

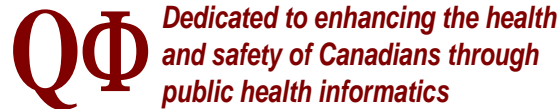
Public Health GIS Projects in Ontario

Infection Watch Live – Real time Reporting of Hospital ED Data for Public Consumption

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Communicable Disease Epidemiologist
KFL&A Public Health

November 30th, 2009

Infection Watch Live Collaborators



Infection Watch Live

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.”

Objectives

- 1) Limit the spread of disease;
- 2) Reduce the impact on hospital emergency departments;
- 3) Save lives among at risk populations (children and elderly); and,
- 4) Better understand the spread of disease.

Infection Watch Live

Project at a Glance

- 1) Enables informed decision making in the community.
- 2) Provides the community with current Emergency Department utilization data for respiratory and gastrointestinal illness.
- 3) Save lives among at risk populations (children and elderly); and,
- 4) Better understand the spread of disease.

Infection Watch Live and EDSS

EDSS – Emergency Department Surveillance System

Real-time - ED visits and admissions to 11 area hospitals (KFL&A, HPE, PCC & LGL Health Units)

Fields Collected

Date and Time of Visit or Admission

Hospital

Age/Sex

Postal Code (5 digits)

