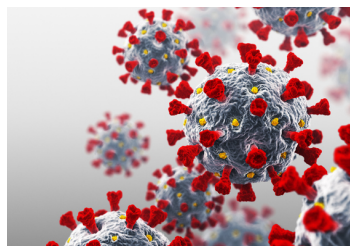


Covid-19 "Vital Signs"

Issue # 265

January 20, 2021



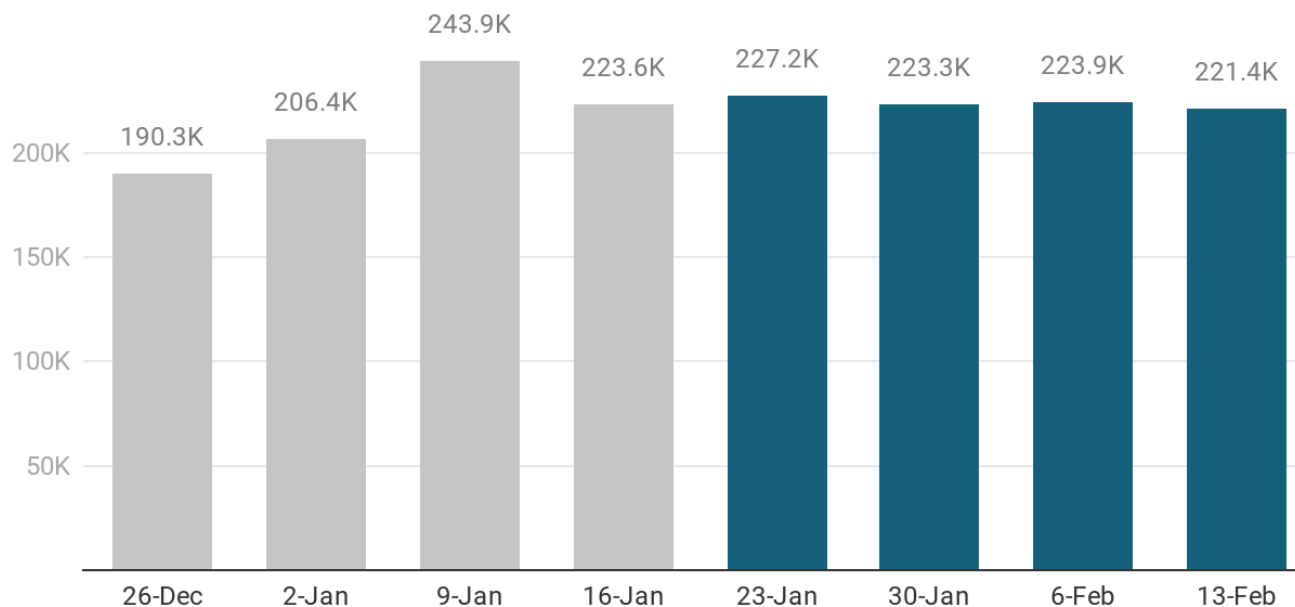
- Each Tuesday, [the Covid-19 Forecast Hub produces an ensemble forecast](#) of cases and deaths with the coronavirus for each of the upcoming four weeks. The ensemble forecast represents the collective result from more than 50 academic and research organizations' models:
 - **The latest ensemble forecast shows a small yet, steady drop in new daily cases for each of the upcoming four weeks;**
 - **Deaths with the coronavirus are projected to hold steady for the next three weeks then drop slightly in the fourth week;**
 - Cumulatively, deaths are projected to reach nearly 490k by mid-February.
- [As reported yesterday, the Institute for Health Metrics and Evaluation \(IHME\) provided an even more-optimistic view in its January 15 projection:](#)
 - IHME had new cases peaking on January 16 and declining each week through the end of its projection period (end of April);
 - Deaths are projected to peak on February 1 and decline after that;
 - Hospital admissions are projected to peak on January 30.
- Estimates of actual infections are similarly declining in the US:
 - The model from the [Yale School of Public Health and the Harvard T. H. Chan School of Public Health](#) suggests that estimated actual infections peaked on January 12;
 - [The model produced by Youyang Gu](#) suggests that these infections peaked back on December 27;
 - While these models exhibit some variation in daily estimates, they tend to follow similar trajectories and to converge over time; **Gu estimates that 24% of the US population has been infected with Covid-19; Yale/Harvard estimate it at 20.**
 - **Gu also estimates that the reproduction rate (R_t) in the US peaked on December 22 and was below 1.0 from December 29 through the most recent available date, January 5.**
- New cases in the US are declining:
 - **The 7-day average case rate has declined on eight consecutive days; other than the holiday season (which was plagued by reporting delays), this rate is as low as it has been since December 6;**
 - **On a week-over-week basis, new cases per capita declined in all except five states - Maine, New Hampshire, South Carolina, Virginia, and Wyoming.**
- Covid-19 hospitalization rates are also easing yet, remain too high in a handful of states:
 - Covid-19 inpatient census has declined on eleven of the past 13 days;
 - Comparing yesterday's census to that of recent Tuesday's, this census is down from each of the past two weeks and is comparable to that on the Tuesday between Christmas and New Year's Day;
 - Hospitalization rates remain high in Arizona, California, Georgia, Nevada, and New York; the rate in Connecticut is also of concern;
 - In contrast, rates are relatively low across the Midwest, in the Pacific Northwest and parts of New England, and the South.
- Testing in the US continues to look better:
 - **Test volume for the past seven days remains at near-record levels;**
 - **Testing per capita in the US ranks 19th worldwide (among 219 countries reporting);**
 - **The test-positive rate for the past seven days is higher than at any time since November 28.**
- **The US reported fewer deaths with coronavirus over the past week than last week but, these remain at tragically high levels**
 - **The 7-day average daily deaths have now exceeded 3,000 every day since January 7.**

Covid-19 Cases (Ensemble Forecast - US)

The latest ensemble forecast has new cases dropping slightly each week during the four-week forecast period

Newly-Detected Cases Per Day

Covid-19 Forecast Hub, Composite Forecast As of January 16



For the week ending on the date shown

Chart: Health Industry Advisor LLC • Source: Covid-19 Forecast Hub • Created with Datawrapper

