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Role of School-Based Absenteeism Data in Surveillance and Prediction of Flu Season

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Abstract

One of the important parts of public health surveillance is to track flu (influenza) and similar respiratory conditions. School-based surveillance of flu or influenza-like illness (ILI) is critical as children are more susceptible to infections due to their developing immune system and the nature of interaction they have in the school. Establishing enhanced flu surveillance systems could be useful in monitoring the spread and severity of flu, observing disease trends and finally implementation of the health promotion strategies. An effective surveillance method starts with the establishment of multiple stakeholder contacts and effective collaborations. This is followed by the development of data flow mechanisms to obtain absenteeism information from each participating school. The collected data can be comprised of information such as the total number of enrolled students and staff, the number of absent students and staff, and the number of absences due to ILI. Additionally, school response rates can also be monitored periodically in order to assess the effectiveness of a program.

Keywords: Epidemiology, Influenza, Surveillance, Schools

Dear Editor,

Disease surveillance systems can play an important role in early detection of outbreaks and tracking of the novel pathological agents. One of the important parts of public health surveillance is to track flu (influenza) and similar respiratory conditions. The data pertaining to this can be obtained from the hospitals, clinics, primary health care centers, daycares, nursing homes, and schools. Appropriate jurisdictional regulation and policies are essential in the implementation of such public health program at the above-mentioned facilities (1). This letter to editor describes the role of school-based absenteeism data and associated surveillance in early detection of the flu or related illnesses. There are 2 possible ways in which the information about flu can be obtained. From healthcare facilities, the data for clinically and/or laboratory-confirmed cases can be obtained. From certain facilities such as schools, since laboratory confirmation is usually not possible, the data based on signs and symptoms can be collected by denoting it as "ILI" or simply flu-like illness. The case definition of ILI is "an acute respiratory infection with fever equal or greater than 38˚C, cough with the absence of another known cause and onset of symptoms within past 10 days" (2). Furthermore, ILI associated with hospitalization is called severe acute respiratory infection (SARI) (2). Tracking and monitoring ILI and flu could be crucial in observing temporal trends and patterns of illness. The temporal trends can be compared with the historical trends to examine if a flu season is typical for a region or unique. Strong public health surveillance strategies could help in the implementation of efficient public health responses by early detection of abnormalities in the disease trends. Moreover, effective surveillance methods could also help in identification of novel strains of the flu.

The first H1N1 patient in the United States was identified in April 2009. It was quickly determined that the virus was spreading from person-to-person. On April 22, Center for Disease Control and Prevention (CDC) activated its emergency operations center to better coordinate the public health response. On April 26, 2009, the US government declared a public health emergency to implement the pandemic response plan (3). Some jurisdictions initiated the school-based surveillance as a part of enhanced disease response to H1N1 (3, 4). School superintendents, principals, and nurses were usually urged to participate in this enhanced surveillance strategy designed to identify increased absenteeism among students and staff who reported ILI. The aim of this initiative was to monitor the spread and severity of ILI and possibly H1N1 in school-aged children and eventually in the whole community.

The above-mentioned flu surveillance projects could be useful in establishing enhanced flu surveillance approaches locally as well as globally. Furthermore, similar methods could be applied to regular ongoing surveillance systems to improve information flow. In certain situations,

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the epidemiological teams (teams of diverse public health professional) can be established and deployed to carry out an enhanced outbreak response (5). An effective surveillance method starts with the establishment of stakeholder contacts within a jurisdiction. This can be achieved by sharing reporting requirements and relevant information using emails, fax, snail mail, social media and agency's website. Once the stakeholder relationships are established, the next step is to obtain the meaningful information from the collaborating agencies. Some of the important variables that can be collected are shown in online Table S1 (See Supplementary file 1). A data worksheet is then maintained to update information such as the total number of enrolled students and staff, the number of absent students and staff, and the number of absences due to ILI. Additionally, school response rates can also be monitored on an ongoing basis. Other approaches to collect valuable public health data include risk-based surveillance, automated analytical tools to identify disease patterns, and electronic reporting systems such as National Notifiable Disease Surveillance System (6,7). Different types of surveillance approaches described above could play an important role in improving or maintaining public health situation of a geographical region (6-9).

The school-based data can be useful in the development of evidence-based strategies and appropriate health policies. Furthermore, the data can be compared with the local data collected in the past and with the flu activity from other geographical locations within the same time span. The school-based data can be collected with limited resources. It is rich, real-time, and easy to obtain, maintain and understand. Furthermore, it provides prospective situational awareness about high-risk populations that could help in understanding disease dynamics and early detection of outbreaks.

Conflict of Interests

The author declares that he has no competing interests.

Ethical Issues

Not applicable.

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Supplementary Materials

Supplementary file 1 contains Table S1.

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