Overview of Influenza Surveillance in Korea

SUNHEE PARK
I. Introduction

II. Influenza Surveillance System

III. Use of Surveillance Data
General information about Korea

**Area and Population**

<table>
<thead>
<tr>
<th>Country</th>
<th>Area</th>
<th>Population (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>99,646㎢, 109th of the world in size</td>
<td>50,516 ('10)</td>
</tr>
<tr>
<td>North Korea</td>
<td>122,762㎢</td>
<td>24,000 ('10)</td>
</tr>
<tr>
<td>Total</td>
<td>222,408㎢, 84th of the world in size</td>
<td>74,516</td>
</tr>
</tbody>
</table>

**Urbanization Rate:** 90.8%

**KTX (Korea Train Express)**

**Climate:** 4 seasons

**KCDC (OHTAC, Osong Health Technology Administration Complex)**

**Airports**

**Seaports**

**Border crossings**
Organization of KCDC

Director of KCDC

Director of KNIH

Center for Infectious Diseases
- Enteric Bacterial Infections
- Anti-microbial Resistance
- Bacterial Respiratory Infections
- High-risk Pathogen Research

Center for Immunology & Pathology
- Influenza & Respiratory Viruses
- AIDS
- Malaria & Parasitic Diseases
- Intractable Diseases

Center for Biomedical Sciences
- Brain Diseases
- Metabolic Diseases
- Cardiovascular Diseases
- Life Science Research Management

Center for Genome Sciences
- Epidemiology & Health Index
- Biobank for Health Sciences
- Bio-Medical Informatics
- Structural & Functional Genomics

General Affairs & Innovation

Infectious Disease Surveillance & Response
- Quarantine Support
- Infectious Diseases Surveillance
- Epidemic Intelligence Service
- Bioterrorism Preparedness & Response

13 Nat'l Quarantine Stations

Planning & Research
Biosafety Evaluation & Control
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**Surveillances for Influenza**

- **KISS (Korean Influenza Surveillance Scheme)**
  - Established in 2000-2001 season
  - Monitored trends of ILI and virus types

- **Supplementary surveillances**
  - School-based Surveillance System
    - Established in 1999
    - Monitored trends of absenteeism from influenza and common cold among school aged children and teenagers
  - Emergency Department based Syndromic Surveillance
    - Established in 2002
    - Monitored trends of acute respiratory syndrome of patients who visit ER in 125 hospitals nationwide
  - Hospital based surveillance system
    - No. of Community acquired pneumonia from 97 hospitals
    - To infer the severity of the influenza
Korean Influenza Surveillance Scheme (KISS)
(web-based clinical and laboratory surveillance system)

- KCDC
- Provincial Health Dept
- Sentinel Physician
- Public Health Center
- Internet DB Server
- PHERI*

* PHERI : Provincial Health & Environment Research Institute
Objectives of KISS

- Early detection for the increase of ILI in the Korean communities
- Efficient performance for prevention and management against influenza epidemic
- Strengthening the surveillance and the management system preparing for Pandemic Influenza
## Clinical Surveillance System

<table>
<thead>
<tr>
<th></th>
<th>Weekly report</th>
<th>Daily report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participating clinics</strong></td>
<td>840 clinics</td>
<td>100 clinics</td>
</tr>
<tr>
<td><strong>Reporting interval</strong></td>
<td>Weekly</td>
<td>Daily</td>
</tr>
<tr>
<td><strong>Operation period</strong></td>
<td>Year-round</td>
<td>September~May, following year</td>
</tr>
<tr>
<td><strong>Reporting method</strong></td>
<td>Internet or FAX</td>
<td>Internet or FAX</td>
</tr>
<tr>
<td><strong>Reporting rate</strong></td>
<td>91.9%</td>
<td>83.8%</td>
</tr>
<tr>
<td><strong>Composition</strong></td>
<td>Pediatricians (32%), Internal medicine (36%), Family physicians (8%)</td>
<td>Pediatricians (37%), Internal medicine (50%), Family physicians (6%)</td>
</tr>
</tbody>
</table>
### Operation of KISS

#### Laboratory Surveillance System

<table>
<thead>
<tr>
<th>Participating clinics</th>
<th>Weekly report</th>
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<tr>
<td>96 clinics</td>
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<tr>
<td>- Internal medicine (36%)</td>
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<th>Sampling</th>
<th>Weekly</th>
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<tr>
<th>Operation period</th>
<th>Year-round</th>
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<table>
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<tr>
<th>Sample transportation</th>
<th>Specified transportation agency</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Virus isolation (2010-2011 seasons)</th>
<th>1,976 isolates (11,963 specimens)</th>
</tr>
</thead>
</table>

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<tr>
<th>Methods</th>
<th>Realtime RT-PCR and virus isolation</th>
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</table>
Clinical surveillance

- Case Definition of ILI (Influenza-like illness)
  - Fever $\geq 38^\circ\text{C}$, and
  - Respiratory symptoms (cough or sore throat)