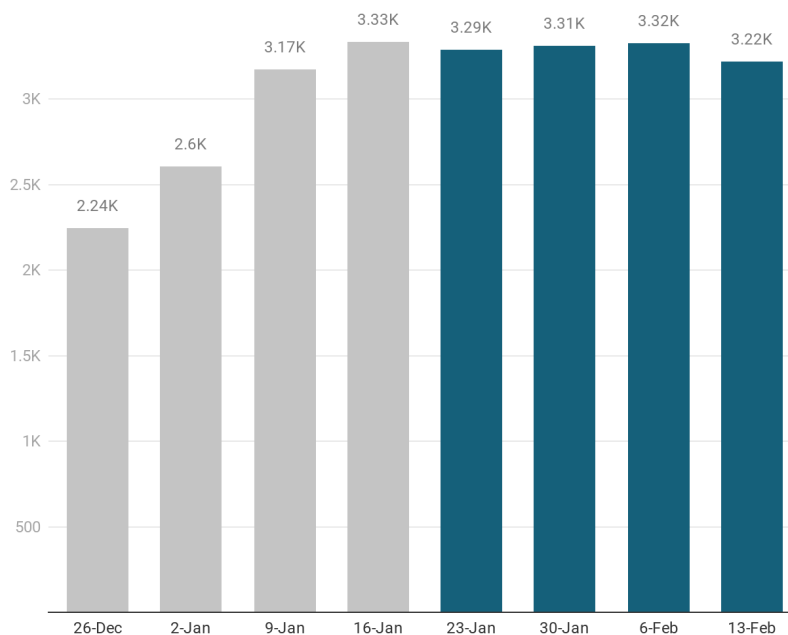
Covid-19 "Vital Signs"

Death Projections (US)

The latest ensemble forecast had deaths remaining stable yet, at a high level through the forecast period. Deaths with the coronavirus could near 500k by the end of this forecast period

Newly-Reported Deaths Per Day

Covid-19 Forecast Hub, Composite Forecast As of January 16

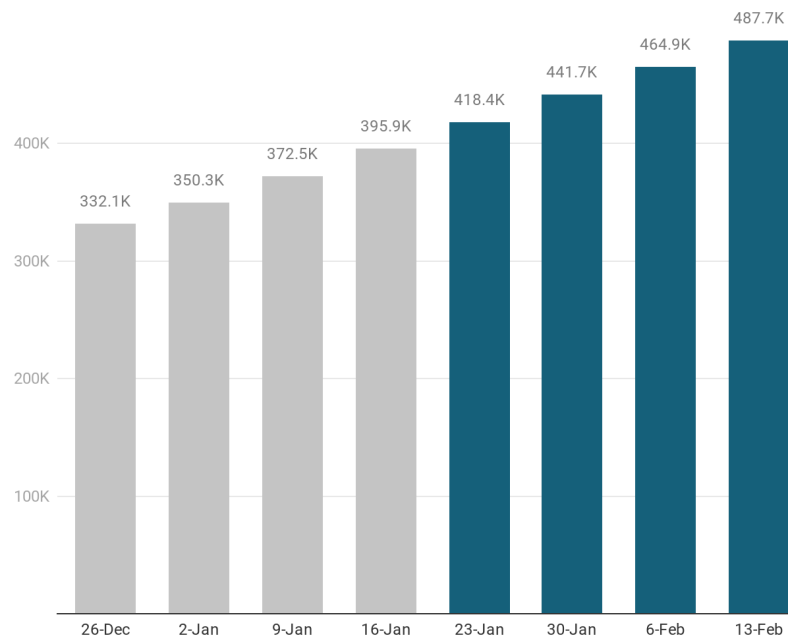


For the week ending on the date shown

Chart: Health Industry Advisor LLC • Source: Covid-19 Forecast Hub • Created with Datawrapper

Cumulative Deaths

Covid-19 Forecast Hub, Composite Forecast As of January 16



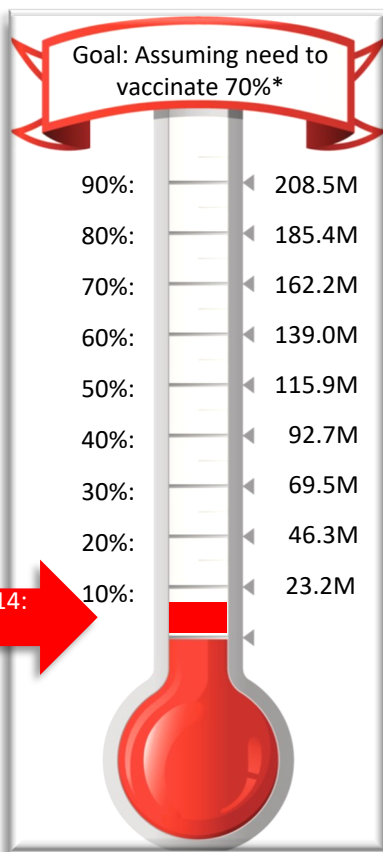
For the week ending on the date shown

Chart: Health Industry Advisor LLC • Source: Covid-19 Forecast Hub • Created with Datawrapper

Covid-19 "Vital Signs"

Vaccine Tracking

The US vaccination effort continues to be plagued by distribution challenges; As of yesterday, about 15.6 million doses were reportedly administered



Vaccination: Phase 1a Progress

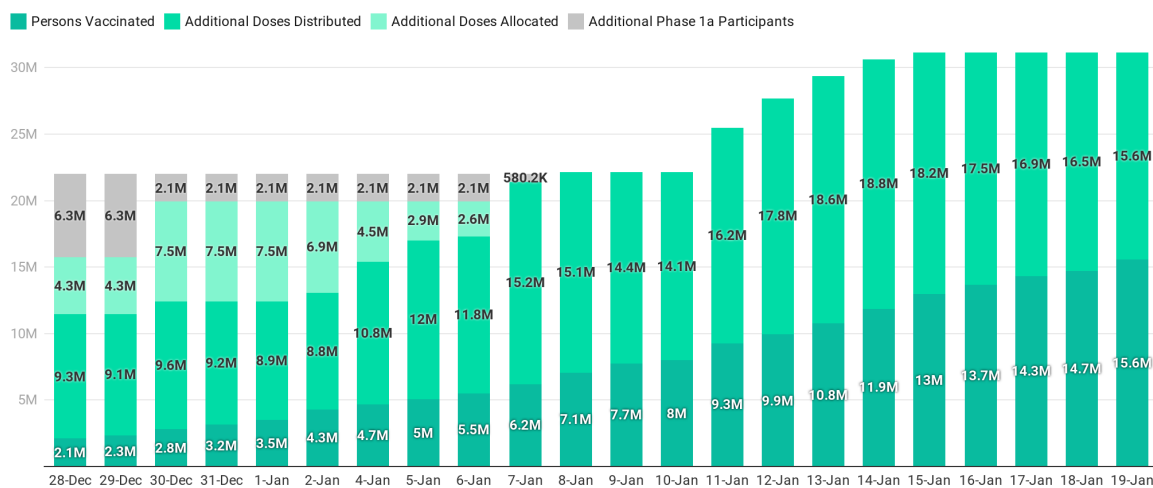


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

From the CDC vaccine webpage: "Healthcare providers report doses to state, territorial, and local public health agencies up to 72 hours after administration. There may be additional reporting lag for data to be transmitted from the state, territorial, or local public health agency to CDC."

