

Responding to Bioterrorism and Pandemic Threats

John V. Barson, DO, MPH

**Division of Bioterrorism Preparedness and Response
Centers for Disease Control and Prevention**



**DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION**



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Ideal Qualities for a Biologic Terrorist Agent

- High rate of illness among those exposed
 - High attack rate
- High rate of death among those who get ill
 - High case fatality rate
- Short time between onset of illness and death
 - Small window to start treatment
- Low level of immunity in the population



Ideal Qualities for a Biologic Terrorist Agent (cont.)

- No known treatment
- Can be transmitted person to person
- Easy to produce and disseminate
- Difficult to diagnosis either clinically or diagnostically (i.e. laboratory identification)



Epidemiological Clues

What we look for...

- Large outbreak with high illness and death rate
- Single case of uncommon disease (e.g., Smallpox)
- Unusual symptoms or severity of illness
- Infection is non-endemic to region
- Unusual seasonal distribution
- Multiple simultaneous outbreaks in non-contiguous areas
- Sick or dying animals



Bioterrorism Threats: Priority Biological Agents

- **Bacterial**

- Anthrax
- Plague
- Tularemia
- Brucellosis
- Q fever
- other
 - food borne pathogens
 - waterborne pathogens

- **Viral**

- Smallpox
- Viral Hemorrhagic Fevers
- Viral Encephalitis

- **Toxins**

- Botulism
- Staph Enterotoxin B
- Ricin toxin
- Tricothecene mycotoxins



Category A Biological Agents

Agent	Type	Spread human to human
Anthrax	Bacterial	No
Smallpox	Viral	Yes
Botulism	Toxin	No
Plague	Bacterial	Yes
Tularemia	Bacterial	No
Viral Hemorrhagic Fevers	Viral	Yes



Use as Weapon

Agent	Mechanism
Anthrax	Aerosol, possibly food
Smallpox	Aerosol
Botulism	Aerosol, possibly food and water
Plague	Aerosol
Tularemia	Aerosol
Viral Hemorrhagic Fevers	Aerosol



Category A Biological Agents

Agent	Countermeasures	
	Prophylaxis	Treatment
Anthrax	Vaccine, antibiotics	Vaccine, antibiotics AIG
Smallpox	Vaccine	Vaccine, Antivirals(?)
Botulism	Vaccine	Antitoxin
Plague	Antibiotics	Antibiotics
Tularemia	Antibiotics	Antibiotics
Viral Hemorrhagic Fevers	None	Supportive, Antivirals (?)



Definitions

- **Epidemic** - affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time
- **Pandemic** - occurring over a wide geographic area and affecting an exceptionally high proportion of the population



What is Influenza (also called Flu)?

- The flu is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness, and at times can lead to death. The best way to prevent this illness is by getting a flu vaccination each fall.
- Every year in the United States, on average:
- 5% to 20% of the population gets the flu;
- more than 200,000 people are hospitalized from flu complications, and;
- about 36,000 people die from flu.
- older people, young children, and people with certain health conditions, are at high risk for serious flu complications.



Flu Terms Defined

- **Seasonal (or common) flu** is a respiratory illness that can be transmitted person to person. Most people have some immunity, and a vaccine is available.
- **Avian (or bird) flu** is caused by influenza viruses that occur naturally among wild birds. The H5N1 variant is deadly to domestic fowl and can be transmitted from birds to humans. There is no human immunity and no vaccine is available.
- **Pandemic flu** is virulent human flu that causes a global outbreak, or pandemic, of serious illness. Because there is little natural immunity, the disease can spread easily from person to person. Currently, there is no pandemic flu.

