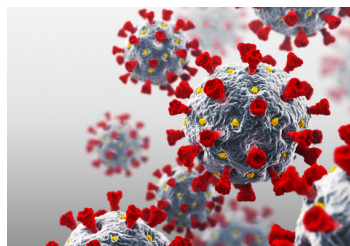


Covid-19 "Vital Signs"

Issue # 275

February 1, 2021

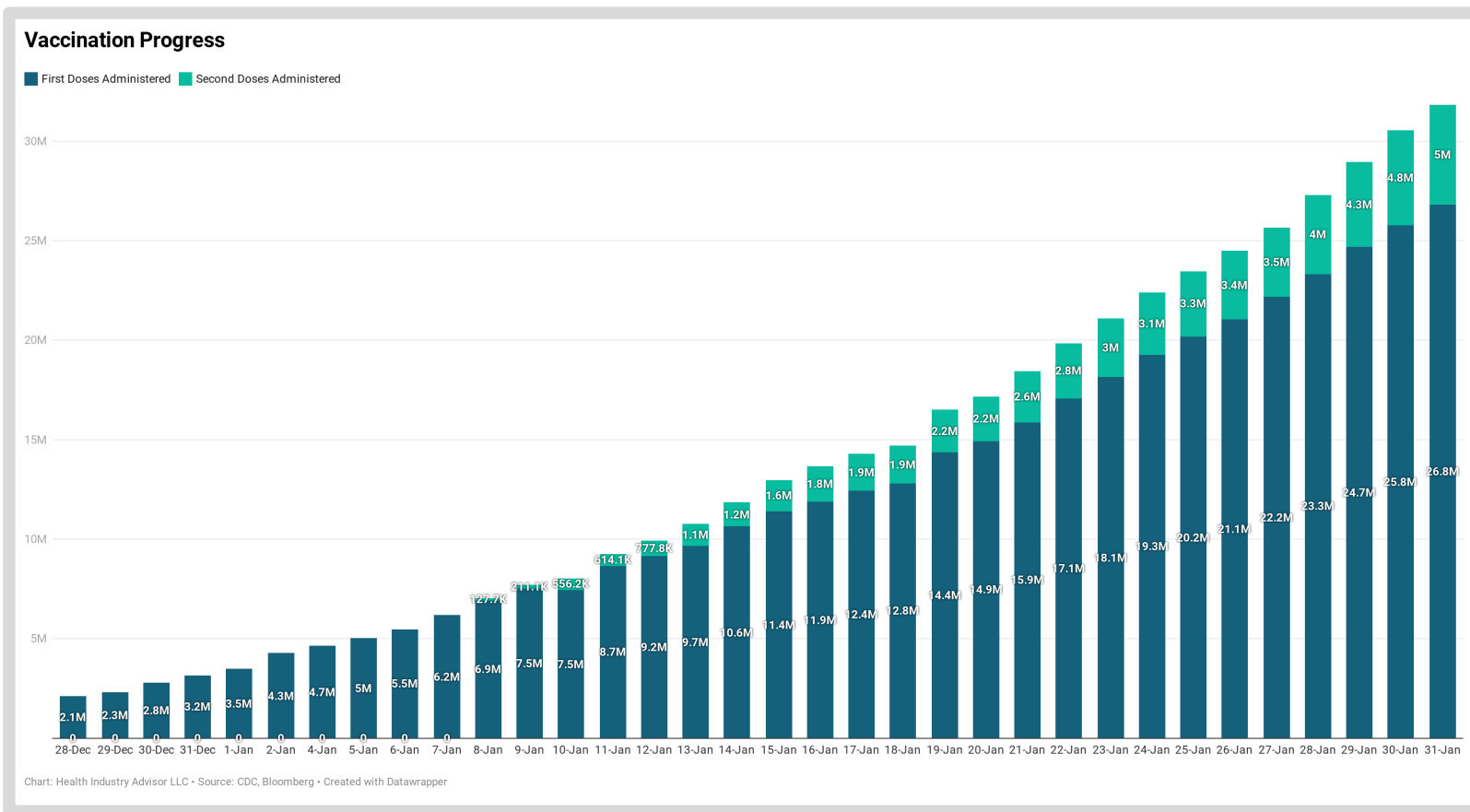


- Vaccine efforts:
 - **The US administered more than 3 million doses over the weekend, bringing the total to 32 million. Five million Americans have received two doses of a vaccine;**
 - The vaccination effort started slowly but has gained momentum in recent days. In early January, vaccines failed to keep pace with the modest "100 million doses in 100 days" pace;
 - **Daily vaccinations, however, now exceed the more ambitious pace projected in our model,** based on recent developments (President's Biden's commitment to accelerating vaccinations, the addition of 100 million more doses from both Pfizer and Moderna, and the expected approval of the JNJ vaccine). Our projection calls for 1.2 million daily doses until March 1, when the JNJ vaccine's availability increases our projection to 1.8 million daily doses. **Vaccinations exceeded our projection on eight of the past nine days.**
- New Cases and Estimated Actual Infections:
 - The 7-day rate of new cases in the US has fallen for more than two weeks. **This rate is lower than it has been since November 14;**
 - Only Virginia experienced its highest case rate of the pandemic during the past two weeks; Most states have gone at least forty-five days since experiencing their peak rate. Rates have fallen at least 25% below the peak in forty-five states; rates in sixteen states have fallen by 70% or more;
 - **Estimated actual infections plummeted throughout January, falling by 40-55%** (using the Gu and Yale/Harvard models);
- New cases are dropping outside the US too, declining more than 20% over the past three weeks;
- Portugal and Spain are bucking this trend, however, as both countries are suffering from high and increasing case rates;
- **Gu's estimated reproduction rate (Rt) fell below 1.0 on December 26 and remained significantly below this benchmark as of January 17. It has increased, however, on five successive days.**
- Hospitalizations:
 - **Covid-19 hospital days are plunging, with 37.5k fewer patients yesterday (28%) than when these peaked on January 6;**
 - **Hospitalizations fell during January in every state except New York, where they held steady;** nevertheless, these rates remain high in Arizona, California, Connecticut, Georgia, Nevada, and New York;
 - **Covid-19 ICU days peaked on January 9; these could decline nearly 70% by May 1,** based on the latest projections from the Institute for Health Metrics and Evaluation (IHME).
- Testing:
 - Test volume receded over the past three weeks. **The test-positive rate, however, has fallen each of the past three weeks.**
- Deaths Reported With Coronavirus:
 - **Deaths have held steady over the past three weeks but remain at tragically-high levels.**

Covid-19 "Vital Signs"

Vaccine Tracking

As of yesterday, 32 million doses were reportedly administered. There were 3 million doses administered over the weekend and an average of 1.34 million daily over the past seven days. An estimated 5 million people have received two doses



