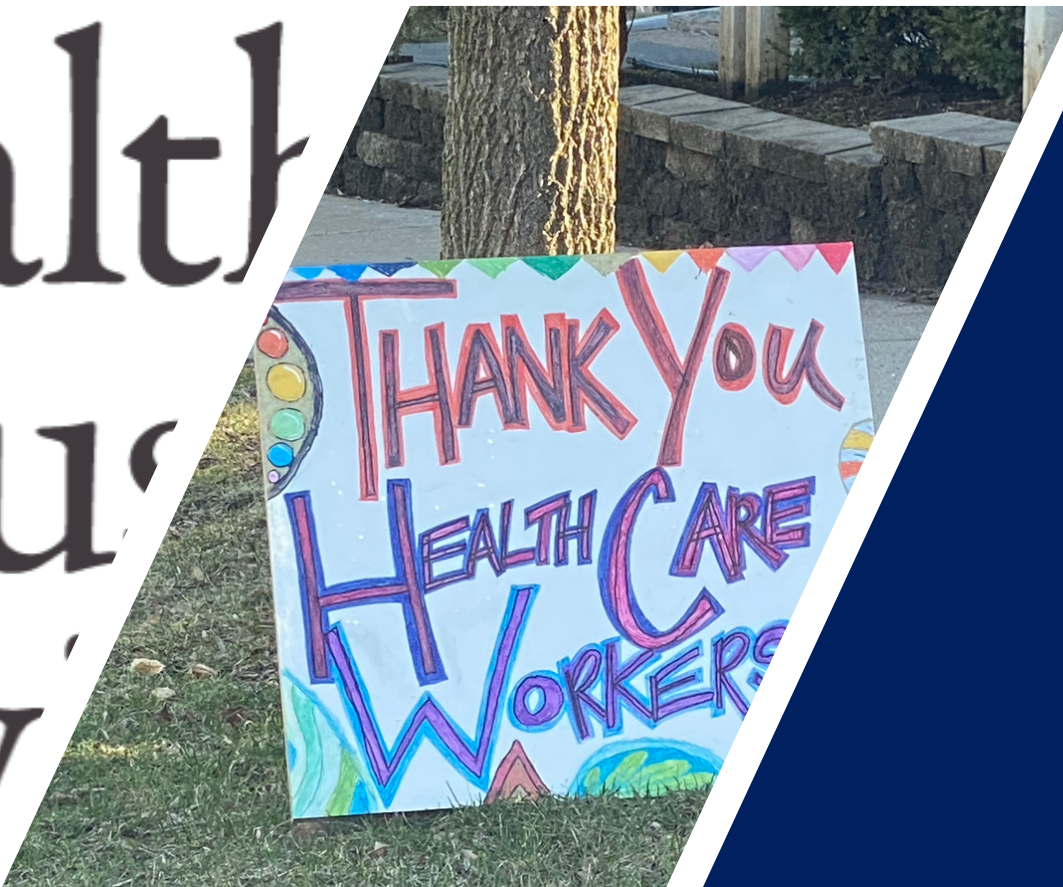




Health
Industry
Adv



Issue # 240
Friday, December 18, 2020
COVID-19
Report

Highlights

- New cases continue to grow in the U.S. each day, however, the rate of growth is slowing
 - **For the first time in December, the week-over-week change in new cases in the U.S. was lower than for the world in total**
 - **Other than during the Thanksgiving period (when reporting interruptions impacted case counts), new cases in the U.S. are growing at the slowest rate since October 2**
 - Using estimates from Youyang Gu's Covid19-projections.com, the **Reproduction Rate (Rt) has declined the past eleven days for which estimates are available (Rt measures the rate by which an infected person in turn infects other people). The latest rate suggests that the infection spread leveled off on December 3 (latest available estimate)**
- **There has been a marked shift in the epicenter of the infection spread in the U.S. since Thanksgiving**
 - **Prior to Thanksgiving, the highest rates of infection where in Midwestern states; as of yesterday, this had shifted to the Southwest**
 - In California - one of the states with the highest infection rates at this time - the infection spread is concentrated in the southern and central parts of the state
 - **Riverside, Los Angeles and Orange counties currently have some of the highest infection rates among Large Central Metro areas in the U.S.**
 - Among the thirty-three metro areas with major universities that we follow, there are a few signs of relative improvement in infection rates:
 - Of these areas, only 12 experienced rates above the national average; this number has declined on successive weeks
 - Eighteen of these areas experienced a decline in infection rates week-over-week; another nine experienced relatively modest increases
- Testing seems to have taken a step back in the past week:
 - After setting record highs last week, test volume has been lower throughout this week (yet is still higher than at any time through December 7)
 - **The test-positive rate has been on an upward trajectory throughout December**
- **Covid-19 hospital rates continue to rise, although there have been a few areas of improvement**
 - These patients occupied 36.4% of all inpatient beds in the U.S. yesterday, up from 34.1% a week ago
 - Nevada continues to have the highest Covid-19 occupancy at 88%, up from 81% a week ago
 - California, Arizona, New York and Nevada, in order, experienced the largest increases in the occupancy rate from a week ago
 - Montana, North Carolina and Minnesota experienced the largest declines in this rate; twenty states in all experienced a decline week-over-week
- Deaths with the coronavirus continue to be a great concern
 - **Wednesday and Thursday represented the two highest daily death counts of any day during the pandemic**
 - **The 7-day average count is now more than 2,600 per day**

We are averaging ~649k new cases worldwide each day, as of Wednesday

New cases in the United States appear to have leveled-off over the past 5-6 days. These are now averaging ~221k new cases each day

Outside the U.S. newly-detected cases have declined have increased over the past few days

* - 7-day moving average basis

Newly Detected Daily Cases - U.S. & Worldwide

7-Day Moving Average, As of December 17

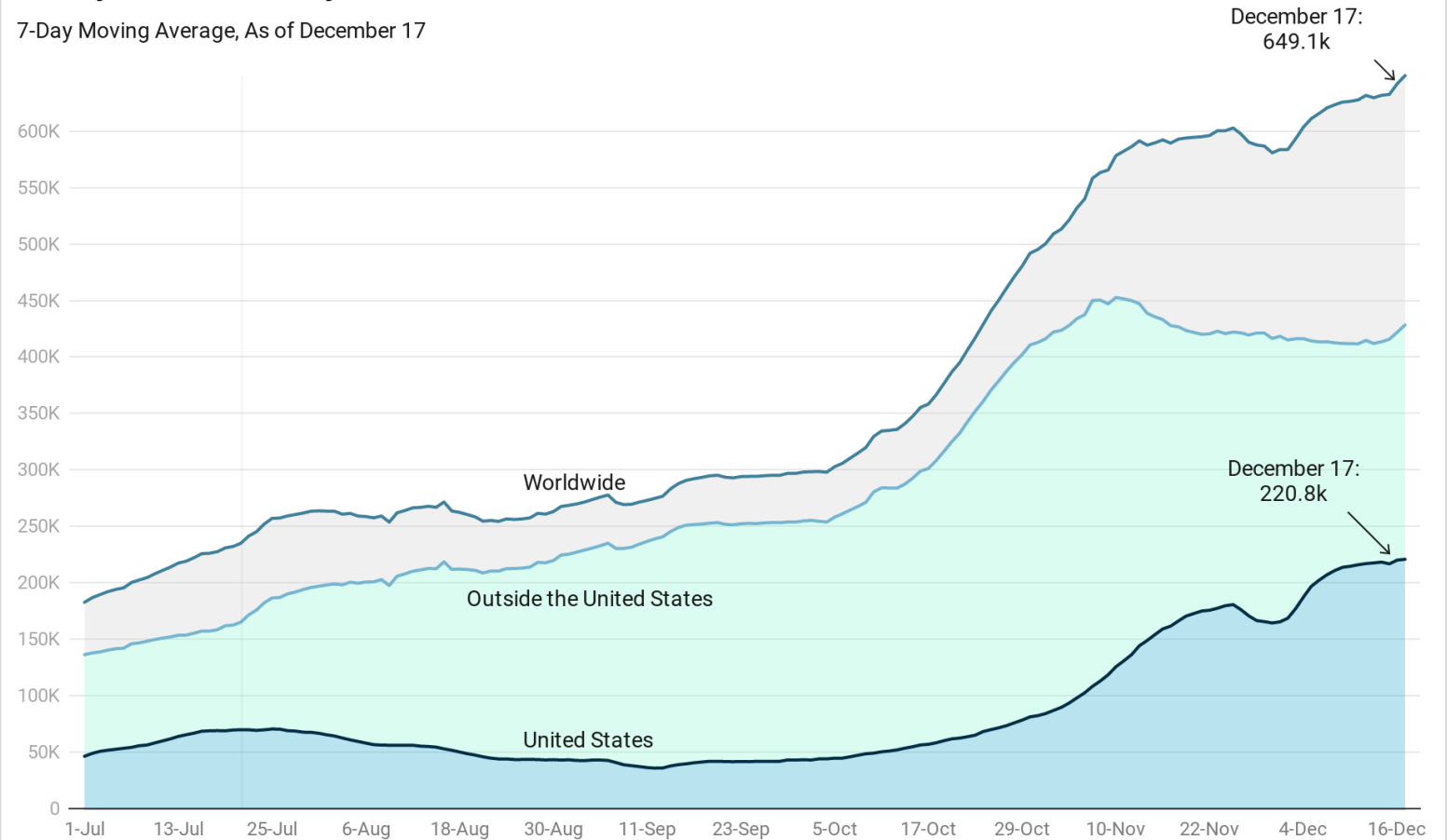


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Now that we have washed-out the reporting interruptions caused by the Thanksgiving holiday, week-over-week increases in new cases have been relatively low

As of yesterday, cases outside the U.S. were increasing at a slightly faster rate than for the U.S.

