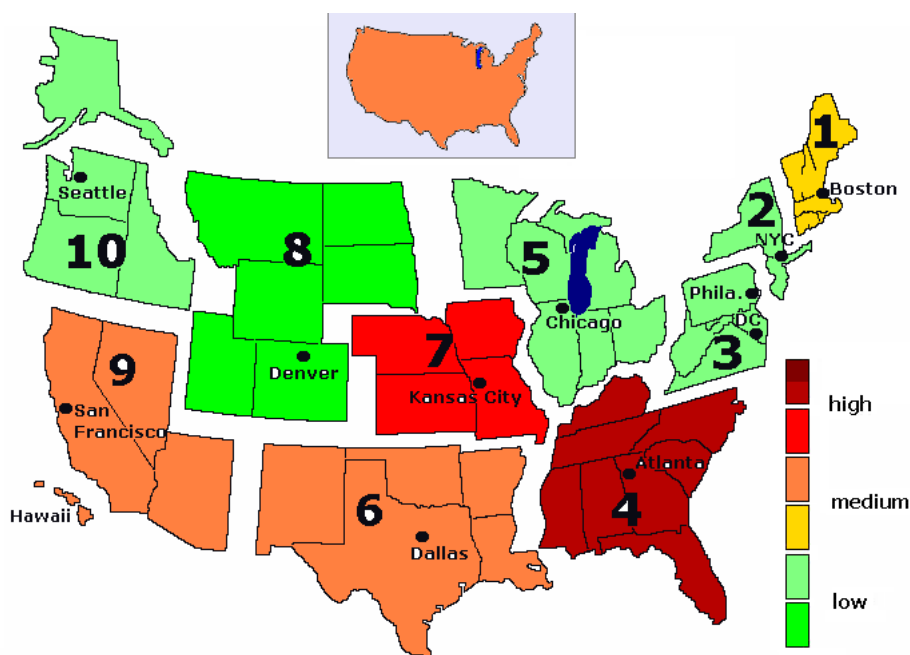


# U.S. Flu Forecasts — 2009 Week 36 (version b, 10 September)

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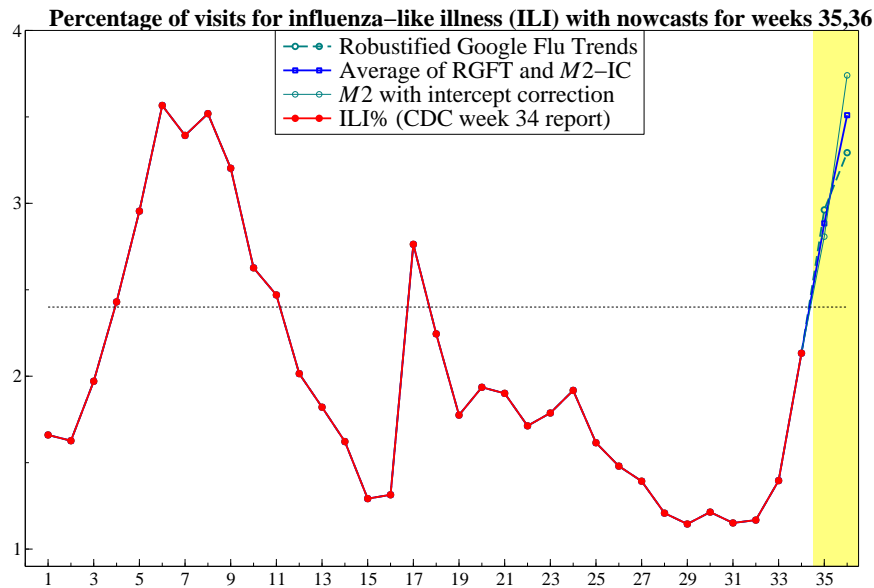


## Summary for week 36 (ending 12 September)

- The CDC reports in week 34 that the % weighted ILI (the percentage of outpatient visits for influenza-like illness) stands at 2.133. The week 33 ILI% is revised from 1.383 to 1.396. Google Flu Trends estimates ILI% for week 34 too low at 0.594.
- During weeks 35 (ending 5 September) and 36 (ending 12 September), influenza activity in the US has been rising rapidly. **The week 35 nowcast is 2.9%, for week 36 it is 3.5%.**
- ILI% in the US is already above the national baseline of 2.4%. The week 35 nowcast is 2.8%.
- Flu activity in the four southern regions is above their region-specific baseline.
- Flu activity in the US this winter could exceed the recent peak of the 2003-04 season.