Vaccine data from: [Centers for Disease Control and Prevention](#) and [Bloomberg Vaccine Tracker](#)

Covid-19 “Vital Signs”

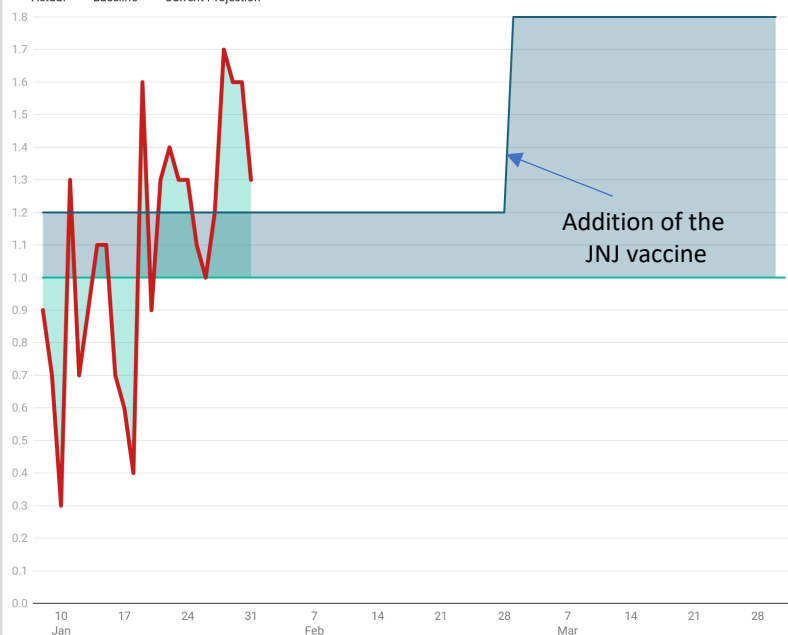
Pace of Vaccinations

The vaccination effort struggled early but has gained momentum in recent days. In early January, daily vaccinations fell short of even the modest “100 million doses in 100 days target” (“baseline”). Daily vaccinations exceeded the more ambitious “current projection” pace the past four days and eight of the past nine

Pace of Vaccinations - Daily

in Millions of Doses

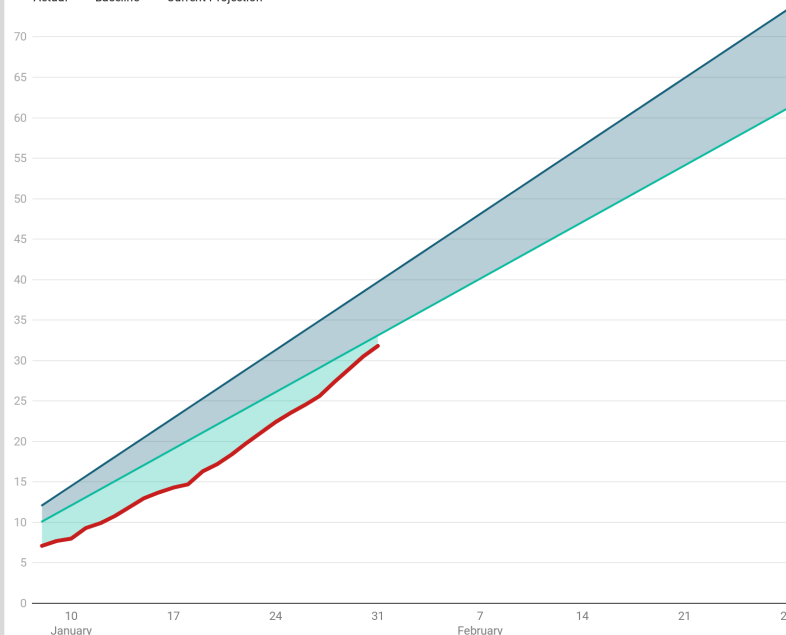
— Actual — Baseline — Current Projection



Pace of Vaccinations - Cumulative Doses Administered

in Millions of Doses

— Actual — Baseline — Current Projection



“Current projection” is from Health Industry Advisor’s vaccination model, reflecting recent developments: increase pace of vaccinations; increase in Pfizer and Moderna doses to 300 million each; and anticipated availability of JNJ vaccine

Covid-19 "Vital Signs"

Two Models of Estimated Daily Infections

Newly detected cases and estimates of actual infections continue downward trajectories. The 7-day new case rate is lower than it has been since November 14. Estimated infections have plummeted 40-55% from peak, based on the Gu and Yale/Harvard models

- 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

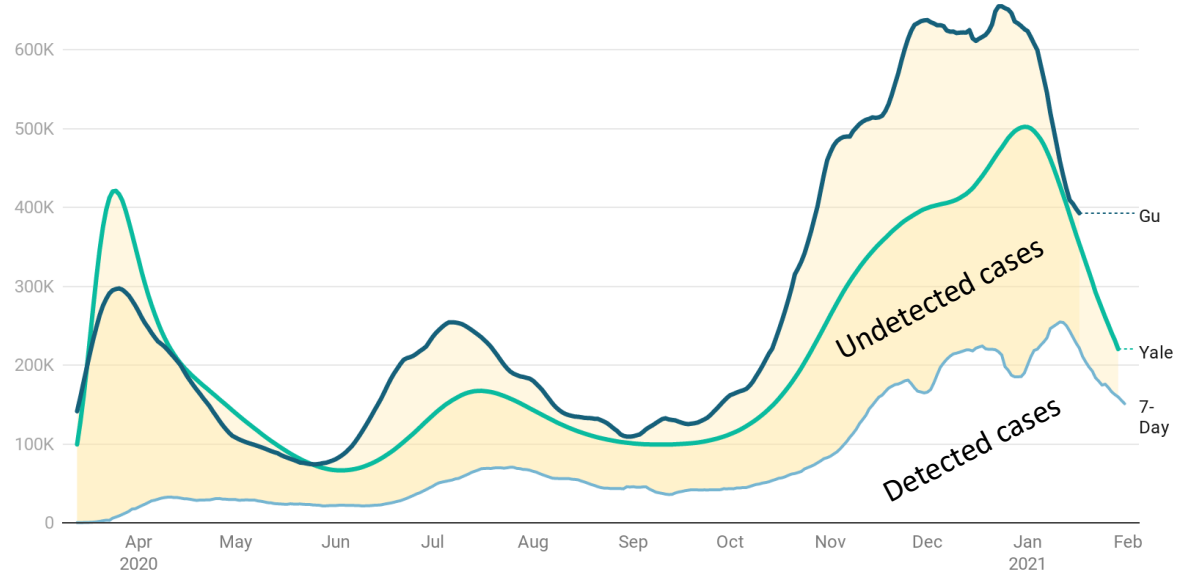


Chart: Health Industry Advisor LLC • Source: Youyang Gu, Yale School of Public Health • Created with Datawrapper

