WNY & COVID-19:
Where We Are and
Where We Are Heading
November 18, 2020

Peter Winkelstein, MS, MD, MBA

Vice President and Chief Medical Informatics Officer, Kaleida Health

Chief Medical Informatics Officer, UBMD

Professor of Clinical Pediatrics

Executive Director, Institute for Healthcare Informatics

Jacobs School of Medicine and Biomedical Sciences, University at Buffalo

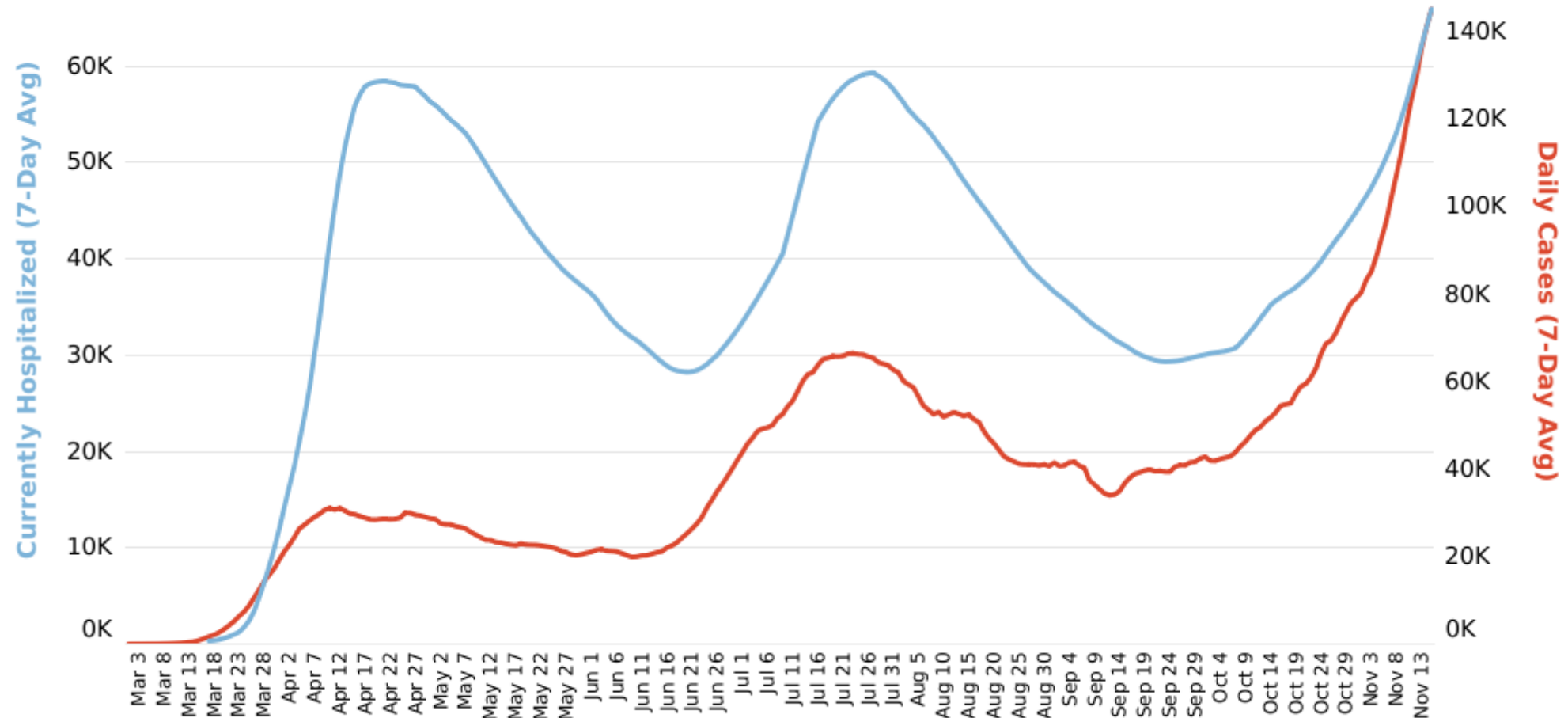
on behalf of the COVID-19 Analytics Model Workgroup

pwink@buffalo.edu

- National and NYS current situation
- WNY current situation
- Where are we heading?

- National and NYS current situation
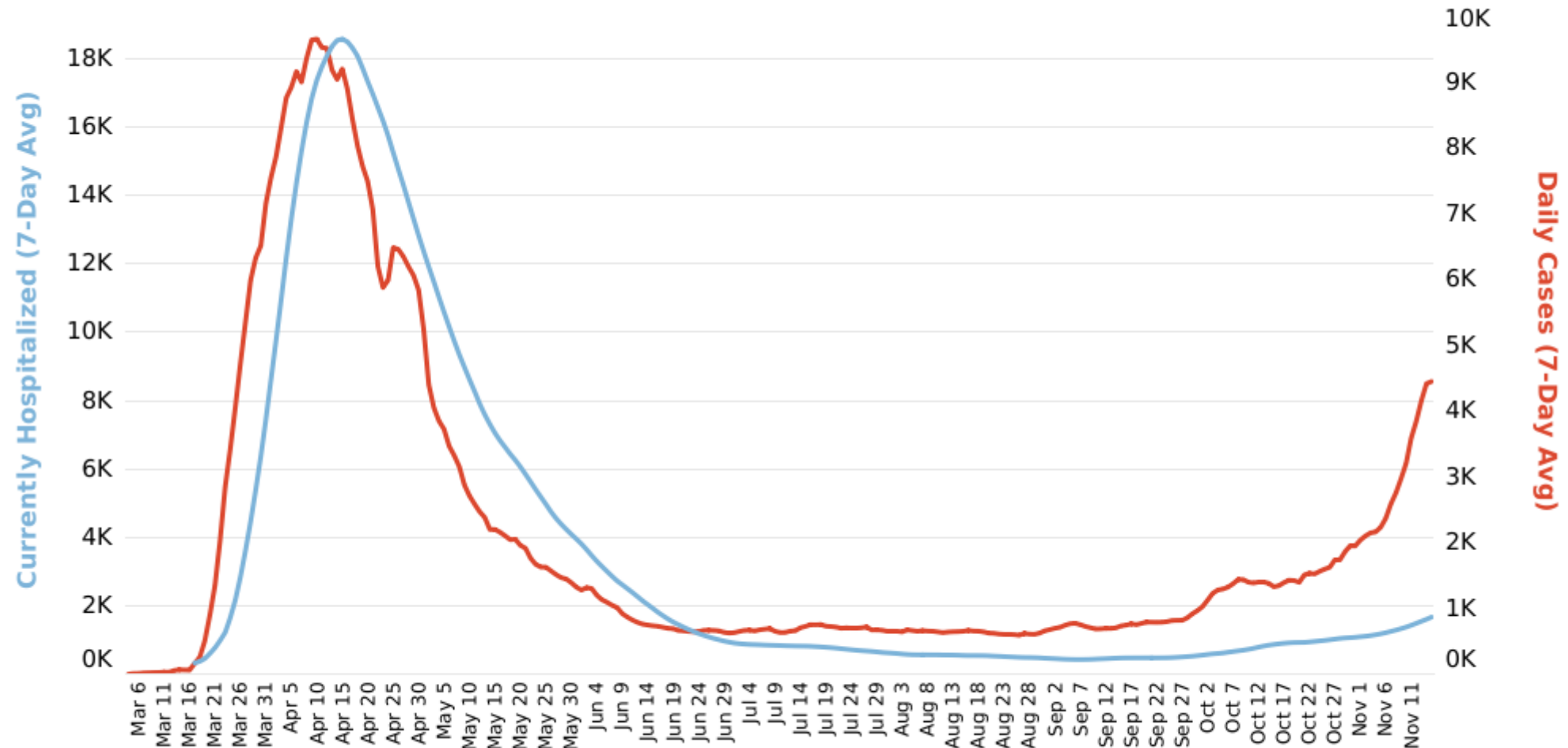- WNY current situation
- Where are we heading?