Week-Over-Week Changes in Newly-Detected Cases: USA v. Worldwide

7-Day Moving Average, As of December 17

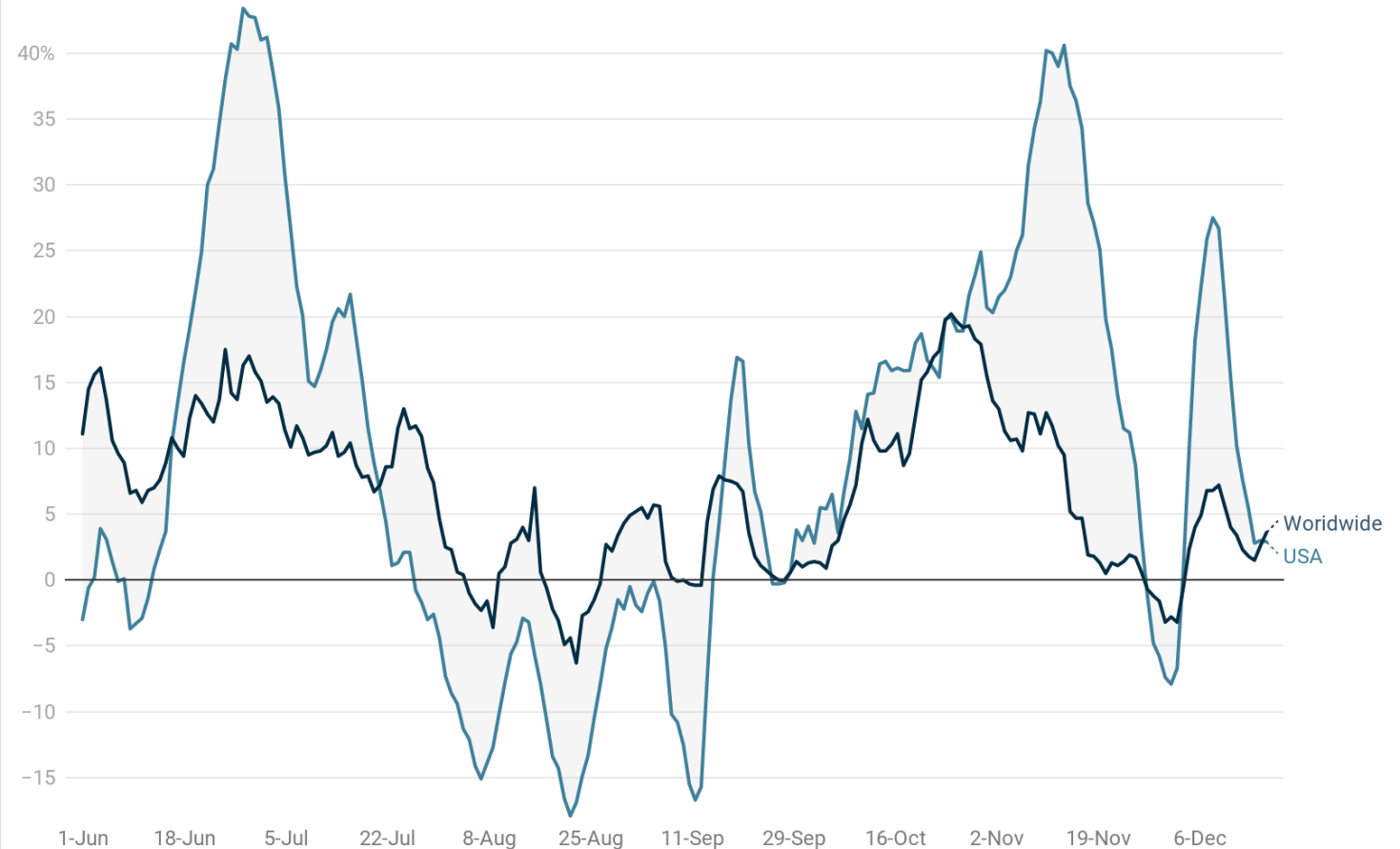


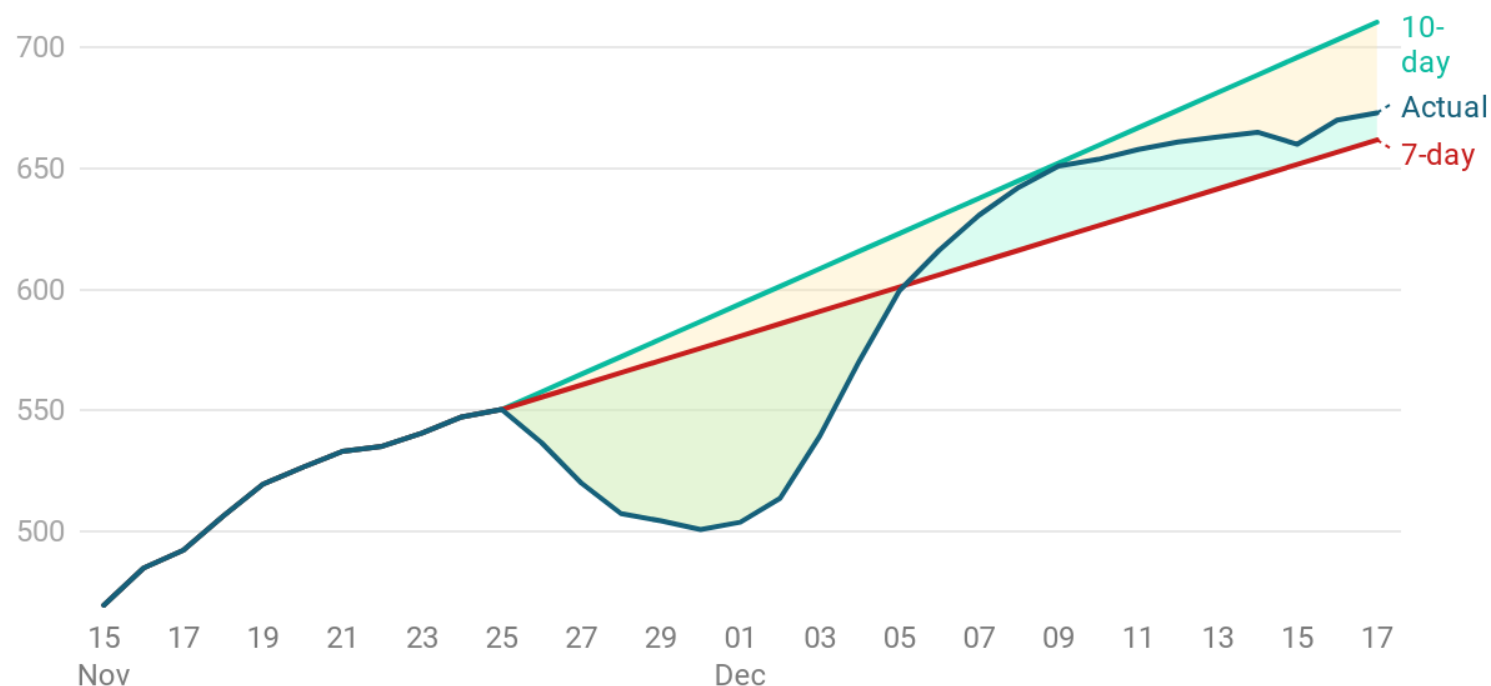
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

What have we observed with infection rates since Thanksgiving?

