Preparing for the Next Wave
H1N1

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What is a “Pandemic”?

“A pandemic is basically a global epidemic – an epidemic that spreads to more than one continent.”

— Dan Epstein

World Health Organization (2009)
What is “influenza”? 

- **3 Types**
  - “C” - human & pigs
    - Usually mild
  - “B” - human variety only
    - Can cause epidemics
    - Usually not as severe as “A”
  - “A” - human and animals
    - Source of seasonal influenza
    - Wild migratory birds natural host
    - Potential for pandemic development
Influenza A - Subtypes

- Subtypes based on surface glyco-proteins
  - H → Hemagglutinin
    - 16 possible variations
    - Adhere to host cell
  - N → Neuraminidase
    - 9 possible variations
    - Allows the release of progeny virus from host cell
Virus Attaching to Cell
What are the characteristics of a virus causing a pandemic?

1. Novel strain of flu not previously experienced in human populations
2. A strain that has caused significant mortality among persons contracting the disease
3. Spreads easily from person to person
History of Flu Pandemics

- 1918 H1N1 “Spanish Maiden” (40 million deaths)
- 1957 H2N2 “Japanese Flu” (2 million deaths)
- 1968 H3N2 “Hong Kong Flu” (700,000 deaths)
- 2009 H1N1 “Swine Flu” (486 deaths confirmed, to date)
Past Experience with Pandemics

- 2-3 waves of disease over 18 month period
- Outbreaks last 2-3 months
- Impact 35% population
Situation as it Currently Stands

- H1N1 declared a “Pandemic”
  June 11, 2009 by World Health Organization
- Reflects *spread* of disease NOT *severity* of disease
- All 50 United States
- 70 countries
- Active in Southern Hemisphere
How does influenza spread?

1. Viral Shedding from the Respiratory Tract
   ○ 24-48 hours before illness noted
   ○ 24-72 hours peak
   ○ 5 days-before titers are low or undetectable
   ○ Children may shed virus earlier and longer than adults.

2. Large-Droplet and Aerosol Transmission
   ○ Cough or sneeze
   ○ Hand contamination
   ○ Surface contamination
Transmission

- Amplification
  - Children
  - Group living/close proximity
  - Mass gatherings

- Infectiousness
  - Incubation 48 hours
  - Serial Interval 2-4 days (length of time to share this bug with two of your closest friends!)
Typical Signs and Symptoms

- Fever
- Achy muscles
- Headache
- Nonproductive cough
- Sore throat
- Runny nose
### “Flu” or “Cold”

<table>
<thead>
<tr>
<th>Questions to ask concerning…</th>
<th>Flu</th>
<th>Cold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was onset of illness</td>
<td>Sudden</td>
<td>Gradual</td>
</tr>
<tr>
<td>Do you have a fever?</td>
<td>High fever</td>
<td>Lower fever</td>
</tr>
<tr>
<td>Is your fatigue level</td>
<td>Severe</td>
<td>Mild</td>
</tr>
<tr>
<td>Is your cough</td>
<td>Severe</td>
<td>Mild</td>
</tr>
<tr>
<td>Is your throat</td>
<td>Sore</td>
<td>Sore</td>
</tr>
<tr>
<td>Is your head</td>
<td>Achy</td>
<td>Headache-free</td>
</tr>
<tr>
<td>Is your appetite</td>
<td>Decreased</td>
<td>Decreased</td>
</tr>
<tr>
<td>Are your muscles</td>
<td>Achy</td>
<td>fine</td>
</tr>
<tr>
<td>Do you have chills?</td>
<td>Chills</td>
<td>No chills</td>
</tr>
</tbody>
</table>

If most of your answers fall into the first category, then you likely have the flu. If most of your answers fall into the second category, then you likely have a cold. Unless they’re severe, flu symptoms are treated the same as cold symptoms, but you should NOT self-diagnose. If you are ill, visit your healthcare professional.

Adapted from Roche Laboratories, Inc. Document
Flufacts.com/about/cold.apx
Is it a cold or flu?
What to do if you feel sick:

- Stay home
- **Call** employer and healthcare provider
- Cover cough/sneezes
- Wash hands
- Sanitize common areas
- Avoid social interaction for **7 days after the onset of illness or 24 hours after all symptoms subside.**
Emergency Warning Signs

● In children:
  ● Fast breathing or trouble breathing
  ● Bluish or gray skin color
  ● Not drinking enough fluids
  ● Severe or persistent vomiting
  ● Not waking up or not interacting
  ● Being so irritable that the child does not want to be held
  ● Flu-like symptoms improve but then return with fever and worse cough
Emergency Warning Signs

- **In adults:**
  - Difficulty breathing or shortness of breath
  - Pain or pressure in the chest or abdomen
  - Sudden dizziness
  - Confusion
  - Severe or persistent vomiting
  - Flu-like symptoms improve but then return with fever and worse cough
What Can I Do to Reduce Risk?

- Proper hand washing techniques
  - Soap and water x 20 seconds
  - Alcohol based cleaner
  - Before eating, cooking, after toileting, upon returning home
- Avoid touching eyes, nose & mouth
- Avoid close contact with sick people
- Avoid heavily populated venues
What if you have to cough or sneeze?

- “Vampire” Cough (or sneeze) into the crook of your elbow
- If you use a tissue to capture your cough or sneeze…toss that tissue immediately.
- WASH YOUR HANDS!
This type of mask is only effective for helping prevent the spread of your germs to others.
Treatment Methods

- Vaccines
- Antivirals
- Medication
- Prevention
Vaccines – if they are available

- May need up to 3 Vaccines
  - 1 regular seasonal influenza injection
  - 2 H1N1 influenza injections

- Considerations
  - Cost
  - Availability
  - Willingness of population
Prepare for the worst...

- Two week supply of food and water
- Mechanical can opener
- Cleaning supplies
- Toiletries/Hygiene supplies
- Battery operated radio, flash lights
- Pet supplies!
Medical Supplies

- Medicines for fever, allergies, nausea, diarrhea
- Prescription medications
- Thermometer
- Well stocked first aid kit
- Hand washing supplies
- Plastic trash bags
- Tissues, toilet paper, personal hygiene supplies
Reliable Resources

- World Health Organization
  http://www.who.int/topics/influenza/
- National Institutes of Health
  http://www.niaid.nih.gov/topics/Flu/understandingFlu/DefinitionsOverview
- Centers for Disease Control and Prevention
  http://www.cdc.gov
- Department of Health and Human Services
  http://www.hhs.gov
  www.PandemicFlu.gov
- Texas Department of State Health Services
  http://www.dshs.state.tx.us/programs/ppquery.asp
- Tarrant County Public Health
  http://www.tarrantcounty.com/ehealth
- TCU Office of Emergency Preparedness and Safety
  http://www.saf.tcu.edu; 817-257-6363
References