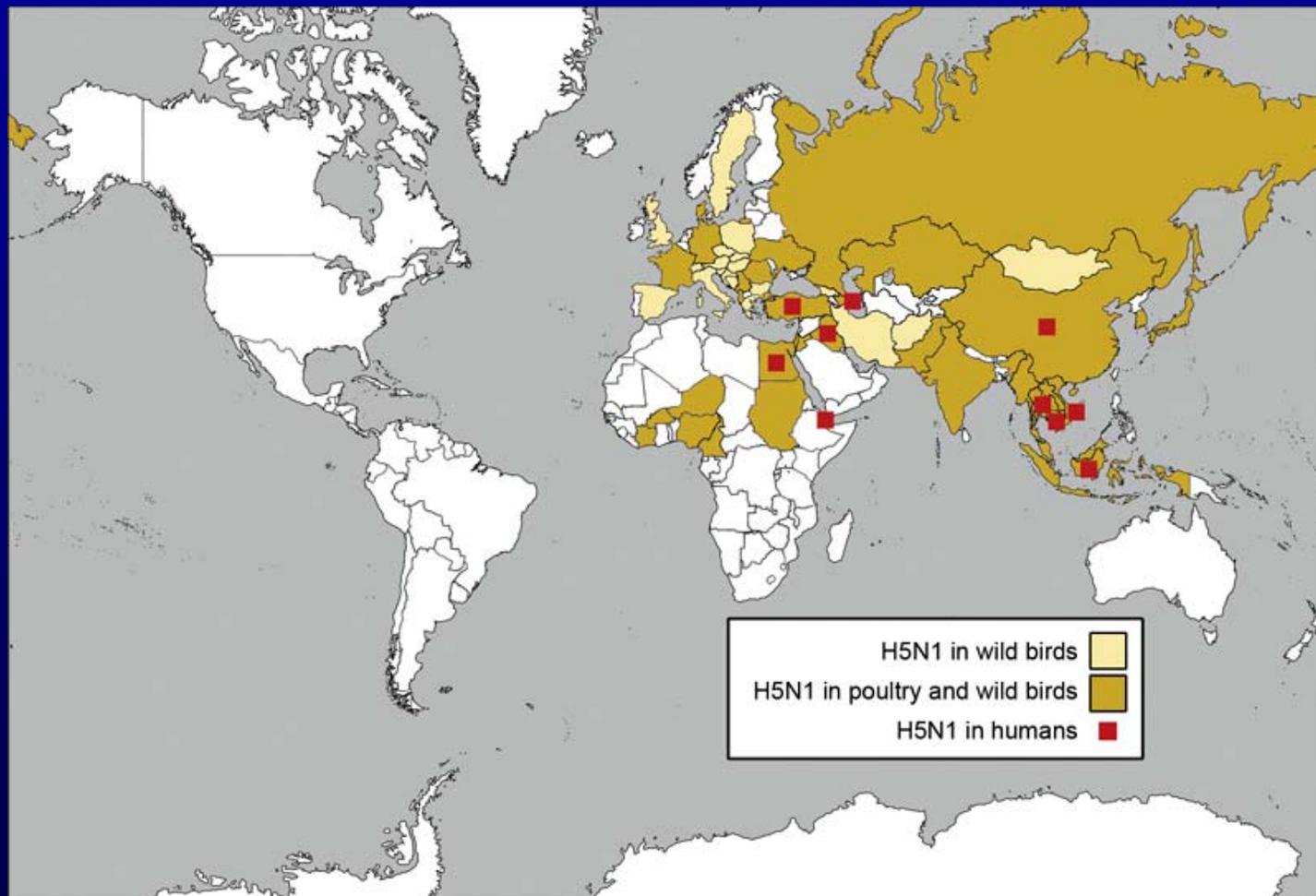


The Pandemic Threat

- Pandemics happen when a novel influenza virus emerges that infects and can be efficiently transmitted between humans.
- The influenza viruses most likely live in animals (including birds), and emerge periodically as a health threat by spreading to and between humans.
- Pandemics have occurred over the centuries with the last three pandemics occurring in 1918, 1957, and 1968 killing approximately 40 million, 2 million, and 1 million worldwide, respectively.



Nations With Confirmed Cases H5N1 Avian Influenza (July 7, 2006)



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What is Public Health doing to prepare for a pandemic?

Pandemic Preparedness Five Priorities

- Monitoring disease spread to support rapid response
- Developing vaccines and vaccine production capacity
- Stockpiling antivirals and other countermeasures
- Coordinating federal, state and local preparation
- Enhancing outreach and communications planning



What other strategies will help protect Americans?