Vaccine data from: [Centers for Disease Control and Prevention](https://www.cdc.gov/vaccines/imz/downloads/#vaccine-tracker) and [Bloomberg Vaccine Tracker](https://www.bloomberg.com/press/2021-01-14-covid-vaccine-tracker)

Covid-19 "Vital Signs"

Road To Herd Immunity

More than one-fourth of Americans may soon have immunity. In North Dakota and South Dakota, more than four-in-ten residents may be nearing immunity, as well as one-third of residents of Arizona, Arkansas, Idaho, Louisiana, Mississippi, Nebraska, New Jersey, New York, Oklahoma, Rhode Island, Tennessee, Wisconsin, and Wyoming

Road to Herd Immunity

Infection & Vaccine (First Dose) Prevalence, As of January 19

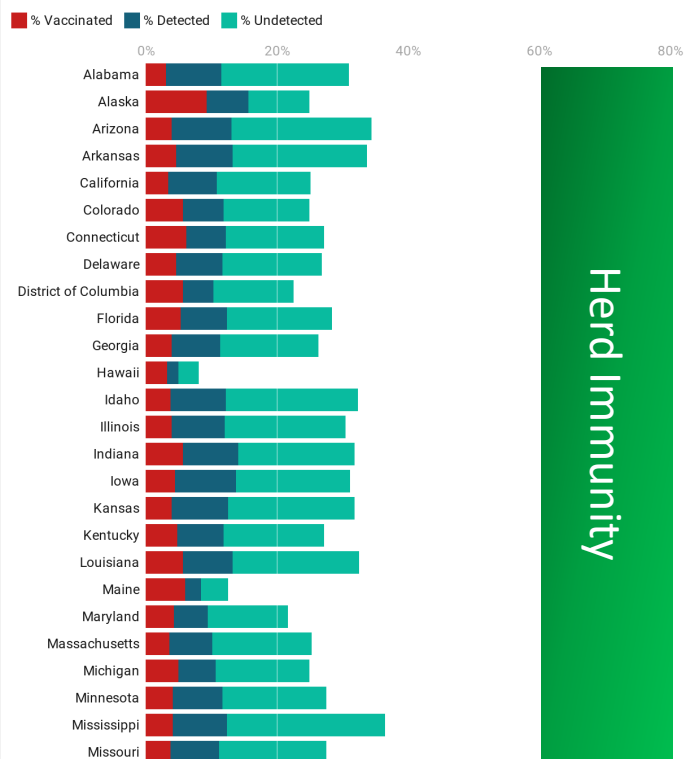


Chart: Health Industry Advisor LLC • Source: Youyang Gu; Bloomberg • Created with Datawrapper

Road to Herd Immunity

Infection & Vaccine (First Dose) Prevalence, As of January 19

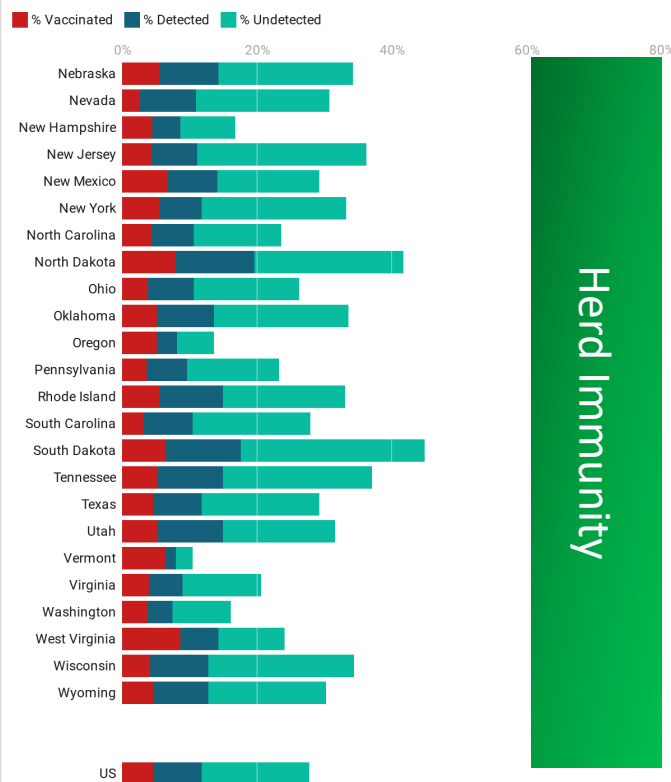


Chart: Health Industry Advisor LLC • Source: Youyang Gu; Bloomberg • Created with Datawrapper

Covid-19 “Vital Signs”

Two Models of Estimated Daily Infections

Models from both Youyang Gu and the Yale School of Public Health suggest that new infections may have peaked, following nearly three-month surge. Gu estimates these peaked on December 27; Yale on January 12

- Two models:
- Youyang Gu:
<https://covid19-projections.com>
- Yale School of Public Health:
<https://covidestim.org>
- Gu model lags by two weeks

Estimated Daily Infections v. Detected Cases

Gu & Yale School of Public Health Models

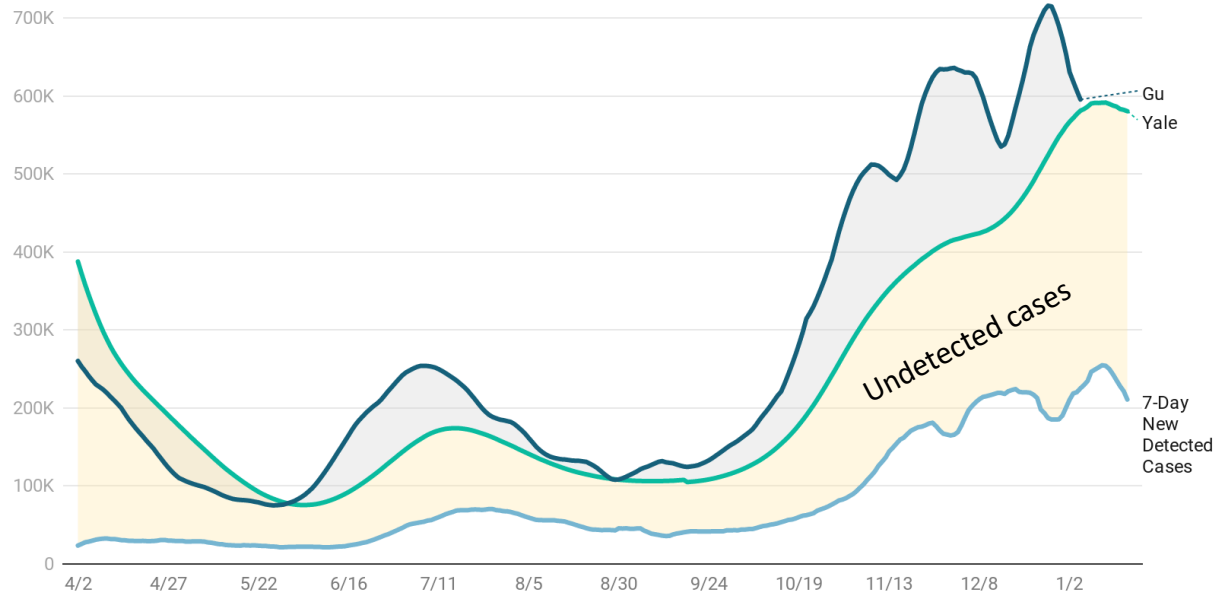


Chart: Health Industry Advisor LLC • Source: Youyang Gu, Yale School of Public Health • Created with Datawrapper

