq, Israel, Jordan, Palestine, Turkey)
- Asia (Afghanistan, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Mongolia, Myanmar, Pakistan, Russia, Thailand, Vietnam)

Bird to Human Transmission

- Predominantly via contact with feces from infected birds
- Handling infected poultry
- Disposing of dead infected poultry
- Contact with birds in live poultry markets

Disease Risk

Bird Flu

Avian Influenza H5N1 has occurred in a number of countries.

If you are travelling to a country affected with Bird Flu please remember it is illegal to bring the following items into the UK

- poultry or other birds
- poultry meat
- eggs
- other products derived from poultry such as unprocessed game trophies and some feathers

Any such prohibited items will be seized or detained by HMRC officers. For further advice on affected countries and prohibited items please visit www.defra.gov.uk

The chances of catching bird flu are very low but it is wise to take the following precautions

- do not visit bird or poultry farms or markets
- avoid close contact with live or dead poultry
- do not eat raw or poorly cooked poultry
- do not eat raw or poorly cooked poultry products, including blood
- wash your hands frequently with soap and water

Health Advice on Bird Flu can be found at www.dh.gov.uk



MSX 70 POSTER

Human cases of H5N1 avian influenza – cause for concern

- First case diagnosed in Hong Kong in 1997
- 225 confirmed cases and 128 deaths occurring in Azerbaijan, Vietnam, Indonesia, Thailand, China, Cambodia, Turkey, Iraq, Djibouti, and Egypt
- Most cases, deaths occurred in 2005 & 2006
- More undiagnosed cases likely
- Spread of virus into more countries increases volume of virus and greater opportunity for mutation



Bird flu: a new threat

NEWS AND ANALYSIS PAGE 3

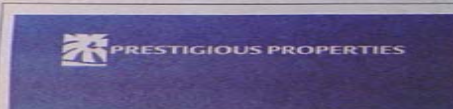
Pandemic fears as bird flu kills seven of this man's close family



SPREADING FEAR

1996 H5N1 virus is isolated from a farmed goose in Guangdong province, China
1997 Six deaths reported in Hong Kong linked to H5N1
December 2003 Two tigers and two leopards die after eating H5N1-infected chicken in Thai zoo
December 2003 South Korea confirmed H5N1 as a cause of poultry deaths at three farms
January and February 2004 Vietnam, Japan, Thailand, Cambodia, Laos, Indonesia, China and Malaysia report H5N1 in poultry
January to March 2004 Eight deaths reported in Thailand and 16 in Vietnam

July 2005 Russia reports bird flu in Western Siberia
January 2006 Three children from same family die in Turkish outbreak
February 2006 China reports eighth fatality and Indonesia its 18th
October 2005 H5N1 confirmed in poultry in Turkey and Romania and in wild birds in Croatia
January 2006 Iraq has its first human case
February 2006 Bulgaria, Greece, Italy, Slovenia, Austria and Germany find H5N1 in swans. Nigeria finds H5N1 in chickens and Iran finds it in wild birds



Daily Mail, Thursday, May 25, 2006

Page 7

Human-to-human mutation feared as virus wipes out Indonesian clan

Experts baffled as bird flu kills six from same family

Avian Influenza- H5N1 Virus

- No sustained human to human transmission to date
- Tamiflu antiviral inconsistently effective
- Limited supply of H5N1 vaccine being made (12-18 month shelf life)

Conditions of a Pandemic

- Widely spread without early detection
- Novel virus highly infectious to humans, with no immunity
- Virus strain is easily transmissible human to human
- Virus causes serious illness
- There is no adequate supply of vaccine immediately available
- Supply of antiviral med is limited

WHO's 6 Stages of a Pandemic

Inter-pandemic phase New virus in animals, no human cases	Low risk of human cases	1
	Higher risk of human cases	2
Pandemic alert New virus causes human cases	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

Worldwide Consequences

- How to maintain continuity of critical services and products
 - food and water
 - medical supplies
 - transportation
 - fuel, utilities
 - communication
 - equipment parts

Economic Implications

- Mandatory and/or voluntary closure of national, state and possibly local borders
- Public panic
- Over 30% of workforce out at any given time due to personal or family illness
- Collapse of supply chains due to just-in-time delivery systems

National Plan Assumptions

- Disease will attack 30% of the population
- Incubation averages 2 days
- Persons who become ill may transmit infection for up to one day prior to onset of illness
- Average of 2 secondary infections will occur as a result of transmission for someone who is ill
- A pandemic outbreak will last in an affected community for 6-8 weeks
- Virus may remain alive in the environment for up to 2 days

Pan Flu Prevention Strategies

- 1) Vaccination (likely 4-6 month delay)
- 2) Early Detection, and Treatment with Antiviral Medications (limited availability)
- 3) Use of Infection Control Measures will likely be the key to:
 - Limiting transmission
 - Delaying the spread of the pandemic
 - Protecting humans

Measures to Limit Spread of Virus

- Infection Control: ill stay home; cover your cough; hand hygiene; readily available soap, hand sanitizer, tissue, env. cleaning supplies
- Social Distancing: arms length
- n95 respirators for those with direct patient care
- Benefit of wearing masks by the public or in the workplace has not been established

Illness, Healthcare, and Death During Moderate & Severe Pandemics

Illness	90 Million	90 Million
Outpatient medical care	45 Million	45 Million
Hospitalization	865,000	9,900,000
Ventilation	64,875	742,500
Deaths	209,000	1,903,000

Potential Impact of a Severe Pandemic on Minnesota

- State of Minnesota pop. 5,145,106
- 30% sick 1,544,000
- # of sick needing hospital care 172,000
- # of sick needing ventilation 12,900
- Deaths (approx. 2% of sick) 32,900

**The only thing harder than
planning for an event like an
influenza pandemic is
explaining afterward, why you
didn't plan for it.**

Robert Einweck
Preparedness Coordinator
St. Paul Ramsey County Dept.
of Public Health

651.266.2534

robert.einweck@co.ramsey.mn.us