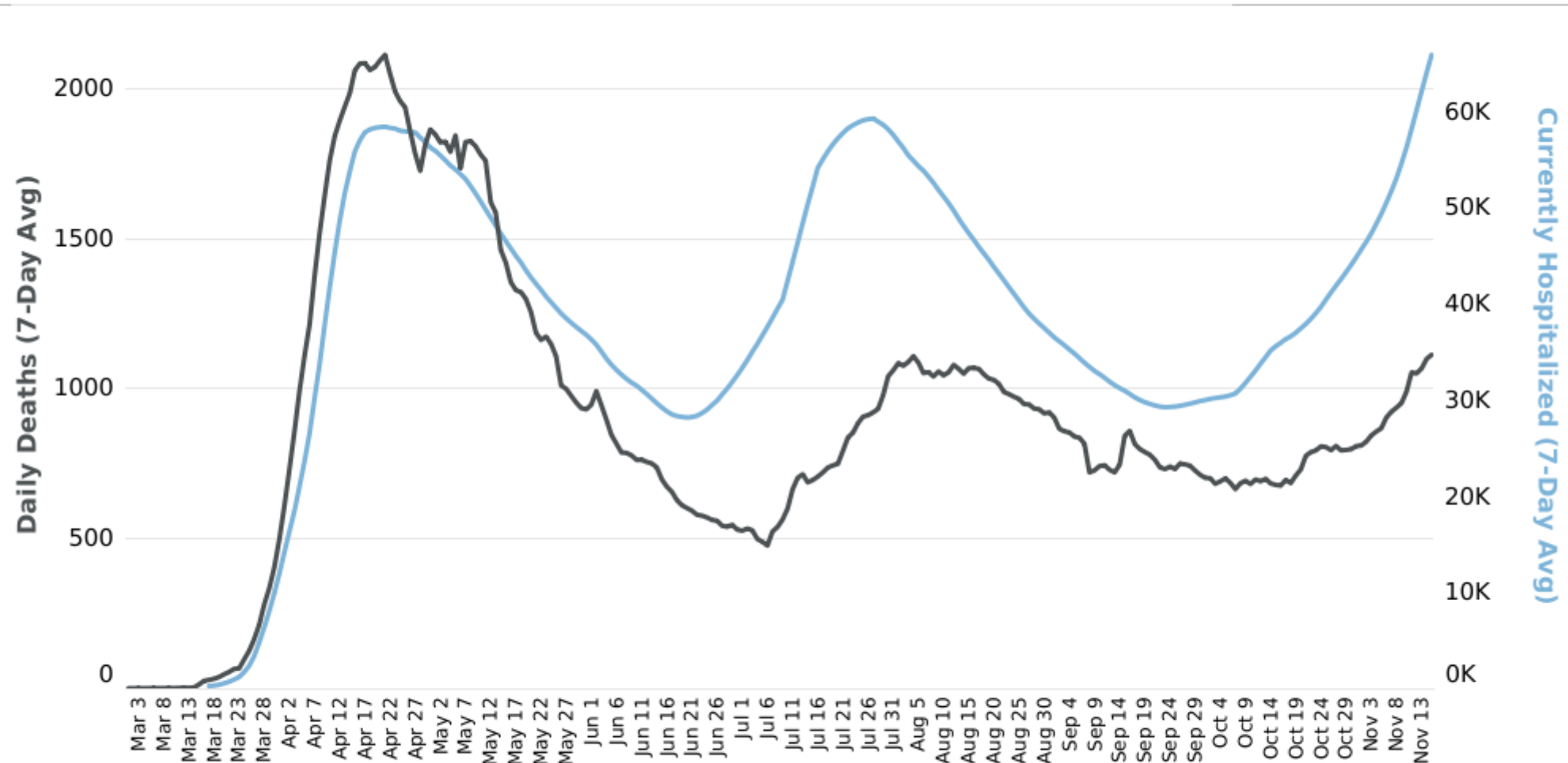# Currently Hospitalized & Daily Cases. 7-Day Average Lines

Mar 1 to Nov 15

The COVID Tracking Project

Left Axis	Right Axis	States Included	Regions Included
CURRENTLY HOSPITALIZ..	DAILY CASES	All	All

Currently Hospitalized & Daily Cases. 7-Day Average Lines

Mar 1 to Nov 15

The COVID Tracking Project

Left Axis
CURRENTLY HOSPITALIZ..