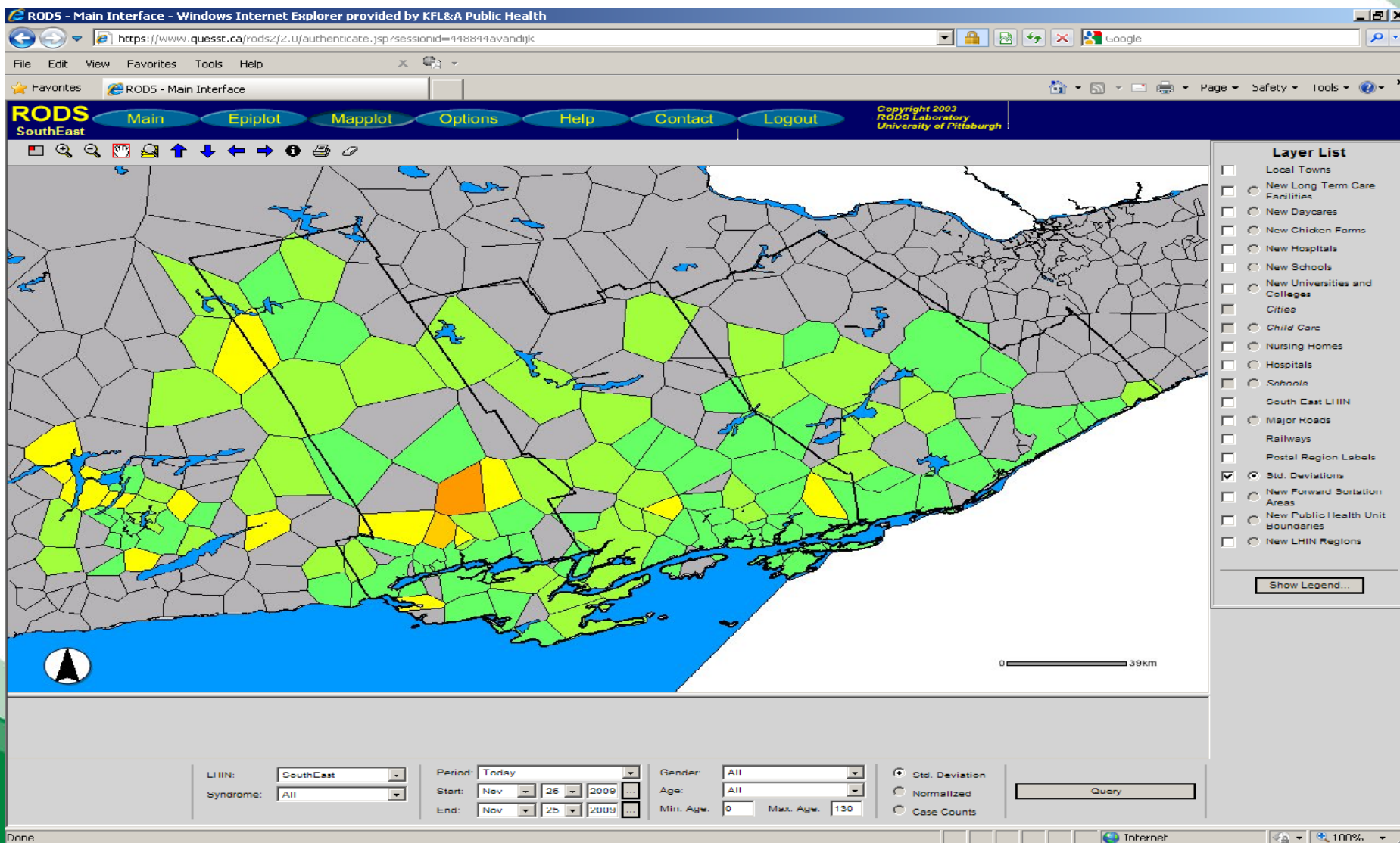
Chief Complaint

Triage Score

Febrile Respiratory Illness (FRI) Screening results

Syndromes: Gastroenteritis, Respiratory, Fever/ILI, Asthma, Derm-infectious, Neuro-infectious, Severe Infection, Other

Emergency Department Surveillance System



Infection Watch Live

Key Functionalities

- 1) Today's Maps: Snapshot view of current day's activity.
- 2) Interactive Maps: Simple GIS interface (password protected).
- 3) Trends: Animated historical activity



Call to Action: A better informed community

Infection Watch Live – Today's Maps



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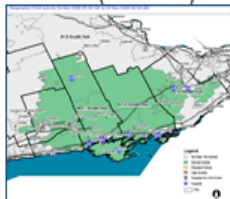
Infection Watch Live

- First Time User?
- Today's Maps
- Advanced Maps
- Illness Trends
- FAQs
- Prevention & Info
- User Feedback
- Acknowledgements
- pH1N1 Influenza Information
- pH1N1 Influenza Vaccine
- Influenza Assessment Clinics

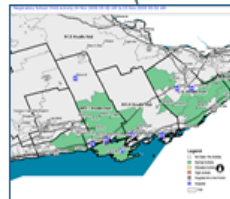
Today's Maps

Respiratory - (e.g. Bronchitis, Cough)

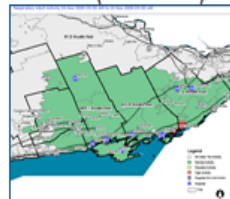
Child (0-4 Years)



School Child (5-17 Years)



Adult (18 + Years)

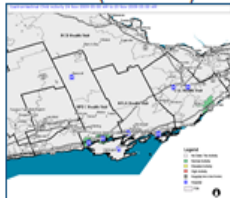


All Ages

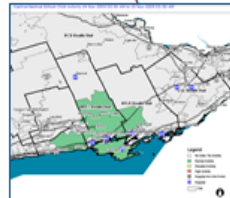


Gastrointestinal - (e.g. Upset Stomach, Diarrhea)

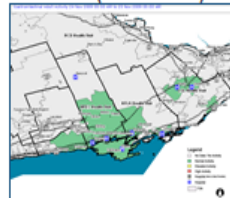
Child (0-4 Years)



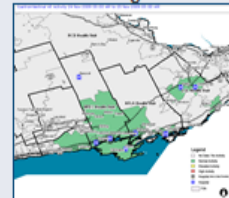
School Child (5-17 Years)



Adult (18 + Years)