Week-Over-Week Changes in New Cases

New cases are 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 31

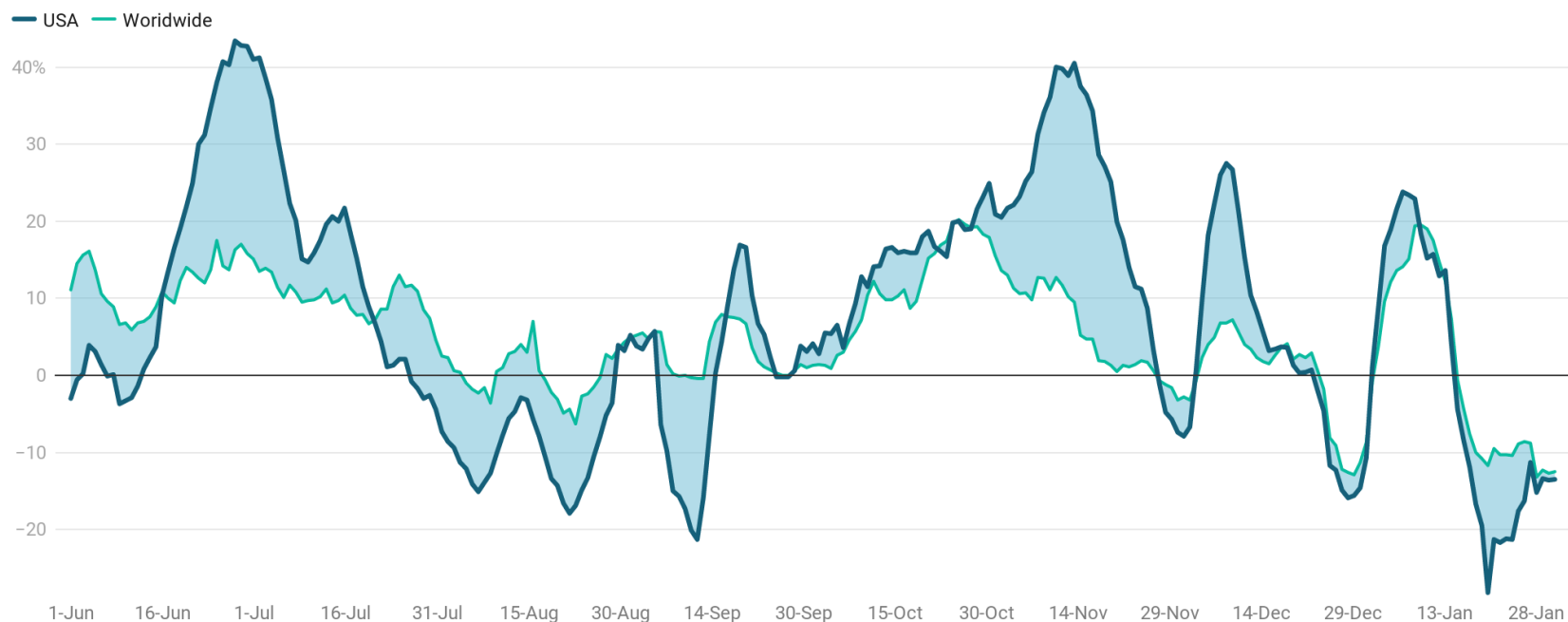


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Countries With the Highest Infection Prevalence

The US has suffered the second highest infection prevalence (cases per person) among countries with 5 million or greater population

Top Twenty Countries Ranked By Infection Prevalence

Based on Detected Cases, Countries With 5+M Population

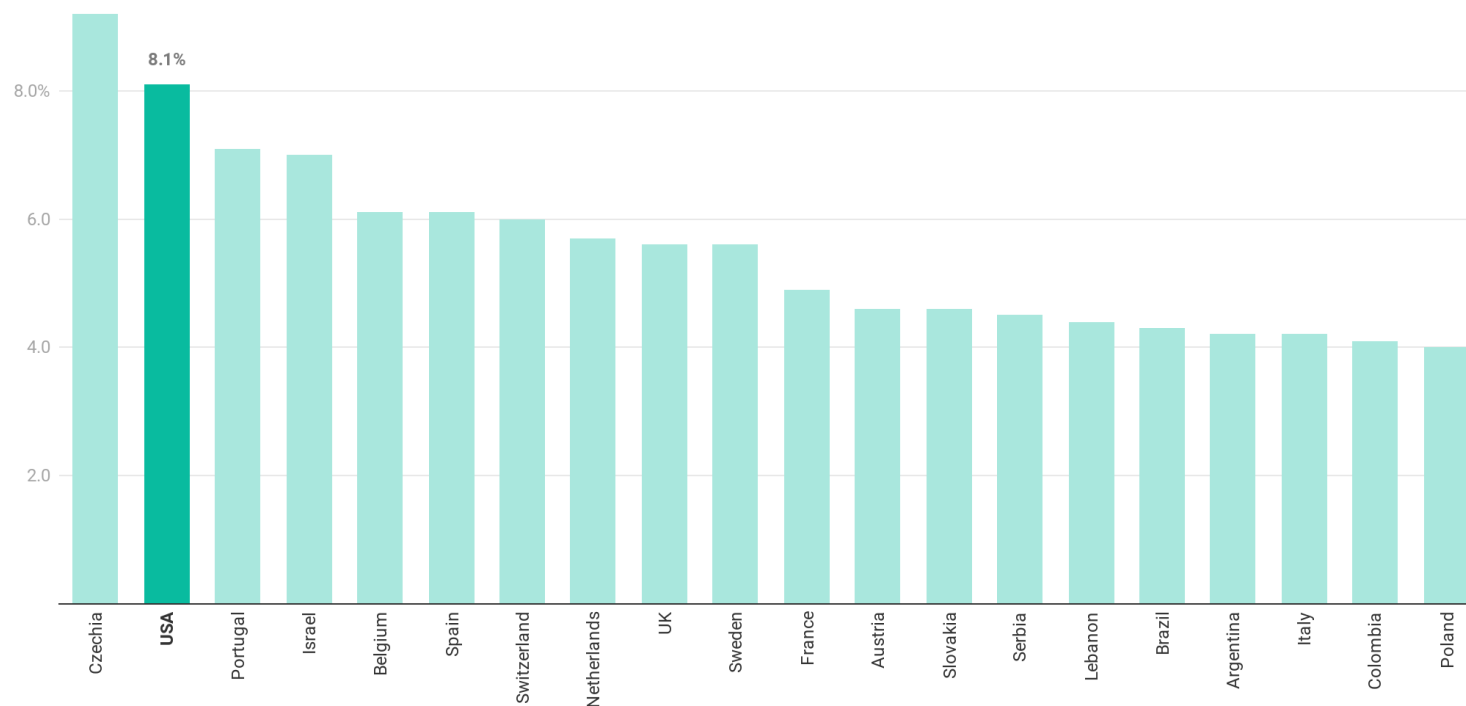


Chart: Health Industry Advisor LLC • Created with Datawrapper

Covid-19 "Vital Signs"