- Data elements for reporting
  - Numbers of ILI patients according to age group
    (0~2, 3~6, 7~19, 20~49, 50~64, $\geq$ 65)
  - Total No. of patients visited during the week
Comparison between Influenza virus Isolation & ILI proportion (2000-2001 ~ 2011-2012 season)
Isolation of Influenza virus
(2011-2012 season)
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Estimation of National Baseline from the Previous 3 Season’s Data

National baseline: Mean ILI from previous 3 season’s ILI during non-epidemic season + 2SD

※ non-epidemic season
= periods of positive rate of virus isolation that are under 10%
Process to decide national baseline

- Calculate national baseline by US CDC’s formula
  - 2011-2012 season national baseline
    = 3.8 (ILI per 1,000 consultations)
  - regional baseline calculated differently due to variability in regional data level
    - it is not appropriate to apply the national baseline to detect regional outbreak

- Decide a new national baseline consulted by Influenza specialist in conference

- Apply national baseline to detect influenza outbreak
Nationally “Alert” for ILI outbreak through media etc.
- If ILI indicates above national baseline, and
- If it can be predicted to increase from surveillance data, and
- If the influenza subcommittee of KACIP* decides an “Alert”
  ➔ Taking into account real conditions given by the KCDC
* Korea Advisory committee on immunization practices

Recommend to get a flu vaccine to high-risk groups
- Recommended timing of vaccination: October through March (in 2011-2012 seasons)

Health insurance covers Influenza antiviral drugs during epidemic season
- only high-risk groups
- Within 2 days of getting sick (except for hospitalization)
- According to doctor’s instructions for hospitalized people
High-risk groups for vaccination by KACIP

- Health care personnel
- Children younger than 5 years old
- Pregnant women
- People 50 years of age and older
- People of any age with certain chronic medical conditions
- People who live in nursing homes and other long-term care facilities
- Caregivers of children less than 6 months old
- People who live with or care for those at high risk for complication from flu, including:
  - Household contacts of person at high risk for complications from the flu
  - Household contacts or home caregivers of persons aged over 65 years old
Amounts of flu vaccination

- 254 public health centers (PHC) and over 1000 private clinics provide flu vaccination in September~March

- Especially PHC administer flu vaccines free of charge for people
  - over 65 years old
  - economically vulnerable

- Other people receive a flu vaccine in private clinics with around 30 US$

- Each seasons around 6 to 9 millions of people got flu vaccination

- A coverage rate among people of over 65 years old showed approximately 64%
Data dissemination/Communication

- Influenza Weekly Report
  - Released via Internet, e-mailing system
  - Website of KISS (http://www.cdc.go.kr)

- Annual Report of Seasonal Influenza Surveillance
  - Distributed by internet & printed materials

- Public Health Weekly Report (PHWR)
  - Started on 4th April, 2008
  - Released via Internet, e-mailing system

- Press release
  - released based on outbreak
Korean Influenza Surveillance Scheme

Overview of KISS

Introduction

Influenza is an important public health problem which occurs almost every winter in temperate climates and is often associated with increased rates of hospitalization and death.

History of Korean Influenza Surveillance Scheme (KISS)

Korean National Institute of Health (KNIH) started the laboratory surveillance for influenza virus isolation in 1968 in collaboration with WHO (World Health Organization). The Laboratory of Respiratory Viruses in KNIH was designated as a National Influenza Center (NIC) by the WHO in 1972.

In 1997, the Laboratory of Respiratory Viruses started influenza surveillance with about 70 voluntary sentinel physicians. Influenza was designated as a Class III National Notifiable Communicable Disease according to the 9th Revised Communicable Diseases Prevention Act in 2000. The Korean Government extended influenza surveillance by launching the Korean Influenza Surveillance Scheme (KISS) nationwide since the from 2000-2001 season.

Aim of KISS

To monitor the trends of influenza activities and to detect influenza epidemics as early as possible in Korea.
2012년도 제19주 발생개요
1. 인플루엔자 의사환자(ILI) 발생 현황
   - 제19주 인플루엔자 의사환자 분율은 의사환자 1,000명당 3.4명으로 기산주(5.0)보다 감소하였음
   * A/H1N1pdm09 인플루엔자 대응검사를 제외한 전년 3년 간은 주 유해사기 평균 인플루엔자 의사환자 분율(3.7/1,000명)보다 낮은 수준임
   * 12.15자료 ‘인플루엔자 유해사기의 보’를 발령/12.21자료 ‘갑염의 당부’ 보도참고자료 배포하였음/12.30자료 ‘인플루엔자 유해 당분간 저속 주의 당부’ 보도참고자료 배포
2. 인플루엔자 및 호흡기바이러스 검출 현황
   - 2011-2012절기2 들어 총 3,767주(A/H1N1형 1,942주, B형 1,825주)의 인플루엔자 바이러스가 확인됨
   - 2012년도 제19주에 의뢰된 232건 중 총 12주(A/H1N1형 1주, B형 11주)의 인플루엔자바이러스가 검출되어 검출율은 5.2%임
Thank you for your attention!

Q & A