

# ABSTRACT

# Comparison of respiratory, febrile and influenza-like illness syndromes to detect laboratory-reported H1N1 and RSV, Influenza Season 2009–10, New York City

E Westheimer, TQ Nguyen, M Paladini, D Weiss, and S Balter

New York City Department of Health and Mental Hygiene, New York, NY, USA E-mail: tnguyen@health.nyc.gov

### Objective

To determine the correlation of the influenza-like illness (ILI) syndrome with laboratory-confirmed H1N1 and respiratory syncytial virus (RSV) during the October 2009 to March 2010 H1N1 season in New York City (NYC).

#### Introduction

The NYC Department of Health and Mental Hygiene (DOHMH) monitors visits daily from 49 of 54 NYC emergency departments (EDs), capturing 95% of all ED visits. ED visits for ILI have reflected influenza activity in NYC,<sup>1</sup> better than the more broadly defined fever/flu (FF) and respiratory (Resp) syndromes, but the correlation with H1N1 is unknown.

Laboratory-confirmed influenza and RSV were made reportable in NYC in February 2008. DOHMH receives electronic reports of positive tests. As part of 2009–10 influenza surveillance, five hospitals were selected for 'sentinel' surveillance of hospitalized influenza cases, to test all patients with a respiratory condition for influenza. Sentinel hospitals ensured that patient medical record numbers (MRNs) were in the daily ED syndromic file and in the electronic laboratory reports.

#### Methods

Sentinel hospital ED visits were matched by MRN to corresponding cases of influenza and RSV reported electronically for 1 October 2009 through 31 March 2010. Trends were assessed citywide, across sentinel hospitals, and by hospital and age groups. Correlation coefficients were calculated.

#### Results

Between 1 October 2009 and 31 March 2010, the five sentinel hospitals represented 13.6% of 1,939,417 citywide ED visits. Of





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the sentinel ED visits, 24,100 (9%) were categorized as FF, 29,859 (11%) were Resp, and 4996 (2%) were ILI; 21% of FF visits and 10% of Resp visits also met the ILI definition.

During the same period, the sentinel hospitals reported 550 (11%) of 5137 unique laboratory reports of influenza and 1348 (27%) of 5030 RSV reports. Citywide, ILI correlated best with influenza reports (0.82), followed by FF (0.78) and Resp (0.70) (see Figure 1).

With the sentinel data, 499 influenza reports and 1114 RSV reports were matched by MRN to an ED visit. The majority of influenza reports matched to the FF (54%) and Resp (23%) syndromes; 14% were ILI. RSV cases matched similarly to FF (41%), Resp (40%), and ILI (10%).

# Conclusions

Although influenza cases were classified primarily as FF or Resp, the correlation of ILI with influenza was higher than the other syndromes. Therefore, ILI still best reflects influenza trends but not the magnitude of illness. ILI trends enable citywide monitoring of influenza, but variations by age group and hospital catchment suggest that fine-tuning syndromes to better represent influenza and RSV activity is possible. Data matching was limited to only five hospitals, but demonstrates that matching ED visits to laboratory reports could enhance syndrome definitions and modeling.

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#### Reference

1 Olson DR, Heffernan RT, Paladini M, Konty K, Weiss D, Mostashari F. Monitoring the impact of influenza by age: emergency department fever and respiratory complaint surveillance in New York City. *PLoS Medicine* 2007;4:1349–61.