All Ages



Last Updated on 25 Nov 2009 05:00 AM

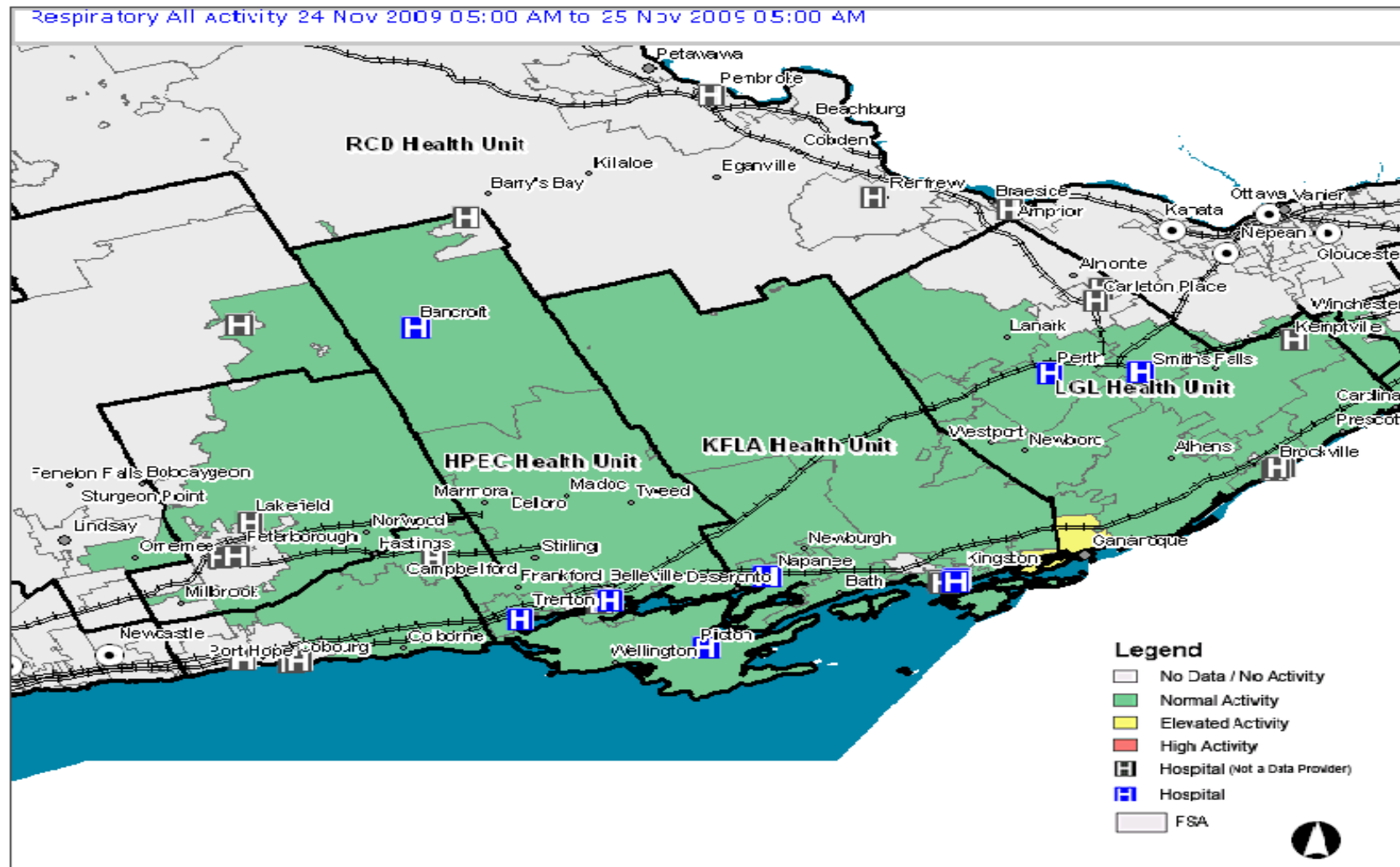
These maps show Respiratory and Gastrointestinal **illness activity** over the last 24 hours. This activity represents data from **9 area hospitals**.

- **Green** : Normal Activity - Activity is within normal ranges for these **regions** on the map.
- **Yellow** : Elevated Activity - Activity is slightly above normal ranges for these **regions** on the map.
- **Red** : High Activity - Activity is above normal ranges for these **regions** on the map.
- **Gray** : No Data / No Activity - There is no data available or there is no activity for these **regions** on the map.

Infection Watch Live – Today's Maps

Respiratory All Ages

[Back to Top](#)



Infection Watch Live – Advanced Maps

The screenshot displays the 'Infection Watch Live - Syndrome Mapping' web application. At the top, there is a navigation bar with a 'Favorites' icon and the text 'Infection Watch Live - Syndrome Mapping'. Below this is a header section with the KFL&A Public Health logo and the text 'Dedicated to enhancing the health and safety of Canadians through public health informatics'. The main title 'Infection Watch Live' is positioned on the right side of the header.