Right Axis
DAILY CASES

States Included
New York

Regions Included
All

Daily Deaths & Currently Hospitalized. 7-Day Average Lines

Mar 1 to Nov 15

The COVID Tracking Project

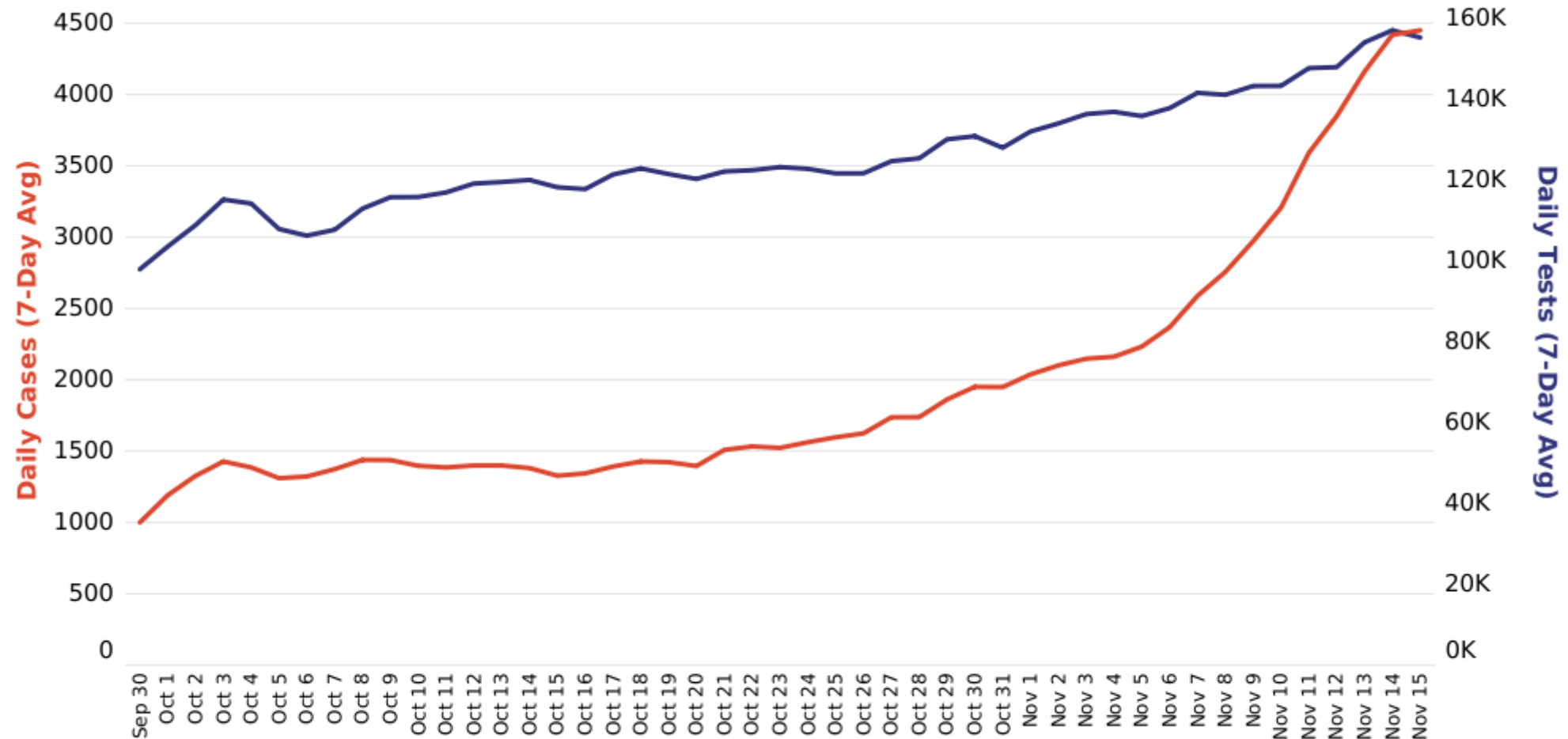| Left Axis	Right Axis	States Included	Regions Included
DAILY DEATHS	CURRENTLY HOSPITALIZ..	All	All

What do these metrics tell us about prevalence?

- Key metrics
  - # cases (# positives)
  - Positivity rate (# positives / # tests)
  - Hospital census

- Testing strategy affects some of these metrics
  - **Inadequate** testing generally leads to **undercounting** of # cases and **increased positivity** rate (only sick people are tested)
  - **Increased** testing generally leads to **increased** # cases (find more cases) and **decreased positivity** rate (testing more asymptomatic cases)
  - ALSO: communities can "game" these measures, e.g. by not having sick people get tested so as to falsely lower the positivity rate

Daily Cases & Daily Tests. 7-Day Average Lines

Sep 30 to Nov 15

The COVID Tracking Project

Left Axis
DAILY CASES

Right Axis
DAILY TESTS
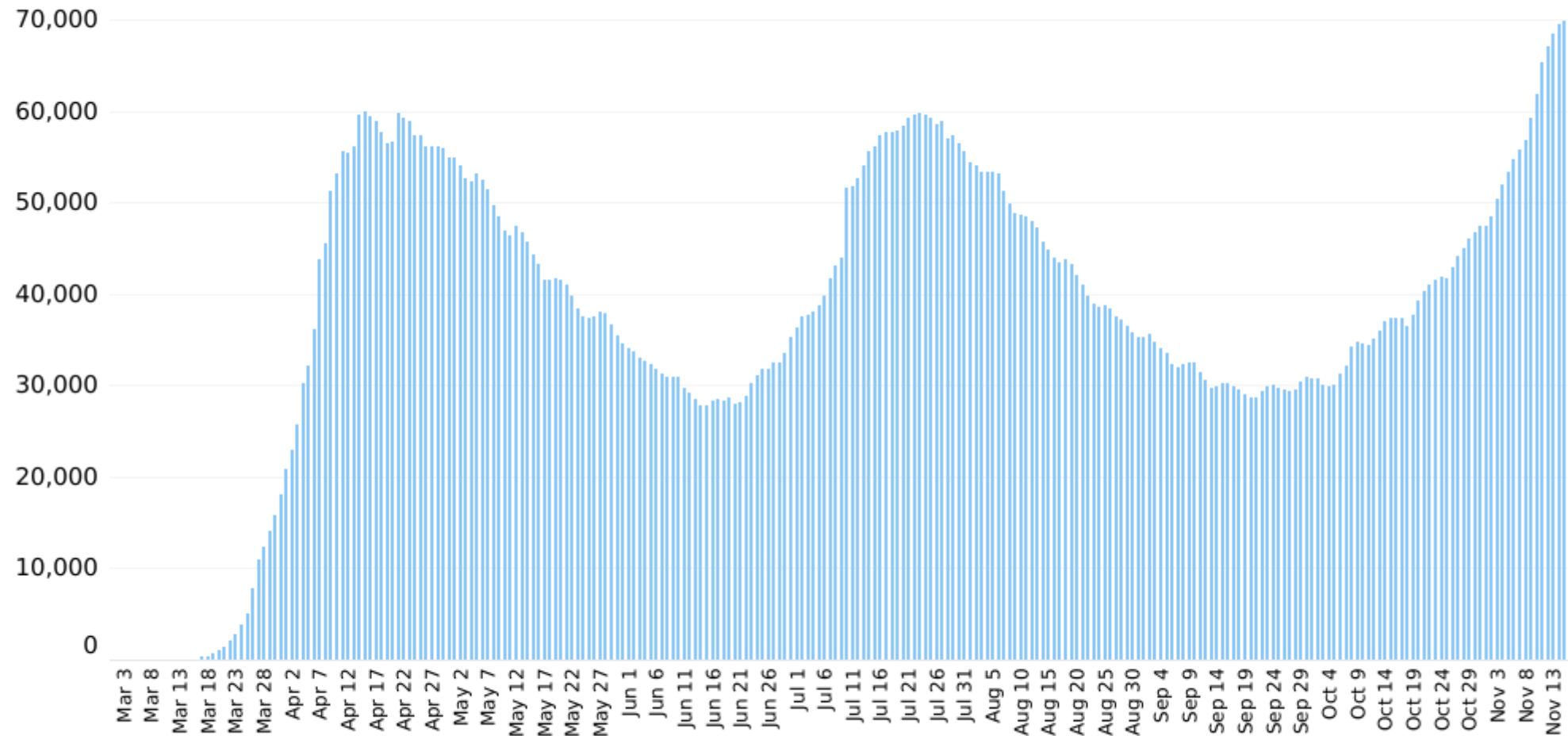
States Included
New York

