

Estimate RSV onset and peak timing

Tutorial 2 for transition

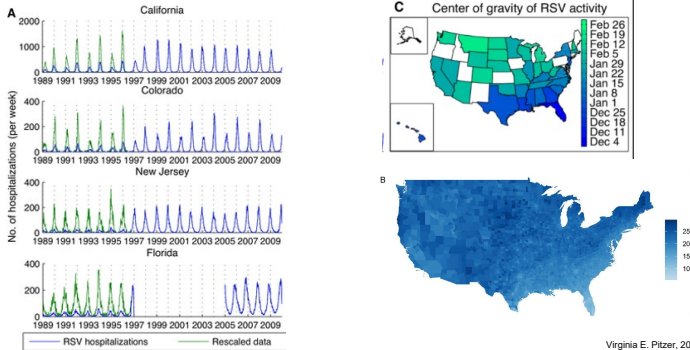
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Background

Before the COVID-19 pandemic, the timing of RSV seasonal epidemics exhibited notable spatial patterns



Virginia E. Pitzer, 2015, PLoS Pathog
Daniel Weinberger, 2015, CID

Outline

- ▶ In section 1, we will first introduce how to find the peak timing of RSV epidemics using harmonic regression (given regular annual/biennial seasonality). We will then talk about identifying the onset of RSV epidemics using second derivative method, regardless of the seasonality of RSV.
- ▶ In section 2, we will learn how to use R to identify peak timing and onset of RSV epidemics.
- ▶ In section 3, we will incorporate the spatial component of RSV epidemics. We will first introduce the concept of spatial autocorrelation and then learn to use R to account for spatial autocorrelation.

References

Relevant readings:

- RSV onset timing at county level
- RSV peak timing on state level
- Comparing RSV onset timing before and during the COVID-19 pandemic
- RSV peak timing at ZIP code level and the drivers of RSV spread

Harmonic regression to estimate the peak timing of RSV epidemics

Note: Most of the following materials came from Dan and Ginny's Lecture notes.

Please check out:

- ▶ Dan's class: Public Health Surveillance
- ▶ Ginny's class: Quantitative Methods in Infectious Diseases