The interface includes a sidebar menu on the left with the following categories and sub-items:

- First Time User?
- Today's Maps
- Advanced Maps
- Advanced Maps
- WMS Links
- Respiratory
 - Child
 - School Child
 - Adult
 - All
- Gastrointestinal
 - Child
 - School Child
 - Adult
 - All
- Illness Trends
- FAQs
- Prevention & Info
- User Feedback
- Acknowledgements
- pH1N1 Influenza Information
- pH1N1 Influenza Vaccine
- Influenza Assessment Clinics

The main map area shows a map of Kingston, Ontario, with various geographical features and data points. The map is overlaid with a grid and includes a scale bar at the bottom right indicating 1, 0.5, 0, and 1 Kilometers. A toolbar at the top of the map area contains icons for 'In', 'Out', 'Pan', 'Full', and 'Legend'. A text box above the map reads '<<< Map Tools - Use these tools to navigate the map.' The map displays several blue flag icons and orange square icons, likely representing data points related to the selected 'School Child' category under 'Gastrointestinal'.

Infection Watch Live – Illness Trends

Illness Trends



This section will allow you to view historic respiratory and gastrointestinal illnesses maps within our region week by week. Each map displays activity by the first three digits of a postal code). Activity is based on trends in visit data to hospital cases recorded through emergency departments at our 9 area hospitals within our region. Activity is represented by:

- **Green** : **Normal Activity** - Activity is within normal ranges for these **regions** on the map.
- **Yellow** : **Elevated Activity** - Activity is slightly above normal ranges for these **regions** on the map.
- **Red** : **High Activity** - Activity is above normal ranges for these **regions** on the map.
- **Gray** : **No Data / No Activity** - There is no data available or there is no activity for these **regions** on the map.

New weekly maps are posted every Sunday and provide a snap shot of the average activity over that given week. This function allows users to view trends over a user-specified number of weeks.

1. Select the From Week on the calendar below (Tip: Select a week using the arrow beside each week >)

< October 2009 >						
Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
		4	5	6		

Calendar

2. Select the To Week on the calendar below (Tip: Select a week using the arrow beside each week >)

< November 2009 >						
Su	Mo	Tu	We	Th	Fr	Sa
25	26	27	28	29	30	1
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	

3. Select the Syndrome

- Respiratory (Chest)
- Gastrointestinal (Stomach)

4. Select the Age Group

- Child (0-4 Years)
- School Child (5-17)
- Adult (18 +)
- All Ages

Animate

Infection Watch Live – Call To Action



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Infection Watch Live

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Prevention & Info



This section provides users with supplemental information and prevention techniques with regard to the respiratory and gastrointestinal content presented throughout this website. The resources include fact sheets provided by KFL&A Public Health to help users learn more and help answer questions that may have arose while visiting Infection Watch Live. There are also external links to other governmental websites that may provide further information to our users. Users should note that these external websites are not managed by KFL&A Public Health. If you have any other questions that cannot be answered through our website please call KFL&A Public Health for further assistance.

Facts Sheets

- **Hand Washing and Sanitizing**
Frequent hand washing and hand sanitizing is the single most important way to prevent the spread of infection.
- **Norovirus**
Norovirus is a major cause of outbreaks of gastroenteritis in children and adults.
- **Strep Throat/Scarlet Fever**
Strep throat and scarlet fever are infections caused by Group A Streptococcus bacteria.
- **Childhood Illnesses**
A table showing childhood illnesses with information on how it spreads, how to recognize it, when it is contagious, and when to report it.
- **Stopping the Spread of Intestinal Illness**
Diarrhea is often the first sign of an intestinal illness.
- **What You Should Know About Influenza and Influenza Vaccine**
The flu is a serious, acute respiratory disease that is caused by a virus.
- **Management of Influenza in the Home**

External Resources

- **Telehealth Ontario**
Telehealth Ontario is a free, confidential telephone service you can call to get health advice or general health information from a Registered Nurse.
- **HealthyOntario**
HealthyOntario.com provides quick and easy access to a wide range of high quality health information and services available to Ontario residents.
- **FluWatch**
Canada's national influenza surveillance system.
- **About Diarrhea**
Diarrhea is a symptom, not a disease.



Infection Watch Live – Users

Public Health / Healthcare Professionals

- Medical Officers of Health, PH Nurses (CD, adult, school, dental, infectious diseases)
- Local physicians/nurses and hospital administrators
- Long Term Care Homes (LTCH) & Community Care, Home care and field professionals (OT/PT, speech therapists, etc.)