Regions Included
All

What do these metrics tell us about prevalence?

- Key metrics
  - # cases
  - Positivity rate
  - **Hospital census**
- **Because testing affects # cases and positivity rate, we concentrate on hospital census**
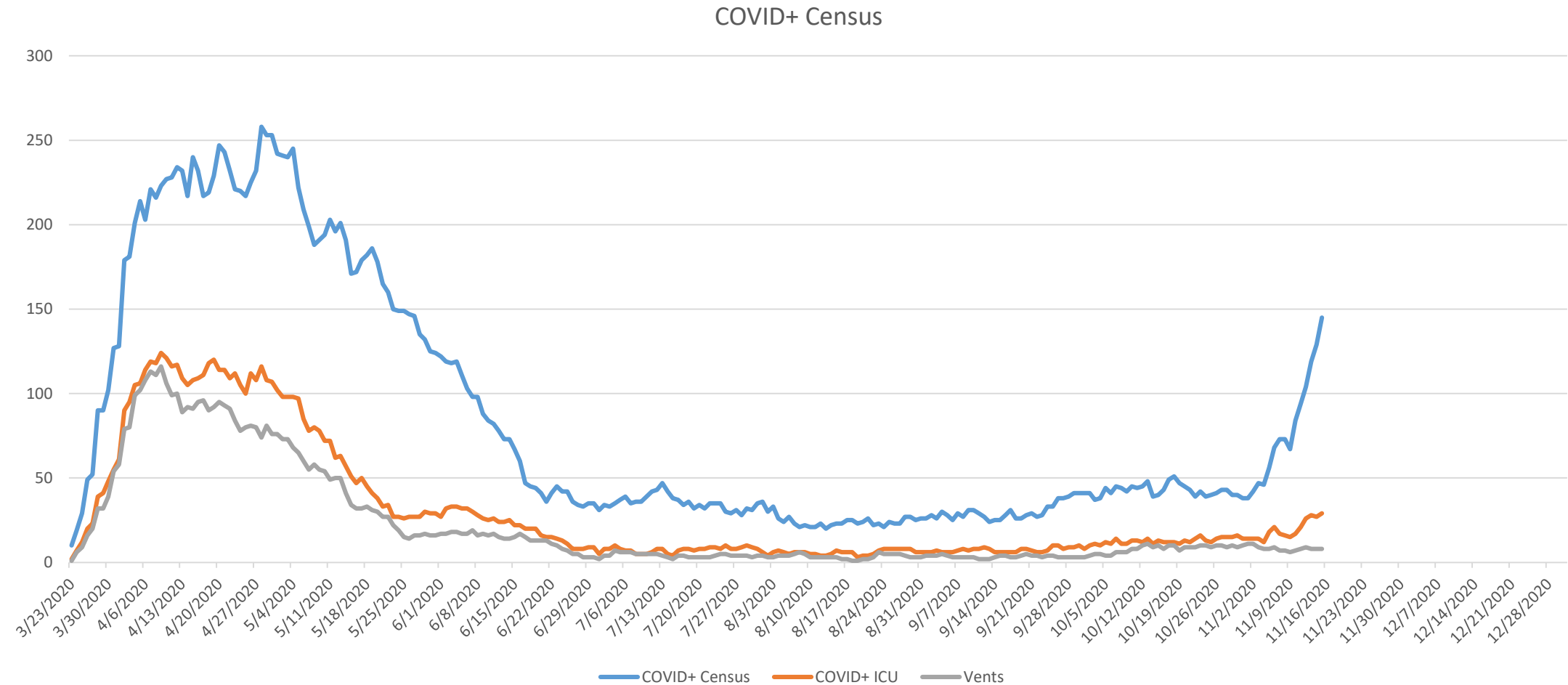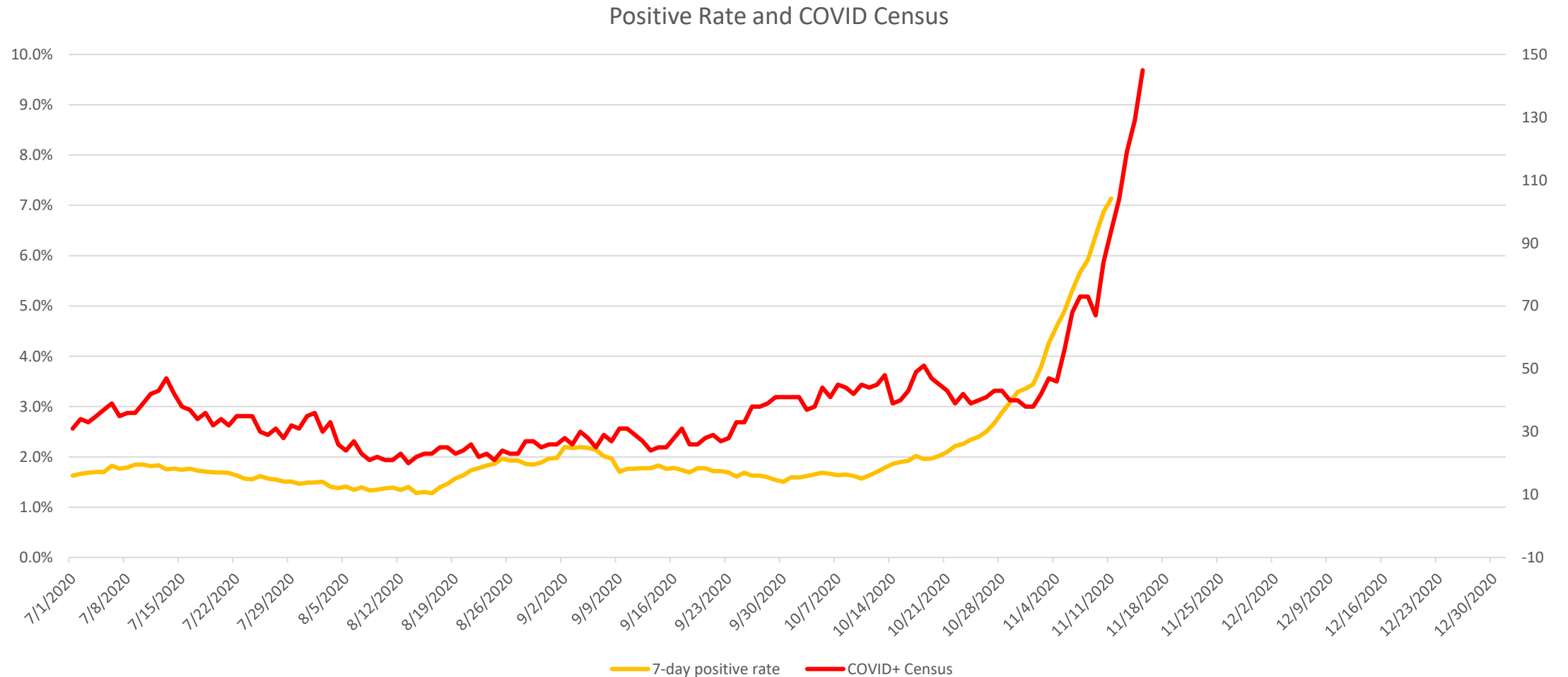
US CURRENTLY HOSPITALIZED WITH COVID-19

