Monitoring Twitter content related to influenza-like illness in Spanish-speaking populations

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Objective

Identify the potential of Twitter as a source for monitoring and visualizing content regarding influenza-like illness (ILI) in Spanish-speaking populations for biosurveillance purposes.

Introduction

Influenza is a recurrent viral disease that requires timely and accurate detection. The use of Twitter as a source for biosurveillance has been shown useful (1). However, these efforts target messages in English, omitting from surveillance the part of users that speaks other languages, such as Spanish.

Methods

We implemented a system that builds upon existing technologies and services. The open source platform Ushahidi (2) was used to automatically search for content. An initial query report was generated from Twitter, includes username, content and timestamp. The city of each user was extracted from their profile and a query to GoogleMaps gave us the coordinates. At the end, this new information was uploaded to Ushahidi. We used the keyword 'gripa' (Spanish for flu) and scheduled hourly updates of the search.

Results

The prototype website operated for a pilot period of 1 month starting April 11h, 2011. A total of 473 unique occurrences worldwide were captured, of which 29% are located in Mexico (138/478) and 52% in Colombia (244/473).

Conclusions

We observed a higher number of incidences in Colombia relative to Mexico (Fig. 1a). When comparing these findings with the data on the reported cases of influenza (Fig. 1b) from the World Health Organization Flunet Biosurveillance (3), the results were consistent.

Our approach has promising potential for timely detection of ILI-related incidences in the areas previously underrepresented. Future work is to include different linguistic and contextual representations.

Keywords

Biosurveillance; influenza; twitter; open source; spanish
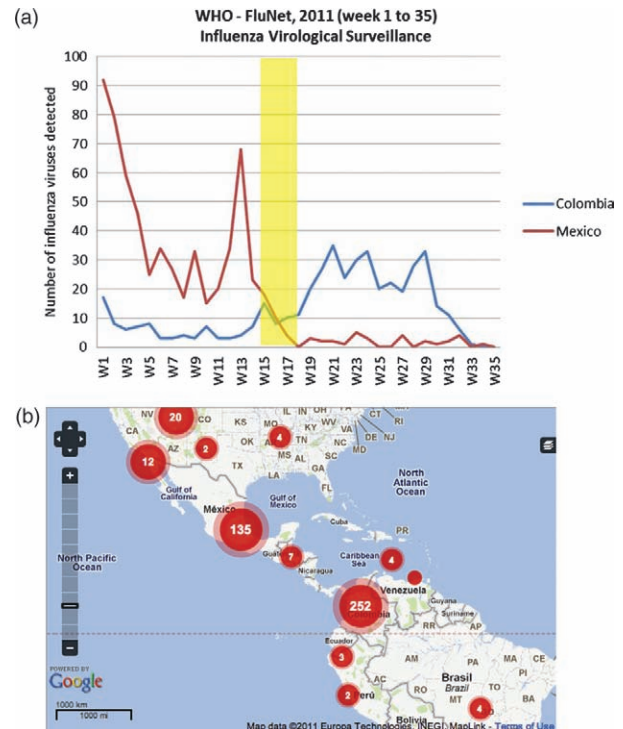
Acknowledgments

Fig. 1. (a) Screen-capture of the visualization interface for the reports aggregated in the system. (b) Influenza virological surveillance data extracted from the Flunet site by WHO.

References

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