

Crowdsourced Risk Factors of Influenza-Like-Illness in Mexico

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ABSTRACT

Monitoring of influenza like illnesses (ILI) using the Internet has become more common since its beginnings nearly a decade ago. The initial project of Der Grote Griep Meting was launched in 2003 in the Netherlands and Belgium. It was designed as a means of engaging people in matters of scientific and public health importance, and indeed attracted participation from over 30,000 people in its first year. Its success thus gathered a wealth of potentially valuable epidemiological data complementary to those obtained through the established disease surveillance networks, and linked to rich background information on each participant. Since then, there has been an accelerated increase in the number of countries hosting similar websites, and many of these have generated rather promising results.

In this talk, an analysis of the data from the Mexican monitoring website, “Reporta” is presented, and the risk factors that are linked to reporting of ILI symptoms among its participants are determined and analyzed. The data base gathered from the launching of Reporta in May 2009 to September 2011 is used for this purpose. The definition of suspect ILI case employed by the Mexican Health Ministry is applied to distinguish a class C of participants; the traits gathered in the background questionnaire are labeled X_i . Risk associated to any given trait X_i is evaluated by considering the difference between the frequency with which C occurs among participants with trait X_i and in the general population. This difference is then normalized to assess its statistical significance.

Interestingly, while some of the results confirm the suspected importance of certain traits indicative of enhanced susceptibility or a large contact network, others are unexpected and must be interpreted within an adequate framework. Thus, a taxonomy of background traits is proposed to aid interpretation, and tested through a new assessment of the associated risks. This work illustrates a way in which Internet-based monitoring can contribute to our understanding of disease spread.

Categories and Subject Descriptors

J.3 [Computer Applications]: Life and Medical Sciences – *medical information systems.*

Keywords

Influenza-Like-Illness, ILI, Respiratory diseases, Risk factor, Modeling, Epidemiology, Crowdsourcing, Monitoring, Data mining.

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