The COVID
Tracking Project

Note: Florida began reporting this figure on July 10.

- National and NYS current situation
- **WNY current situation**
- Where are we heading?

Erie County COVID Hospital Census

COVID+ Census

COVID+ Census — COVID+ ICU — Vents

WNY Positive Rate and EC COVID Hospital Census

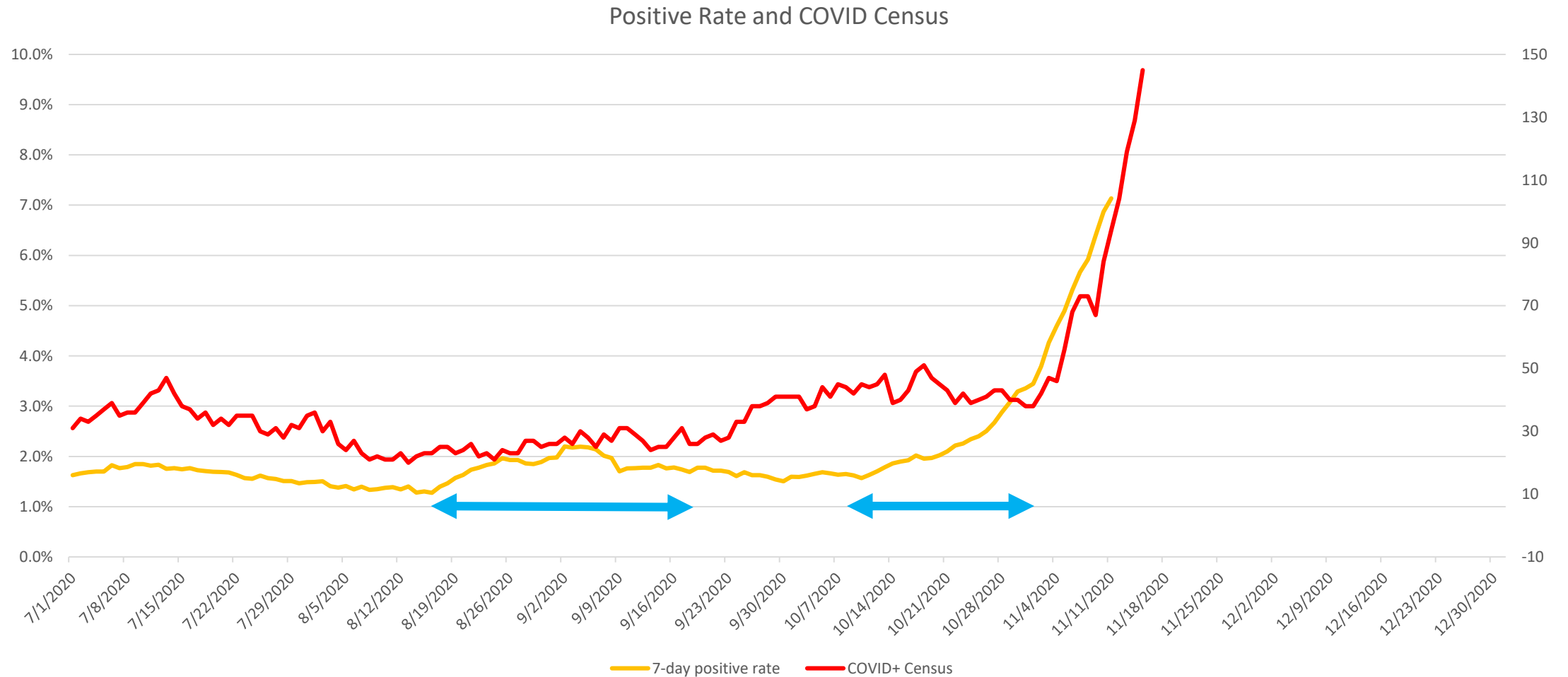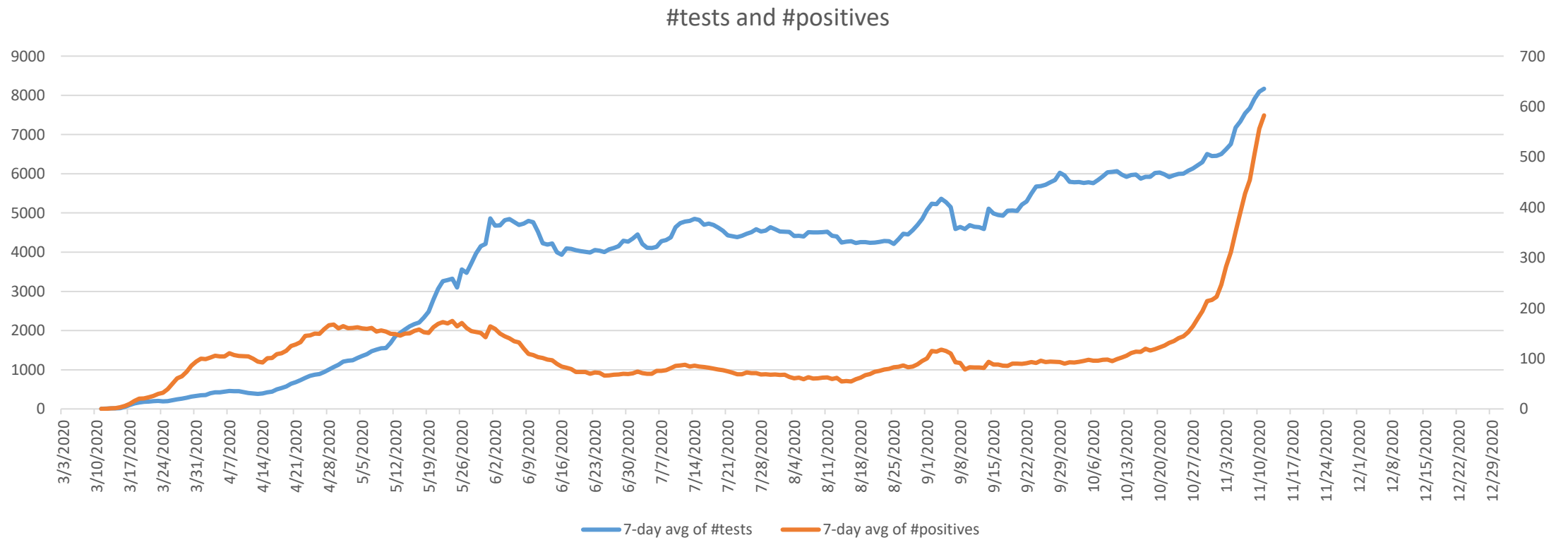Positive Rate and COVID Census

