

Integration of Real-Time Hospital Admissions, Febrile Respiratory Illness Screening and Triage Acuity Score into an Emergency Department Syndromic Surveillance System

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OBJECTIVE

This paper outlines the integration of hospital admission, Febrile Respiratory Illness (FRI) screening and Canadian Triage and Acuity Scale (CTAS) data streams within an Emergency Department Syndromic Surveillance system. These data elements allow better characterization of outbreak severity and enable more effective resource allocation within acute care settings.

BACKGROUND

In September 2004, Kingston, Frontenac and Lennox and Addington (KFL&A) Public Health began a 2-year pilot project to develop and evaluate an Emergency Department Chief Complaint Syndromic Surveillance System in collaboration with the Ontario Ministry of Health and Long Term Care (MOHLTC) – Public Health Branch, Queen's University, Public Health Agency of Canada (PHAC), Kingston General Hospital (KGH) and Hotel Dieu Hospital (HDH). At this time, the University of Pittsburgh's Real-time Outbreak and Disease Surveillance (RODS, Version 3.0) was chosen as the surveillance tool best suited for the project and modifications were made to meet Canadian syndromic surveillance requirements. Recently, new data streams have been added to the system including; hospital admissions (both elective and emergency), FRI screening and CTAS. These data elements are captured in real-time along with chief complaint data, age, gender, postal code of residence, hospital and date and time of visit.

DATA ELEMENTS

Admission data – The physician's diagnosis (most responsible diagnosis for admission later translated into an ICD code) is considered a more accurate description of the patient's condition than chief complaint. This data is captured in real-time as patients are admitted.

FRI screening – This questionnaire tool was developed as a public health response to Severe Acute Respiratory Syndrome (SARS). FRI is a reportable disease under the Ontario Health Protection and Promotion Act (HPPA) [1]. The tool screens incoming patients for symptoms of new or worsening cough or shortness of breath (A) AND fever (B). If the patient responds YES to A and B, they are asked a follow-up question regarding travel history or contact with travelers to high-risk areas (C). A positive FRI screen results from answering YES to A and B. Hospital infection control and public health are notified immediately upon receipt of a positive FRI screen result. This data element is particularly important in conjunction with admissions as FRI positive patients will require additional infection control precautions for admission.

CTAS - Patients are assessed and triaged or 'prioritized' on the basis of their condition at registration by a health care professional. The acuity scale determines the time to see a physician. The scale ranges from Triage Level I, the most severe, where the patient requires immediate attention, to Level V (non-urgent) where the patient can wait to see a physician. Each acuity level is based on an assessment of physiologic parameters, pain severity, mechanism of injury and co-morbidity [2].

DISCUSSION

Hospital admissions, FRI and CTAS data elements have been successfully integrated into the emergency department syndromic surveillance system and are captured in real-time. Early assessment of the additional data streams will be established by an overall process evaluation to be completed summer 2005.

The acquisition of the data elements described here is unique. In order to demonstrate the added value of these data streams, we propose a formula to monitor fluctuations in severity as measured by the number of syndromes multiplied by the triage level. Also, the admissions will be coded into syndromes (similar to chief complaints) and the numbers compared to historical expected numbers for a given syndrome.

With the addition of admissions, FRI and CTAS data, this emergency department syndromic surveillance system enables better characterization of outbreak severity, including potential complications, and also permits more effective resource allocation within the hospitals. The utility of the additional data elements for outbreak detection and management will be assessed and documented.

REFERENCES

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- [2] Canadian Association of Emergency Physicians (CAEP). Implementation guidelines for the Canadian emergency department triage and acuity scale (CTAS). Version 16: 11/30/1998. Available at: <http://www.caep.ca/002.policies/002-docs/ctased16.pdf>

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