Dedicated to enhancing the health and safety of Canadians through public health informatics

Queen’s University Public Health Informatics (QPHI) Team

QPHI Introduction

Dr Kieran Moore, Associate Professor
November 14th 2008, Toronto
Centre for Studies in Primary Care
Department of Family Medicine/Emergency Medicine

www.quesst.ca
Objectives

- Discuss Active Surveillance
- Highlight a few projects
- Keep within 15 minutes!!!
Thanks to...

- KFLA Public Health
- Ministry of Health and Long Term Care
- Queen’s University
- PHAC
- PSI Foundation
Partners

GIS Lab

School of Computing

Sault Ste. Marie Innovation Centre

Infonaut

Putting Health on the Map

The Johns Hopkins University Applied Physics Laboratory
QPHI

- Enhancing the health of Canadians through Public Health Informatics

- Analysis of electronic data sets for real time enhanced surveillance-dashboard

- Multiple disciplines-Computer Engineer and Science, Mathematics, Epidemiology, Geography
Google.org Flu Watch

United States flu activity: Low

2008-2009 Past years

Minimal Low Moderate High Intense

Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
Acute Care Enhanced Surveillance

- Partner with Hospital
- Data share agreements
- All hospitals have EHR, HL7, SSHA
Acute Care Enhanced Surveillance

- Two way street

- Reports-Volume, Demographic and Acuity
Speed of a 747
Active Surveillance

Potential Strategies for Early Detection

- Onset of Symptoms
- Specific Syndrome
- Deaths

Demographics, Chief Complaint, Visit Data

Lab results, X-Rays, etc.

Intel

Biosensors

Courtesy: Michael Wagner, MD, University of Pittsburgh
Data Options for Surveillance

- Telehealth
- Work-school Absenteeism (i.e. Occupational Health)
- Primary Care Clinic
- Emergency Dept
- Over-the-Counter Sales
- Lab test
- Over-the-Counter Sales
QPHI-CSPC Projects

- Acute Care Enhanced Surveillance MOHLTC
- Occupational Health July 1 2008
- Telehealth- December 2007
- Pharmacy Surveillance September 15
- Primary Health Care PHAC
- Geoconnection
- Public Health Primary Care Integration
System Message Log
11/08/2005 00:00 - GI alarm in KFLA by CUSUM where raw count 39.000 exceeded 35.705
Emergency Department (ED) Activity by Syndrome (last 2 months)

Summary: Total ED Visits are lower (4,283 visits) than the previous 2-week period, October 8/08 to October 21/08 (4,549 visits).

Respiratory - One respiratory outbreak was declared on Oct. 23rd in a long-term care facility in the KFL&A area.

GI - There are no current enteric outbreaks at any KFL&A long-term care facilities.

Influenza - There is no confirmed influenza in the KFL&A area. Community influenza immunization clinics begin on Nov. 5.

Other - KGH is reporting an increase in C. difficile associated disease among hospital patients (declared on Nov. 3rd). KGH is still reporting an increase in Vancomycin Resistant Enterococcus (VRE) among hospital patients (since June 12/08).

ED Visits by Syndrome (Fever/ILI and Resp) and Febrile Respiratory Illness (FRI) Positive Visits 3-Day Moving Average, September 5/08 - November 4/08

Gastrointestinal ED Visits to KFL&A Hospitals by Age Group 3-Day Moving Average, September 5/08 - November 4/08

Respiratory-related ED Visits to KFL&A Hospitals by Age Group 3-Day Moving Average, September 5/08 - November 4/08

Websites of Interest:
- Ministry of the Environment: Air Quality Ontario
- MOHLTC: What's New
- Public Health Agency of Canada: FluWatch Travel Health Notices

Admissions of Interest:

<table>
<thead>
<tr>
<th>Date</th>
<th>Age</th>
<th>Sex</th>
<th>Hosp</th>
<th>Reason for Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/23/08</td>
<td>67</td>
<td>M</td>
<td>KGH</td>
<td>STAPH AUREUS BACTEREMIA</td>
</tr>
<tr>
<td>10/27/08</td>
<td>68</td>
<td>F</td>
<td>KGH</td>
<td>QUERY VIRAL GASTRONENTERITIS</td>
</tr>
<tr>
<td>10/28/08</td>
<td>14</td>
<td>M</td>
<td>KGH</td>
<td>BLOODY GASTRONENTERITIS</td>
</tr>
<tr>
<td>10/30/08</td>
<td>7</td>
<td>M</td>
<td>KGH</td>
<td>BLOODY DIARRHEA</td>
</tr>
<tr>
<td>10/31/08</td>
<td>28</td>
<td>F</td>
<td>KGH</td>
<td>ACTIVE PULMONARY TUBERCULOSIS</td>
</tr>
</tbody>
</table>

Relevant Alerts for this Time Frame: None

NOTE: Stacked graphs show the segment of the total visits by each age group. Further details on the absolute volume or syndrome counts can be obtained by contacting EDSS staff at avandijk@kflaphpublichealth.ca or 613-549-1232 x510. All feedback is welcome and appreciated.
**Summary:** Total OH Visits are up (535 visits) from the previous 2-week period, February 14/07 to February 27/07 (408 visits).

