Monitoring Infectious Diseases Using Maine’s Syndromic Surveillance System

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**BACKGROUND**

- Syndromic surveillance may be defined as the collection and analysis of health-related data that precede diagnosis or laboratory confirmation and signal with sufficient probability (aberration detection) a case or an outbreak to warrant further public health response.
- Maine CDC started a syndromic surveillance system in the fall of 2007 with four hospitals.
- The syndromic surveillance system is used to monitor syndromes of public health importance.
- Maine CDC uses syndromic surveillance to detect health events earlier in the disease continuum, verify outbreaks, detect the beginning of disease seasons, monitor syndrome trends, supplement traditional surveillance, and provide feedback to public health partners.

**RATIONALE**

- Hospitals with Emergency Departments (ED) are recruited to participate.
- A signed Memorandum of Understanding (MOU) to share data is required.
- ED data for all visits from 12 AM – 11:59 PM is sent the following morning.
- Variables include: hospital name, date of visit, age, gender, town, county, zip code, chief complaint, diagnosis, and disposition.
- Maine CDC uses a federal CDC designed product, Early Aberration Reporting System (EARS), to analyze emergency department data.
- Chief complaint or similar variable is analyzed for each visit to the emergency department.
- ED visits are classified into 14 different syndromes: 9 infectious, 4 environmental and an ‘other’ category (Table 1).
- Visits can fall into more than one syndrome.
- Aggregate data for four syndromes (fever, Influenza-like Illness (ILI), gastrointestinal (GI) and vomiting) and total number of visits is included with the Distribute Project each day to contribute to national and regional surveillance efforts.

**METHODS**

- Complete an evaluation of the syndromic surveillance system
- Expand database to include all 33 variables from the syndromic surveillance system
- Implement Meaningful Use initiative to accept data from HL7 messages
- Expand syndromic surveillance system to include data from all EDs

**RESULTS**

- EARS produces a graph of number of visits for each syndrome by hospital and an aggregate state graph (Figure 2 - sepsis syndrome not included).
- Syndromic surveillance graphs provide a general picture of the symptoms seen in the community on that day; not all visits will be classified correctly.
- Epidemiologist reviews daily EARS output for any aberrations.
- Syndromic data for ILI and fever are included in the weekly influenza report.
- Any aberrations considered by an epidemiologist to be significant are investigated.

**CONCLUSIONS**

- The trend graphs produced by syndromic surveillance allows epidemiologists to monitor illness in the community and respond as needed.
- Alerts to increases in seasonal diseases allows for early warning and targeted educational messages in a more timely manner.
-任何异常都可能被一个对公共卫生重要的事件的持续监控.
- Any aberrations considered by an epidemiologist to be significant are investigated.

**SOURCES**

   http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5503a1.htm
   http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5503a3.htm
5. Distribute Project www.isdsdistribute.org