Multi-sectored approach to evaluation of a syndromic surveillance system

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OBJECTIVE

This paper outlines the approach used to evaluate an emergency department syndromic surveillance system on the following areas: process and outcome, cost/benefit and technical.

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. To evaluate the design and implementation of the system, a multi-sectored approach to evaluation was taken. Individual evaluations of the process, technical aspects and of cost/benefit were conducted to demonstrate proof of concept and the associated costs. An overall outcome or effectiveness evaluation will take place in spring 2006.

METHODS

The process evaluation of the system was structured around a framework put forth by the Public Health Agency of Canada [1] with additional guidance provided by the Centers for Disease Control and Prevention guidelines [2]. This aspect of the evaluation, designed to address system characteristics, data quality and analysis and interpretation was performed internally with external review from the local health and federal level perspectives. The technical evaluation was performed externally to assess data security, transmission, system performance and stability. To address the cost/benefit of an emergency department syndromic surveillance system such as this, a series of simulation exercises were performed by an external evaluation team. These exercises examined a waterborne outbreak, a gastro-intestinal outbreak and a new/emerging respiratory infection scenario similar to pandemic influenza.

RESULTS

At the current time, evaluation is underway, thus final reports are pending. Preliminary assessments by individuals familiar with surveillance and evaluation, as well as discussions with public health users of the system, indicate a functional syndromic surveillance system successfully integrated with local public health and capable of predicting gastrointestinal and respiratory outbreaks at a minimal cost (public health resource assessment only to date). Figure 1 shows a diagrammatic representation of the evaluation.

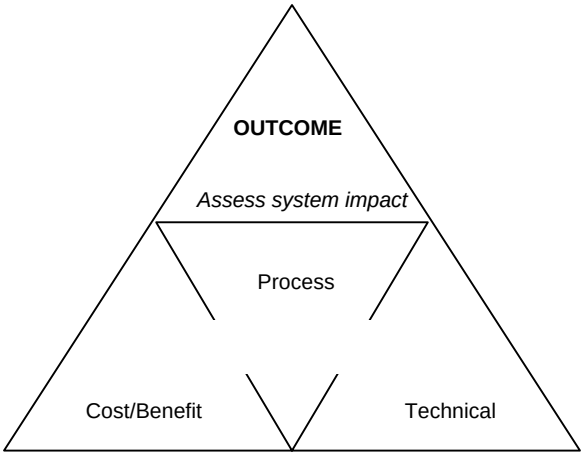

Figure 1 – Diagrammatic representation of multi-sectored approach to evaluation of a syndromic surveillance system

CONCLUSIONS

The 3 separate evaluations of essential components of the emergency department syndromic surveillance system will provide an excellent foundation and ultimately ensure preparedness for the outcome evaluation planned for April, 2006.

REFERENCES

[1] Public Health Agency of Canada (PHAC). Framework and tools for evaluating health surveillance systems. Centre for Surveillance Coordination Population & Public Health Branch. March 2004 Version 1.0. Available at: http://www.phac-aspc.gc.ca/csc-ccs/pdf/i_Surveillance_Evaluation_Framework_v1.pdf

[2] Centers for Disease Control and Prevention (CDC). Framework for evaluating public health surveillance systems for early detection of outbreaks; recommendations from the CDC Working Group. MMWR 2004; 53 (No. RR-5): [inclusive page numbers] Available at: http://www.cdc.gov/mmwr/ PDF/rr/rr5305.pdf