Ranking of Countries With Highest Current Case Rate

The US ranks fifth in the current 7-day case rate per capita among countries with five million or more residents. Nonetheless, the US rate has plummeted over the past two weeks. Portugal and Spain are struggling with high and increasing case rates

Rank By 7-Day New Cases / Million

Top Twenty Countries Ranked By New 7-Day Cases Per Million

Based on Detected Cases, Countries With 5+M Population

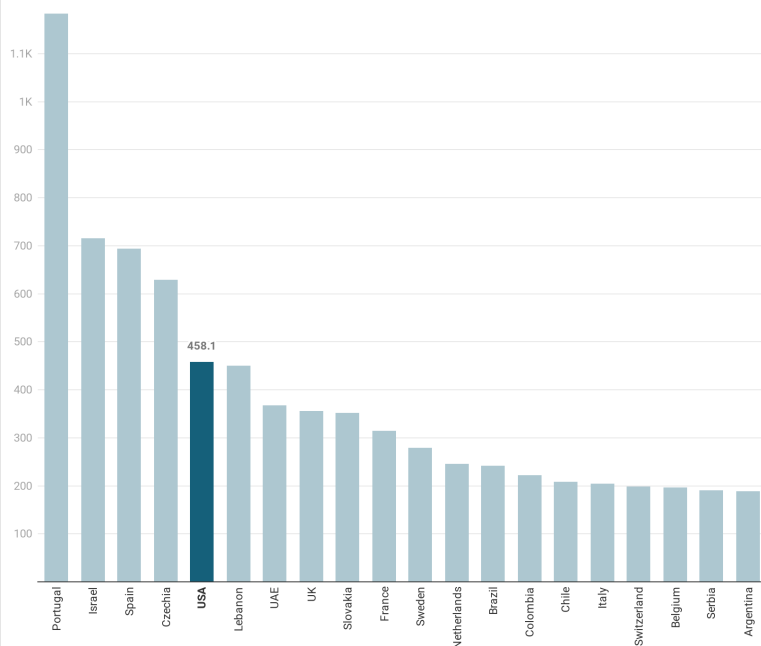


Chart: Health Industry Advisor LLC • Created with Datawrapper

Change Over Past Two Weeks

Top Twenty Countries Ranked By New 7-Day Cases Per Million

Based on Detected Cases, Countries With 5+M Population

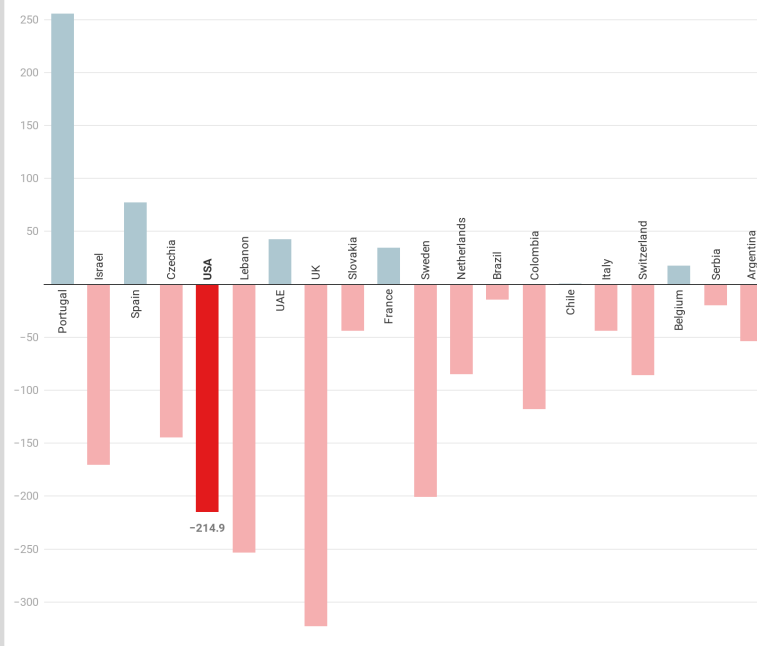


Chart: Health Industry Advisor LLC • Created with Datawrapper

Newly Detected Cases Per Day

7-day new case rates have plunged over the past several weeks, both in the US and outside the US

