

Team 4Sight - Virginia Tech

Srini Venkatramanan

On behalf of
Debanjan Datta, Bryan Lewis, Naren Ramakrishnan

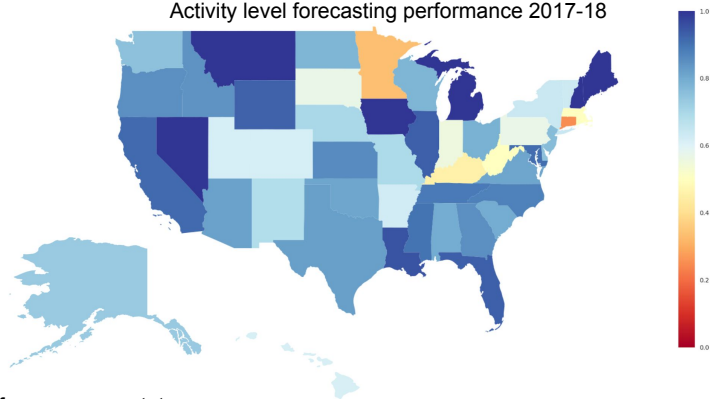
Discovery Analytics Center and
Network Dynamics and Simulation Science Laboratory

- **Predicting Flu Activity Indicators**
- **Additional datasets to consider**
- **Crowdsourced ranking/ensembling**

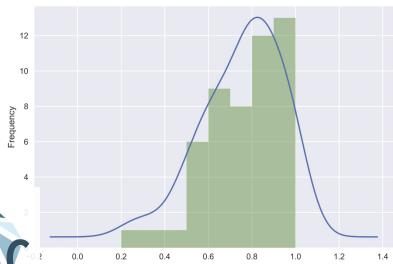
1. Predicting Flu Activity Indicators

- Activity levels and Geographic spread indices from CDC
 - Additional information about local providers.

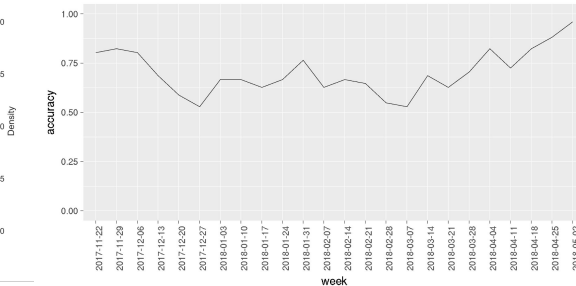
Activity level forecasting performance 2017-18