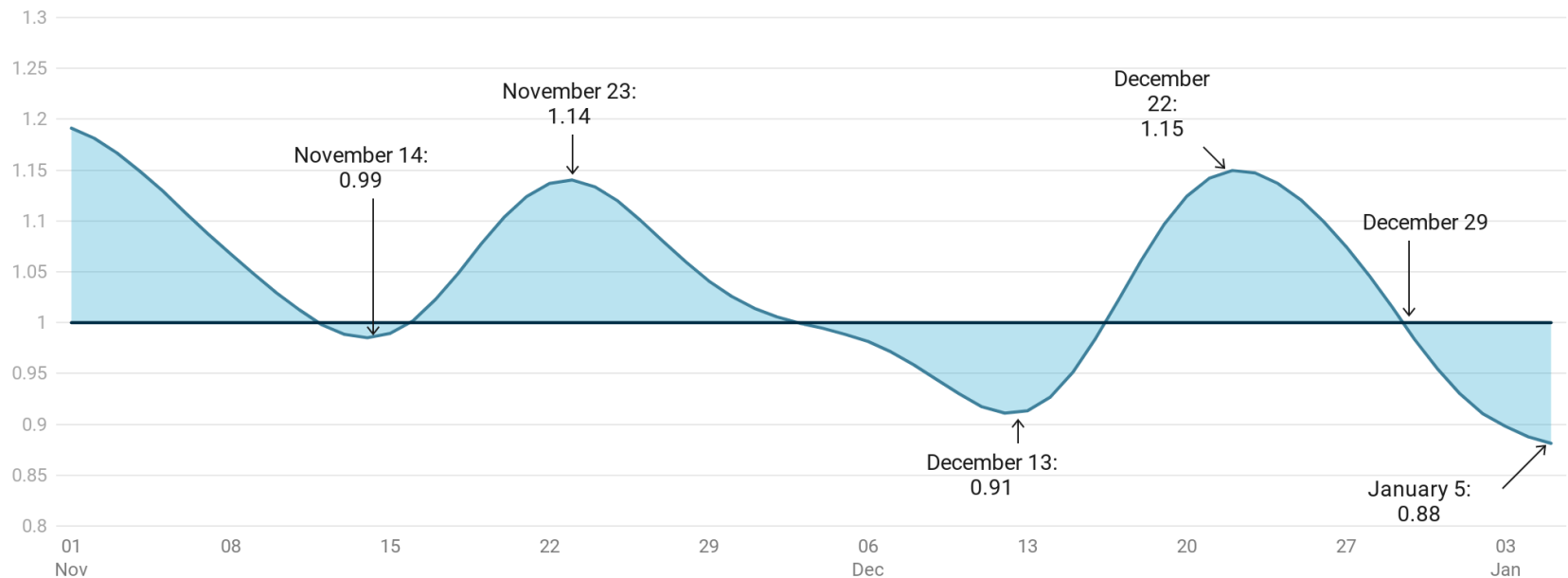
Reproduction Rate (R_t) – Gu* Model

Gu's estimate of R_t reached an intermediate peak on December 22 before declining the next fourteen days; it has been below 1.0 for seven successive days

Reproduction Rate (R_t) - U.S.

*Youyang Gu: Covid-19projections.com

Youyang Gu Estimate, November 1, 2020 - January 5, 2021



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

Newly-Detected Cases – US & Worldwide

Newly detected cases have moved past peak, both in the US and worldwide

Newly Detected Daily Cases - U.S. & Worldwide

7-Day Moving Average, As of January 19

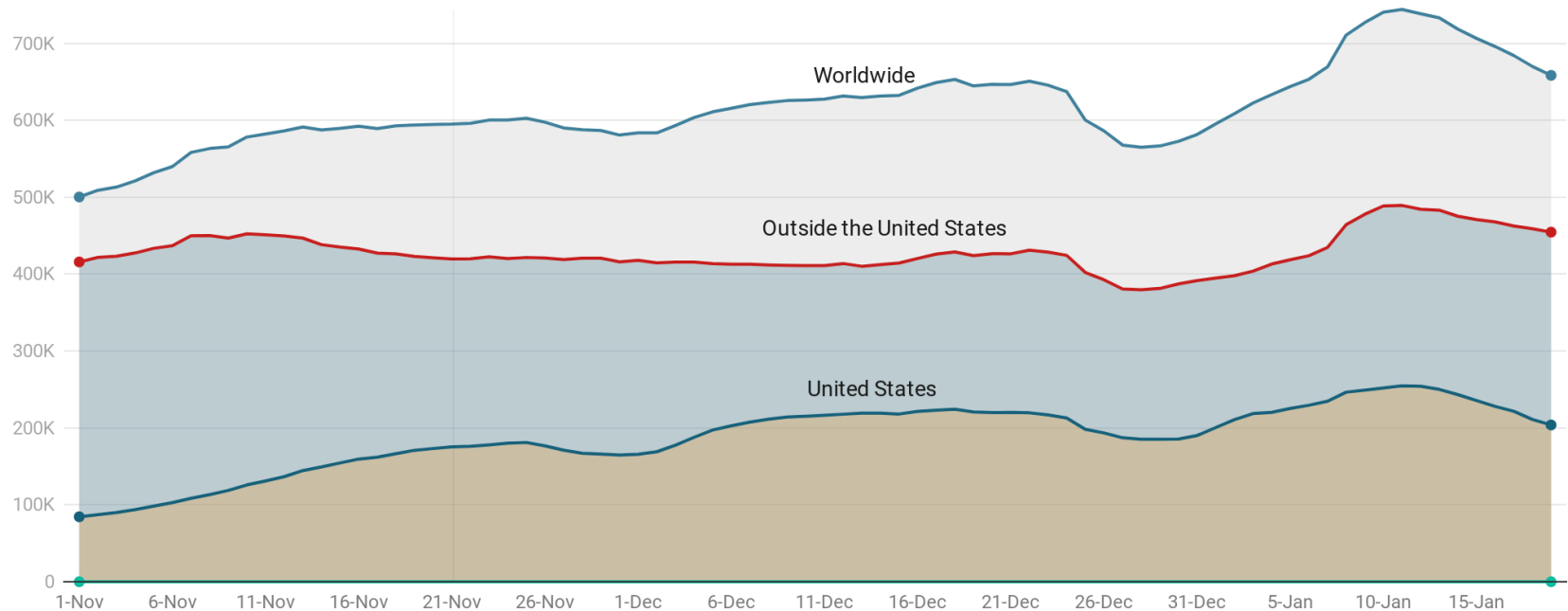


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Week-Over-Week Changes in New Cases