WNY Positive Rate and EC COVID Hospital Census

Positive Rate and COVID Census

WNY # Tests and # Cases

#tests and #positives

Search for your state, county, or zip

NEW YORK   USA

Erie County, NY

SHARE   🔔 RECEIVE ALERTS

COVID RISK LEVEL

Active or imminent outbreak

Erie County is either actively experiencing an outbreak or is at extreme risk. COVID cases are exponentially growing and/or Erie County's COVID preparedness is significantly below international standards.

ⓘ NEW FEATURE

Explore COVID Trends. View raw case, death, and hospitalization data for Erie County and compare it against other locations in our new Trends chart.

See it below

DAILY NEW CASES

● **42.8** PER 100K

Dangerous number of new cases

INFECTION RATE

● **1.51**

Active cases are exponentially increasing

POSITIVE TEST RATE

● **5.6%**

Indicates adequate testing

ICU HEADROOM USED

● **11%**

Can likely handle a new wave of COVID
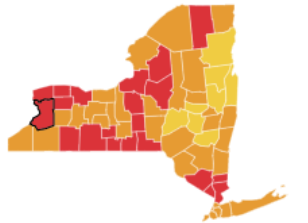
Beta

TRACERS HIRED

● Unknown

Insufficient data to assess

Beta

Updated November 15, 2020 · County data is currently in beta. Because counties don't report hospitalizations, our forecasts may not be as accurate. See something wrong? Email us.

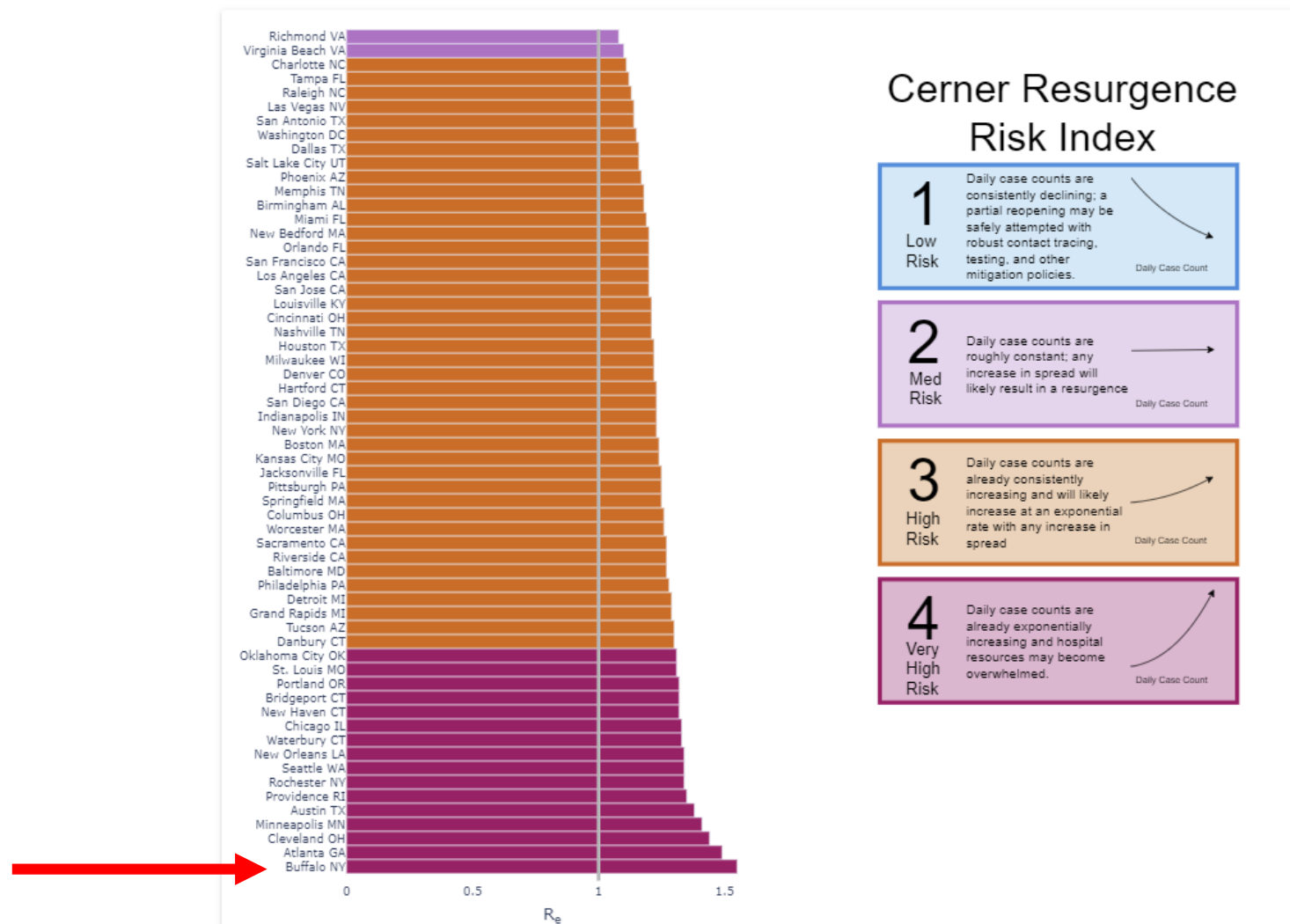COUNTRIES   STATES (US)   CSA (US)   **CBSA (US)**

