

Using Syndromic Surveillance for Influenza-like Illness Reporting in Los Angeles County

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OBJECTIVE

To review and assess the data elements presented in a daily Influenza-like-Illness (ILI) report during the 2009 H1N1 pandemic.

BACKGROUND

In April, 2009, several media reports and notifications from neighboring health jurisdictions warned of the possible circulation of a novel strain of influenza near central Mexico and the Mexico/US border. As a large metropolitan region in close proximity to the potential outbreak, LA County Public Health began conducting enhanced surveillance and developed a special daily ILI report. The report was a compilation of ILI-related analysis results from several early-event detection surveillance systems in operation since 2004. The primary purpose for creating a report was to provide key public health stakeholders and Departmental Operations Center staff with a near real-time assessment and overview of the healthcare burden of ILI throughout LAC as achievable with current early-event surveillance systems.

METHODS

All data were obtained from pre-existing syndromic and complementary early-event detection surveillance systems. Due to the urgency of the situation data sources were selected based on prior knowledge about the quality of information, timeliness and consistency of reporting, relevancy with respect to ILI early-event detection surveillance, and additional value gained by inclusion in the report. Retrospective assessment of daily ILI reports from mid April through May was conducted for usefulness of information by data source. The final ILI report included analysis results from the following data sources: Emergency Department Syndromic Surveillance (EDSS ILI-categorized, respiratory-categorized, fever-categorized, and age-group stratified visits), respiratory-classified nurse calls, respiratory-classified coroner's deaths, respiratory-related 911-calls, and emergency department (ED) volume surveillance (total ED visits and total ICU admissions from the ED). Most results were presented in trend graph

format, with the exception of the EDSS respiratory SaTScan cluster map.

RESULTS

A sudden and significant increase in the proportion of ED ILI visits (~8-10%) within the timeframe of a few days, in conjunction with early signaling among EDSS fever-related visits for the same period, alerted staff to the possibility of an ILI outbreak in the community. Respiratory SaTScan cluster maps confirmed several local communities with significant respiratory clusters which informed analysts of duration of illness and changes in affected population size. Age-stratified EDSS data identified age categories in which the burden of illness was greatest. Analysts observed a rise in overall trend among younger persons (<45 y.o.) during the observation period, indicating this population as being the most affected, while trend graphs for those over the age of 45 indicated little to no difference. Respiratory-classified nurse call and total ED volume data also confirmed increases in visits during the study period. Coroner's data did not provide as much information during the outbreak due to latency in data receipt. 911-call and total ED to ICU admissions data revealed little change throughout the observation period indicating these sources may not be as useful an indicator for detecting ILI activity.

CONCLUSION

EDSS data provided the most useful information due to the type of data captured, enabling analysts to subset observations further by chief complaint (e.g. the keyword "fever"), and additionally, to stratify data by ZIP code or age-group. This not only identified certain age-groups as being more susceptible to ILI during the outbreak, but also informed health officials as to location of outbreaks in the community. Other data sources that may prove useful in the future include outpatient student health clinic and school absenteeism. Overall, utilizing several data sources during an ILI outbreak provides a more comprehensive assessment of the burden of illness in a population.