The number of new cases is now declining week-over-week, both in the US and worldwide

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

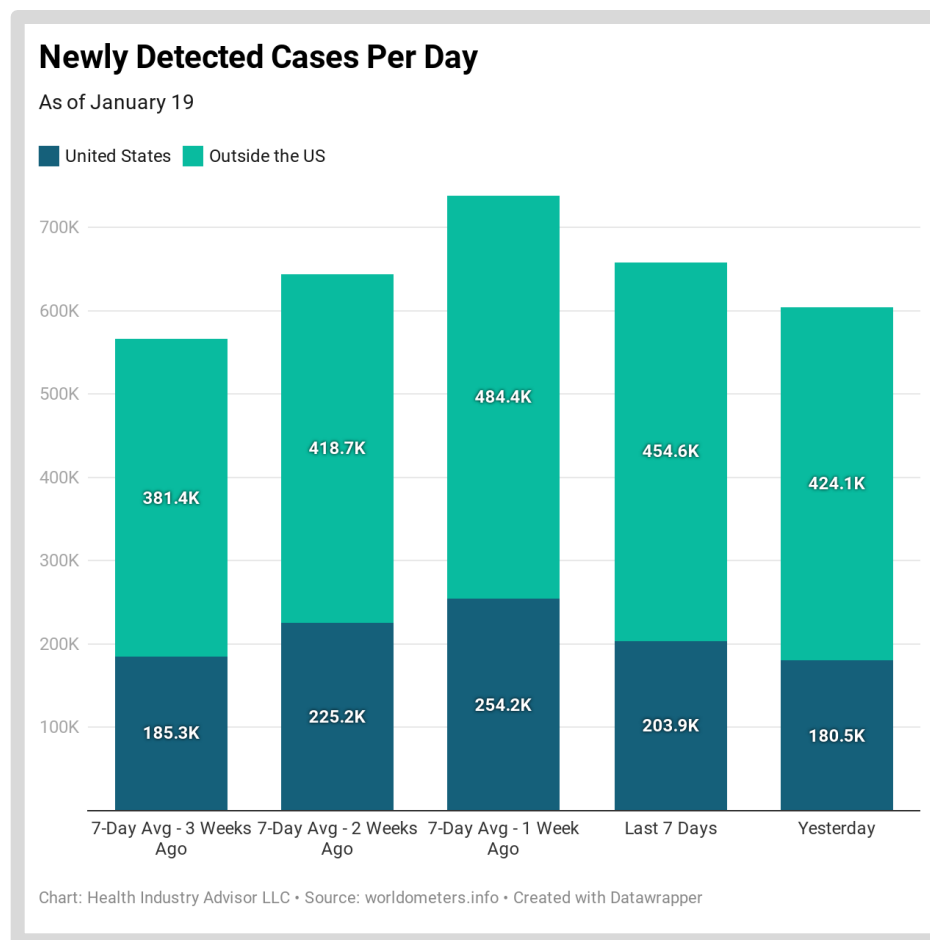
7-Day Moving Average, As of January 17



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

Newly Detected Cases Per Day

New cases in the US last week are lower than each of the past three weeks and are comparable to the level reported three weeks ago – a period that included Christmas. Outside the US, new cases dropped the past week compared to the prior seven-day period



Covid-19 "Vital Signs"

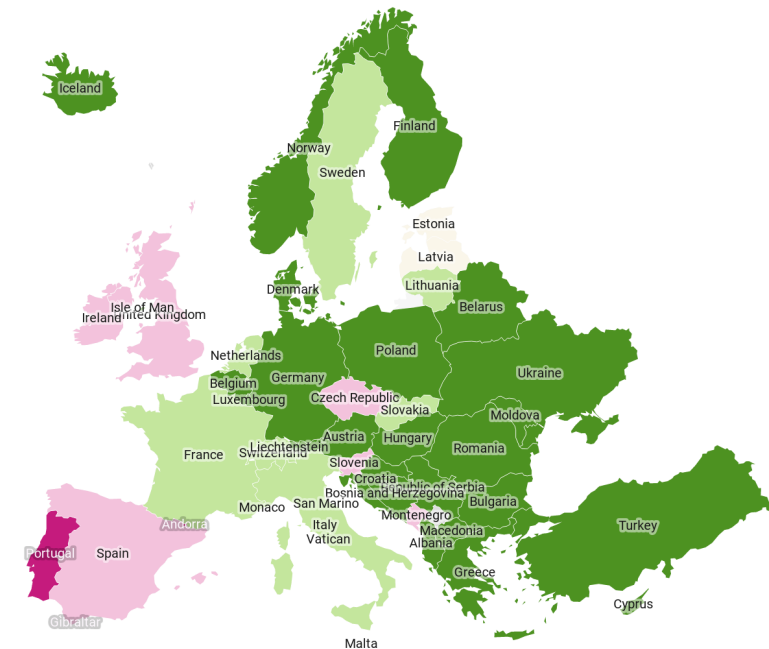
Newly Detected Cases – US and Worldwide

New case rates in Ireland, the UK, and the US are showing continued improvement. The rate in Israel has dropped slightly. Portugal and Spain are still seeing increasing rates

New Daily Infections / Million - Europe

7-Day Moving Average, As of January 19

■ < 200 ■ 200-400 ■ 400-600 ■ 600-800 ■ ≥ 800



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

Newly Detected Cases Per Million

7-Day Moving Average

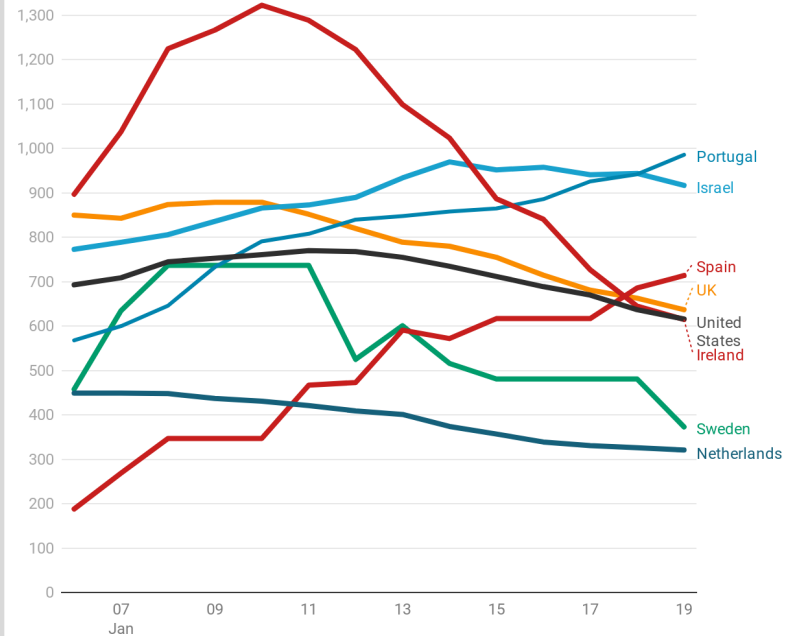


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19 "Vital Signs"

