Swine Influenza Outbreak

Ministry of Health
Update – 29 Apr 09
Facts on Swine Influenza

• Caused by a reassortant swine influenza A (H1N1) virus with gene segments from swine, avian and human strains.

• Clinical illness range from mild flu symptoms to severe viral pneumonia.

• Deaths have occurred in Mexican cases.

• Susceptible to oseltamivir (Tamiflu) and zanamivir (Relenza).

• Resistant to amantadine and rimantadine
# Key differences between Influenza & SARS

<table>
<thead>
<tr>
<th>Influenza</th>
<th>SARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 24 hours presymptomatic infectious period</td>
<td>• No presymptomatic infectious period</td>
</tr>
<tr>
<td>• Peak infectious period at start of development of symptoms</td>
<td>• Peak infectious period during the 2nd week after development of symptoms</td>
</tr>
<tr>
<td>• Up to 1/3 cases are asymptomatic</td>
<td>• Almost all cases will develop symptoms</td>
</tr>
</tbody>
</table>
Key differences between Influenza & SARS

• Influenza will be harder to contain than SARS

• Contact Tracing may have its benefits in containing the disease in the initial phase of the outbreak

• Contact tracing no longer useful when there is community transmission
WHO Emergency Meeting
25 Apr 2009

• Outbreak in Mexico & US a Public Health Emergency of International Concern

• Did not change Pandemic Alert from Phase 3 to Phase 4.

• Gaps in knowledge on clinical features, epidemiology and virology
WHO Emergency Meeting  
27 Apr 2009

• The Director-General has raised the level of influenza pandemic alert from the current phase 3 to phase 4.

• The change to a higher phase of pandemic alert indicates that the likelihood of a pandemic has increased, but not that a pandemic is inevitable.
Update – Mexico (1)

• Cases may have started in Feb / March.

• Small increase from normal pattern

• Initially thought to be unusually severe outbreak of seasonal flu.
Update – Mexico (2)

- As of 27 Apr 09, Mexico Health Minister said that Mexico's probable death toll from swine fever rose to 149, with 20 lab confirmed cases. WHO spokesperson said that there were at least 26 lab confirmed cases in Mexico.

- As of 28 Apr 09, the probable number of death cases in Mexico has risen to 152.
Updates on Measures taken by Mexico (as 29 Apr 09)

• Schools and universities closed until further notice.

• Restaurants ordered to only serve takeaway meals.

• Bars, clubs, movie theaters, pool halls, gyms, sport centers and convention halls have been told to close until 5 May 09.

• Considering shutting down the bus and subway system.

• Citizens are asked to avoid large crowds, refrain from kissing, and stay at least 6 feet from one another.
Update – US

- 65 confirmed cases (as of 28 Apr 09)

- 10 in California, 6 in Texas, 2 in Kansas, 45 in NYC, 1 in Indiana, 1 in Ohio

- Five of the patients are now in hospital – 3 in California and 2 in Texas with age ranging from 7 to 54 years old
Update on Measures taken by USA

• Declared public health emergency.

• Washington DC has issued travel alert warning against non-essential travel to Mexico

• Releasing 25% of the national stockpile of 50 million doses of Tamiflu and Relenza anti-viral drugs.
Update – Canada

• 4 confirmed swine flu cases in Nova Scotia and 2 confirmed cases in British Columbia.

• IHR-WHO: The 4 confirmed Nova Scotia cases were students that did NOT have any travel history to Mexico but a group of other students from the same school went to Mexico (1-8 Apr) and several of them had developed ILI symptoms in the 2nd week of Apr but were not reported.

• Both British Columbia cases had independent travel histories to Mexico.
### Status

#### With Confirmed Cases
- *USA (65)
- *Mexico (26)
- *Canada (6)
- New Zealand (3)
- Scotland (2)
- Spain (2)
- Israel (2)
- Costa Rica (1)

* Affected Areas

#### With Suspected Cases Only

**Americas**
- Columbia (9)
- Chile (8)
- Peru (1)

**Europe**
- Ireland (3)
- Czech Republic (3)
- France (1)
- Italy (1)

**Europe**
- UK (17)
- Belgium (6)
- Sweden (5)
- Denmark (5)
- Switzerland (5)
- Germany (3)

**Asia & Oceania**
- Australia (70)
- Hong Kong (4)
- South Korea (1)
- Thailand (1)
Laboratory Diagnosis

• Untypeable Influenza A

• Confirmation
  – Partial Sequencing for preliminary confirmation
  – Swine Influenza specific PCR
Case Definition (1)

Suspect Case

- Defined as an individual with an acute febrile respiratory illness (fever >38°C) with onset of symptoms:
  - Within 7 days of travel to affected areas; or
  - Within 7 days of close contact with a confirmed or probable case of Swine Influenza A (H1N1);
Case Definition (2)

Probable Case

- Defined as an individual with an acute febrile respiratory illness (fever >38°C) with an influenza test that is positive for Influenza A but is un-subtypeable by reagents used to detect seasonal influenza virus infection, OR;