Highest CRRI and R_e in Last 2 Weeks for the 60 Most Populous CBSA

R_e is an epidemiological measure of the rate of spread of the epidemic. Values less than one represent decreasing case counts, while values greater than one represent increasing case counts. Clicking on a bar will open the summary plot for that core-based statistical area (CBSA).

Cerner Resurgence Risk Index

1 Low Risk — Daily case counts are consistently declining; a partial reopening may be safely attempted with robust contact tracing, testing, and other mitigation policies.

2 Med Risk — Daily case counts are roughly constant; any increase in spread will likely result in a resurgence

3 High Risk — Daily case counts are already consistently increasing and will likely increase at an exponential rate with any increase in spread

4 Very High Risk — Daily case counts are already exponentially increasing and hospital resources may become overwhelmed.

Number of Positive Test Results
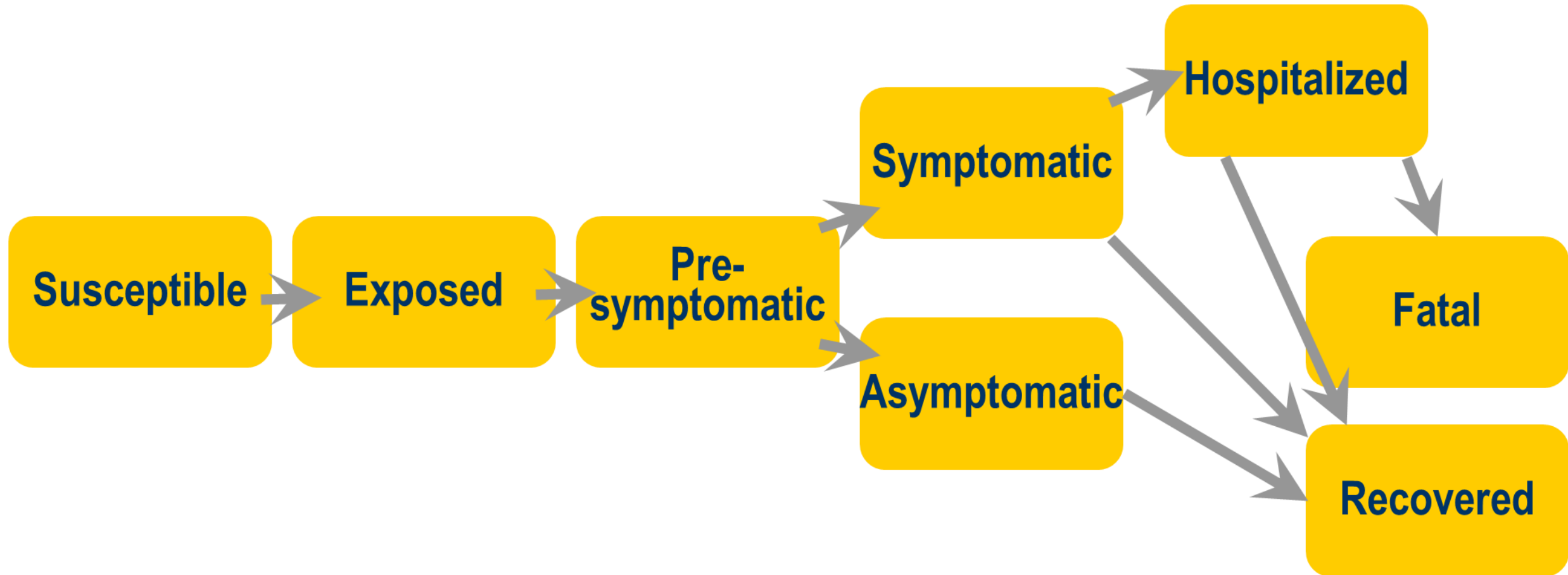
WNY Region ECLRS Counts