Newly Detected Cases / Million - US

Newly detected cases (7-day average) in the US have now declined on eight successive days. Other than the recent holiday period – with its reporting interruptions – this rate is as low as it has been since December 6

Newly-Detected Cases / Million - US

7-Day Moving Average

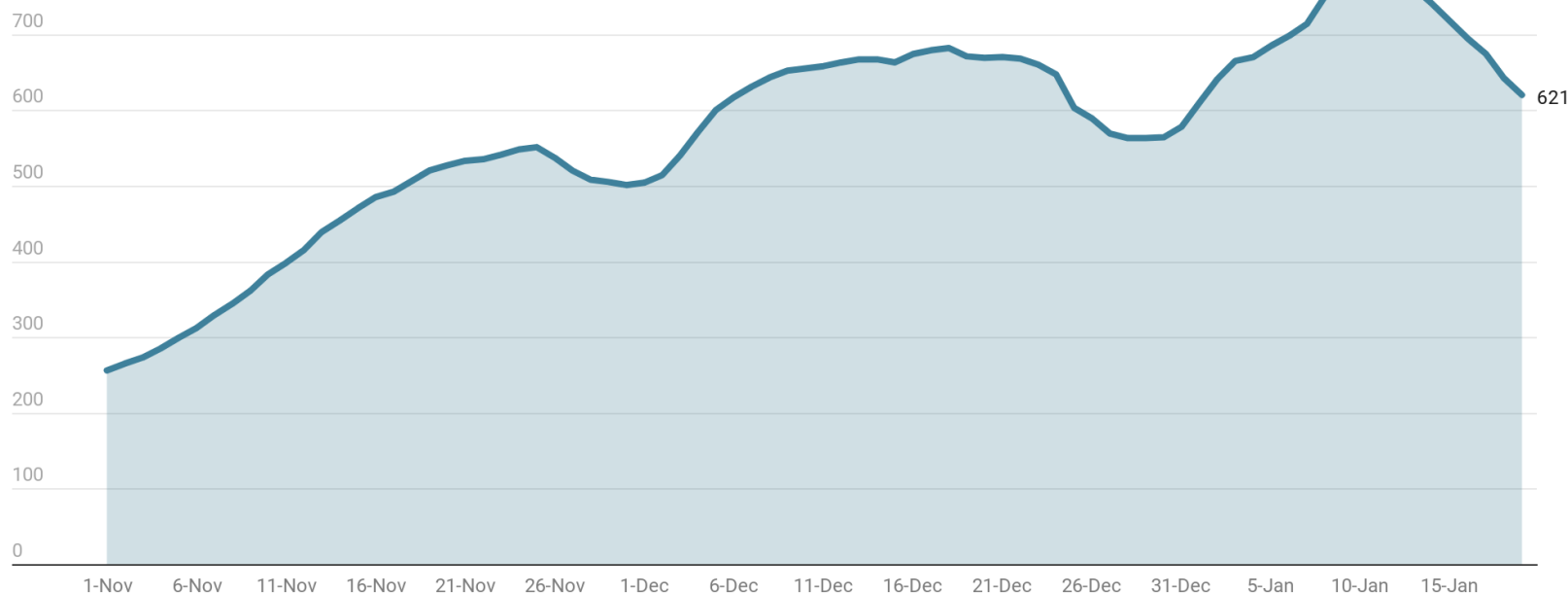


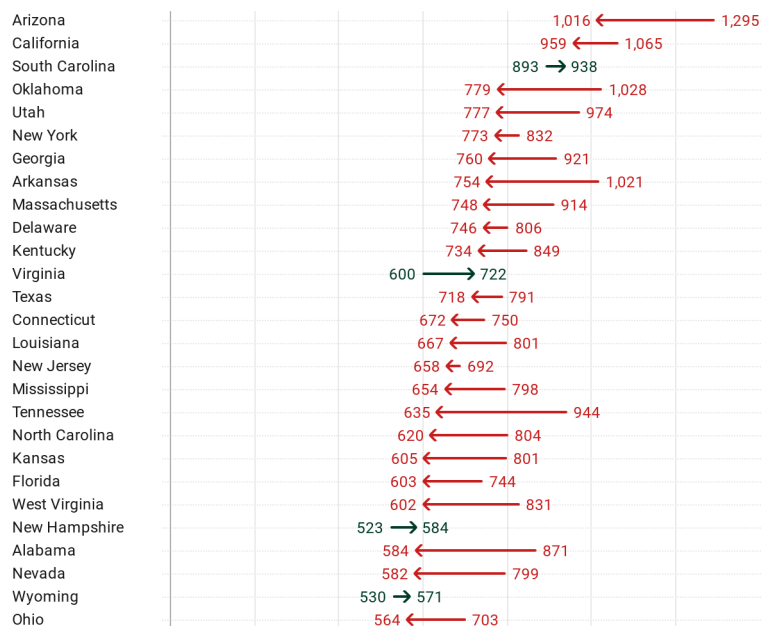
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Newly Detected Cases / Million

New cases rates declined week-over-week in all but five states – Maine, New Hampshire, South Carolina, Virginia and Wyoming

New Daily Cases / Million

7-Day Moving Average, As of January 12 and 19



New Daily Cases / Million

7-Day Moving Average, As of January 12 and 19

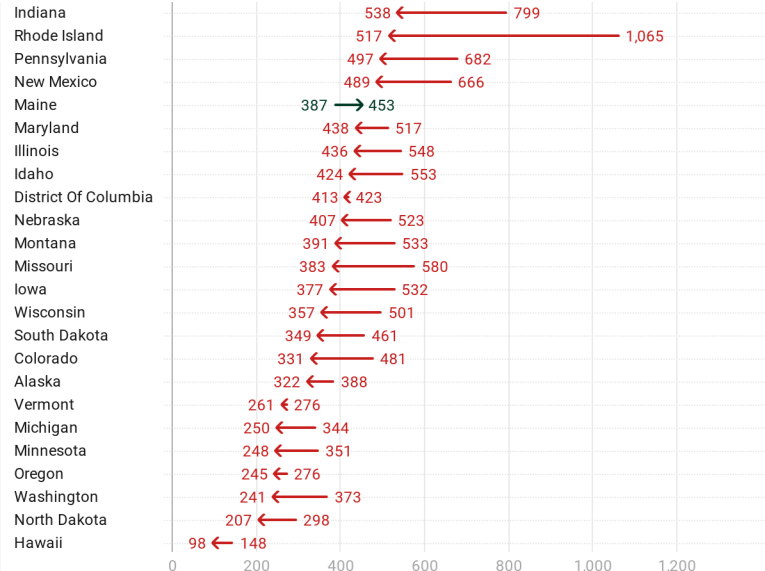


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19 "Vital Signs"