Newly Detected Cases

As of January 31

United States Outside the US

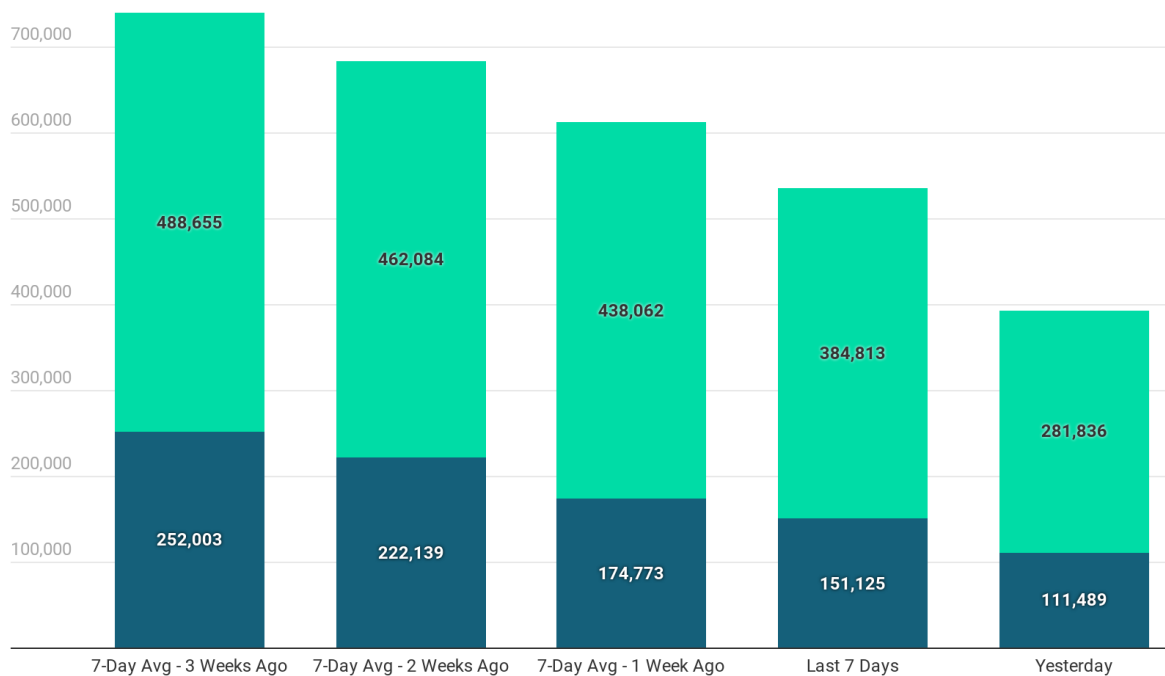


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

New Cases / Million

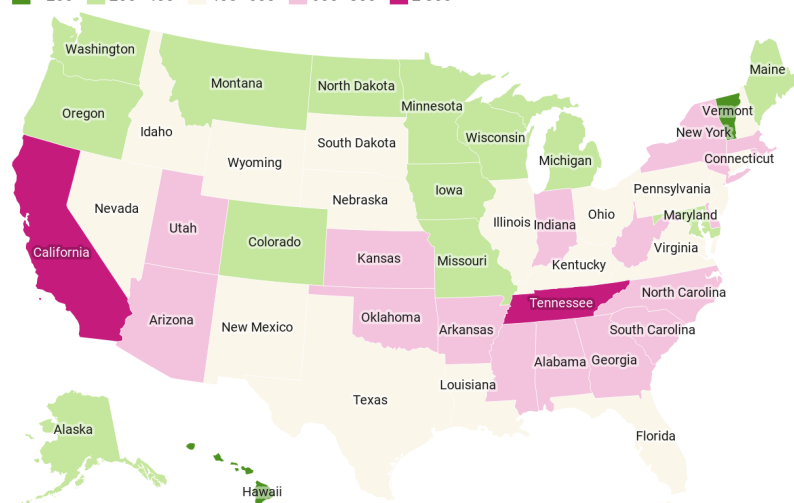
New cases rates tumbled in January across the country – despite delayed case reporting around the holiday season

December 31

New Cases / Million

7-Day Moving Average, As of December 31

■ < 200 ■ 200–400 ■ 400–600 ■ 600–800 ■ ≥ 800



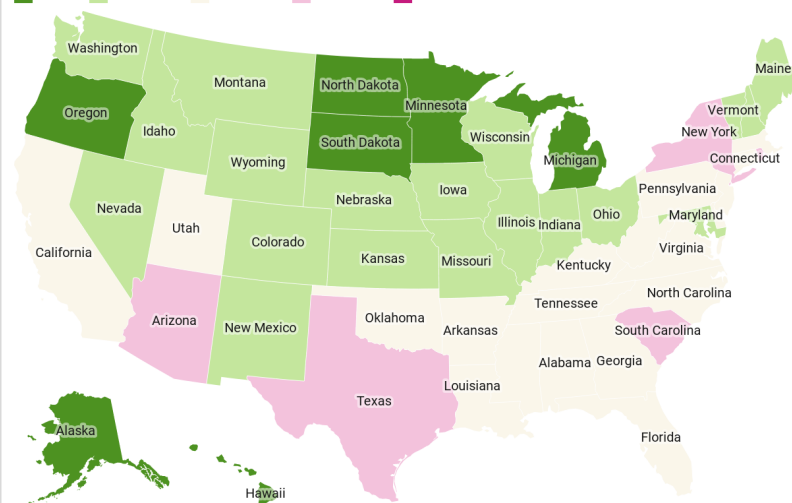
Map: Health Industry Advisor LLC • Created with Datawrapper

January 31

New Cases / Million

7-Day Moving Average, As of January 31

■ < 200 ■ 200–400 ■ 400–600 ■ 600–800 ■ ≥ 800



Map: Health Industry Advisor LLC • Created with Datawrapper

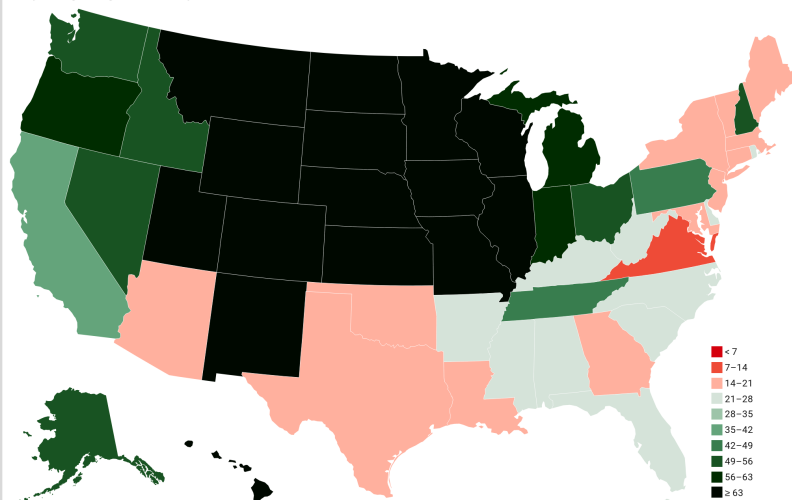
Covid-19 "Vital Signs"

New Case Rate v. Peak Rates

Only Virginia recorded a peak case rate in the past two weeks; Most states have not recorded a peak case rate in at least 45 days. Rates in forty-five states have fallen by at least 25% from peak levels