- an individual with a clinically compatible illness or who died of an unexplained acute respiratory illness who is considered to be epidemiologically linked to a probable or a confirmed case.
Case Definition (3)

Confirmed Case

- Defined as an individual with laboratory confirmed Swine Influenza A (H1N1) virus infection by one or more of the following tests: Real-time RT-PCR; Viral culture;

- Four-fold rise in Swine Influenza A (H1N1) virus specific neutralizing antibodies.
Control measures (1)

- Yellow Alert as of 28 Apr 09
- HOSPITALS/DOCTORS
  - MOH has sent out circulars to doctors and health institutions to alert all doctors to actively look out for cases with Influenza-Like-Illness (ILIs) symptoms and recent travel history to Mexico and affected US states
  - Hospitals have geared up their infectious disease control measures, eg, Health Care Workers in high risk areas in hospitals (EMD, ICU) wearing full PPE & patients in outpatient settings to be triaged and febrile patients to be managed separately with staff in PPE.
  - Restructured Hospitals & Private Hospitals will have their Rapid Response Team in place to respond to suspect cases turning up at their hospitals.
  - Suspect cases detected at the outpatient setting (GP / Polyclinic / TCM clinics) will be sent to TTSH Emergency Department (ED) for investigation
  - Suspect cases who present to EDs or who are current inpatients will be isolated within the hospitals & all confirmed cases will be transferred to CDC.
Control measures (2)

- **AIRPORTS**
  
  - Temperature screening of incoming air travel passengers began at 0800 hours this morning (27 April 09) at Terminals 1, 2 and 3.
  
  - From Wednesday (29 April 2009), the scanners will also be deployed at the Budget Terminal and Seletar Airport.
  
  - The scanners will measure the temperature of passengers just before they undergo immigration checks. Passengers with fever symptoms will undergo a more thorough medical assessment by the medical teams onsite.
  
  - Those who are detected to be febrile and who have a travel history to Mexico and the affected states in the USA or had contact with ill persons with relevant travel history will be sent to TTSH for further investigations.
  
  - At this stage, temperature screening are not extended to the land and sea checkpoints.
Control measures (3)

- **ISSUANCE OF HEALTH ALERT NOTICE**
  
  All passengers entering Singapore will be given a Health Alert Notice advising them to seek immediate medical attention if they develop symptoms and if they had travelled to Mexico and the affected states in the US. This advisory will be amended to include other countries / US States if others become affected.

- **Public Advisory against non-essential travel to Mexico**
DORSCON LEVELS

GREEN
• No novel influenza virus causing severe disease in humans OR
• Occasional animal - human infections
• No Human - Human Transmission or rare cases of spread requiring very close and prolonged contact.
• HCI/ HCW response - current triage of patients with fever in Emergency depts and polyclinics;
• Public response - hygiene measures, mask wearing, social responsibility

YELLOW
• Inefficient human-to-human transmission. Requires sustained close contact.
• Small clusters of cases may occur.
• Isolated imported cases may occur but there is no sustained local transmission.
• HCI/ HCW response - staff in high risk areas (Emergency Depts, ICUs, Triage stations) in PPE
• Public response - GREEN measures + contact particulars recorded when visiting hospitals & clinics.
DORSCON LEVELS

ORANGE
• More efficient human-to-human transmission. Virus not fully transmissible. Requires close contact.
• Larger clusters.
• HCI/HCW response - All areas with patient contact: staff in PPE
• Public response - YELLOW measures + No visitors to hospitals

RED
• Pandemic is underway. Virus fully transmissible.
• Community-level spread.
• Mild - moderate morbidity & mortality (e.g. 1957 & 1968 pandemics)
• HCI/HCW response - ORANGE measures + antiviral prophylaxis when local cases occur.
• Public response - ORANGE measures + social distancing when local cases occur

BLACK
• Pandemic in Singapore with high morbidity and mortality (e.g. 1918 pandemic)
• Healthcare and other social systems overwhelmed.
• HCI/HCW response - as in RED
• Public response - more rigorous social distancing measures
## Snapshot of no. referred as at 1200hrs, 29 Apr 09

<table>
<thead>
<tr>
<th>Status</th>
<th>No. referred</th>
<th>No. tested</th>
<th>No. tested Flu A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. pending</td>
<td>Non Flu A</td>
</tr>
<tr>
<td>Hospitalised</td>
<td>13</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Discharged from ward</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>3</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
**Referral source as at 12noon, 29 Apr 09**

<table>
<thead>
<tr>
<th>Referral source</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changi airport</td>
<td>1</td>
</tr>
<tr>
<td>GP clinic</td>
<td>4</td>
</tr>
<tr>
<td>Polyclinic</td>
<td>4</td>
</tr>
<tr>
<td>SGH – walk in</td>
<td>1</td>
</tr>
<tr>
<td>MINDEF Medical Centre</td>
<td>1</td>
</tr>
<tr>
<td>Unknown/pending epi info</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>
Thank You