Testing Results - US

The 7-day average test volume remains at near-record levels. With this high volume, the test-positive rate for the day and the past week showed solid improvement – the 7-day rate was as low as it has been since November 28

Tests / Million / Day (US)

As of January 19

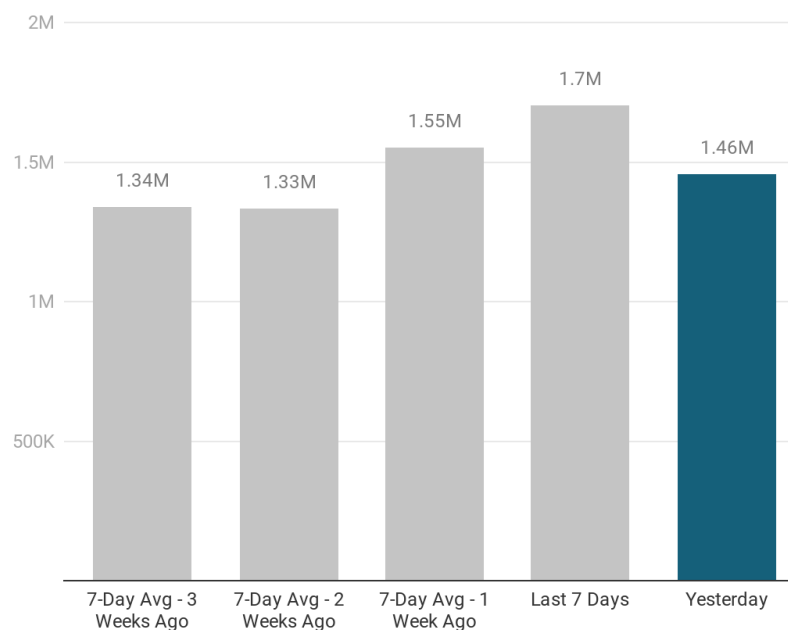


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Test-Positivity Rate

As of January 18

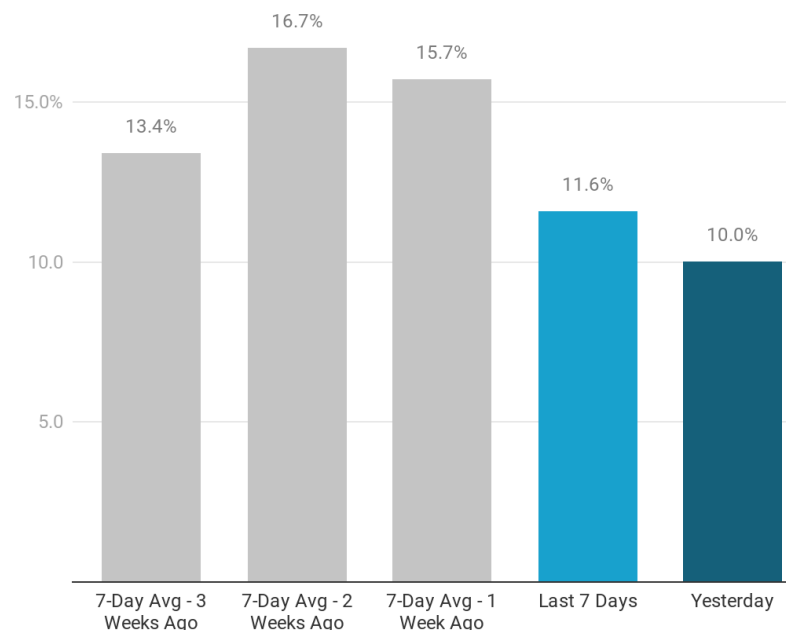


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Hospitalizations have declined eleven of the past thirteen days. Yesterday's Covid-19 census is comparable to the census on the Tuesday between Christmas and New Year's Day

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 19

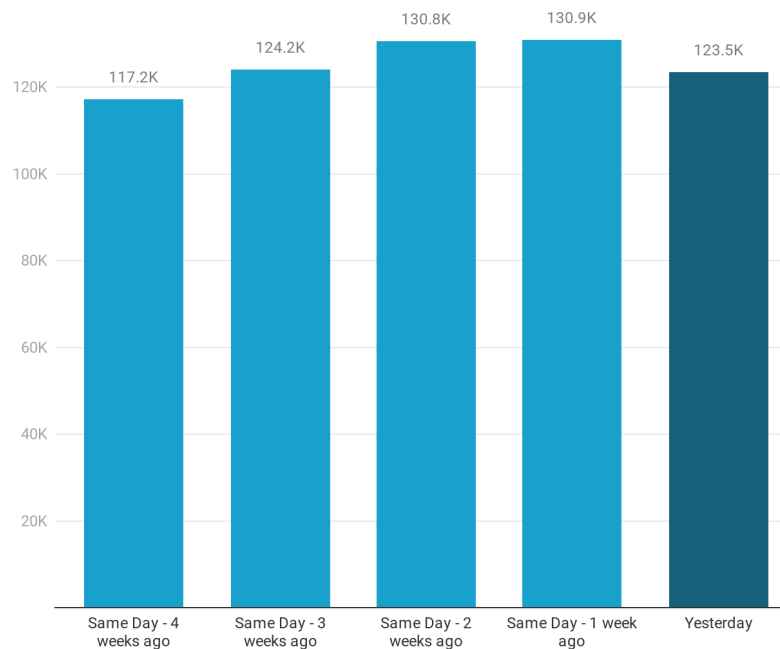


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% in ICU - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 19

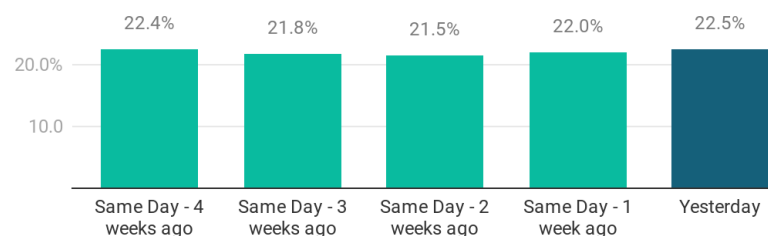


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% on Ventilators - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 19

