Influenza A(H1N1)v Surveillance in Lebanon

Republic of Lebanon
Ministry of Public Health
Epidemiological Surveillance Program
Nada Ghosn, MD

24th October 2009
Outlines

1. Epidemiological terms
2. Surveillance objectives
3. Case definition
4. National statistics
5. Worldwide statistics
6. Containment versus mitigation
7. Inpatients
8. Outpatients
9. School absenteeism
10. Hospital facilities
1. **Epidemic or pandemic** / فاشية أم جائحة

**Epidemiology Terms**

- **Endemic** / مستوطن:
  - A disease that occurs at an expected level in a population in a given time and place

- **Epidemic** / فاشية:
  - When the number of cases of a disease exceeds what is normally expected for that time and place

- **Pandemic** / جائحة:
  - An epidemic that occurs over a large geographic area, or across the whole world
Periodic or pandemic / فاشية أم جائحة

Historical examples of Epidemics and Pandemics / أمثال من التاريخ عن الجائحات والفاشيات

2. Surveillance / الترصد

• Surveillance:
  – Systematic collection of data on health events, compilation, verification, analysis and communication for public health purpose.

• Objectives:
  1. Detect first cases
  2. Monitor the spread of the Influenza virus by time and place
  3. Collect data on disease severity
## 3. Case definition

A person with acute febrile respiratory illness (>38°C):

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confirmed</strong></td>
<td>Laboratory confirmation by PCR-RT or virological culture</td>
</tr>
<tr>
<td><strong>Probable</strong></td>
<td>Positive rapid test for influenza A and negative/unsubtypable virus as tested by reagents used for seasonal influenza virus</td>
</tr>
<tr>
<td><strong>Suspected</strong></td>
<td>Virus exposure:</td>
</tr>
<tr>
<td></td>
<td>- Resides in affected area,</td>
</tr>
<tr>
<td></td>
<td>- or close contact with confirmed case,</td>
</tr>
<tr>
<td></td>
<td>- or travel to affected countries</td>
</tr>
</tbody>
</table>
4.1 Cases by clinical symptoms

Lebanon: Documented confirmed cases of Influenza A(H1N1)v infection by clinical symptoms, as of 28 August 2009 (n=260)
4.2 Cases by age group & gender

Lebanon: Distribution of confirmed cases of Influenza A(H1N1)v infection by age group and gender, as of 28 Aug 2009 (n=655)
4.3 Cases by source of infection

Lebanon: distribution of confirmed cases of Influenza A(H1N1)v infection by source of infection, as of 28 Aug 2009 (nb documented cases= 353)
4.4 Cases by source of infection

Lebanon: Distribution of confirmed cases of Influenza A(H1N1)v by week and source of infection, as of 28 August 2009 (n=333)
5.1 World: Cumulative Number of Confirmed of Influenza A(H1N1)v in the World

New Influenza A (H1N1),
Number of laboratory confirmed cases and deaths as reported to WHO

Status as of 14 May 2009
08:00 GMT

World statistics
MAY 2009
Confirmed CASES

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: 14 May 2009 08:00 GMT

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization
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5.2 World: Cumulative Deaths Number of Confirmed Influenza A(H1N1)v in the World

Timeline (22 July 2009 onwards)
Pandemic (H1N1) 2009 laboratory confirmed cases
And number of deaths as reported to WHO

Status as of: 18 October 2009

Chinese Taipei has reported twenty-three deaths associated with pandemic (H1N1) 2009.
5.3 World: Cumulative Deaths Number of Confirmed Influenza A(H1N1)v in the World

World Health Organization

Status as of: 06 September 2009

Timeline (22 July 2009 onwards)
Pandemic (H1N1) 2009 laboratory confirmed cases
And number of deaths as reported to WHO

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## 6.1 Mitigation or Containment

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Mitigation</th>
<th>Containment/Delaying</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduce overall number of deaths and cases</td>
<td>Attempt to prevent the spread of the virus:</td>
</tr>
<tr>
<td></td>
<td>Ensure health care for cases</td>
<td>- Case-finding: detecting imported cases and first generation transmission</td>
</tr>
<tr>
<td></td>
<td>Maximize care for cases</td>
<td>- Contact tracing and care: identification, treatment, quarantine/isolation</td>
</tr>
<tr>
<td></td>
<td>Reduce transmission</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protect the vulnerable ones</td>
<td></td>
</tr>
</tbody>
</table>

| WHO phases                  | Phases 5 and 6                                                               | Phases 3 and 4                                                                     |
6.2 Surveillance: Moving to community transmission