Days Since Peak New Infections Per Capita

7-Day Moving Average, As of January 31



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

New Daily Infections / Million - Current Rate as % of Peak

7-Day Moving Average, As of January 31

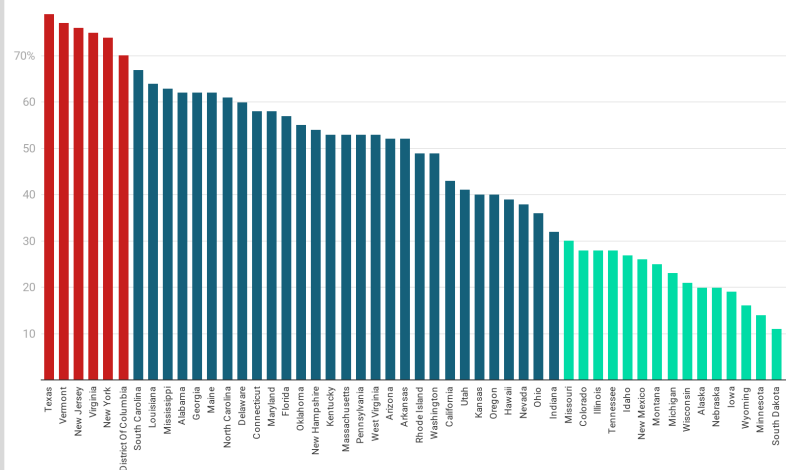


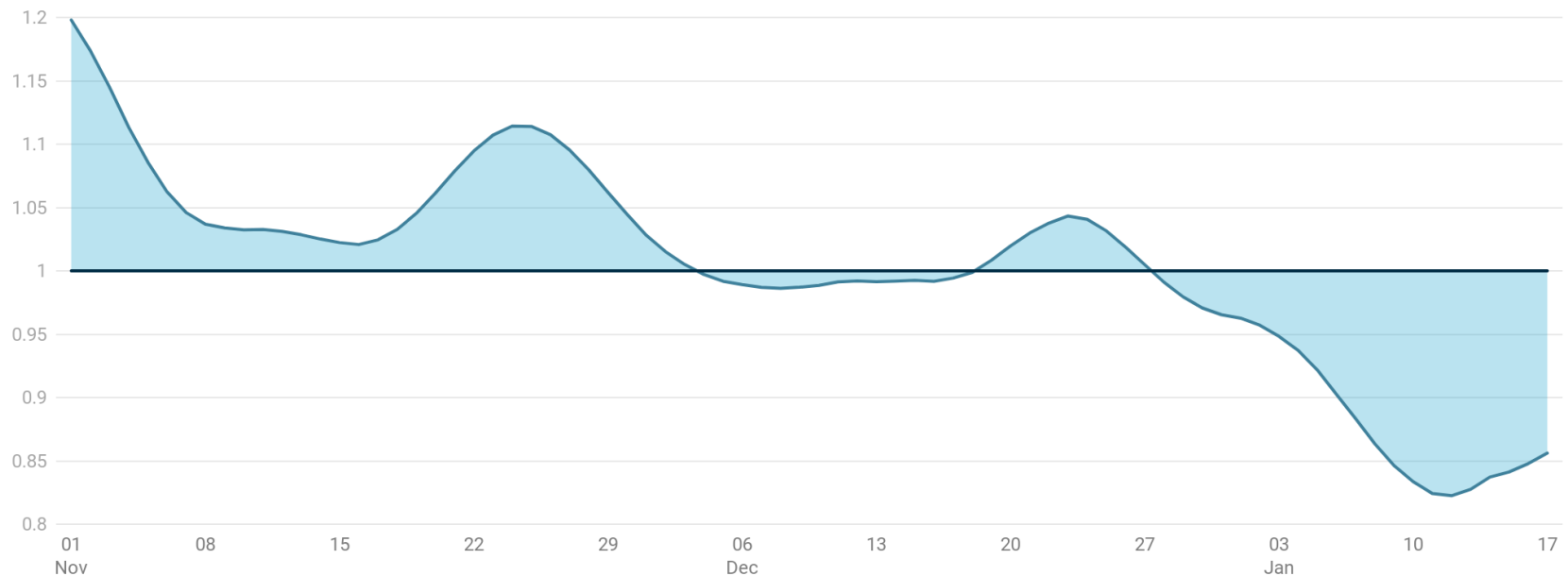
Chart: Health Industry Advisor LLC • Created with Datawrapper

Reproduction Rate (R_t) – Gu* Model

Gu's estimate of R_t continues to decline and has been below 1.0 for twenty-one successive days. This rate, however, has increased each of the past five days

Reproduction Rate (R_t) - US

Youyang Gu Estimate, November 1, 2020 - January 17, 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

Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospitalizations are plunging, with 37.5k fewer patients yesterday than on January 6 (28%). Yesterday's Covid-19 census was lower than any day since November 28

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 31

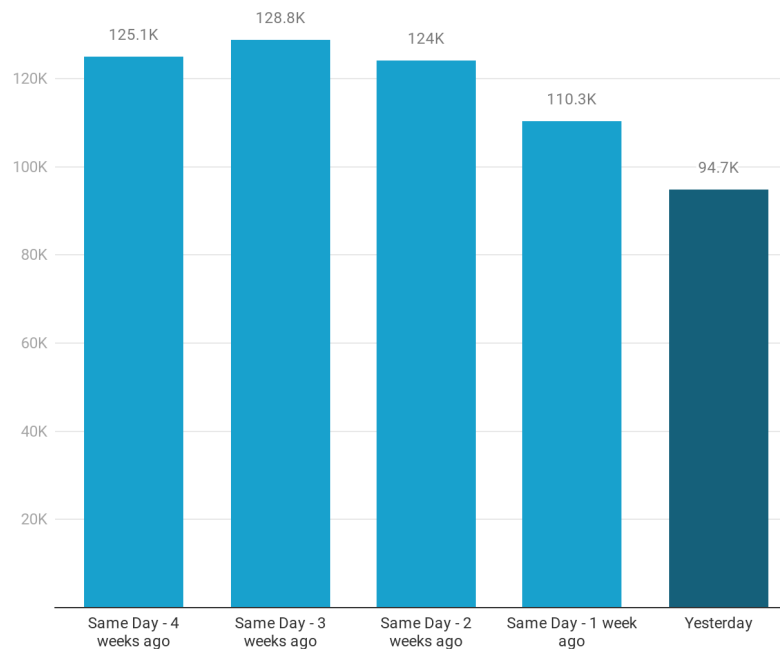


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% in ICU - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 31

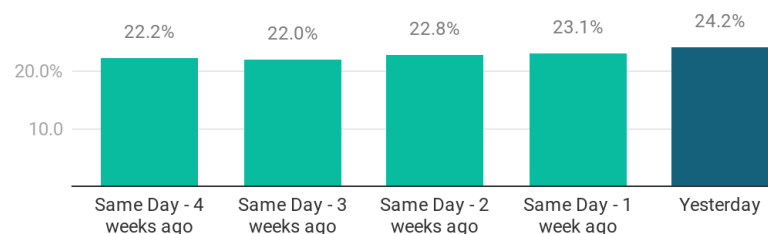


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% on Ventilators - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 31

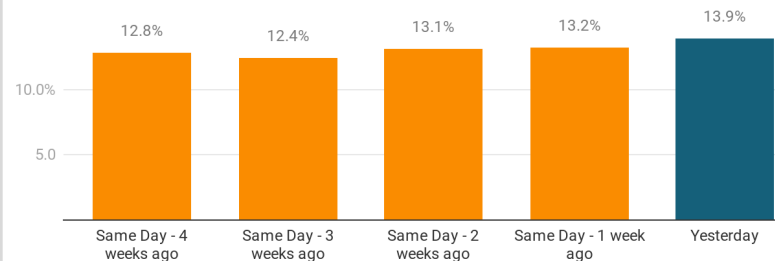


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospital census declined during January in all states except New York, where it held steady. Current rates are concerning (50% or higher) in Arizona, California, Connecticut, Georgia, Nevada and New York