October 12, 2020 to November 11, 2020

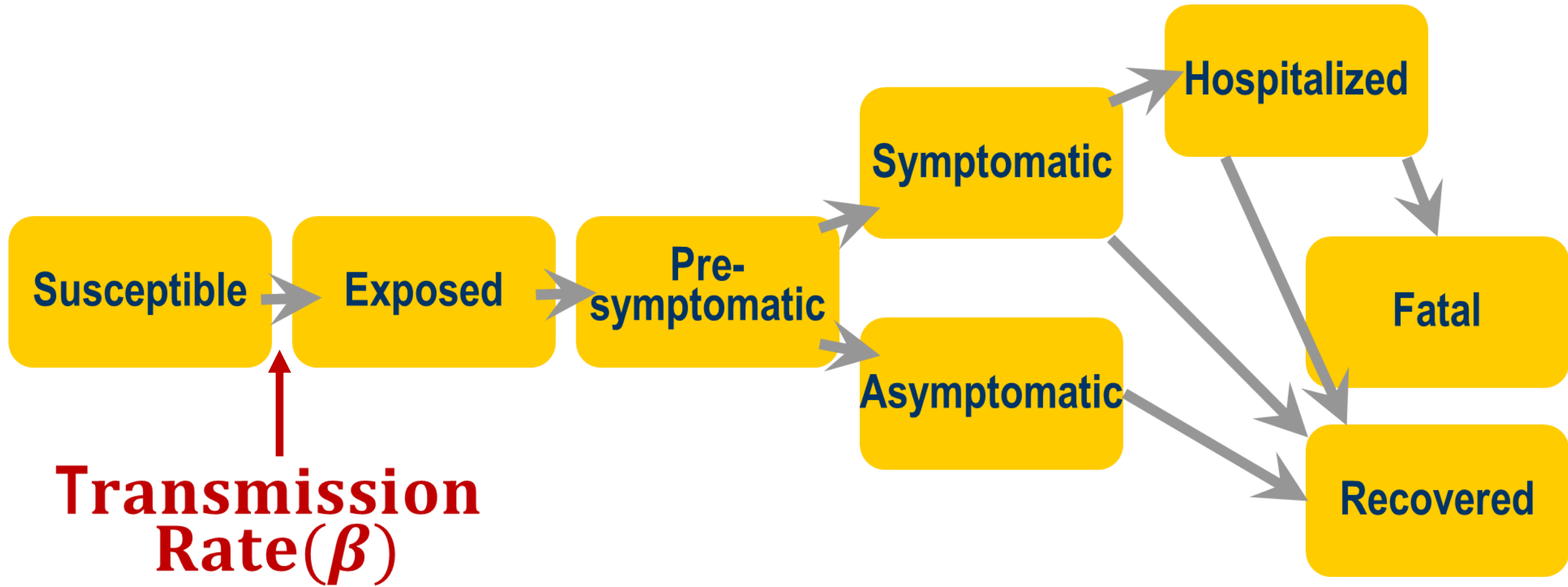Daily Number of Positive Results with 7-day Running Average

- National and NYS current situation
- WNY current situation
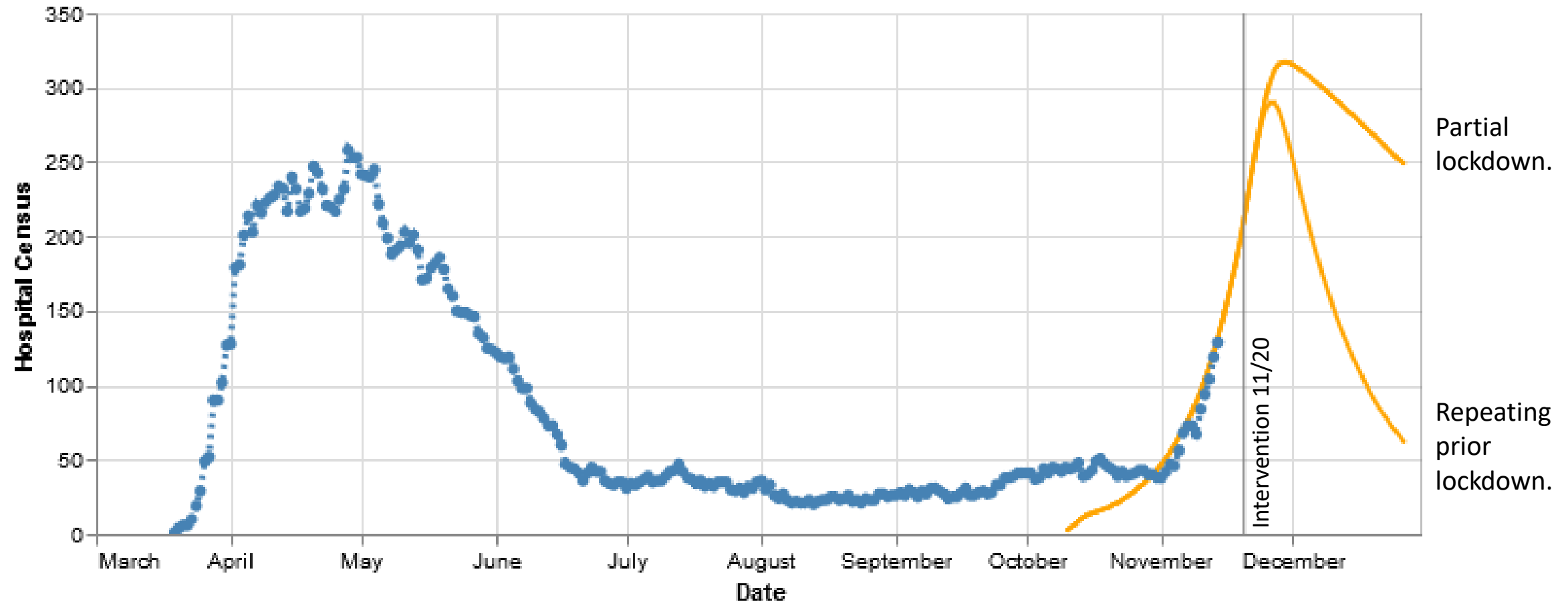- **Where are we heading?**

UB Compartmental (aka SEIR) Model

UB Compartmental (aka SEIR) Model

Hospital Census model--<u>preliminary</u>

Luca D'Urbino

Sources

- http://www.acsu.buffalo.edu/~jllottes/Erie_County_COVID-19.html
- https://covidactnow.org/
- https://www.cerner.com/covid-19/predictive-models/us-utilization-forecasting
- https://covidtracking.com/
- https://www.humanperformanceinstitute.com/

COVID-19 Analytics Model Workgroup

Gabriel Anaya

Sarah Mullen

Matthew Bonner

Greg Wilding

John Ringland

Gino Biondini

Peter Winkelstein

Jonathan Blaisure

Arlen Brickman

Gillian Franklin

Kendria Hall

JinWei Hu

John Lottes

Brianne Mackenzie

With many thanks to HealtheLink and the Erie County Department of Health for generously providing key data