- Surveillance
  - Deaths
  - Inpatients
    - Pneumoniae
    - Acute Respiratory Distress
    - Causes of death at hospital setting
  - Outpatients
    - Data collection on acute respiratory infection through sentinel surveillance system
    - Virological surveillance
      - Sentinel sites for specimen collection
    - Monitor school absenteeism

- Health care
  - Monitoring beds, ICU, ventilator availability across country
6.3 Surveillance:
Moving to community transmission

• Indications for laboratory testing (MOPH circular 2009)
  • Patients with pneumonia
  • Patients with acute respiratory distress
  • Patients with complications
  • Patient with underlying health condition
  • Pregnant women
7.1 Inpatients: MOPH hospital admission for Upper Respiratory Infection / admissions for respiratory diseases, by week, Lebanon, 2008W01-2009W43
7.2 Inpatients: MOPH hospital admission for Lower Respiratory Infection / admissions for respiratory diseases, by week, Lebanon, 2008W01-2009W43

![Graph showing the percentage of Lower Respiratory Infection admissions over time, with a comparison between 2008 and 2009.](image-url)
7.3 Inpatients: Reported new admissions of acute respiratory distress to ICU, Lebanon, 2008W01-2009W39
8.1 Outpatients: A3S – Ambulatory surveillance system

- December 2008:
  - Network of GPs, family medicine, pediatricians
  - Collection of data: # of cases with acute respiratory infection

- August 2009:
  - Collection of specimens (nasal swabs) for influenza virus testing
  - Influenza viruses: B, A, A(H1) seasonal, A(H1N1)v pandemic, A(H3), A(H5)
  - Physicians:
    - Initially: 1 site per mohafaza,
    - Later: 1 site per caza
  - Per site: 3 specimens per week, 3 first patients with ILI
  - Tested at Research lab. of RHUH
8.2 Outpatients: A3S, completeness of reporting of the sentinel surveillance system by caza, Lebanon, 2009W39
8.3 Outpatients: A3S - Ratio of acute respiratory infection by physician.week, Lebanon, 2008W50-2009W39

- Blue line: under 5
- Red line: above 5

**Weeks**
- 2008: 50-52, 1-48
- 2009: 1-52

**Ratio/physician.week**
- Y-axis ranges from 0 to 40.
8.4 Outpatients: Influenza like illness serology, Lebanon, 2009W35-2009W42

The bar chart shows the number of samples (nb) for swab, Inf A, and Inf A(H1N1)v for each week from 2009W35 to 2009W42. The chart indicates a significant increase in swab samples in 2009W39 compared to other weeks.

- Week 35: Swab 14, Inf A 0, Inf A(H1N1)v 1
- Week 36: Swab 12, Inf A 0, Inf A(H1N1)v 0
- Week 37: Swab 12, Inf A 0, Inf A(H1N1)v 0
- Week 38: Swab 6, Inf A 0, Inf A(H1N1)v 0
- Week 39: Swab 16, Inf A 0, Inf A(H1N1)v 0
- Week 40: Swab 8, Inf A 0, Inf A(H1N1)v 0
- Week 41: Swab 8, Inf A 0, Inf A(H1N1)v 1
- Week 42: Swab 8, Inf A 0, Inf A(H1N1)v 0
9.1 School absenteeism monitoring: objective

- To monitor/measure weekly absenteeism proportions in schools in order to:
  - Detect alerts
  - Verify and confirm outbreaks of influenza A(H1N1)v and other diseases
  - Assist decision makers on proper control measures.
9.2 School absenteeism monitoring: materials & methods

• Data:
  – Number of daily absents in schools
  – Diseases reported in medical reports
  – Completeness of data

• Forms:
  – Weekly form on school absenteeism and reported diseases
  – Weekly chart completeness (reception, missing data)
الاستمارة الأسبوعية الخاصة بإحصاءات الغياب

الاستمارة من قبل المرشد الصحي في المدرسة وترسل إلى قسم الصحة العامة في القضاء

الاسبوع بدأ من الاثنين [__]__

<table>
<thead>
<tr>
<th>اسم المرشد الصحي</th>
<th>الرقم الرسمي للمدرسة</th>
</tr>
</thead>
<tbody>
<tr>
<td>رقم هاتف النائب</td>
<td>اسم المدرسة</td>
</tr>
<tr>
<td>رقم هاتف الخليوي</td>
<td>البلدة</td>
</tr>
<tr>
<td>التاريخ</td>
<td>القضاء</td>
</tr>
</tbody>
</table>