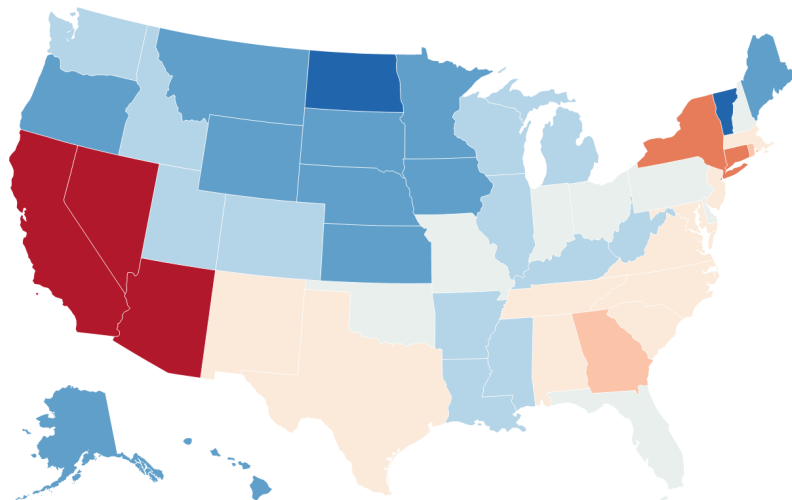
December 31

January 31

Covid-19 Patients As % of All Inpatient Beds

As of December 31

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

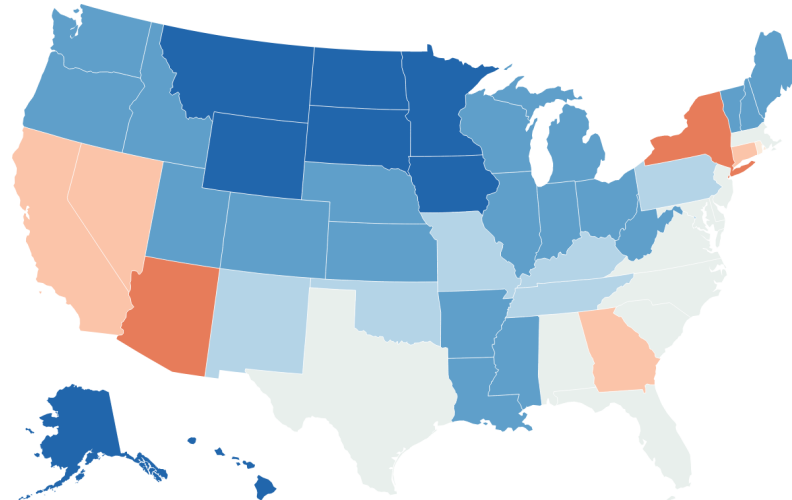


Map: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Covid-19 Patients As % of All Inpatient Beds

As of January 31

■ < 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

Covid-19 "Vital Signs"

Projected Covid-19 ICU Patient Days

Covid-19 patients in the ICU may have peaked in early January, based on Institute for Health Metrics and Evaluation (IHME) projections. The number of patients is expected to decline through at least May 1

Covid-19 ICU Patient Days

Source: Institute for Health Metrics and Evaluation, As of January 28

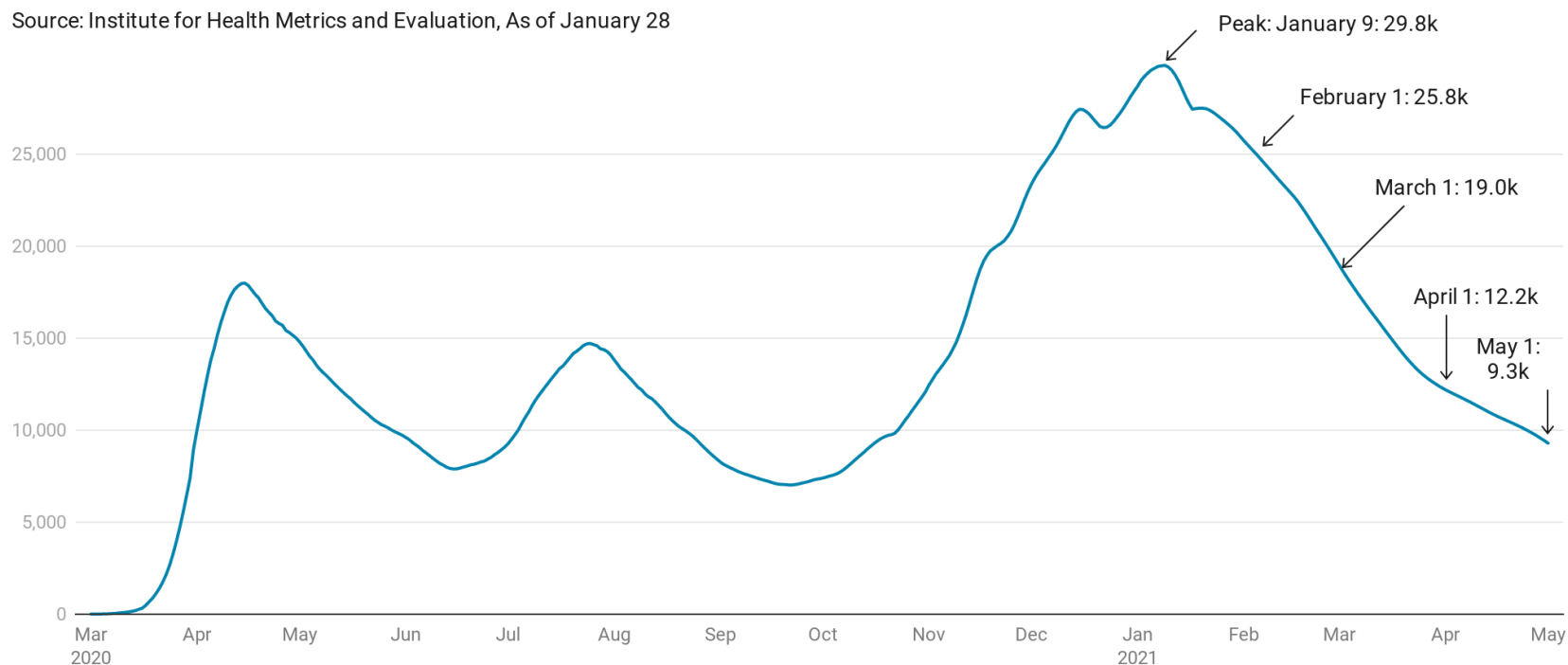


Chart: Health Industry Advisor LLC • Source: IHME • Created with Datawrapper

Covid-19 "Vital Signs"