\*Disclaimer. The results reported here are based on forecast, and are therefore uncertain. These results are my personal opinion, based on extensive modeling, and not endorsed by either the CDC or Google.

## Current Influenza Activity



- Robustified Google Flu Trends (RGFT) shows a rapid increase of ILI% in weeks 35 and 36: 3.0% and 3.3% respectively.

This is based on the changes in the logit of Google Flu Trends (GFT), applied to the ILI% level reported in the CDC influenza report for week 34. GFT has, at least on some past occasions, over-estimated the increase in this particular period.

- Model *M2* nowcasts, assuming that the increase in weeks 33&34 continued into weeks 35 and 36, reports a rapid increasing ILI%: 2.8% and 3.7% respectively.

This assumption is more realistic than that of the previous week.

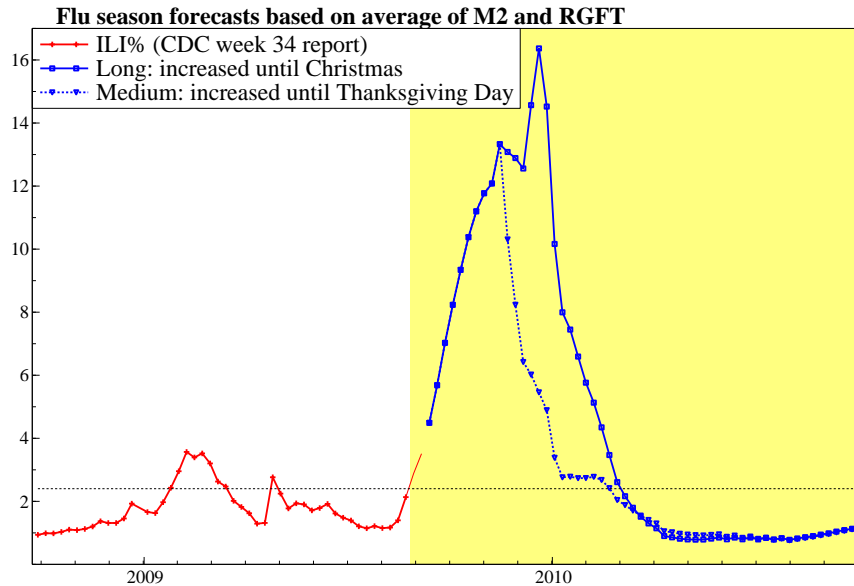
- The average nowcasts for week 35 and 36, based on pooling a dynamic model with calendar effects (*M2*) and RGFT, show a rapid increase in ILI%: 2.9% and 3.5% respectively.

During weeks 27 to 33, RGFT has produced better nowcasts than the pooled model. Historically, the pooled model has performed better.

## Expected Influenza Activity

Historically, there tends to be an increase in ILI% after Labor Day (when schools start; week 36 this year). However, this is normally offset by declines in the week before and afterwards.

## Flu Season Forecasts of Influenza Activity



The one-year ahead forecasts use the average nowcasts for week 35 and 36 as the starting point for forecasting. Then two assumptions are used to capture pandemic flu activity:

- *Medium*: the period of increased activity lasts until Thanksgiving Day. This is captured by a fixed increase in the intercept estimated over periods 33&34 and lasting until Thanksgiving Day. This is the solid blue line. Note that Thanksgiving Day is usually associated with an increase in flu activity.
- *Long*: the period of increased activity lasts until the week before Christmas, the dotted blue line. This is captured by a fixed increase in the intercept estimated over periods 33&34 and lasting until the week before Christmas.

If these assumptions hold, very high levels of ILI% should be expected.

## References

- [www.cdc.gov/flu/weekly/](http://www.cdc.gov/flu/weekly/)
- [www.google.com/flutrends](http://www.google.com/flutrends)
- Doornik, Jurgen A. (2009), 'Improving the Timeliness of Data on Influenza-like Illnesses using Google Search Data'. Mimeo, University of Oxford.