Institutions / Institutional Administrators

- Schools and boards, Universities, Colleges, Child care
- Employers, Police & Fire, all EMS
- Municipal officials

General Public

- Local citizens
- Linking the community to general public health information

Infection Watch Live – User Needs

-Throughout the system development life cycle (SDLC), various User-Centred Design (UCD) techniques were used:

Paper & HTML-Prototypes
User & Task Analysis / Thinking-Aloud
Structured Walkthroughs

-The knowledge generated from these activities provided input to the SDLC throughout development;

-UCD combined with usability heuristics influenced the final product delivered.

Infection Watch Live – User Needs

Public Health:

View infection data alongside institutions (hospitals, LTCs, schools, large employers, daycares, etc.)

Family Physicians:

-Help confirm assumptions / diagnosis; patient education and reinforcement of behavior

Institutions, Schools, Large Employers:

-Plan for HR shortages e.g. caused by absenteeism, better inform families, point to a central repository of disease information

Community Members:

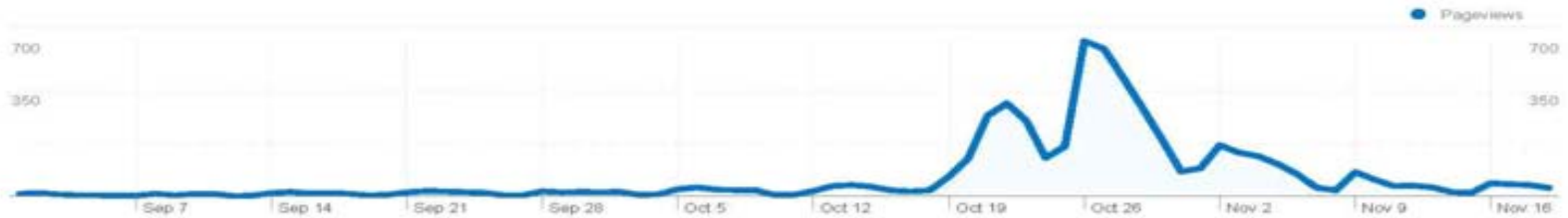
-Informed about infections: symptoms, precautionary information, fact sheets about GI & respiratory infections, recovery periods.

Infection Watch Live during H1N1 Outbreak

IWL Traffic during H1N1 (directed from KFL&A Website)

All Public Health
Content Detail:
 /Links/Infection_Watch_Live

Sep 1, 2009 - Nov 19, 2009
 Comparing to: Site



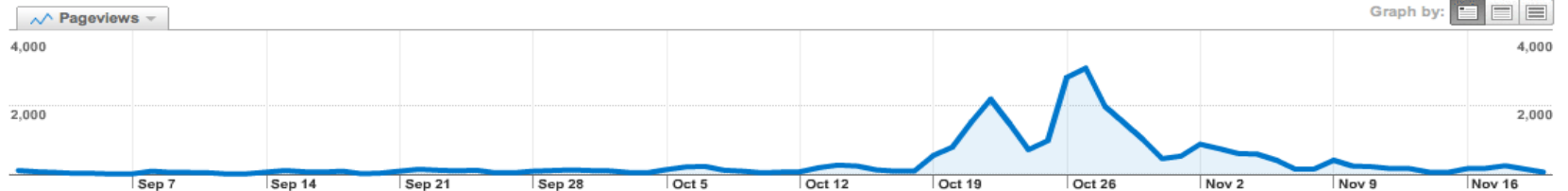
This page was viewed 6,738 times

IWL Traffic during H1N1 (Totals)

Overview »

Top Content

Sep 1, 2009 - Nov 20, 2009



32 pages were viewed a total of 29,737 times

Content Performance

Views: [Grid] [List] [Table]

Pageviews 29,737 % of Site Total: 100.00%	Unique Pageviews 20,414 % of Site Total: 100.00%	Avg. Time on Page 00:00:39 Site Avg: 00:00:39 (0.00%)	Bounce Rate 25.94% Site Avg: 25.94% (0.00%)	% Exit 33.36% Site Avg: 33.36% (0.00%)	\$ Index \$0.00 Site Avg: \$0.00 (0.00%)	
Page	Pageviews ↓	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit	\$ Index
1. /KFLAMapping/Welcome.aspx	11,551	7,679	00:00:18	12.28%	24.70%	\$0.00

