



News Release

FOR RELEASE May 17, 2010, 8:15 a.m. CDT

FOR MORE INFORMATION, CONTACT:

Keely Savoie or Brian Kell

ksavoie@thoracic.org or bkell@thoracic.org

ATS Office 212-315-8620 or 212-315-6442 (until May 14)

Cell phones 917-860-5814 or 516-305-9251

ATS Press Room: 504-670-6926 (May 15 to 20)

Poster session time: 8:15-10:45 a.m. May 17

Location: CC-Room 293-294 (Second Level), Morial Convention Center

Google Flu Trends estimates off

ATS 2010, NEW ORLEANS— Google Flu Trends is not as accurate at estimating rates of laboratory-confirmed influenza as CDC national surveillance programs, according to a new study from the University of Washington.

The findings will be reported at the ATS 2010 International Conference in New Orleans.

“We knew from the Google Flu Trends validation study that it is highly correlated with surveillance for the non-specific syndrome of influenza-like illness,” said Justin Ortiz, M.D., clinical fellow at the University of Washington who led the study. “However, it has never been evaluated against a gold standard of actual laboratory tests positive for influenza virus infection. When we compared Google Flu Trends data to CDC’s national surveillance for influenza laboratory tests positive, we found that Google Flu Trends was 25 percent less accurate at estimating rates of laboratory confirmed influenza virus infection.”

Google Flu Trends uses the popularity of certain Google search queries in real time to estimate nationwide rates of influenza-like illness activity, a non-specific combination of symptoms including a fever with either a cough or a sore throat without any confirmatory laboratory testing. While some traditional flu surveillance systems may take days or

weeks to collect and release data, Google search queries can be counted almost instantaneously.

The problem is that studies have shown that influenza-like illnesses are actually caused by the influenza virus in only 20 percent to 70 percent of cases during the influenza season.

“Many respiratory virus infections other than influenza can result in influenza-like illness. Furthermore, there is a wide and unpredictable proportion of influenza-like illness that is due to actual influenza virus,” said Dr. Ortiz. “Because Google Flu Trends estimates of influenza-like illness may not necessarily correlate with actual influenza virus infections, we undertook this study to evaluate the validity of Google Flu Trends influenza surveillance by comparing it to a gold standard of CDC’s national surveillance for influenza laboratory tests positive.”

The researchers analyzed the incidence of flu outbreaks in the United States between 2003 to 2008. They found that Google Flu Trends deviated greatest from CDC surveillance for influenza virus tests positive during the 2003-04 influenza season, a year notable for early and intense influenza activity, with a high number of pediatric influenza deaths and substantial media attention to influenza.

“Internet search behavior is likely different during anomalous seasons such as during 2003-4,” explained Dr. Ortiz. “We hypothesize that during periods of intense media interest or unexpected influenza activity such as the 2009 H1N1 influenza pandemic, Google Flu Trends may be least accurate at estimating influenza activity.”

“Still, Google Flu Trends influenza surveillance provides an excellent public health service, because it provides nationwide influenza activity data in a cheap and timely manner,” said Dr. Ortiz. “Nevertheless, our study demonstrates that its data should be interpreted with caution and that other surveillance systems more accurately reflect influenza activity in the United States.”

###

“Does Google Influenza Tracking Correlate with Laboratory Tests Positive for Influenza?” (Session B25, Monday, May 17, 8:15-10:45 a.m., CC-Room 293-294 (Second Level), Morial Convention Center; Abstract 4456)

**Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.*

Does Google Influenza Tracking Correlate with Laboratory Tests Positive for Influenza?

J.R. Ortiz¹, H. Zhou², D.K. Shay², K.M. Neuzil³, C.H. Goss¹

¹University of Washington - Seattle, WA/US, ²Centers for Disease Control and Prevention - Atlanta, GA/US, ³PATH - Seattle, WA/US

Background: Google Flu Trends was developed to estimate US influenza-like illness (ILI) rates from internet searches. ILI is not specific for influenza, however, and outbreaks of non-influenza ILI are common. Because Google Flu Trends estimates of ILI may not necessarily correlate with actual influenza virus infections, we undertook this study to evaluate the validity of Google Flu Trends with a comparison to a gold standard of national surveillance for laboratory-confirmed influenza.

Methods: Influenza data from 2003-04 through 2007-08 were obtained from three US surveillance systems: Google Flu Trends, the CDC Outpatient ILI Surveillance Network (CDC ILI Surveillance), and the US Influenza Virologic Surveillance System (CDC Virologic Surveillance). Pearson's correlation coefficients with 95% confidence intervals (95% CI) were calculated to compare surveillance systems over the entire study period, by year, and by US Census Region. An analysis was performed to investigate outlier observations and determine the extent to which they affected the correlations between surveillance data.

Results: The Pearson's correlation coefficient describing Google Flu Trends and CDC Virus Surveillance over the entire study period was 0.72 (95% CI: 0.64, 0.79). The correlation between CDC ILI Surveillance and CDC Virus Surveillance over the same period was 0.85 (95% CI: 0.81, 0.89). Most of the outlier observations in both comparisons were from the 2003-04 influenza season. Nevertheless, exclusion of the outlier observations did not substantially improve the correlation between Google Flu Trends and CDC Virus Surveillance (0.82; 95% CI: 0.76, 0.87) or CDC ILI Surveillance and CDC Virus Surveillance (0.86; 95%CI: 0.82, 0.90). Finally, while Google Flu Trends was validated by calculation of a mean correlation coefficient with US Census Region rates of ILI during 2007-08 influenza season, the mean correlation coefficient describing Google Flu Trends and CDC Virologic Surveillance by US Census Region for the same season was 11% lower (0.97 vs. 0.87).

Discussion: This analysis demonstrates that while Google Flu Trends is highly correlated with rates of ILI, it has a lower correlation with actual influenza tests positive. Moreover, most of the outlier observations occurred during the 2003-04 influenza season that was characterized by early and intense influenza activity, which potentially altered health care seeking behavior, physician testing practices, and internet search behavior. These findings underscore limitations to the use of Google Flu Trends and CDC ILI Surveillance to monitor influenza activity. Strong, nationwide influenza virologic surveillance remains essential for monitoring influenza infections during inter-pandemic and pandemic periods alike.