Testing (US)

Test volume for the past seven days dropped from each of the prior three weeks. The test-positive rate, however, improved over the three preceding weeks. The improved test-positive rate strengthens the case that infections are declining

Tests / Million / Day (US)

As of January 31

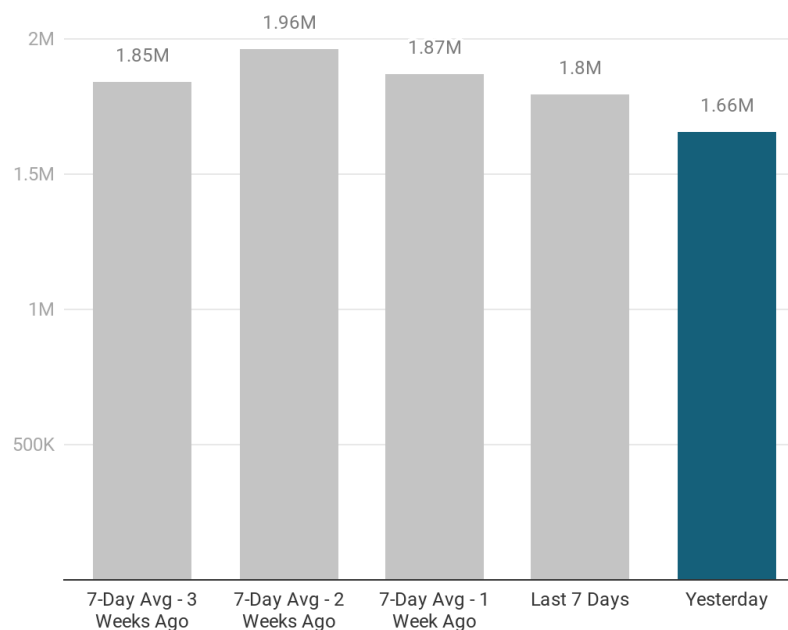


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Test-Positivity Rate

As of January 31

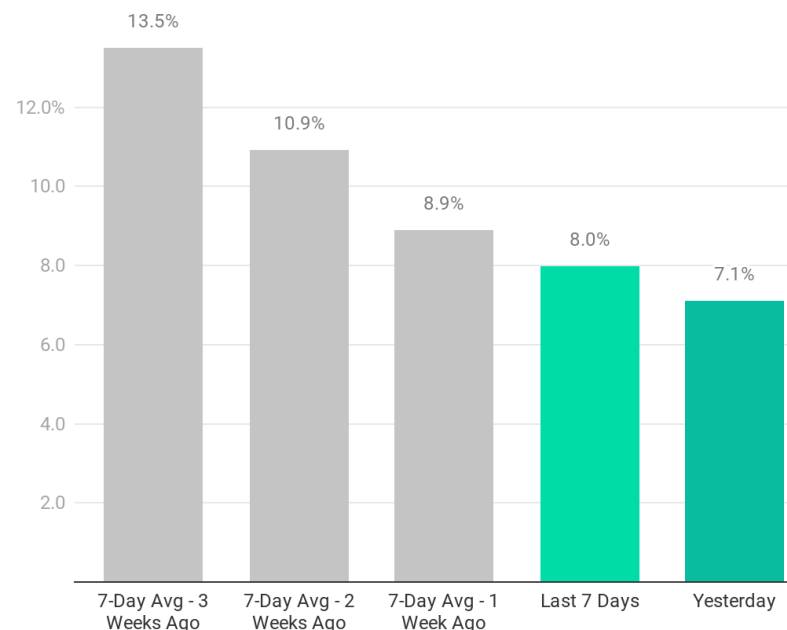


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Deaths Reported With Coronavirus

The 7-day average death rate remains tragically high, despite stabilizing over the past several weeks

Daily Deaths Reported With Coronavirus

As of January 31

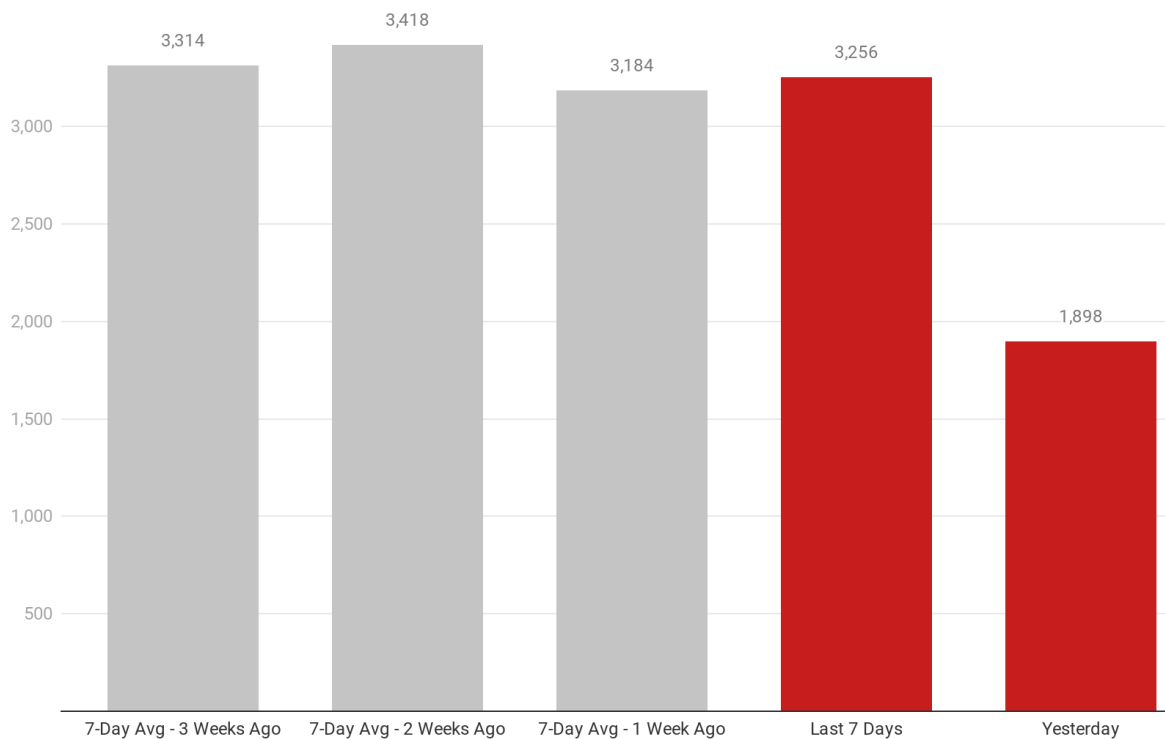


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

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://www.rti.com/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>