IWL Traffic and Key Dates

Sept. 1 – 2009/2010 Flu Season starts

Oct. 1 – KFL&A declares the start of second H1N1 wave in area

Oct. 12 – ED visit volume begins to rise

Oct. 19 – School absenteeism begins to rise

Oct. 26 – Flu Assessment Centres open (close Nov. 9)

Oct. 28 – Peak ED visit volume, Resp and Fever visits account for over 40% of all visits

Oct. 30 – School absenteeism peaks

Nov. 16 – EDSS volume returns to normal

Next Steps/Future Enhancements

Feature Enhancements

- Segmentation of User Types in Web Interface
- Postal Code Search
- Subscribe by Postal Code with Alerts
- User-controlled Timeline for 'Activity Animations'

Data

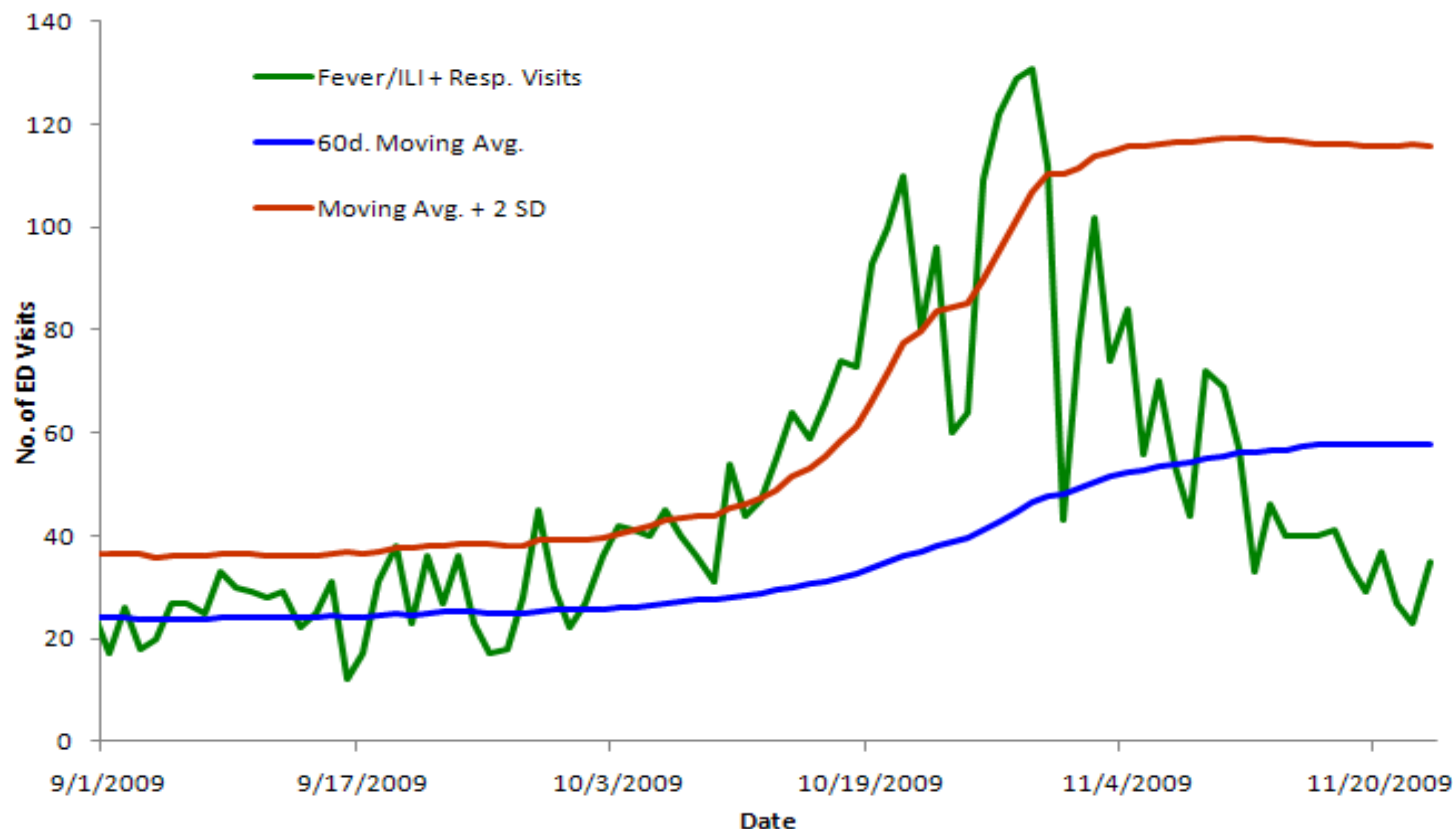
- Incorporate Additional Data Sources as available
e.g. Lab Data, Student Absenteeism, Telehealth
- Map Viral Pathogen and Reportable Disease Data (password protected)

