Pandemic Influenza: Tackling the Tough Issues

Defining the Response

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Clinical Challenges of Influenza

• Spread by the respiratory route

• Coughing & sneezing

• Nonspecific signs and symptoms

• Poor sensitivity of clinical findings
Presentation of Bird & Swine Flu

Initially nonspecific and similar to currently circulating human flu virus subtypes

• Fever - Lethargy - Inappetance
  Cough - Runny Nose - Sore throat - Nausea - Vomiting - Diarrhea
Presentation of Bird & Swine Flu . . .

- Difficult to predict who will progress to severe disease
Roles of the Emergency Response Community

- Public Health
- Fire
- EMS
- Hospital
- Emergency Management

San Diego Police Car
www.wmo.ch/
Roles of the Emergency Response Community . . .

- Police
- Veterinarians
- Private Industry

San Diego Police Car
www.wmo.ch/
Social Distancing

• Close schools
• Limit public gatherings
• Cancel public events

Washington National Cathedral
www.cathedral.org
Social Distancing . . .

- Travel restrictions
- Extend business hours
- Impose *snow days*

Washington National Cathedral
www.cathedral.org
Contact Avoidance

- Evidence that influenza transmission can occur across long distances through travel

Wedding in Asia During SARS Outbreak
www.koreanmedicine.net
Contact Avoidance

• Transmission may occur at shorter distances through inhalation of small-particle aerosols
Isolation

Isolation—separation, during the period of communicability, of a person infected with a communicable disease, in a place and under conditions to prevent direct or indirect transmission of an infectious agent to others.
Quarantine

Quarantine—restrictions, during or immediately prior to a period of communicability, of activities or travel of an otherwise healthy person who likely has been exposed to a communicable disease.

Smallpox Quarantine Poster
Courtesy of U.S. Department of Health and Human Services
Quarantine

The restrictions are intended to prevent disease transmission during the period of communicability in the event the person is infected.

Smallpox Quarantine Poster
Courtesy of U.S Department of Health and Human Services
Antiviral Drugs

Used for prophylaxis or treatment:

- Amantadine (Symmetrel®)
- Rimantidine (Flumadine®)
- Oseltamivir (Tamiflu®)
- Zanamivir (Relenza®)

Tamiflu®
www.survivetheflu.com
Community Wide Issues

- Greatest secondary hazard will be the problems caused by shortages of medical supplies, equipment, hospital beds, and healthcare workers.
- Need a detailed system for allocating resources.

To solve this, we need a bottom up approach.
Percent of Hospitals Reporting ED Capacity Issues by Type of Hospital

- **Urban Hospitals**: 29% at capacity, 39% over capacity, 68% total
- **Rural Hospitals**: 21% at capacity, 10% over capacity, 31% total
- **Teaching Hospitals**: 28% at capacity, 47% over capacity, 75% total
- **Non-teaching Hospitals**: 25% at capacity, 20% over capacity, 45% total
- **All Hospitals**: 25% at capacity, 25% over capacity, 50% total

ED is “At” Capacity | ED is “Over” Capacity
---|---

http://www.hospitalconnect.com/ahapolicyforum/reports/index.html
Vacancy Rates for Selected Hospital Personnel - 12/2005

- Registered Nurses: 8.5%
- Nursing Assistants: 7.6%
- LPNs: 7.3%
- Lab Techs: 6.3%
- Imaging Techs: 5.9%
- Pharmacists: 4.4%

118,000 RN Vacancies*

[Link to Hospital Connect]
# Surge Capacity Prediction

Table 1. Number of Episodes of Illness, Healthcare Utilization, and Death Associated with Moderate and Severe Pandemic Influenza Scenarios*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Moderate (1958/68-like)</th>
<th>Severe (1918-like)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness</td>
<td>90 million (30%)</td>
<td>90 million (30%)</td>
</tr>
<tr>
<td>Outpatient medical care</td>
<td>45 million (50%)</td>
<td>45 million (50%)</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>865,000</td>
<td>9,900,000</td>
</tr>
<tr>
<td>ICU care</td>
<td>128,750</td>
<td>1,485,000</td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>64,875</td>
<td>742,500</td>
</tr>
<tr>
<td>Deaths</td>
<td>209,000</td>
<td>1,903,000</td>
</tr>
</tbody>
</table>

*Estimates based on extrapolation from past pandemics in the United States. Note that these estimates do not include the potential impact of interventions not available during the 20th century pandemics.

Source: HHS Pandemic Influenza Plan
Challenges of Medical Surge

• Facilities
• Personnel
• Standards of Care
• Equipment & Supplies
• PPE

Ticket area at the Louis Armstrong International Airport, NO
Health Care Workers

- Protection of families
- Critical workers may not be available for duty
- Over 40% of the SARS infections in Toronto were health care workers

Health Care Worker Wearing PAPR for Demonstration
www.cdc.gov