Sorting through the “noise” caused by reporting interruptions during Thanksgiving weekend, it appears that the post-Thanksgiving trend is mimicking the 7-day pre-Thanksgiving trend (and, below the 10-day pre-Thanksgiving trend)

New Infections / Million

7-Day Moving Average v. Pre-Thanksgiving Trends



7- & 10-day trends are extrapolation of trends leading up to Thanksgiving Day

Chart: Health Industry Advisor LLC • Created with Datawrapper

Gu uses deaths to estimate actual infections and the reproduction rate (R_t), using a machine learning model

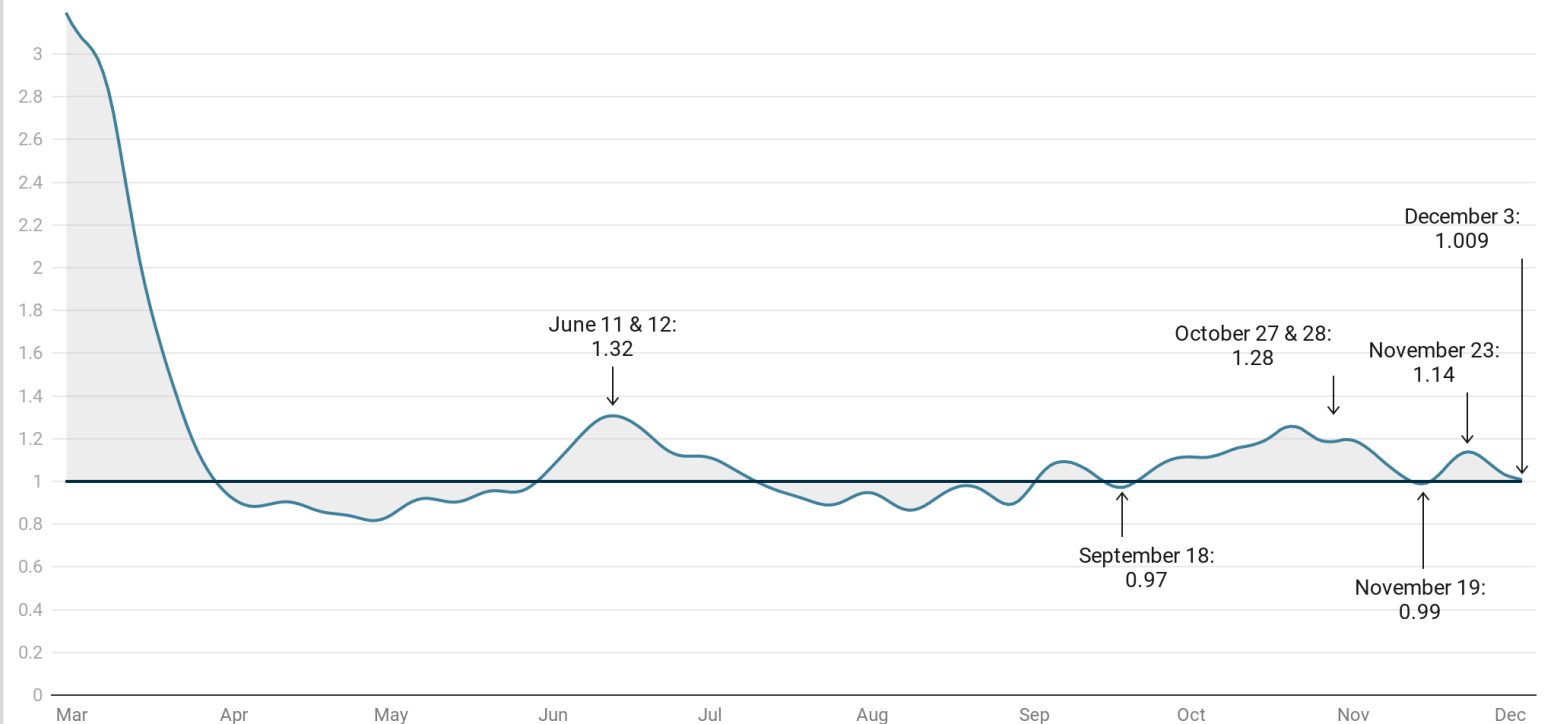
Gu backdates two weeks from the death date to estimate when an infection likely occurred

Using this model, the reproduction rate rose from November 19 to November 23, then declined each of the next eleven days . . . And is essentially at the point where spread is neutralized

* - Youyang Gu: Covid-19projections.com

Reproduction Rate (R_t) - U.S.

Youyang Gu Estimate, Through December 3



R_t is an estimate of how many additional people a single person will infect

Chart: Health Industry Advisor LLC • Source: Youyang Gu • Created with Datawrapper

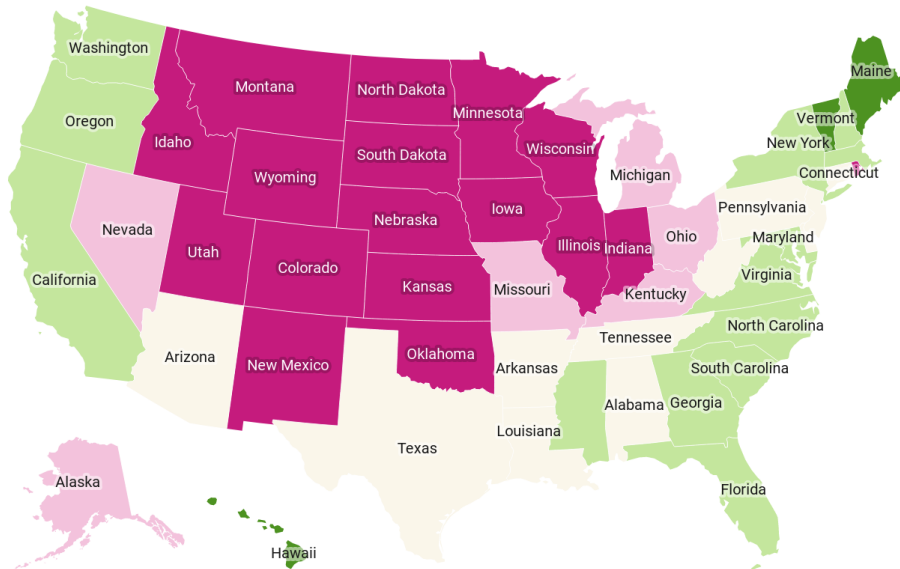
Since Thanksgiving, the epicenter of the virus spread has shifted from the Midwest to the Southwest
Infection rates in the Southeast have increased but, remain lower than for most of the rest of the country

As of November 25

New Cases / Million

7-Day Moving Average, As of November 25

< 200 200–400 400–600 600–800 ≥ 800



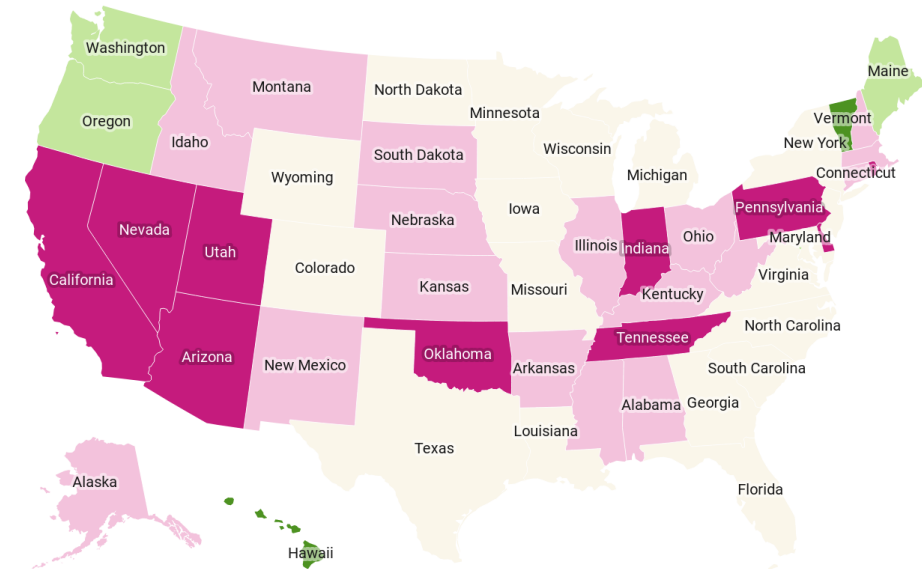
Map: Health Industry Advisor LLC • Created with Datawrapper