Other

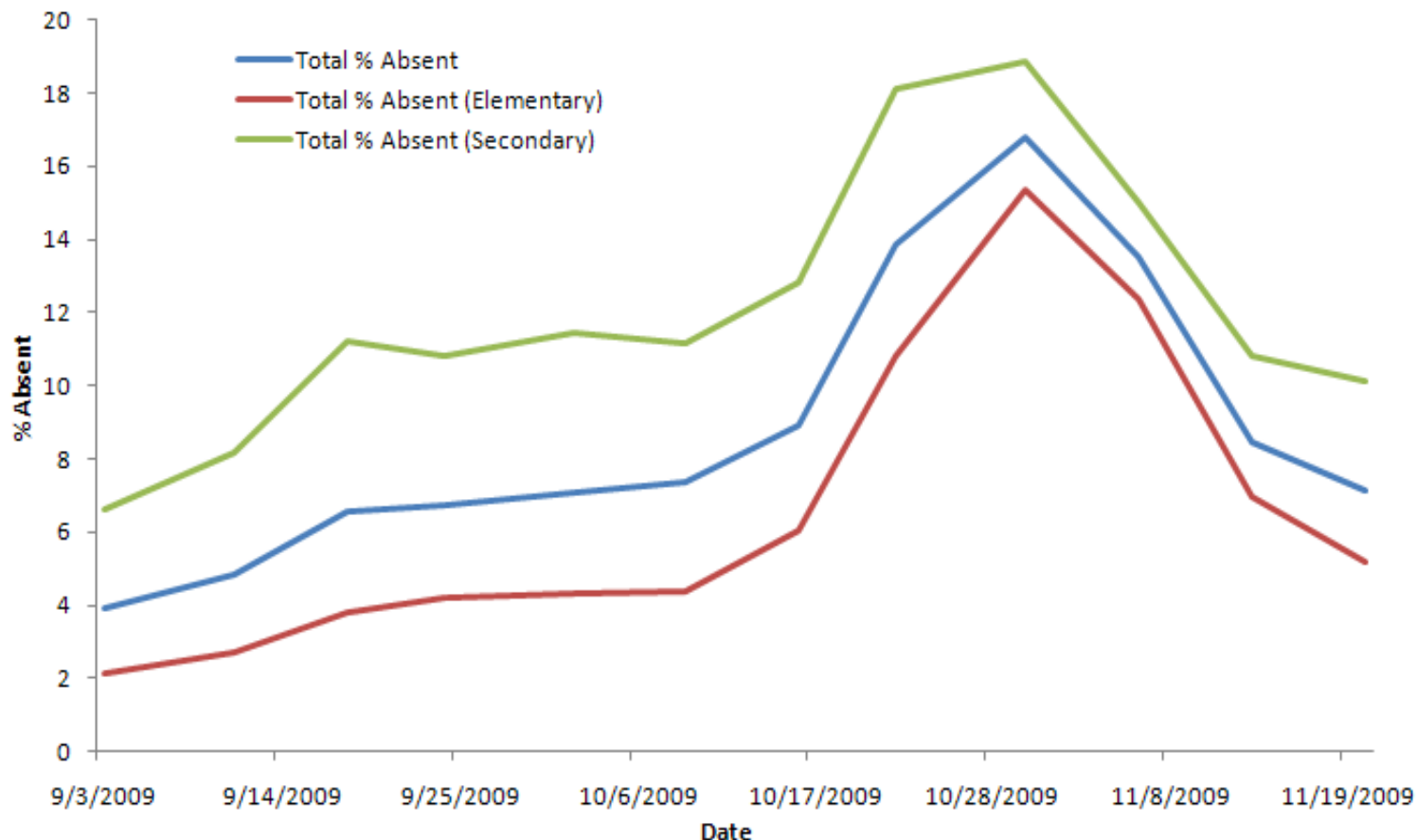
- Work with collaborators to publish a case study on Kingston's H1N1 response (showcasing how IWL, EDSS and other data were used to make informed decisions)

Thank-You
Questions??