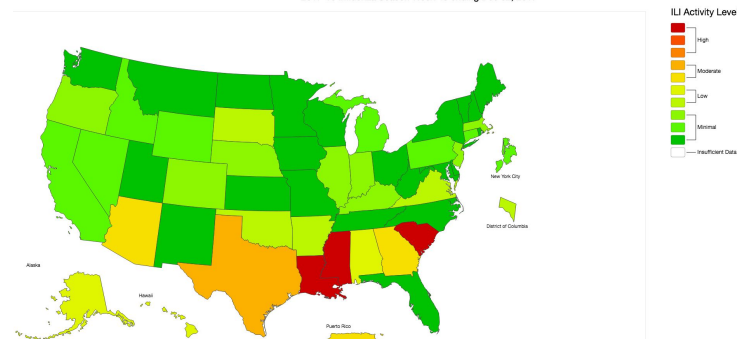
Performance per state



latest version prediction vs. latest version truth

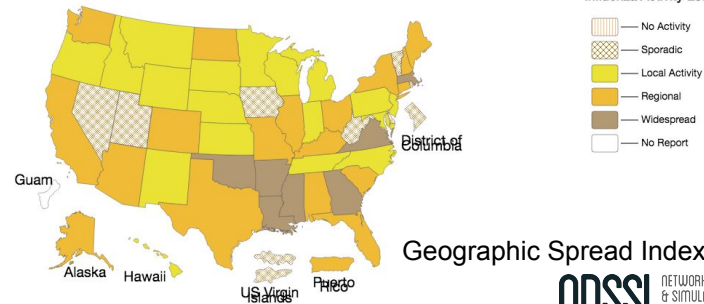


2017-18 Influenza Season Week 48 ending Dec 02, 2017



ILINet State Activity Indicator

Influenza Activity Estimates



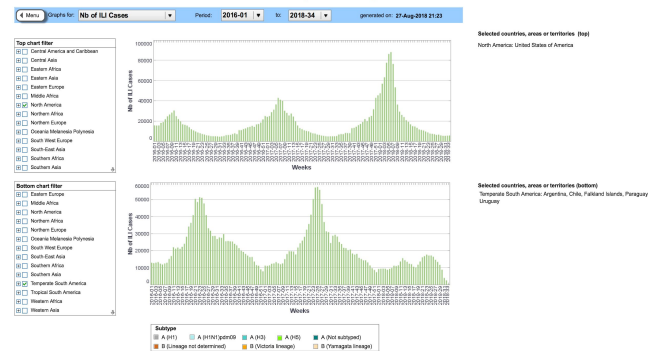
Geographic Spread Index

2. Additional datasets to consider

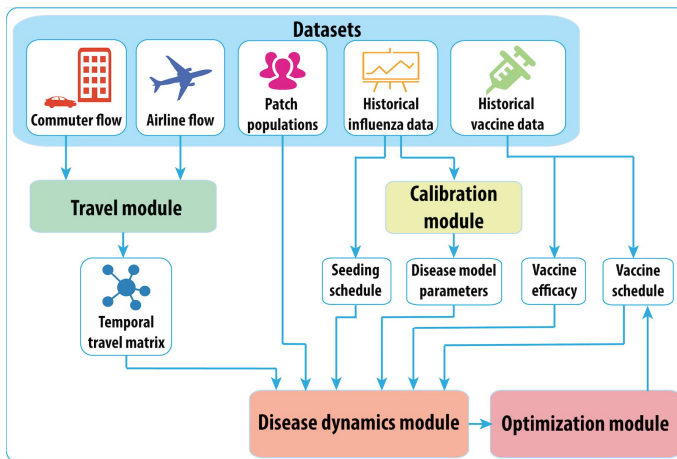
USA and Temperate South America

- **FluVaxView** - Vaccine uptake information
 - Live update possible?
- **WHO FluID** - global Influenza activity
 - Especially Southern Hemisphere for pre-season estimates

Influenza surveillance report – comparison



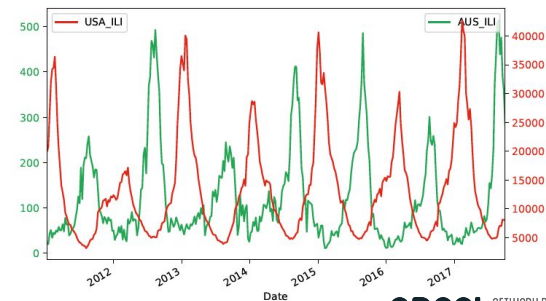
Metapopulation modeling framework incorporating vaccine uptake



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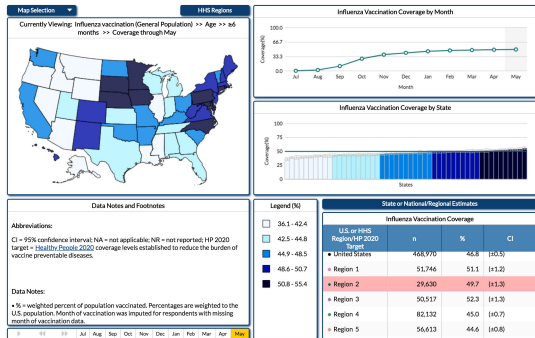
Data source: Global Influenza Surveillance and Response System (GISRS) and national epidemiological institutes

ILI cases in USA, Australia (WHO FluID)