1. إحصاءات الغياب

<table>
<thead>
<tr>
<th>المجموع</th>
<th>عدد الغياب</th>
<th>الاثنين</th>
<th>الثلاثاء</th>
<th>الأربعاء</th>
<th>الخميس</th>
<th>الجمعة</th>
<th>السبت</th>
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<tbody>
<tr>
<td>المسجل</td>
<td>الصفوف</td>
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<td>الموقعتين</td>
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</tbody>
</table>

2. عدد الأطفال الذين تم إعادتهم إلى المنزل بسبب النوبة تنفسية جاد [__]__

3. بعد قراءة التقارير الطبية المتوقرة للمتفئبين: [__]__
   عدد التقارير الطبية المتوقرة للمتفئبين:
   - النوبة تنفسية جاد [__]__
   - النوبة متوسطة جاد [__]__

التوقيع: [__]__

ملاحظات:
### 9.3 School absenteeism monitoring: human resources

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Level</th>
<th>Added terms of reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEHE</strong></td>
<td>School</td>
<td>Collect data, fill form on absenteeism, send form to MOPH_caza</td>
</tr>
<tr>
<td></td>
<td>Health educator / nurse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caza Health education coordinators</td>
<td>Follow up with non compliant schools</td>
</tr>
<tr>
<td></td>
<td>Mohafaza Health education unit</td>
<td>Supervise implementation, receive national DB from MOPH_national</td>
</tr>
<tr>
<td><strong>MOPH</strong></td>
<td>Caza Caza public health</td>
<td>Receive forms from schools, data entry, send DB to MOPH_national, fill completeness charts and send them to MEHE_caza/Mohafaza</td>
</tr>
<tr>
<td></td>
<td>Mohafaza Surveillance</td>
<td>Assist MOPH_caza</td>
</tr>
<tr>
<td></td>
<td>National Surveillance</td>
<td>Receive DBs, merge them into national DB, analyse data, write report, forward &amp; feedback</td>
</tr>
<tr>
<td><strong>Joint Committee</strong></td>
<td></td>
<td>Discuss report and actions</td>
</tr>
</tbody>
</table>
9.4 School absenteeism monitoring: data flow

- **MOPH_caza**
- **MEHE_caza**
- **MEHE_mohafaza**
- **MOPH_national**
- **MEHE_national**
- **Joint Comittee**

**Data Flow**:
- DSL to **DB_c** to **MOPH_national**
- **DSL** to **DB_n** to **MEHE_national**
- Fax from **MEHE_caza** to **School**
- Fax from **MEHE_mohafaza** to **School**
- **Decision** to **Joint Comittee**

**Abbreviations**:
- DSL: Digital Subscriber Line
- DB: Database
- MEHE: Ministry of Education and Higher Education
- MOPH: Ministry of Public Health
# 9.5 School absenteeism monitoring: schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Main activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week(0)</td>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friday</td>
<td>Absenteeism forms filled and sent</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>Completeness charts filled and sent</td>
</tr>
<tr>
<td>Week(1)</td>
<td>Monday</td>
<td>Follow up for compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data entry into caza DB</td>
</tr>
<tr>
<td></td>
<td>Tuesday</td>
<td>Caza DB sent to National level</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>Merging DB</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>Analysis and report generation</td>
</tr>
<tr>
<td></td>
<td>Friday</td>
<td>Joint committee meeting</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td></td>
</tr>
</tbody>
</table>
9.6 School absenteeism monitoring: expected results

% of weekly Absenteeism / % نسبة الغياب

Nb, Dismissal for flu / عدد الأطفال الذين أعيدوا إلى المنزل

% of flu in medical reports / نسبة التقارير الطبية للمتعرضين الوارد فيها التهاب تنفيسي حاد

Fictive data
10. Hospital facilities

• Objective:
  – To monitor bed, ICU occupancy for during influenza A(H1N1)v wave, by time and place

• Methods:
  – Web-based application
  – Designation of focal person at hospital level
  – Data collection & data entry on:
    • Occupancy of beds, ICU, ventilators
    • Number of cases suspected for Influenza A(H1N1)v infection
Thank you