

Relationship Between Clinical Screening Tools, Syndromic Surveillance, and Influenza-Positive Patients

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Objective: (1) To determine if patients who are found to be positive for influenza or parainfluenza by culture or antigen detection are all detected by the Ontario Ministry of Health and Long-Term Care's Febrile Respiratory Illness (FRI) screening tool, and thereby treated with appropriate respiratory precautions to prevent spread. (2) To determine if syndromic surveillance or another clinical predictor would be a more effective screening tool than FRI.

Background: In 2003, with the advent of SARS, the Ontario Ministry of Health and Long-Term Care (MOHLTC) released a document mandating the use of a clinical screening tool to detect patients at high risk for having a febrile respiratory illness (FRI), defined as a temperature of $> 38^{\circ}\text{C}$ and a new or worsening cough or shortness of breath (1). The FRI screening tool is available in all Ontario Emergency Departments (ED), and is utilized in 86% of them (2). Any patient who meets all of the criteria is designated FRI positive, treated with droplet precautions and is instructed to wear a mask and undergo frequent hand-washing (1). The FRI screening tool was created as a response to the SARS outbreaks, and while it is used to identify any FRI, its sensitivity has not been documented. We attempt to determine the utility of FRI as a defining element of clinical influenza.

Methods: Data from the Kingston, Ontario Public Health laboratory was used to identify all patients who were positive for either influenza or parainfluenza by culture or antigen assay during the 2005/2006 flu season. A retrospective chart review was performed for any laboratory confirmed cases who had presented to an area ED to collect the following information: FRI scores, chief complaint, temperature, and history of fever. Finally, we utilized the Real-time Outbreak and Disease Surveillance System (RODS), the electronic syndromic surveillance system for the area, to determine each patient's syndrome classification.

Results: Results are as follows: Forty-one patients were identified as culture or antigen positive for influenza or parainfluenza virus Jan-Apr 2006. Of the 41 patients, 15 in total were assigned a FRI positive score upon presenting to the ED. These

tests demonstrate a 36.6% sensitivity of the FRI screen to correctly identify influenza positive patients. Temperatures were recorded in the ED for 39 patients; 24 of these patients (61.5%) had temperatures of 38°C or greater. Thirty-six charts (87.8%) indicated that patients had reported a recent history of fever. Electronic syndromic classification was as follows:

Type	# FRI (+)	RODS Syndrome
Infl A	11	Resp 52%, Fever/ILI 9%, Other 39%
Infl B	3	Resp 63%, Fever/ILI 13%, Other 24%
Parainf	1	Resp 67%, Fever/ILI 0%, Other 33%

Table 1: FRI Score and syndromic classification by virus type.

Conclusions: Results suggest that the FRI screen is not effective in predicting influenza positive patients. Our results also suggest that a temperature or history of fever alone may be a better indicator of influenza. The implications of this are important, as in the current environment of pandemic preparedness, it is important to understand how well we are protecting patients and hospital staff. As the FRI score is the current standard that decides which patients will be treated with respiratory precautions, an ineffectiveness of the FRI screen to identify influenza-positive patients suggests that we are not currently maintaining a high standard for infection control. It is evident that further study should be undertaken to determine the most effective screening tool for clinical influenza.

References:

(1) Ontario Ministry of Health and Long-Term Care, Public Health Division, Provincial Infectious Diseases Advisory Committee. Preventing Respiratory Illnesses, Protecting Patients and Staff. 2005; . Accessed 06/19, 2006.

(2) Sloan C, Pong R, Sahai V, Barnett R, Ward M, Williams J. Triage Practices and Procedures in Ontario's Emergency Departments: A Report to the Steering Committee, Triage in Ontario. 2005; Available at: [http://www.oha.com/client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/Triage/\\$file/OHATriageReport.pdf](http://www.oha.com/client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/Triage/$file/OHATriageReport.pdf). Accessed 06/29, 2006.

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