

FluNearYou Data Correlates with ILINet and Influenza Laboratory Tests

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Findings

To assess the relationship between the number of active FluNearYou (FNY) participants and the system's performance, we correlated the FNY time-series with the national-level Influenza-Like-Illness Surveillance Network (ILINet) and national-level influenza laboratory test results. Our analysis suggests that influenza season, FNY performance increased rapidly until around 750 participants were reporting, which corresponded to ~5% of the maximum observed number of participants, Figure 1. Interestingly, it appears as though FNY correlated more strongly with laboratory tests, than it did with ILINet. However, that result was not statistically significant, Figure 1. Lastly, we compared the time-series of FNY, ILINet, lab tests, and the number of FNY participants for the 2014-15 influenza season. As you can see in Figure 2, all of the time-series peaked on the same week, aside from participants, which peaked a week later. This suggests that FNY contains relevant signal for influenza surveillance. Next steps should include repeating similar analyses at finer geographic scales and across influenza seasons.

Methods

Using the full FNY dataset (where 1 row = 1 participant) for one year, we stratified the data by week. Then we sampled (with replacement) FNY data within each stratum proportional to the number participants for that week at 100 different proportions. The proportions were .1% to 10% of the full FNY data in increments of .1%. We repeated this process 1000 times and then correlated these 1000 * 100 datasets with the full ILINet data and positive influenza tests.

Figures

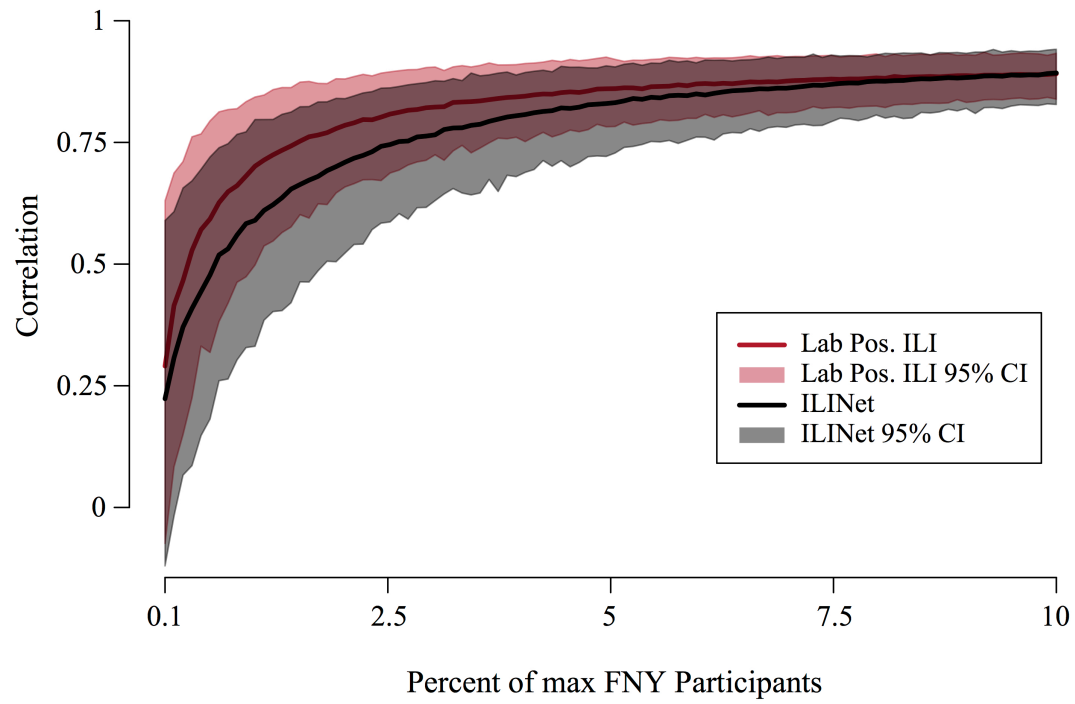


Figure 1 – The correlation of FNY data with ILINet and laboratory tests for influenzas as a function of the percent of FNY participants reporting.

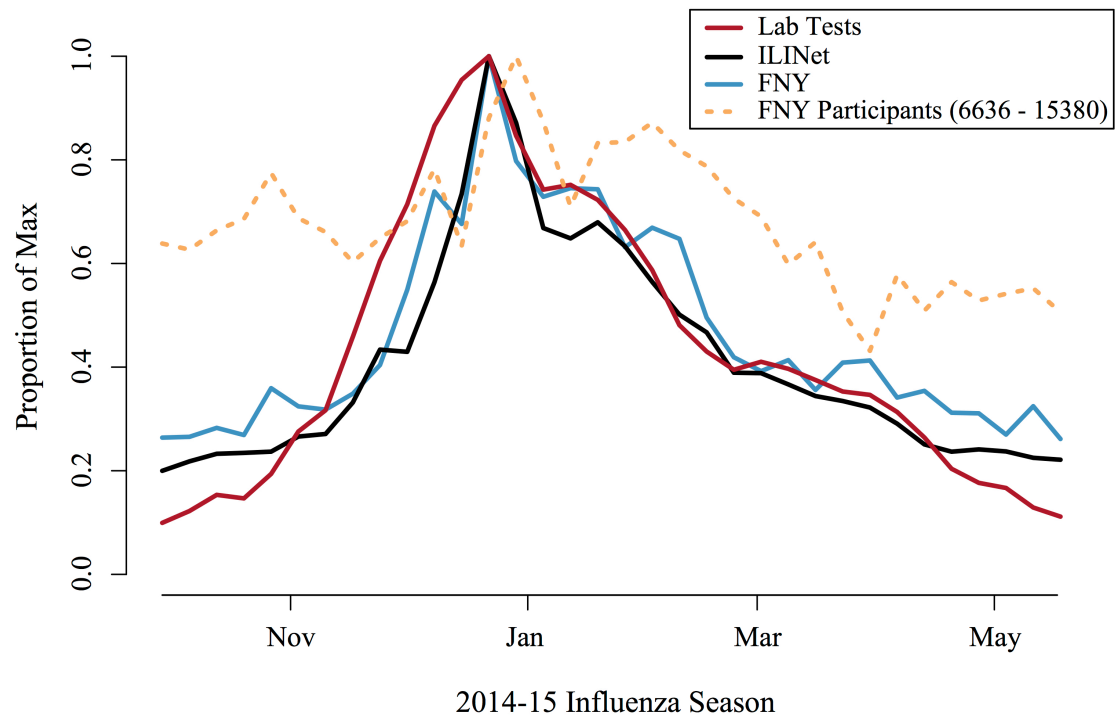


Figure 2 – The time-series for FNY, ILINet, lab tests, and the number of FNY participants is plotted during the 2014-15 influenza season. The y-axis was rescaled by the maximum observed value for each data set.