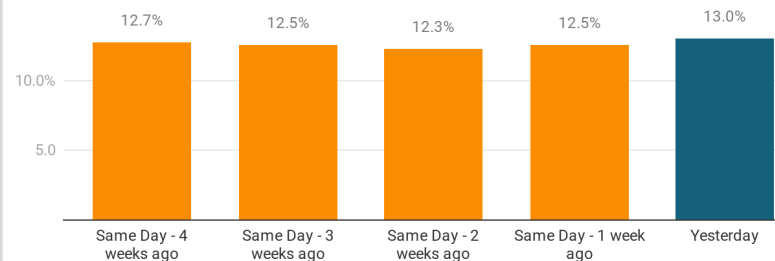


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

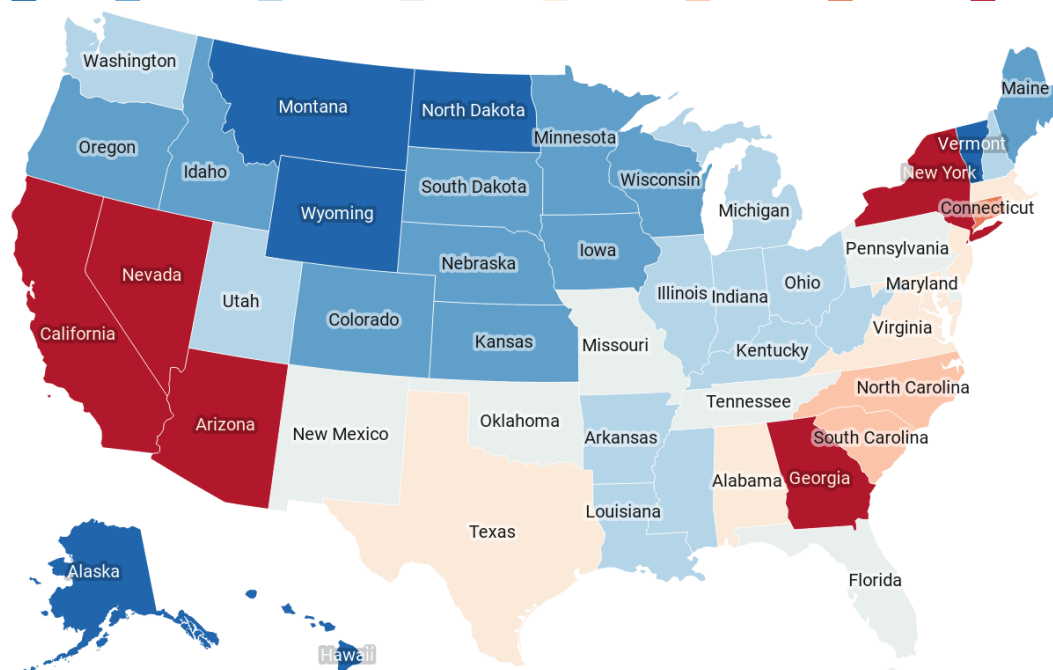
Covid-19 Hospitalizations

Hospitalization rates remain high in Arizona, California, Georgia, Nevada, and New York. The rate in Connecticut is also of concern

Covid-19 Patients As % of All Inpatient Beds

As of January 19

■ < 10%
 ■ 10%–20%
 ■ 20%–30%
 ■ 30%–40%
 ■ 40%–50%
 ■ 50%–60%
 ■ 60%–70%
 ■ ≥ 70%



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

Deaths Reported With Coronavirus

There were fewer deaths reported with coronavirus over the past seven days than the previous seven days; however, these remain at tragically high levels

Daily Deaths Reported With Coronavirus

As of January 19

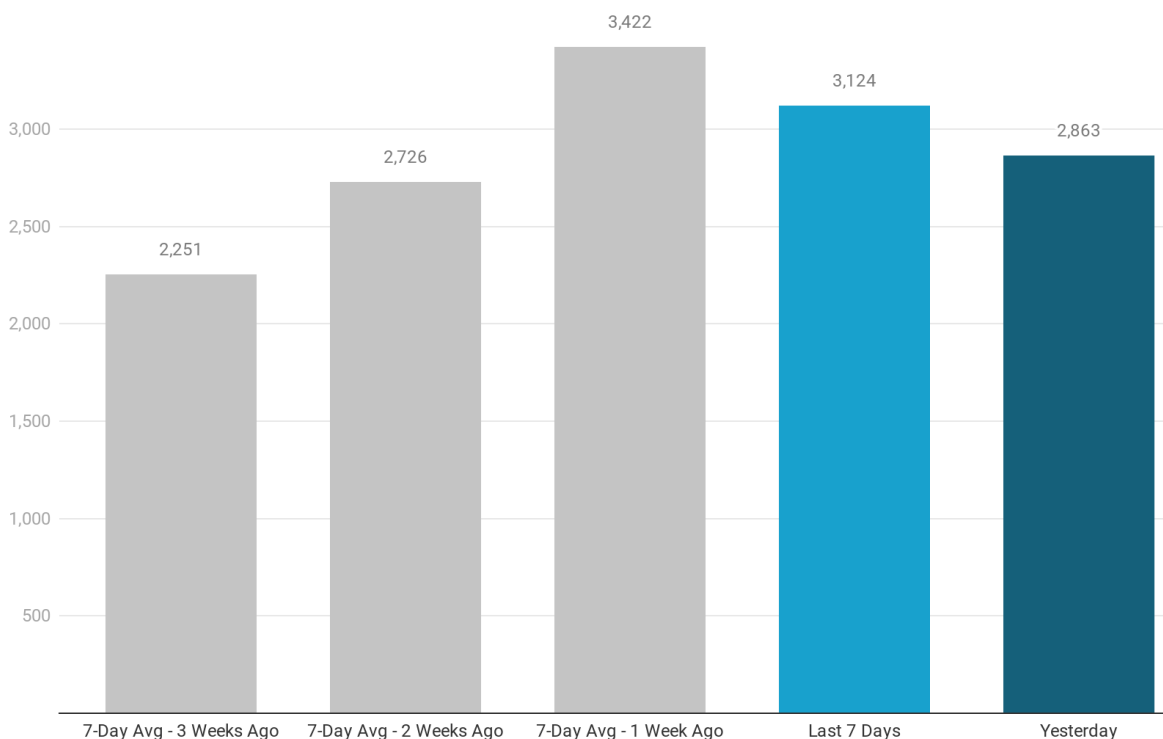


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

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 and Prevention, National, Regional, and State Level Outpatient Illness and Viral Surveillance <https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>
- Centers for Disease Control and Prevention, COVID-19 Laboratory-Confirmed Hospitalizations https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html
- Centers for Disease Control and Prevention, COVID Data Tracker <https://www.cdc.gov/covid-data-tracker/index.html#mobility>
- Centers for Disease Control and Prevention, Vaccines, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html>
- 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>
- Covid-19 Forecast Hub, <https://viz.covid19forecasthub.org>
- Oliver Wyman Pandemic Navigator, <https://pandemicnavigator.oliverwyman.com/forecast?mode=country®ion=United%20States&panel=mortality>
- [Rt.live](https://rt.live)
- Yale School of Public Health & Harvard TH Chan School of Public Health, <https://covidestim.org>
- Bloomberg Vaccine Trackers, <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/?sref=Z0b6TmHW>