As of December 17

New Cases / Million

7-Day Moving Average, As of December 17

< 200 200–400 400–600 600–800 ≥ 800



Map: Health Industry Advisor LLC • Created with Datawrapper

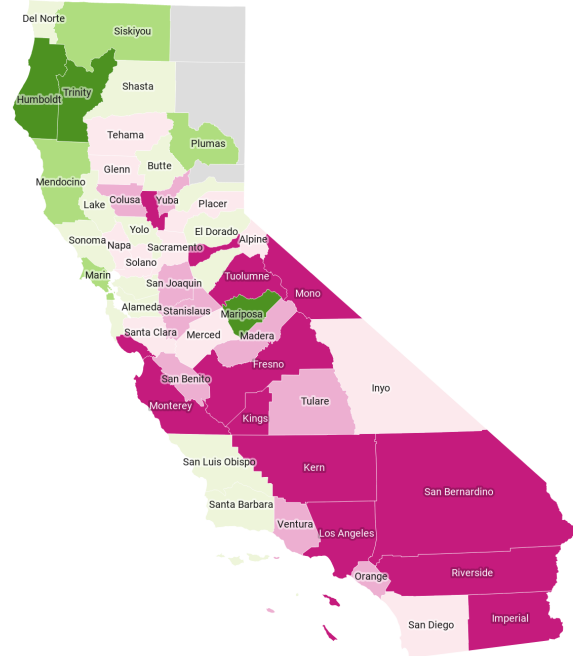
California's challenge seems to be concentrated in the southern and central portions of the state

New York is experiencing relatively high infection rates in areas near New York City and parts of the western and central state

New Daily Infections / Million - California Metro Areas

7-Day Moving Average, As of December 17

Legend: < 200, 200-400, 400-600, 600-800, 800-1000, ≥ 1000



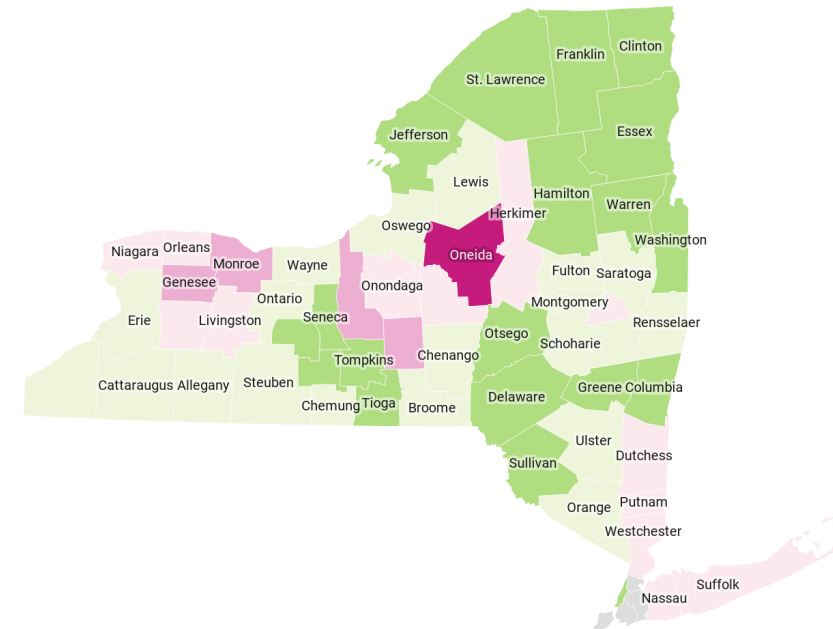
Data unavailable for some metro areas in the northeast portion of the state

Map: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

New Daily Infections / Million - New York Metro Areas

7-Day Moving Average, As of December 17

Legend: < 200, 200-400, 400-600, 600-800, 800-1000, ≥ 1000



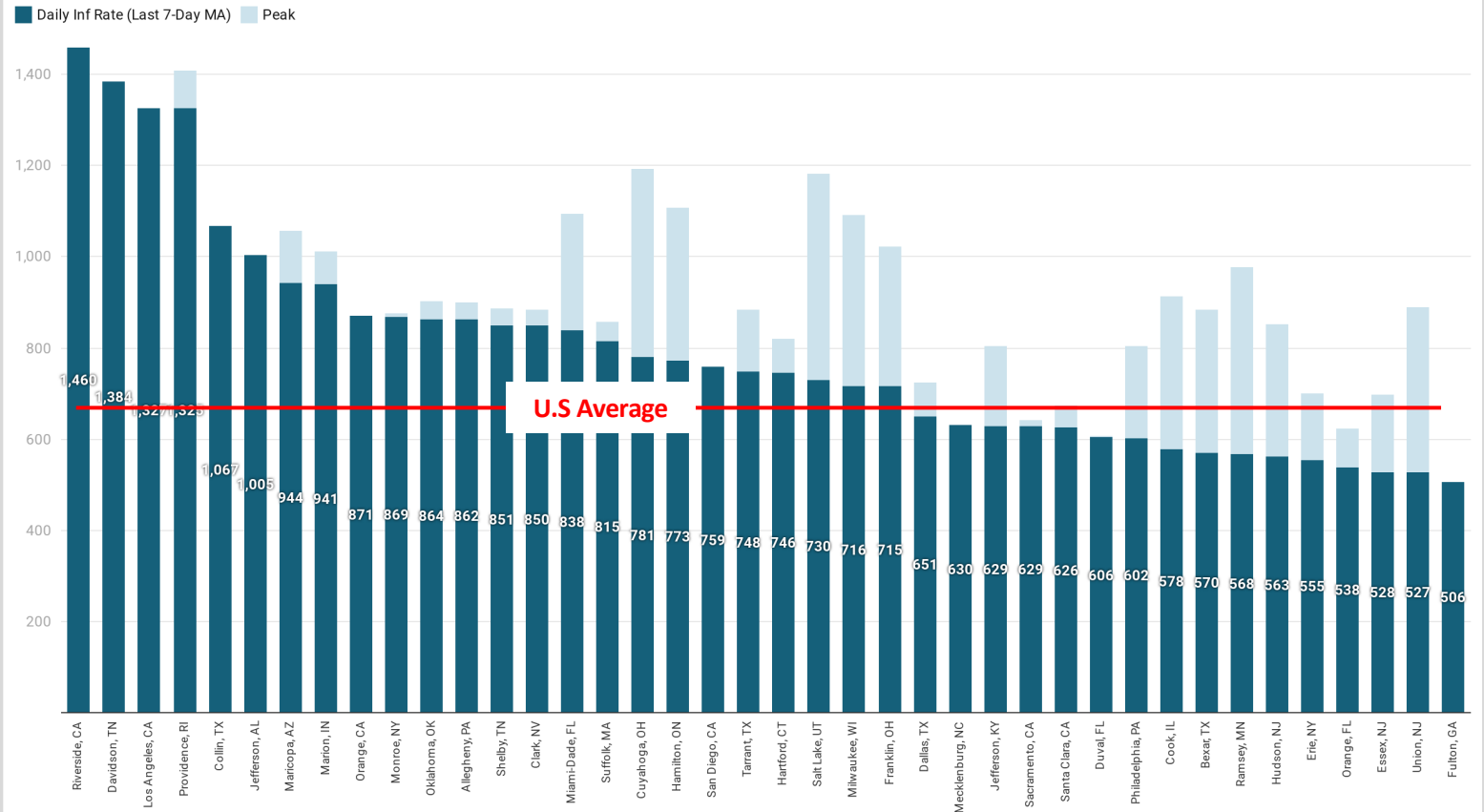
Map: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

New Infection Rates – Large Central Metro Areas

The challenge in California is in evidence here: Riverside, Los Angeles and Orange counties among those with the highest new infection rates per capita over the past week

New Daily Infections / Million Population - Forty Highest, Large Central Metro Areas

7-Day Moving Average, As of December 17



Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Metro Areas Home to Major Universities:

Of the 33 major areas in our sample, 10 are experiencing infection rates* higher than the national average (two fewer than last week)

Lubbock, Texas (home to Texas Tech University) had the highest infection rate last week, followed by Washington, Arkansas (University of Arkansas) and Tuscaloosa (University of Alabama)

Johnson, Iowa (University of Iowa), Albemarle, Virginia (University of Virginia) and Orange, North Carolina (University of North Carolina) experienced the lowest rates

