MoH+: A Global, Integrated, and Automated View of Official Outbreak Reporting

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Objective

To introduce MoH+, HealthMap's (HM) real-time feed of official government sources, and demonstrate its utility in comparing the timeliness of outbreak reporting between official and unofficial sources.

Introduction

Previous studies have documented significant lags in official reporting of outbreaks compared to unofficial reporting (1,2). MoH+ provides an additional tool to analyze this issue, with the unique advantage of actively gathering a wide range of streamlined official communication, including formal publications, online press releases, and social media updates.

Methods

Outbreaks reported by official sources were identified through MoH+ (healthmap.org/mohplus), which collects surveillance data published globally by ministries of health (MoH), other related ministries, government portals, government-affiliated organizations, and international governing bodies (Fig. 1). Reporting of these outbreaks was also identified in unofficial sources using various HM feeds including Google News, ProMED, and participatory surveillance feeds.

Of the 109 outbreaks identified since May 2012, 65 were excluded as they started before data collection, 7 were excluded as they were not reported by unofficial sources, and 1 was excluded as it was a non-natural outbreak. For the remaining 36 outbreaks, the median difference in first date of report between official and unofficial sources was analyzed using a Wilcoxon sign rank test.

Results

Outbreak reporting in official sources lagged by a statistically significant median of 2 days (p=0.003). Among unofficial sources, online news most often (75%) was the fastest to report an outbreak, followed by ProMED (22%) and participatory surveillance (3%). Among official sources, national government affiliated institutes were most often (41%) the fastest, and repeatedly providing prompt outbreak reports were the US Centers for Disease Control and Prevention (CDC), Public Health Agency of Canada, Finnish Food Safety Authority, Health Protection Scotland, UK Health Protection Agency, and French Institute of Public Health Surveillance (FIPHS). Following such institutes were the European CDC (ECDC) with 22% of first reports of outbreaks; MoH's (17%); and WHO (10%). There were 4 instances in which official sources reported before unofficial sources—3 by the ECDC and 1 by FIPHS.

Conclusions

Compared to the Chan study reporting a 16 day lag between first public communication and WHO Outbreak News (1) and the Mondor study reporting a 10 day lag between non-government and government sources (2), the present study shows a much condensed lag of 2 days between unofficial and official sources. Because the two earlier studies cover a much broader historical time frame, one explanation for the reduced lag time is increased adoption of online communication by official government agencies. However, despite such improvements in communication, the lag persists, pointing to the importance of using informal sources for outbreak surveillance.

The present study was limited by small sample size, as the study is in its early stages. We will continue to gather data and all numbers will be updated in time for the presentation to reflect the larger database. Future directions of this study include characterization of official and unofficial reporting by region, language, disease, and source.
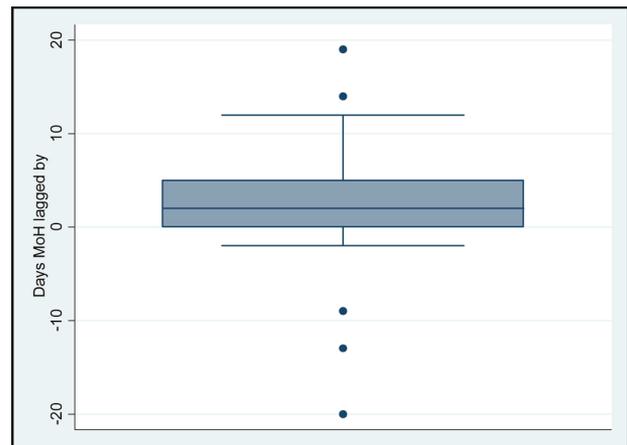

Fig. 1. Interactive visualization of HealthMap MoH+, at healthmap.org/mohplus

Keywords

disease surveillance; outbreak reporting; timeliness; MOH; official sources

References

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