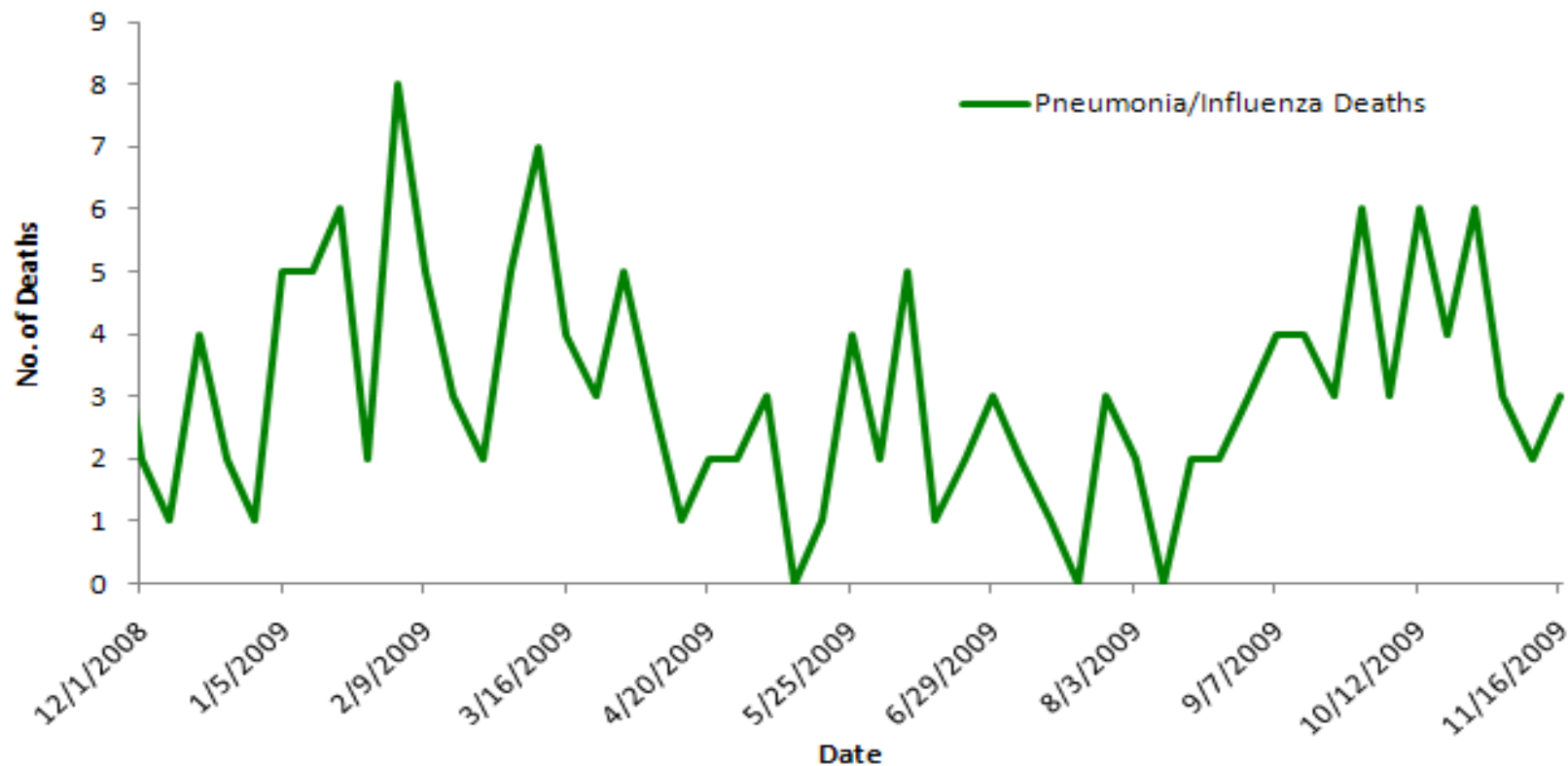
Respiratory and Fever/ILI ED Visits to KFL&A Hospitals



School Absenteeism (KFL&A Schools n=101)



Pneumonia/Influenza-Related Deaths (Kingston)



Kingston General Hospital Staff Absenteeism

