Enhanced Surveillance of H1N1 Utilizing Pharmacy Over-the-Counter Drug Sales and Antiviral Prescriptions

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OBJECTIVE

In this project, antiviral prescriptions (Tamiflu and Relenza) and sales of respiratory-related over-the-counter medications are monitored in an effort to detect and characterize the spread of influenza in Canadian communities.

BACKGROUND

Syndromic surveillance using over-the-counter (OTC) drug sales has been shown to provide earlier signals for increases in influenza-like-illnesses (ILI) ahead of hospital admissions [1]. OTC sales have also been seen as a good indicator of community Norovirus activity [2].

In May 2009, in response to the emerging H1N1 influenza outbreak, the Public Health Agency of Canada in collaboration with Rx Canada, a pharmacy-sponsored organization, initiated a surveillance project leveraging national antiviral prescriptions and OTC drugs sales.

METHODS

There are 3081 pharmacies currently contributing antiviral prescription data and 2160 contributing OTC data to the project with more being added daily. Data transmission frequency varies by chain and store. Data transmission ranges from weekly to daily depending on the pharmacy.

Standardized core data sets of antiviral prescriptions and OTC drug sales from participating retail pharmacy chains and stores are processed and reviewed for data quality assurance. To enable trend analysis, historical data (beginning March 1, 2009) was collected.

Novel standardization algorithms were developed to accommodate variation in data reporting frequency. Data are analyzed at multiple levels: national, province/territory, local health authority.

Daily, weekly, and monthly reports are generated. Report templates were developed in consultation with senior epidemiologists at the Public Health Agency of Canada. Reports consist of summary data tables, graphs, maps, and commentary on antiviral prescriptions and over-the-counter medication sales relevant to ILI.

RESULTS

Key results to date include the following,

- Given the inherent delay in laboratory surveillance data, analysis results suggest that the real-time monitoring of antiviral prescriptions facilitate the earlier identification of unusual influenza activity. Early identification and characterization of an unusual event would enable public health officials to respond more quickly.
- Increases of over-the-counter respiratory products precede increases in antiviral prescriptions at the local level by 1-3 weeks.
- OTC drug monitoring appears to provide an objective and standardized method to assess the “respiratory health” of communities.
- Data granularity (age, gender, and geography) enables the detailed characterization of unusual influenza activity in both time and space.
- Project results demonstrate that the full potential of antiviral and OTC monitoring will require automating several data and information management processes.

CONCLUSIONS

In anticipation of the continued spread of the H1N1 virus, potential complexities arising from a novel flu virus circulating in the environment, and the beginning of the seasonal flu virus, the Public Health Agency of Canada will maintain the Pharmacy Surveillance Project during the Fall and Winter seasons.

An automated monitoring and reporting system is being developed to enhance analysis and sharing of pharmacy surveillance information among local, provincial/territorial and federal health stakeholders.

REFERENCES

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