* 7-day average

Metro Areas With Major Universities: New Daily Infections / 1M Population

7-Day Average, As of December 17

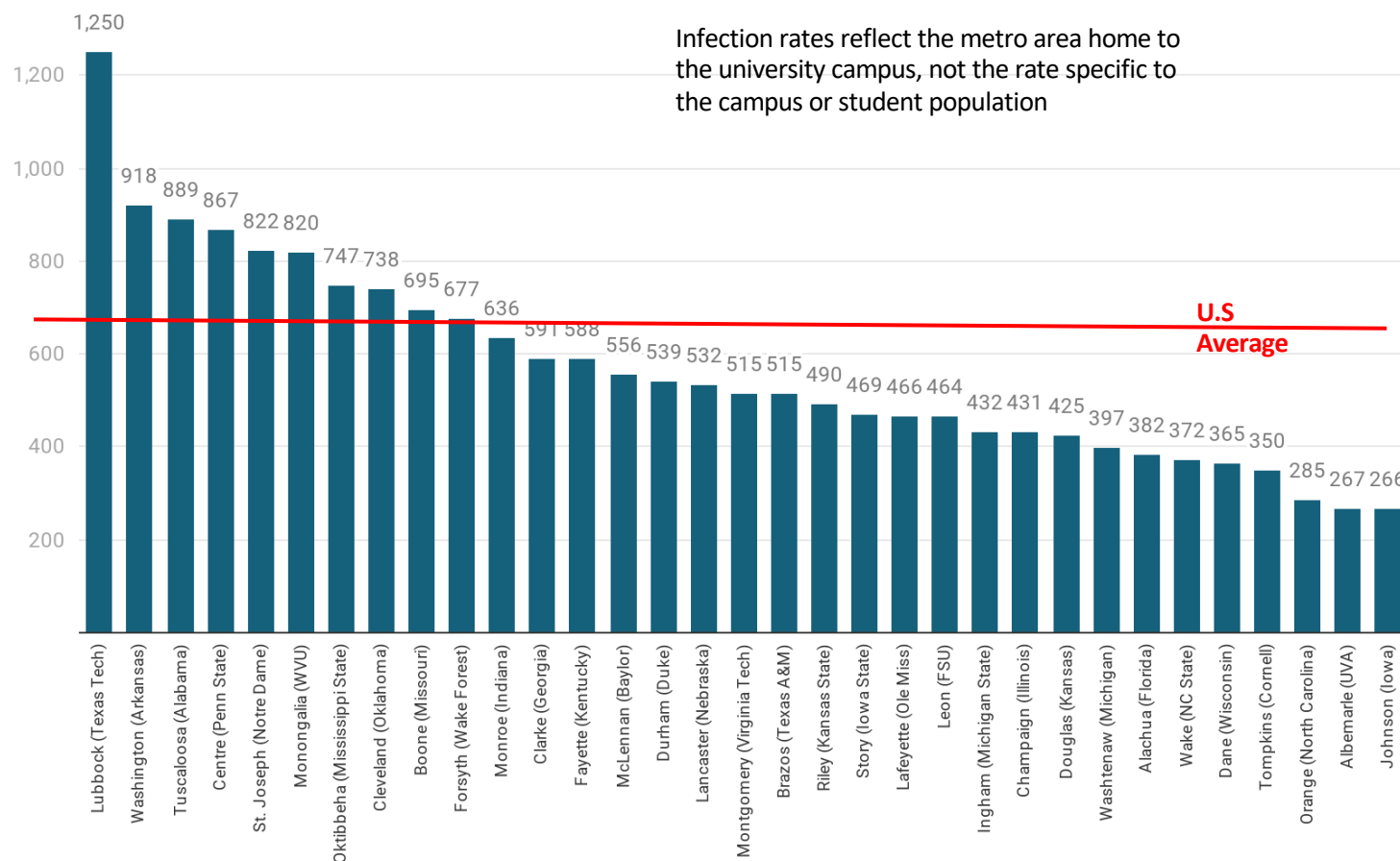


Chart: Health Industry Advisor LLC • Created with Datawrapper

Metro Areas Home to Major Universities:

Most of these areas experienced either declines in new infection rates over the past week or, modest increases

The exceptions were Lubbock, Texas (home to Texas Tech University), Oktibbeha, Mississippi (Mississippi State University), Monongalia, West Virginia (West Virginia University), Centre, Pennsylvania (Penn State University), Durham, North Carolina (Duke) and Washington, Arkansas (University of Arkansas)

* 7-day average

Metro Areas With Major Universities: Week-Over-Week Change In New Daily Infections / 1M Population

7-Day Average, December 17 v. December 10

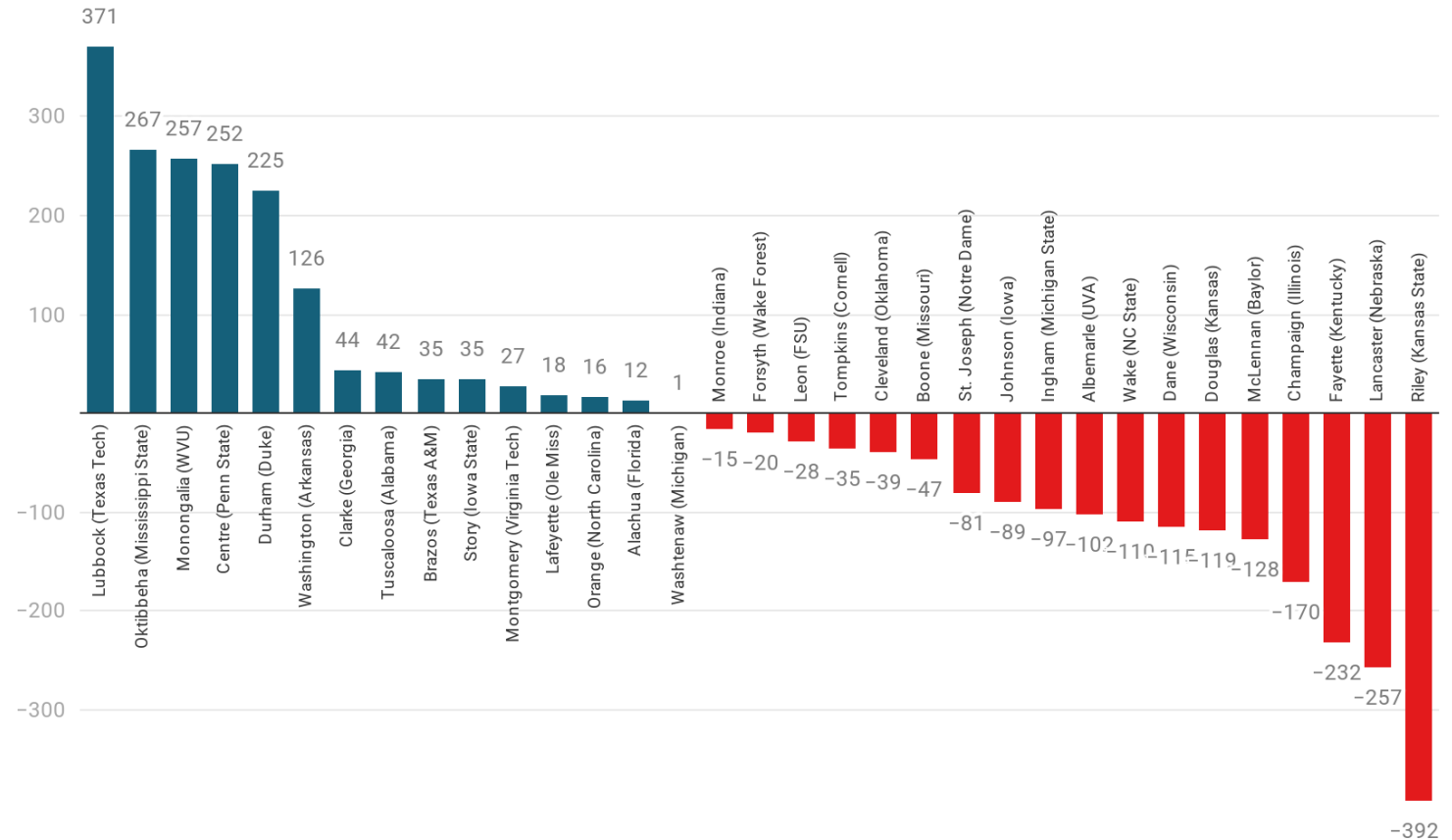


Chart: Health Industry Advisor LLC • Created with Datawrapper

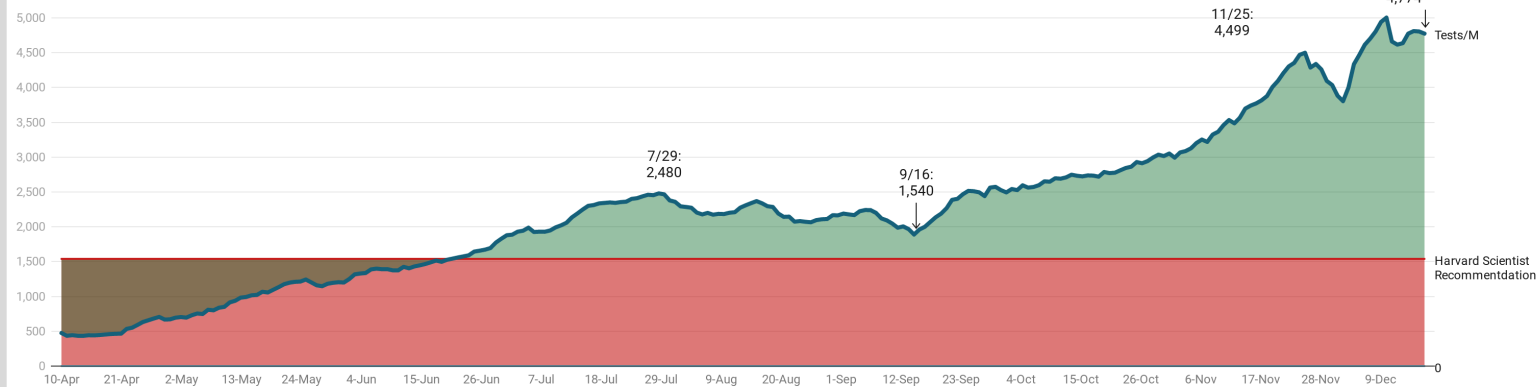
Testing is moving in the wrong direction lately

