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ABSTRACT

A comparison of syndromic surveillance chief complaint data and discharge data in a pediatric hospital system during 2009 H1N1

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Objective
The objective of this study is to describe the difference between patient chief complaint (CC), influenza- like- illness (ILI) data provided daily to the Georgia Syndromic Surveillance Program (SSP) during the 2009 H1N1 pandemic, and patient discharge data (DD) subsequently provided for comparison with the SSP from its participating pediatric hospital system, and its two affiliated emergency rooms.

Introduction
The Syndromic Surveillance Program (SSP) of the Acute Disease Epidemiology Section of the Georgia Division of Public Health, provides electronic ILI data to the Center for Disease Control and Prevention's Influenza-like Illness Surveillance Network (ILINet) Program that characterizes the burden of influenza in states on a weekly basis.

ILI is defined as a fever of 100°, plus a cough or sore throat. This definition is used to classify ILI by the SSP, as well as in diagnosis at the pediatric hospital system. During the 2009 H1N1 pandemic, the SSP was provided a daily data transfer to the Center for Disease Control and Prevention to heighten situational awareness of the burden of ILI in Georgia. Throughout the peak of the pandemic, data from the pediatric hospital system identified when the percentage of daily visits for ILI had substantively increased. The data includes patient CC data from emergency department visits for two facilities at Facilities A and B. The data received by SSP does not include diagnosis data.

Patient emergency department DD for 'FLU' was provided to SSP retrospectively to compare with the CC data routinely collected and analyzed. The data was derived from the pediatric health system's month end, internal, syndromic surveillance report based upon emergency department visits, and including physician's diagnosis at the time of patient's discharge. The case definition of 'FLU' from the pediatric health system facilities is acute onset of fever, with cough and/or sore throat in the absence of a known cause other than influenza.

Methods
The data were evaluated by analyzing the percentage of 'FLU'–DD visits during 2009, in contrast to the percentage of ILI–CC visits provided to SSP daily from Facilities A and B. The total percentage of ILI visits to both facilities for CC and DD were then compared and correlated by Facilities A and B, observing 'FLU'–DD to the SSP–ILI–CC data. The CC data were then assessed for its ability to accurately identify changes in actual influenza activity in the two facilities during corresponding time period using Pearson's correlation coefficient. Finally, CC–ILI data were compared with CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS), and ILINet data for Georgia.

Results
The differences between ILI–DD and CC, from facilities A and B were substantial. When comparing Facility A and B, ILI data separately or combined, the burden of ILI based on CC was substantively higher than the observed DD for the same time period. Interestingly, patients from Facility A were more likely to receive an influenza diagnosis than patients from Facility B. The case definition between the facilities is the same; the reason for the difference is not clear (Figure 1).

The SSP–ILI–CC data that were compared with Georgia's NREVSS, and ILINet data overestimated the burden of influenza, as expected. However, the SSP–CC–ILI data were effective in reflecting both increases and decreases in influenza activity that were shown in NREVSS and ILINet data.

Conclusions
The advantages of using electronic ILI–CC data during an evolving event, such as pandemic, are that it is readily available, and allows public health practitioners to characterize the health seeking behaviors of the population. Although it

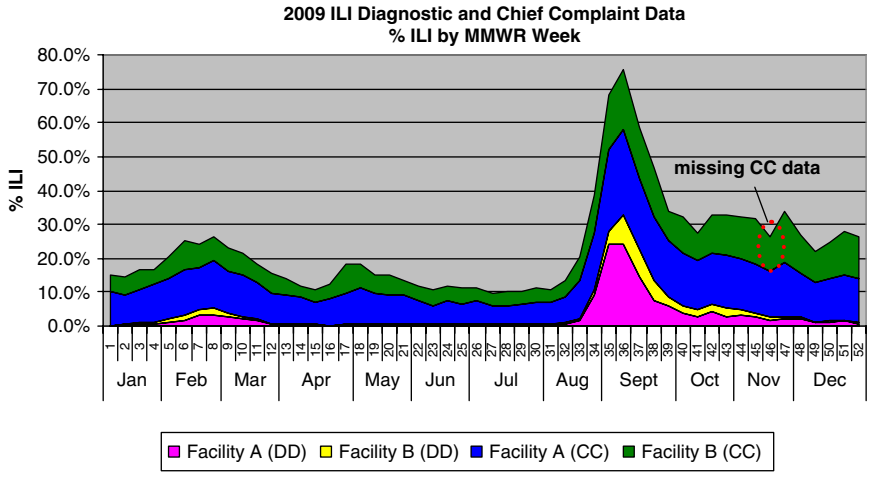

Figure 1 Weekly graph of % ILI for chief complaint (blue/green), and discharge diagnosis (pink/yellow) visits for facilities A and B in 2009.

still remains difficult to accurately quantify the amount of influenza activity because of the overestimation of ILI disease burden that CC data produces, its ability to reflect trends in the burden of diagnosed influenza in the population is valuable.

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