The Economist

The pandemic threat
How scared should you be?
New Influenza A (H1N1),
Number of laboratory confirmed cases and deaths as reported to WHO

Status as of 12 May 2009
06:00 GMT

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Map produced: 12 May 2009 06:00 GMT
Figure 5. Hospital Emergency Department Syndromic Surveillance (HEDSS) System: Percent of total emergency department visits for "fever/flu" syndrome category, 2008-09 influenza season compared to past seasons.
PANDEMIC INFLUENZA PHASES

- PHASES 1-3:
  - Predominantly animal infections; few human infections

- PHASE 4:
  - Sustained human to human transmission
  - Widespread human infection

- POST PEAK:
  - Possibility of recurrent events

- POST PANDEMIC:
  - Disease activity at seasonal levels

PHASES 5-6 / PANDEMIC

TIME
WHO Phase of Pandemic Alert

Phase 5 is characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.
Phase 6, the pandemic phase, is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase will indicate that a global pandemic is under way.
Understanding pandemics

- **Epidemic**: serious outbreak in a single community, population or region

- **Pandemic**: epidemic spreading around the world affecting hundreds of thousands of people, across many countries
Flu Terms

- Seasonal (or common) flu
- Avian (or bird) flu
- Swine flu
- Pandemic flu
What causes pandemic flu?

- Emergence of a new flu virus
- New virus passes easily from person to person
- Few, if any, people have any immunity
- This allows it to spread widely, easily and to cause more serious illness
Who is at risk?

- Everyone is at risk
- Certain groups may be at greater risk of serious illness than others
- Until the virus starts circulating we will not know for sure who is at most risk
Is there a vaccine?

- Because the virus will be new, there will be no vaccine ready to protect against pandemic flu
- A specific vaccine cannot be made until the virus has been identified
- Cannot be predicted in the same way as ‘ordinary’ seasonal flu
- ‘Ordinary’ flu vaccine or past flu jab will not provide protection
What is influenza?

- An acute illness resulting from infection by an influenza virus
- Highly infectious
- Can spread rapidly from person to person
- Some strains cause more severe illness than others
Symptoms

- Generally of sudden onset
- Fever, headache, aching muscles, severe weakness
- Respiratory symptoms e.g. cough, sore throat, difficulty breathing
Incubation period of influenza

- Estimates vary
- The range described is from 1 to 4 days
- Most incubation periods are in the range of 2-3 days
How influenza spreads

- Easily passed from person to person through coughing and sneezing
- Transmitted through
  - breathing in droplets containing the virus, produced when infected person talks, coughs or sneezes
  - touching an infected person or surface contaminated with the virus and then touching your own or someone else’s face
Influenza pandemics in last century

<table>
<thead>
<tr>
<th>Year</th>
<th>Strain</th>
<th>Name</th>
<th>Number of confirmed human deaths (USA)</th>
<th>Global deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918-19</td>
<td>H1N1</td>
<td>“Spanish” Flu</td>
<td>650,000</td>
<td>20-40 million</td>
</tr>
<tr>
<td>1957-58</td>
<td>H2N2</td>
<td>“Asian” Flu</td>
<td>70,000</td>
<td>1 million</td>
</tr>
<tr>
<td>1968-69</td>
<td>H3N2</td>
<td>“Hong Kong” Flu</td>
<td>34,000</td>
<td>1 million</td>
</tr>
</tbody>
</table>
Lessons from past pandemics

- Occurs unpredictably, not always in winter
- Great variations in mortality, severity of illness and pattern of illness or age most severely affected
- Rapid surge in number of cases over brief period of time, often measured in weeks
- Tend to occur in waves - subsequent waves may be more or less severe

Key lesson – unpredictability
Hurricanes and Pandemic Severity
Pandemic Severity Index

![Chart showing the severity of the 1918 pandemic]
Projected mortality* of a modern influenza pandemic compared to 20th century pandemics (1918, 1957, 1968)

* Based on 300 million U.S. population

1918

1,800,000 projected deaths
Projected mortality* of a modern influenza pandemic compared to 20th century pandemics (1918, 1957, 1968)

- **Category 5**
  - 1918: 1,800,000 projected deaths
  - Based on 300 million U.S. population

- **Category 4**
  - 1957: 450,000 projected deaths

- **Category 3**
  - 1968: 90,000 projected deaths

- **Category 2**
  - Severe Seasonal Influenza: 900,000 projected deaths

- **Category 1**
  - 2000: Baseline

*Based on 300 million U.S. population*
## Most Likely Estimates of Potential Impact of an Influenza Pandemic with a 30% Illness Rate in CT

<table>
<thead>
<tr>
<th>Category</th>
<th>Category 2 (1968-like)</th>
<th>Category 5 (1918-like)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ill, No medical care</td>
<td>474,089</td>
<td>422,083</td>
</tr>
<tr>
<td>Outpatients</td>
<td>563,647</td>
<td>504,806</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>12,451</td>
<td>102,348</td>
</tr>
<tr>
<td>Deaths</td>
<td>2,902</td>
<td>23,852</td>
</tr>
<tr>
<td>Totals</td>
<td>1,053,089</td>
<td>1,053,089</td>
</tr>
</tbody>
</table>
Between a virus and a hard place

Complacency, not overreaction, is the greatest danger posed by the flu pandemic. That’s a message scientists would do well to help get across.

Damn if you do, damned if you don’t. The emergence of a new, swine-flu-related H1N1 strain of influenza in people in North America, with sporadic cases elsewhere in the world, has left the US Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, and the World Health Organization (WHO) in Geneva in an unenviable position.

For more than a week now, these two agencies have been holding daily media briefings to keep the world informed about the rapidly unfolding story. There is ample reason for concern: a new flu virus has emerged to which humans have no immunity, and it is spreading from person to person. That has happened only three times in the past century. The pandemics of 1957 and 1968 were mild in most of falsely reassuring officialese that has too often accompanied past crises. As Peter Sandman, a risk-communication consultant based in Princeton, New Jersey, aptly puts it: “Anyone who’s paying attention gets it that we just don’t know if this thing is going to fizzle, hang in abeyance for months, disappear and then reappear, spread but stay mild, replicate or exceed the 1918 catastrophe, or what. The reiteration of uncertainty and the insistence on what that means — e.g., advice may change; local strategies may differ; inconsistencies may be common — has been almost unprecedentedly good.”

“The risk is not hyping the pandemic threat, but underplaying it.”