- **In the event of a pandemic, certain public health measures may be important to help contain or limit the spread of infection as effectively as possible. The following actions could include:**
 - treating sick and exposed people with antivirals;
 - isolating sick people in hospitals, homes, or other facilities;
 - identifying and quarantining exposed people;
 - closing schools and workplaces as needed;
 - canceling public events; and
 - restricting travel.
- **In addition, people should protect themselves by:**
 - washing hands frequently with soap and water;
 - staying away from people who are sick; and
 - staying home if sick.



Isolation and Quarantine

- Isolation: For people who are ill
- Quarantine: For people who have been exposed but are not ill
- **Neither is easy or cheap to do!!!**



State, Local, and Tribal Authority/Law to Compel Isolation and Quarantine

- **State's Authority**
 - within its borders is derived from its inherent "police power"
 - enact laws and promote regulations to safeguard the health, safety, and welfare of its citizens.
 - individual states are responsible for **intrastate** isolation and quarantine practices
 - conduct their activities in accordance with their respective statutes.
- **Tribal laws and regulations**
 - are similar in promoting the health, safety, and welfare of tribal members
 - are responsible for isolation and quarantine practices **within tribal lands**, in accordance with their respective laws.
- **State and local laws and regulations regarding the issues of compelled isolation and quarantine vary widely.**



Federal Authority/Law to Compel Isolation and Quarantine

- The HHS Secretary has statutory responsibility under Title 42 United States Code Section 264 (Section 361 of the Public Health Service [PHS] Act; for preventing the introduction, transmission, and spread of communicable diseases from foreign countries into the United States, e.g., at international ports of arrival, and from one state or possession into another.
- The communicable diseases for which federal isolation and quarantine are authorized are set forth **through executive order of the President** and include **cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, viral hemorrhagic fevers, and severe acute respiratory syndrome (SARS)**. On April 2005, the President added to this list **Influenza caused by novel or reemergent influenza viruses that are causing, or have the potential to cause, a pandemic**.
- By statute, U.S. Customs and Coast Guard officers are authorized to aid in the enforcement of quarantine rules and regulations. Violation of federal quarantine rules and regulations constitutes a criminal misdemeanor, punishable by fine and/or imprisonment.
- Federal quarantine authority includes the authority to release persons from quarantine on the condition that they comply with medical monitoring and surveillance.



Interplay between Federal and State, Local, and Tribal Laws

- **State, local and tribal jurisdictions** have primary responsibility for isolation and quarantine **within their borders**. The federal government has authority under the Commerce Clause of the U.S. Constitution to prevent the **interstate** spread of disease.
- The **federal government has primary responsibility** for preventing the introduction of communicable diseases **from foreign countries into the United States.**
- By statute, the HHS Secretary may accept state, local and tribal assistance in the enforcement of federal quarantine regulations and may assist state, local, and tribal officials in the control of communicable diseases.
- It is possible for federal, state, local, and tribal health authorities simultaneously to have separate but concurrent legal quarantine power in a particular situation (e.g., an arriving aircraft at a large city airport).
- **Because isolation and quarantine are "police power" functions, public health officials at the federal, state, local, and tribal levels may occasionally seek the assistance of their respective law enforcement counterparts to enforce a public health order.**



Law Enforcement & Public Health

To Serve and Protect



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Local Preparedness Is Essential

- Initial detection most likely at the local level
- Initial response will occur at the local level



What can Law Enforcement do for Public Health?

- Provide security
- Communications
- Transportation
- Intelligence and Situational Awareness
- Liaison with Community Leaders (all levels)
- Facility identification
- Manpower – special cases



What can Public Health do for Law Enforcement?

- Provide medical information
- Intelligence and Situational Awareness
- Provide medical countermeasures to first responders
- Provide personal protection recommendations
- Liaison with Community Leaders (all levels)



Sources of Information

- Centers for Disease Control (CDC)
www.cdc.gov
- CDC Emergency Preparedness
www.bt.cdc.gov
- CDC Quarantine and Isolation
www.cdc.gov/ncidod/dp/index.htm
- Pandemic and Avian Flu
www.pandemicflu.gov

