

Study: 'Google Flu Trends' a powerful early warning system for emergency departments

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Monitoring Internet search traffic about influenza may prove to be a better way for hospital emergency rooms to prepare for a surge in sick patients compared to waiting for outdated government flu case reports. A report on the value of the Internet search tool for emergency departments, studied by a team of researchers at Johns Hopkins Medicine over a 21-month period, is published in the January 9 issue of *Clinical Infectious Diseases*.

The researchers reported a strong correlation between a rise in Internet searches for [flu](#) information, compiled by Google's Flu Trends tool, and a subsequent rise in people coming into a busy urban [hospital emergency room](#) complaining of flu-like symptoms.

For the study, the researchers tracked and reviewed Google Flu Trends data for Baltimore City, along with data on people seeking care, into the separate adult and pediatric emergency departments at The Johns Hopkins Hospital from January 2009, to October 2010.

Richard Rothman, M.D., Ph.D., an emergency medicine physician and researcher at the Johns Hopkins University School of Medicine in Baltimore and the senior investigator on the study, says the results show promise for eventually developing a standard regional or national [early warning system](#) for frontline [health care workers](#).

Rothman and lead study investigator Andrea Dugas, M.D., recently hosted a national conference in Baltimore of experts from around the

country to discuss the implications of their findings. In the long term, says Rothman, the Johns Hopkins team hopes to develop a highly reliable flu surveillance model that all emergency departments could use to reasonably predict a spike in the number of flu-like cases. Such a system, he says, could help [emergency department](#) directors and senior administrators prepare by beefing up staffing or opening up patient annexes.

Rothman and his team found the correlation between Internet searches and patient volume was most pronounced when researchers reviewed data showing a rise in [search traffic](#) for flu information and the number of children coming into the Hopkins pediatric emergency room with what doctors call influenza-like illness or ILI.

Although the science and medical community has generally accepted that a rise in flu search queries on Google Flu Trends corresponds with a rise in people reporting flu-like symptoms, the Johns Hopkins team is believed to be the first to show that the Flu Trends data strongly correlates with an upswing in emergency room activity.

Currently, emergency departments, hospitals and other health care providers rely on Centers for Disease Control and Prevention flu case reports provided during flu season, October to May, as a key way to track flu outbreaks.

However, the researchers say those traditional reports, compiled using a combination of data about hospital admissions, laboratory test results and clinical symptoms, are often weeks old by the time they reach practitioners and hospitals. Thus, they don't provide frontline health care workers with a strong tool to prepare day-to-day for a surge in flu cases, even as the flu is spreading in real time, Rothman notes.

[Google Flu Trends](#), on the other hand, collects and provides data on

search traffic for flu information on a daily basis by detecting and analyzing certain flu-related search terms. The company says the search queries, when combined, are good indicators of flu activity. Users of the free service can narrow their data reports to geographic regions, time frames and other denominators.

Provided by Johns Hopkins Medical Institutions

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