Testing volumes have receded from recent record levels

The test-positive rate increased recently

Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of December 17



Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Test-Positive Rate - United States

7-Day Moving Average, As of December 17

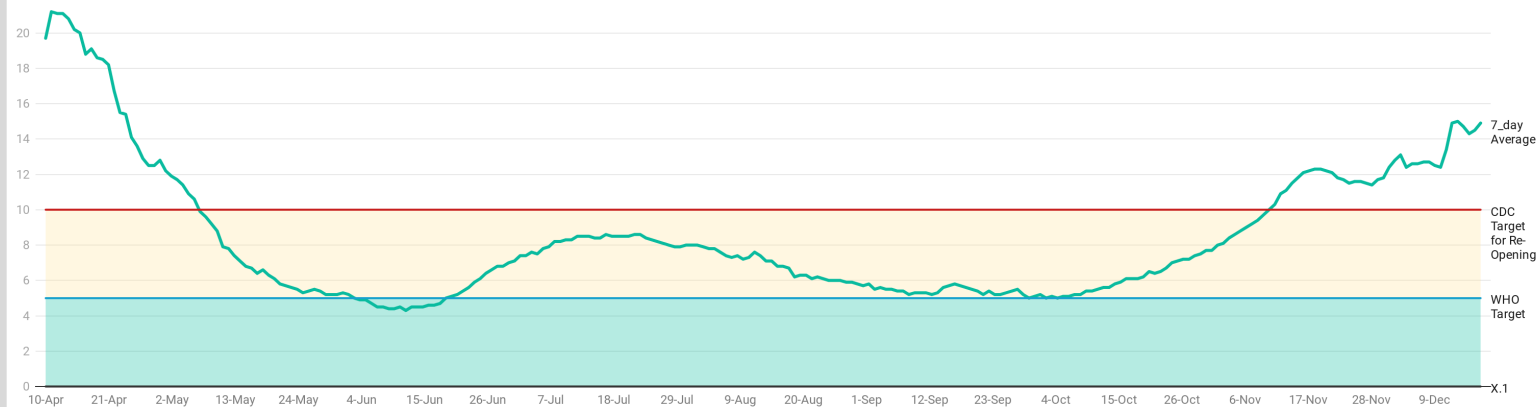
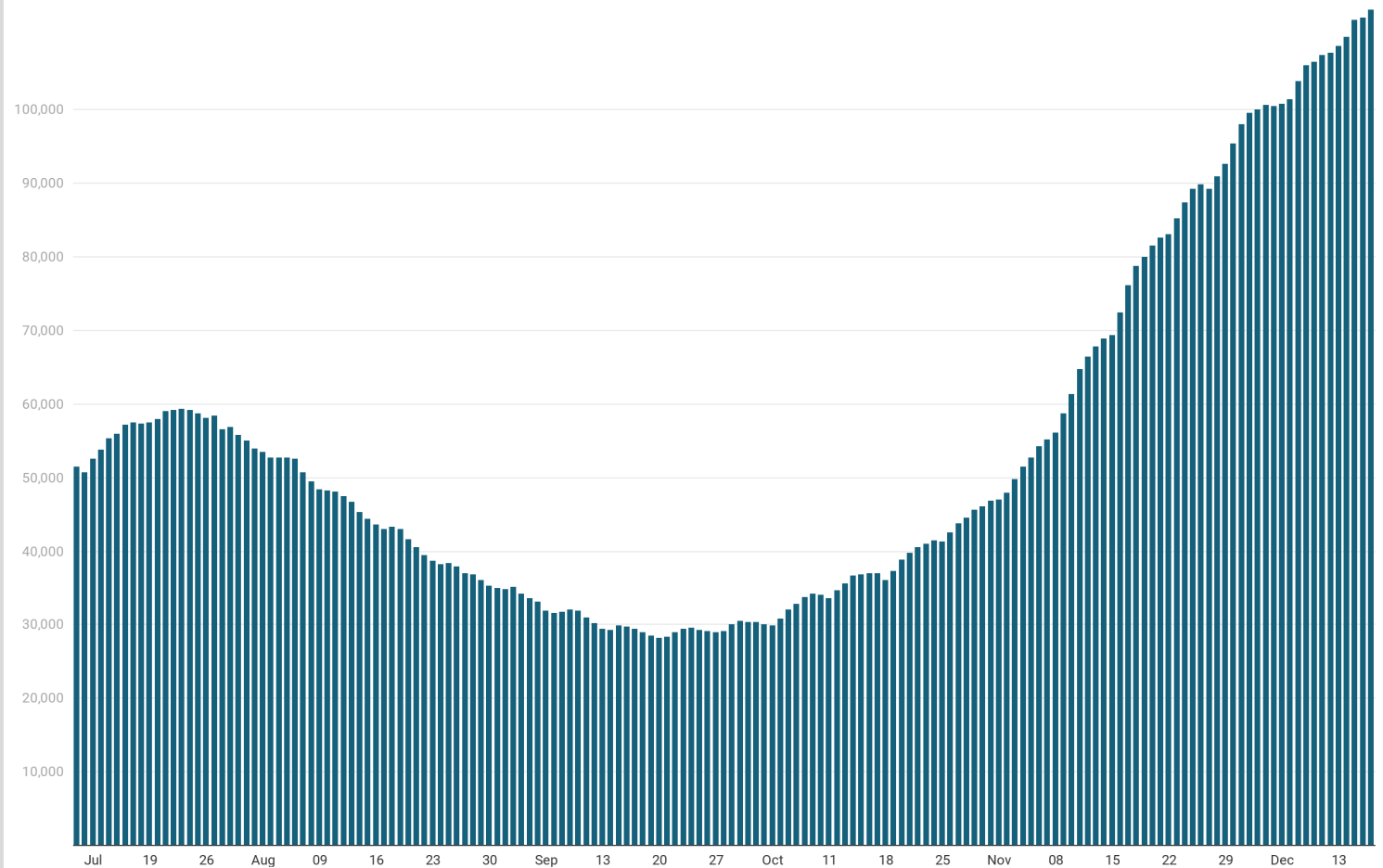


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

There just more than
113,600 Covid-19
patients in U.S. hospitals
yesterday

Hospital Census: COVID-19 Patients

As of December 17



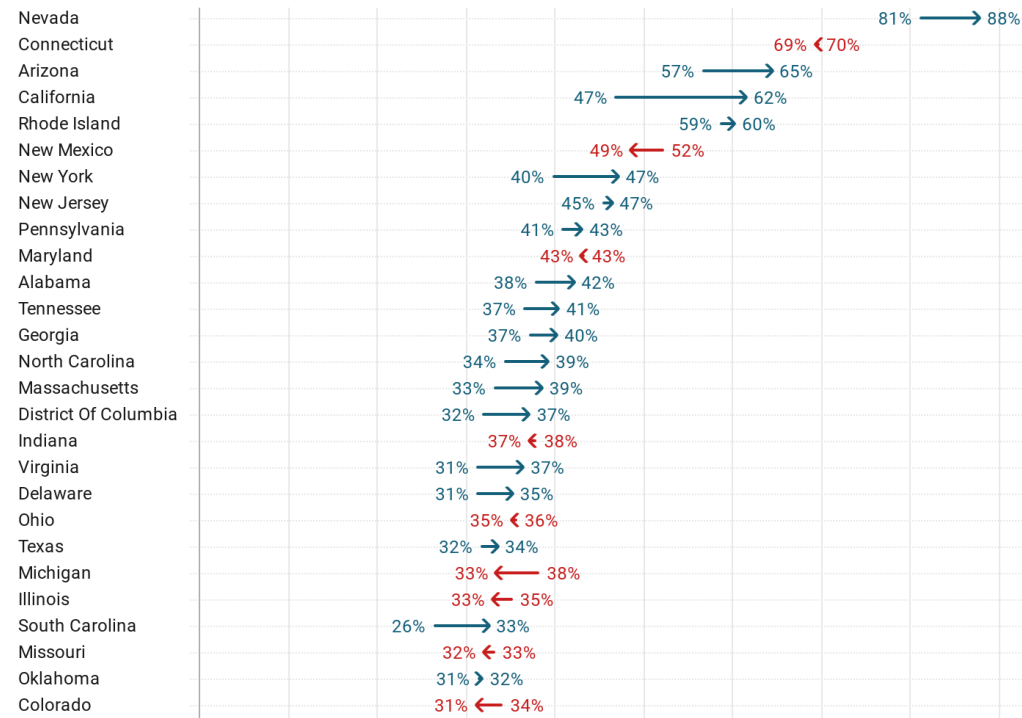
Florida data first available on July 10

Chart: Health Industry Advisor LLC • Source: the Atlantic's Covid Tracking Project • Created with Datawrapper

