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Evaluating the Utility of HealthMap as a Supplementary Surveillance Tool

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Objective

To assess the outbreak detection utility of HealthMap, a publically available event-based biosurveillance system utilizing various internet-based media resources to identify outbreaks, at the state and local level. Results may help determine whether HealthMap should be monitored more closely as a supplementary surveillance tool.

Introduction

HealthMap collects and aggregates information from online sources to generate outbreak alerts based on disease and geographic location. This project will assess the timeliness and sensitivity of HealthMap based on outbreak posts from EpiCom, the Florida Department of Health's disease outbreak and health incident alert network.

Methods

This project compared EpiCom posts and HealthMap alerts in Florida for similarities in timing for outbreaks from January 1, 2009 to August 31, 2013. The project assessed sensitivity and timeliness of HealthMap, whether both sources captured the outbreak, and which source's post was earlier. HealthMap alert date was compared to EpiCom's post date and the date the outbreak was reported to the county or state health department. Outbreaks of legionellosis, dengue, measles, and influenza and influenza-like illness (ILI) were assessed. Results for measles are described below. The variation of EpiCom post timeliness by county size was also investigated.

Results

During the study period, EpiCom reported on 13 confirmed measles outbreaks in Florida. Eight of these outbreaks were also found in HealthMap, giving HealthMap a sensitivity of 61.5% for measles. Two HealthMap measles posts based on non-U.S. media sources had no match to any EpiCom post. Based on post date, HealthMap was timelier than EpiCom for 2 of the outbreaks and just as timely for 3 of the outbreaks. However, based on the date the county health department was notified in the EpiCom posts, regular state and local surveillance detection practices are timelier for 100% of the outbreaks.

Conclusions

Preliminary analysis suggests that HealthMap is useful for surveillance activity but not for initial outbreak detection by the state and local health department due to its relatively low sensitivity and timeliness of detection. However, due to its worldwide focus, it may be useful in providing a better international view of disease activity, which could be especially valuable for Florida for situational awareness and surveillance activity due to the large amount of international travelers who visit. Additionally, there was evidence suggesting public health is being too conservative in its utilization of EpiCom. HealthMap can also be a means of informing the general public of health concerns in their area and assisting public health in recognizing what events are in the news.

Alerting Timeliness for Measles Outbreaks

Comparing EpiCom (EC) Post Date to HealthMap (HM) Alert Date	Measles
EC post first (outbreak count, percent)	3 (37.5%)
No. days EC posts sooner (median, range)	2 (1-34)
Same date (outbreak count, percent)	3 (37.5%)
HM alert first (outbreak count, percent)	2 (25.0%)
No. days HM alerts sooner (median, range)	2 (1-3)

Keywords

Disease outbreak detection; Surveillance and alerting; Event-based biosurveillance; HealthMap

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