

Telephone Triage Data for Detection of Influenza-Like Illness

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OBJECTIVE

We compared state-level nurse telephone triage (“call”) data to CDC national influenza surveillance data to determine how well call data performed relative to CDC sentinel provider and viral isolate data. This quantitative analysis extends an earlier semi-quantitative regional analysis of the same data [1].

BACKGROUND

National surveillance is used to detect the emergence and spread of influenza virus variants and to monitor influenza-related morbidity and mortality. Nurse call data may serve as a useful complement to traditional influenza surveillance [2], especially at times or in places traditional surveillance is not operating. It may also be useful to detect increased occurrence of non-influenza respiratory infection.

METHODS

Optum, a UnitedHealth national nurse telephone triage company, sent counts of respiratory illness by zip code to the National Bioterrorism Syndromic Surveillance Demonstration Program (NDP) on a daily basis [3]. We examined the period October 3, 2004 through April 16, 2005 for the 17 states with at least 500,000 Optum-eligible residents. CDC weekly data on number of influenza isolates and percentage of total visits to sentinel providers for influenza-like illness were compared to rolling seven-day totals of calls for respiratory syndrome, which were computed day by day for each preceding seven-day period. Pairwise correlations among the three data types were calculated, using the Pearson correlation test.

RESULTS

The state-level median correlation between call data and CDC viral isolate data was .65 (range .35 - .83). The median correlation between sentinel provider data and viral isolates was .80 (range .46 - .97). The median correlation between call data and sentinel provider data was .74 (range .34 - .89).

CONCLUSIONS

Temporal patterns in respiratory-illness call volume to a telephone triage service were similar to those in CDC sentinel provider-based surveillance data, with generally high correlation between the two data sources. Correlations between call data and CDC viral isolate data were somewhat lower. In states with a sizeable eligible population, call data may serve as a useful adjunct to CDC influenza sentinel

surveillance data, particularly in states with low sentinel provider coverage and/or at times when sentinel surveillance is not in operation.

Table. Correlations among three data types for states with at least 500,000 residents eligible to use Optum telephone triage services.

State	Population eligible to use nurse call centers	Correlation between:		
		Calls and CDC viral isolates	Sentinel provider data and CDC viral isolate	Calls and sentinel provider data
CA	3,136,617	0.80	0.85	0.89
WI	825,255	0.67	0.81	0.87
CO	558,705	0.82	0.96	0.86
TX	2,529,566	0.83	0.97	0.85
IL	1,005,895	0.68	0.77	0.85
FL	1,871,970	0.66	0.80	0.84
MN	1,050,846	0.69	0.46	0.79
MO	812,613	0.80	0.77	0.75
OH	1,866,557	0.60	0.67	0.74
TN	638,423	0.37	0.68	0.68
NY	1,908,961	0.65	0.90	0.66
LA	1,912,138	0.57	0.81	0.65
NC	873,240	0.35	0.78	0.63
GA	670,997	0.52	0.92	0.52
PA	882,089	0.49	0.87	0.51
AZ	748,838	0.35	0.66	0.51
NJ	718,395	0.64	0.53	0.34
Median:		0.65	0.80	0.74

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