

Review of the ISDS Distributed Surveillance Taskforce for Real-time Influenza Burden Tracking & Evaluation (DiSTRIBuTE) Project 2007/08 Influenza Season Proof-of-concept Phase

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OBJECTIVE

This paper describes the initiation, development and proof-of-concept phase of the ISDS DiSTRIBuTE influenza morbidity surveillance project [1].

BACKGROUND

With support from CDC, NACCHO and the Markle Foundation, the ISDS has developed an approach to influenza morbidity surveillance based on existing state and local syndromic surveillance capabilities and expertise. Project design and implementation involved ongoing collaboration with representatives from state and local health departments and a multidisciplinary expert team representing the ISDS membership.

METHODS

Beginning in 2006, the project enrolled volunteer health departments that conducted emergency department (ED) syndromic surveillance in their regions. The participants reported aggregate daily counts of ED visits by age group (<2, 2-4, 5-17, 18-44, 45-64 and 65+ yrs) and geographic area (3-digit zip code or larger regions) to a secure Internet site. Weekly aggregate ratios of febrile respiratory or influenza-like illness (ILI) syndromes, based on each area's routine syndromic criteria for monitoring seasonal influenza, to total ED visits, were visualized as regional time-series and as age-specific temporal epidemic response surface plots [2], figures. Findings were summarized and disseminated via www.syndromic.org.

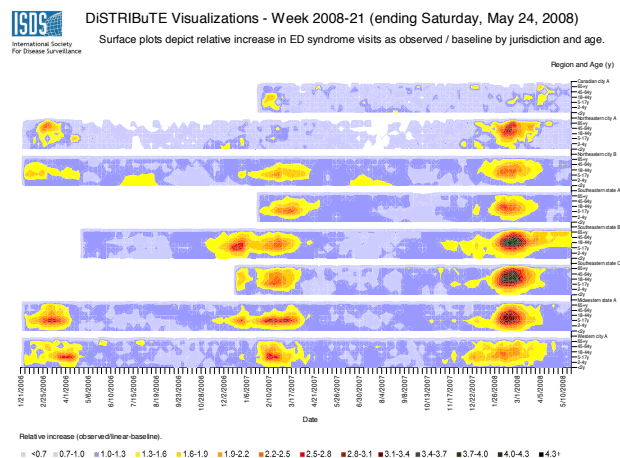
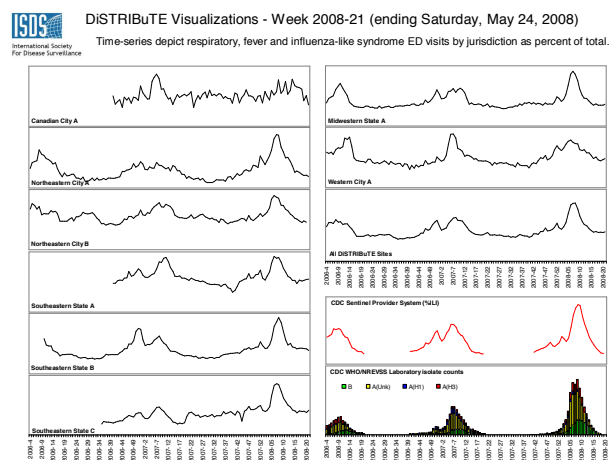
RESULTS

During the 2007/08 influenza season, DiSTRIBuTE incorporated data from 8 city/state syndromic systems located across North America. National morbidity trends observed in DiSTRIBuTE and the CDC sentinel ILI system were highly correlated (0.96, $p < 0.001$). The total number of ED visits reported in DiSTRIBuTE was ~250-350,000 visits/week, comparable to the total number of visits reported in CDC's national sentinel network (~200-400,000 visits/week).

CONCLUSIONS

The project was created with a distributed architecture, whereby individual-level data remain local and only aggregate counts reported centrally. The DiSTRIBuTE project will operate year-round and offer a timelier and

potentially more comprehensive surveillance approach for seasonal flu compared to traditional sentinel provider reporting. The DiSTRIBuTE project is also responsive to Presidential homeland security mandates to improve integration of state and local surveillance capacities [3].



Figures- Draft visualizations by jurisdiction, 2006-2008: fever, respiratory, ILI syndrome time-series as ratios, with national CDC sentinel ILI and viral influenza isolate data (top); and age-specific temporal epidemic response surface (TERS) plots (bottom).

REFERENCES

- [1] DiSTRIBuTE. <http://www.syndromic.org/projects/DiSTRIBuTE.htm>
- [2] Olson DR, Heffernan R, Paladini M, Konty K, Weiss D & Mostashari F. *PLoS Med* 2007;4(8):e247. <http://dx.doi.org/10.1371/journal.pmed.0040247>
- [3] Homeland Security Presidential Directive HSPD-21 <http://www.whitehouse.gov/news/releases/2007/10/20071018-10.html>