Overall, Covid-19 patients occupy 36.4% of inpatient beds in the U.S., up from 34.1% one week ago
 Nevada continues to experience the highest rate, 88%
 California has experienced the largest increase week-over-week, followed by Arizona, New York and Nevada
 Montana, North Carolina and Minnesota have experienced the largest declines

Covid-19 Patients / Total Inpatient Beds

7-Day Moving Average, As of December 10 & 17



Covid-19 Patients / Total Inpatient Beds

7-Day Moving Average, As of December 10 & 17

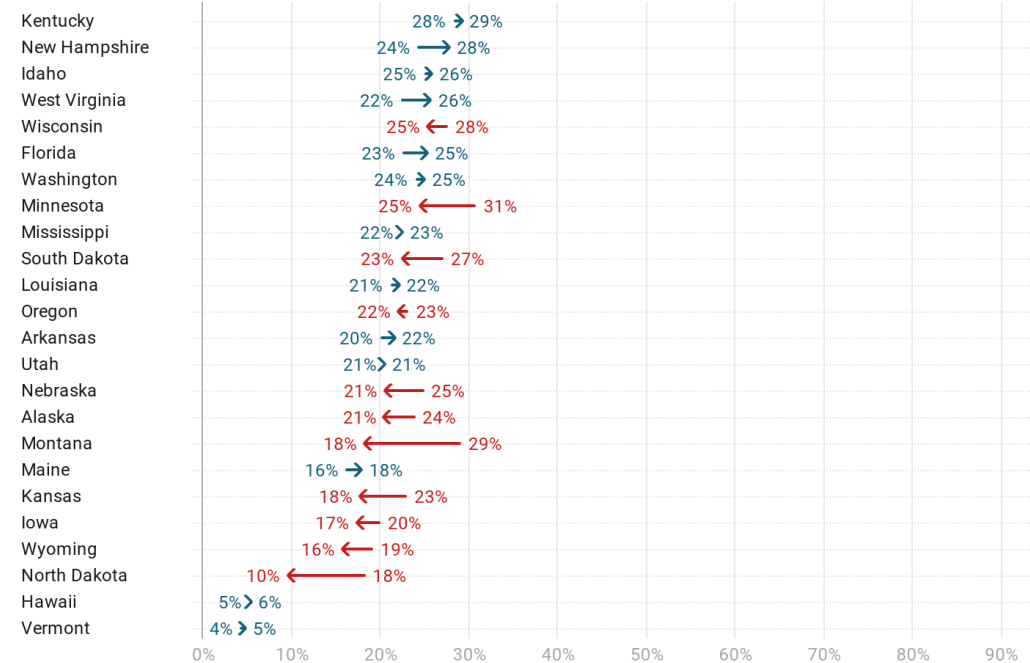


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking project & worldometers.info • Created with Datawrapper

Every two new cases equates to one day in a hospital bed

The average Covid-19 census per 100 new-cases continues to be relatively low, compared to earlier in the pandemic

Covid-19 Hospital Census / 100 Daily New Detected Cases

7-Day Moving Average, As of December 17

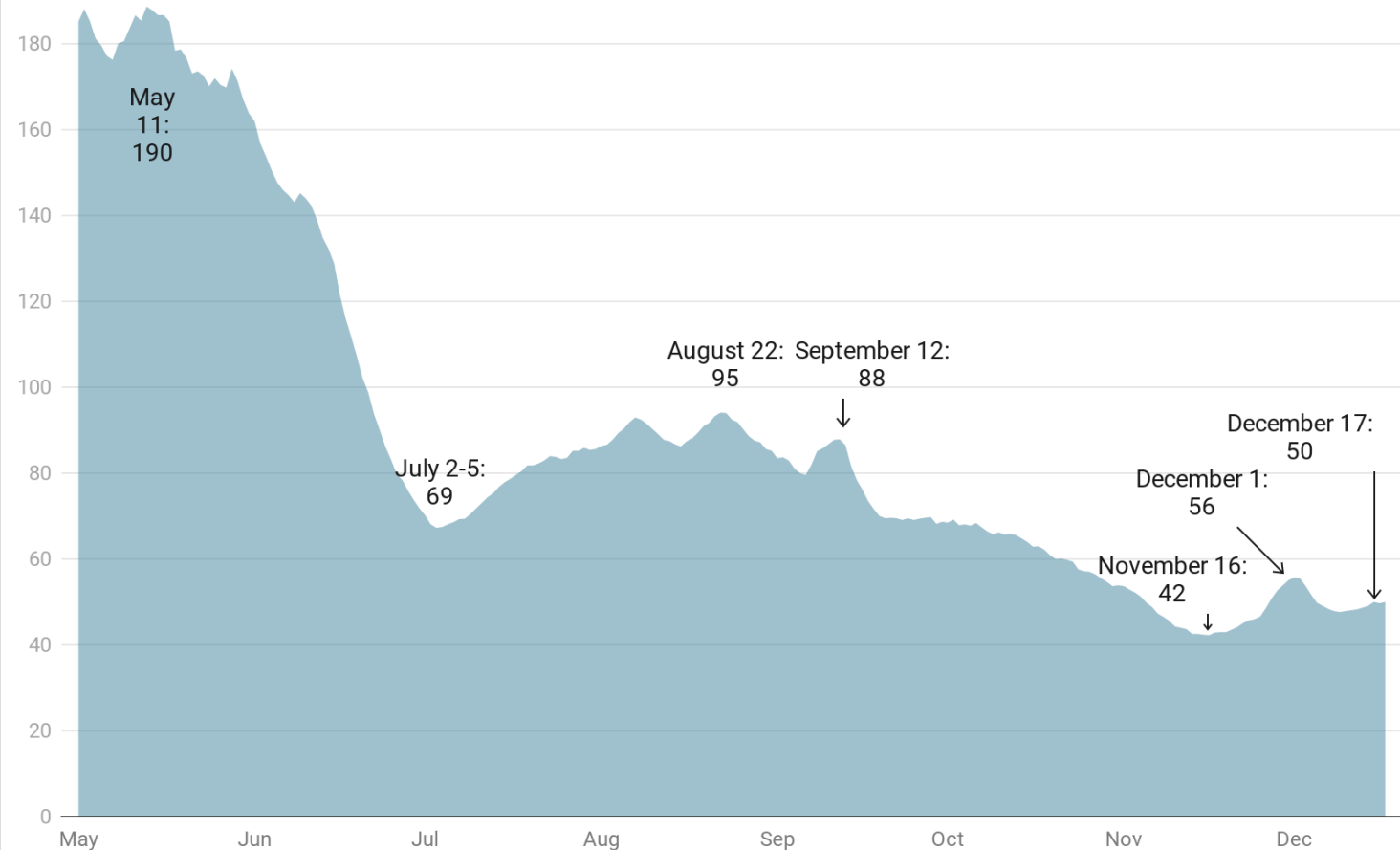
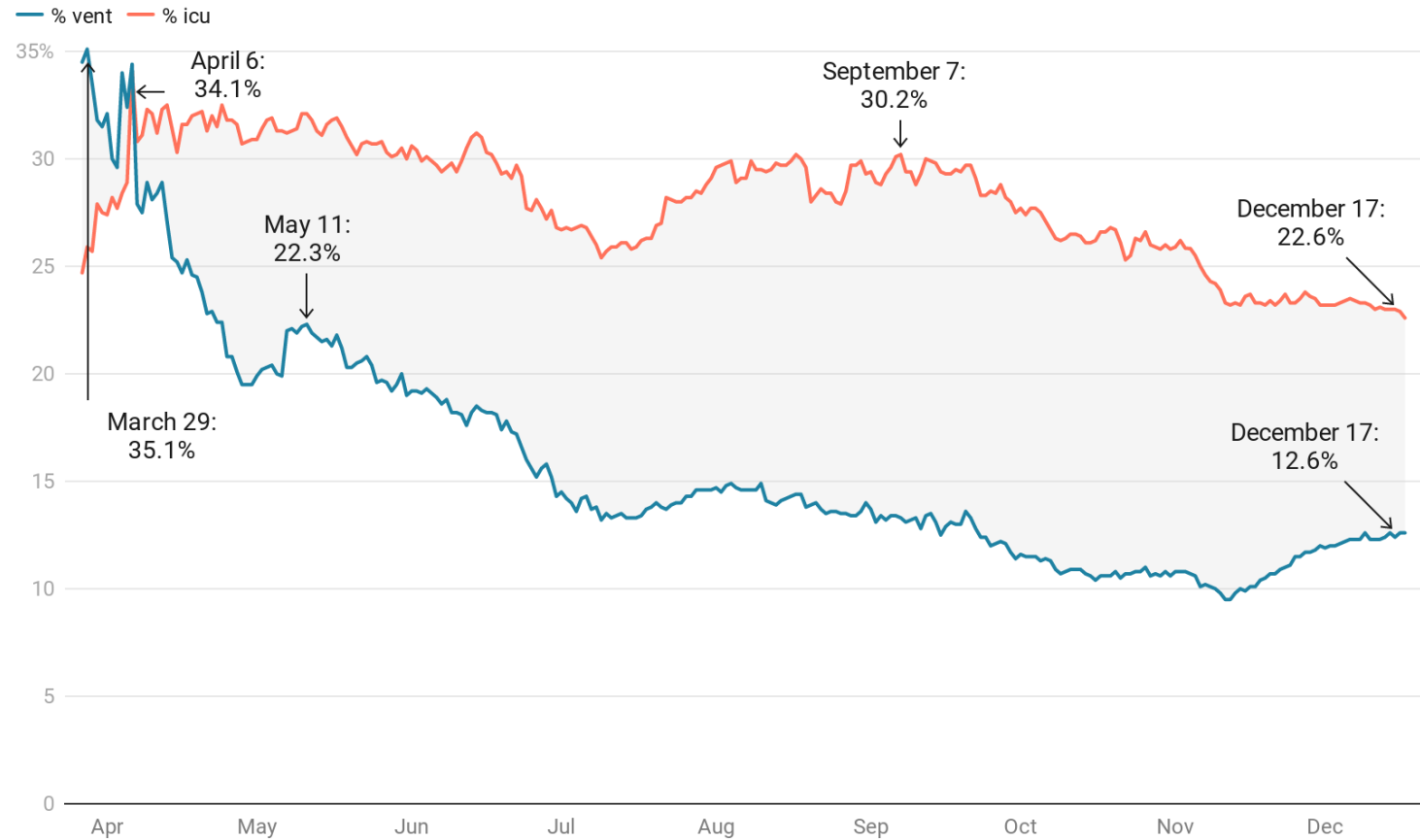