**Respiratory**— There are no KGH confirmed respiratory outbreaks for this time period. There were two respiratory/Influenza A outbreaks declared at local long-term care homes during the 2 week period; all have ended. Information on respiratory viral lab testing across Canada can be found at the Public Health Agency of Canada’s [Respiratory Virus Detection](#) website.

**GI** - KGH announced a Gastroenteritis outbreak on Monday March 12th. It is a confirmed Norovirus outbreak. A review of the OH and ED visits have not indicated a substantial increase in gastrointestinal reporting, thus it appears this is an isolated incident, not seriously affecting the KGH staff or Kingston community. There were four enteric outbreaks in local long-term care homes declared, one remains ongoing, as does the KGH outbreak.

**Websites of Interest:**
- MOHLTC [Influenza Bulletin](#)
- MOHLTC Emergency Management Unit: [Important Health Notices](#)
- Public Health Agency of Canada: [FluWatch](#) [Travel Health Notices](#)

---

**Occupational Health (OH) Department Visits by Syndrome (last 2 weeks)**

**Respiratory and Gastrointestinal Initial OH and Emergency Department Visits to KGH (as a proportion of all visits)**

3-Day Moving Average, January 19/07—March 13/07 (2 months)

---

**OH Visits: All, Initial & Follow-up**

February 28/07 - March 13/07

---

**Initial OH Visits by Syndrome (as a proportion of all initial OH visits)**
Project Vision

“To reduce morbidity and mortality in the community from infectious illnesses by providing the right message to the right people in the right place, at the right time.”
Infection Watch Live

- Enables informed decision making in the community.
- Provides the community with current Emergency Department utilization data for respiratory and gastrointestinal illness.
- Representing data by neighborhood enables the community to react to current respiratory and gastrointestinal infections in their area.
Today’s Maps – Adult Respiratory
Today’s Maps – Child Respiratory
Demonstration
Telehealth Respiratory Calls (3 day MA) and Respiratory Virus isolates (x3)
Telehealth Respiratory Calls (x 5)

ED Visits (x1) and Influenza Pos (x3)-Ontario
Public Health Agency of Canada

**FluWatch Program** analyzes data from across the country and issues weekly reports, and coordinates laboratory and virologic surveillance.

**MedEffects Program** analyzes data on adverse antiviral events reported by physicians, pharmacists and consumers.

**Public Health Division, Ontario Ministry of Health and Long-Term Care**
Collects and analyzes influenza activity across the province, shares information with local health units, issues weekly reports during influenza season and biweekly the rest of the year, and reports to PHAC.

**Telehealth** reports ILI calls.

**Institutions** – Long-term care homes, hospitals and other facilities – are required by law to report respiratory infection outbreaks to their local public health unit.

**Physicians, nurses and pharmacists** report adverse vaccine events.

**Local Public Health Unit**
Monitors influenza activity shares information with local health providers, and reports to Public Health Division.

**FluWatch laboratory surveillance.**
Ontario laboratories provide weekly data year-round to PHAC on influenza tests, and information is shared with provinces and territories.

**National Medical Laboratory**
Conducts testing for possible changes to seasonal influenza strains and resistance to antivirals.

**Laboratories** report confirmed cases of influenza to the local public health units.

**Febrile Respiratory Illness (FRI) surveillance.**
All acute and non-acute facilities, and all community care providers are expected to assess all patients/residents/clients for symptoms of FRI and report cases with a travel history to a country with a health alert as well as clusters of FRI to the local public health unit.
Enhanced Surveillance C’s

- Communication
- Collaboration
- Capacity
- Command and Control
- Clarity of roles and responsibilities
- Commitment!!!
TELEHEALTH CALLS PER 1000 CHILDREN 0-4
PUBLIC HEALTH UNITS: WEEK ENDING MAR 5, 2005
(adjusted for intensity of telehealth use)

Legend
Public Health Units
Calls per 1000 infants
- < 1.5
- 1.8 - 2.0
- 2.1 - 2.5
- 2.8 - 3.0
- 3.1 - 3.5
- 3.8 +

Corresponding Telehealth (All calls) and FluWatch Data - 2004/2005 Flu Season
- Influenza +ve
- FeverILI
- Resp Total
TELEHEALTH CALLS PER 1000 CHILDREN 0-4
PUBLIC HEALTH UNITS: WEEK ENDING APR 9, 2005
(adjusted for intensity of telehealth use)

Legend
Public Health Units
Calls per 1000 infants

- ≤1.5
- 1.6-2.0
- 2.1-2.5
- 2.6-3.0
- 3.1-3.5
- 3.6+