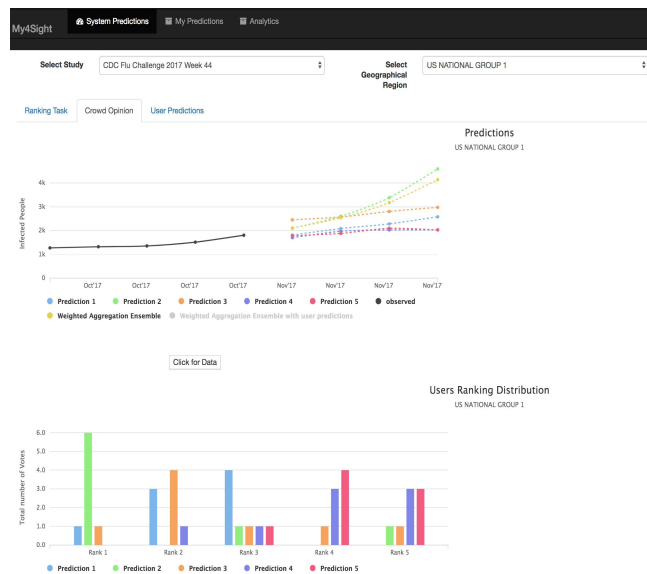
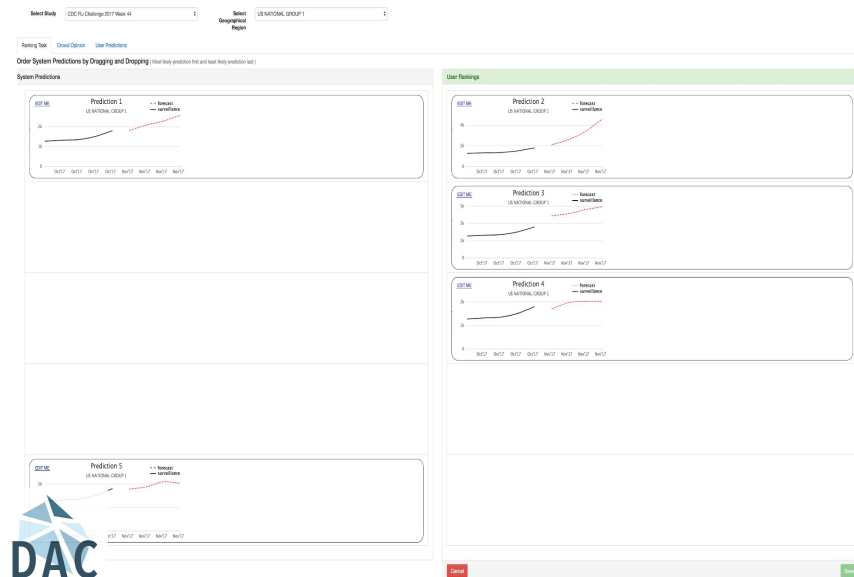
FluVaxView
Influenza Vaccination Coverage
Subsided User Guide (Data Sources and Methods | Limitations | Download Report Data | Travel Report | Static Season Dashboard)

Cumulative monthly influenza vaccination coverage estimates for persons 6 months and older by State, HHS Region, and the United States, National Immunization Survey-Flu (NIS-Flu) and Behavioral Risk Factor Surveillance System (BRFSS), 2016-17 influenza season

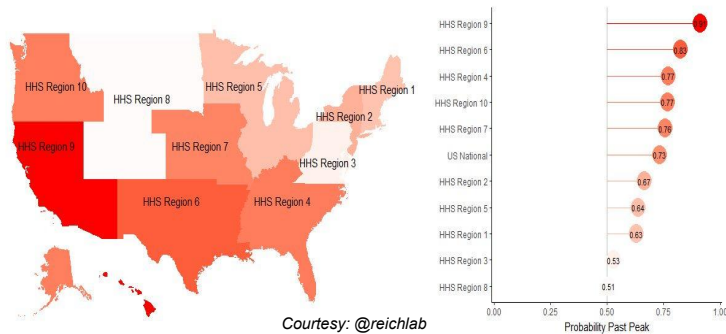
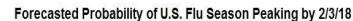
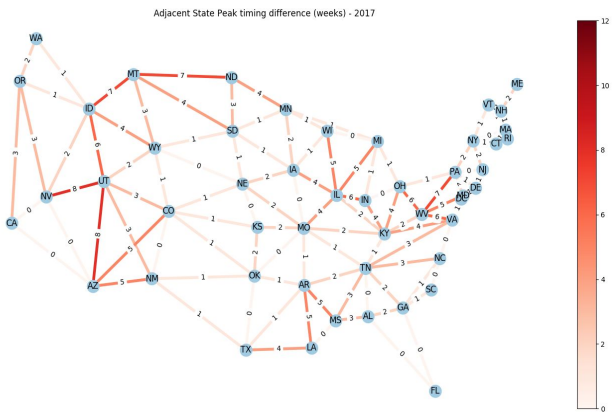
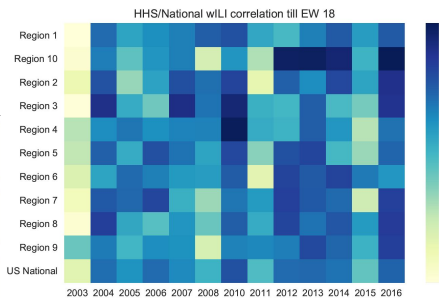


3. Crowdsourced ranking/ensembling

- FluSight - Experts forecast, Experts combine
- EpiCast - Crowd forecasts, Expert combines
- PPFST Crowd - Experts forecast, Crowd choose
- My4Sight - Experts forecast, Crowd ranks, Expert combines



- Webpage/channel for collecting visualizations/tools/insights?
 - Within FluSightNetwork website? PLOS Channel?



Courtesy: @reichlab



Misc: How wrong is wrong?

Motivations for scoring parameters

- -10 if no probability assigned to observed outcome or if no forecast made.
 - Reasonable to treat both alike?
- +/- 0.5 window for all regions
 - Some regions/states have higher dynamic range
- Combining scores across different targets/regions/weeks
 - Averaging scores vs skills