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking project & worldometers.info • Created with Datawrapper

Over the past 4-6 weeks, the likelihood of a Covid-19 inpatient would require ICU care has declined; the likelihood a Covid-19 inpatient would require ventilator care has increased

Severity of Hospitalized Patients

% of patients on ventilators and in the ICU, As of December 17



Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

The % of ER visits for COVID-19-like illnesses (CLI) seems to have declined sharply since Thanksgiving (as have visits for Pneumonia; visits for shortness-of-beath have increased)

The rate of influenza visits remains low given where we are in the flu season

% of ER Visits For Covid-19-Like Illnesses (CLI); Influenza-Like Illnesses (ILI); Shortness-of-Breath (SoB) and Pneumonia

As of December 13

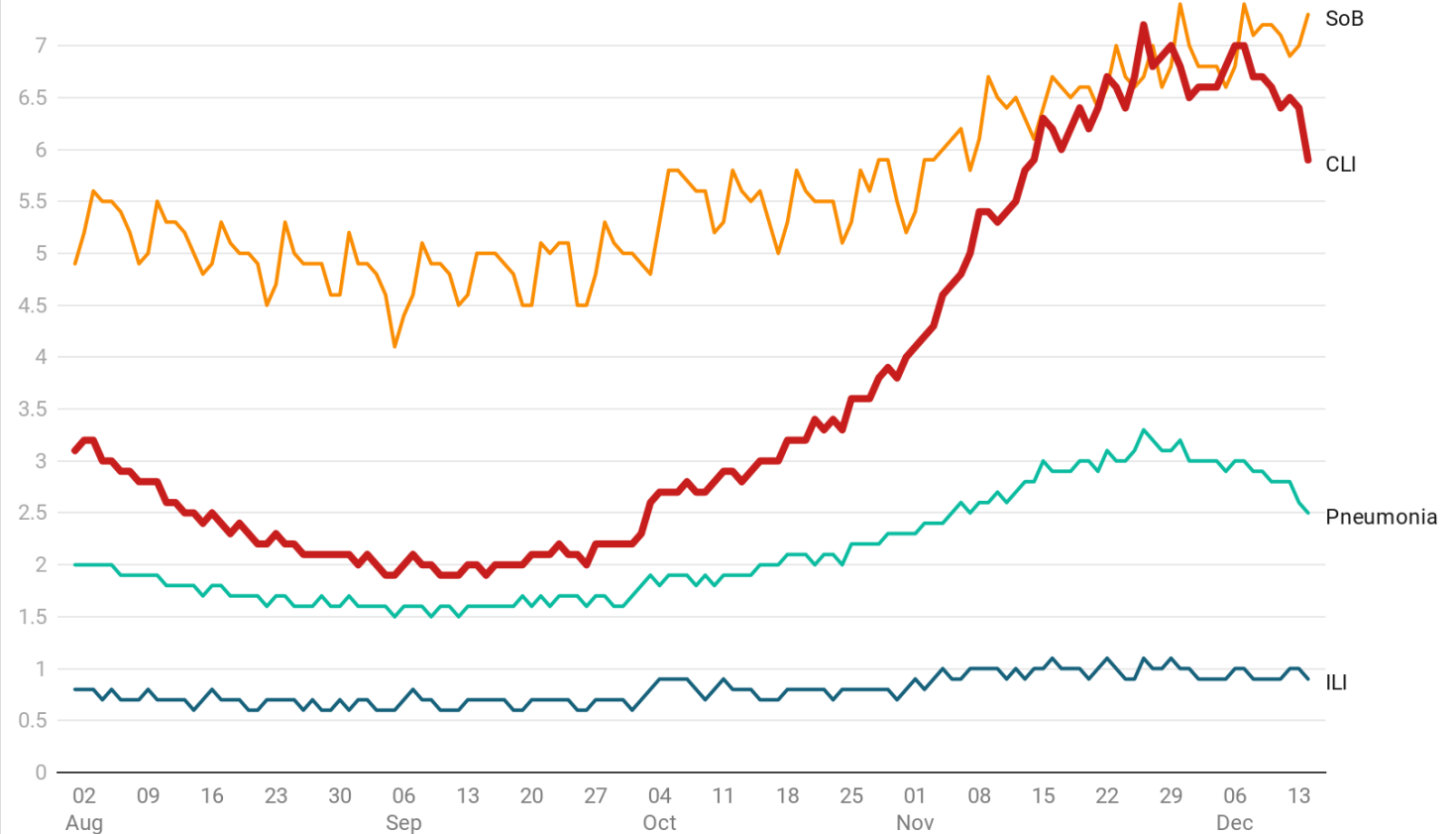


Chart: Health Industry Advisor LLC • Source: CDC • Created with Datawrapper

The 7-day average deaths have been increasing since Thanksgiving . . . And are higher than at any point during the pandemic

The current 7-day rate is 2,605 deaths per day; yesterday alone, there were 3,300 deaths reporting with coronavirus in the U.S.

There were more deaths each of the past two days than on any other day during the pandemic

Deaths Reported With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of December 17



Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Data Sources

The following data sources are accessed on a daily or weekly basis:

- The Atlantic's Covid Tracking Project: <https://covidtracking.com>
- Worldometers.info: <https://www.worldometers.info/coronavirus/>
- Centers for Disease Control, National, Regional, and State Level Outpatient Illness and Viral Surveillance <https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>
- Centers for Disease Control, COVID-19 Laboratory-Confirmed Hospitalizations https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html
- Centers for Disease Control, COVID Data Tracker <https://www.cdc.gov/covid-data-tracker/index.html#mobility>
- Institute for Health Metrics and Evaluation, COVID-19 estimate downloads <http://www.healthdata.org/covid/data-downloads>
- New York Times, Covid-19 data <https://github.com/nytimes/covid-19-data>
- COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University <https://github.com/CSSEGISandData/COVID-19>
- COVID-19 Projections Using Machine Learning, <https://covid19-projections.com>
- Oliver Wyman Pandemic Navigator, <https://pandemicnavigator.oliverwyman.com/forecast?mode=country®ion=United%20States&panel=mortality>