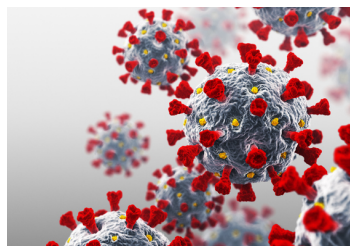


Covid-19 "Vital Signs"

Issue # 294

March 3, 2021



Covid-19 "Vital Signs"

Ensemble Forecasts Off Slightly Last Week

Last week's new cases and deaths were higher than the most recent ensemble forecast but, demonstrably lower than previous forecasts. Higher case count resulted from delayed reporting after the recent snowstorms and power outages. Also, several states revised death counts upward, reflecting the addition of prior deaths.

New Daily Infections

Viz Hub Forecasts and Actual Infections for Week of February 27

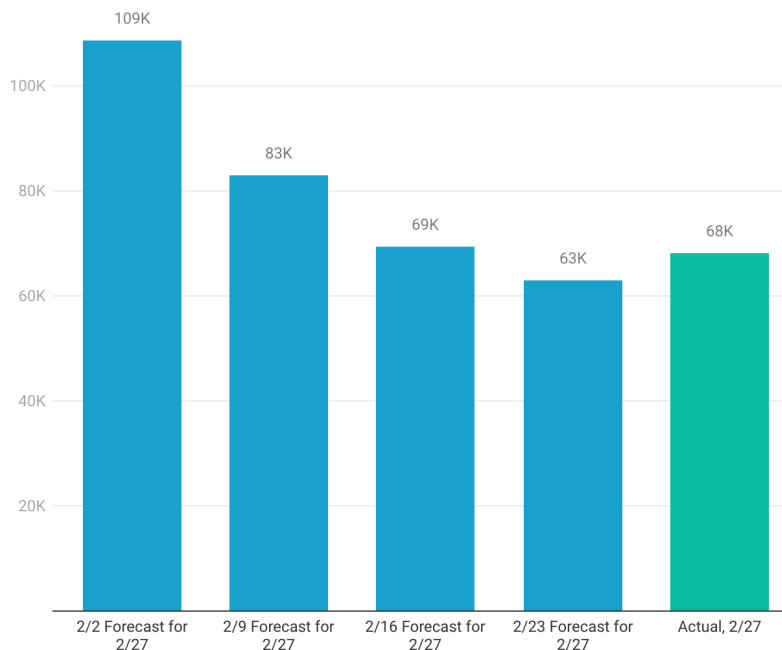


Chart: Health Industry Advisor LLC • Source: Covid-19 Forecast Hub • Created with Datawrapper

Daily Deaths

Viz Hub Forecasts and Actual Deaths for Week of February 27

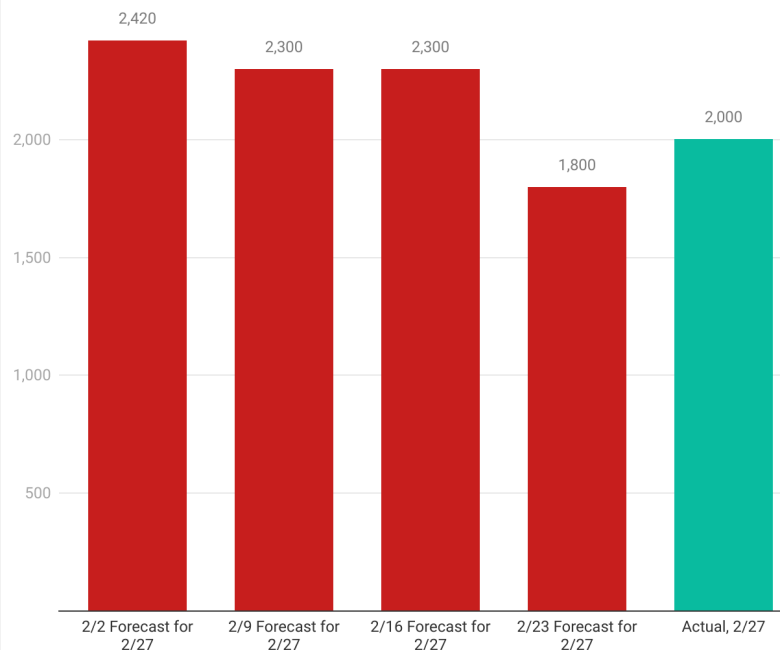


Chart: Health Industry Advisor LLC • Source: Covid-19 Forecast Hub • Created with Datawrapper

<https://viz.covid19forecasthub.org>

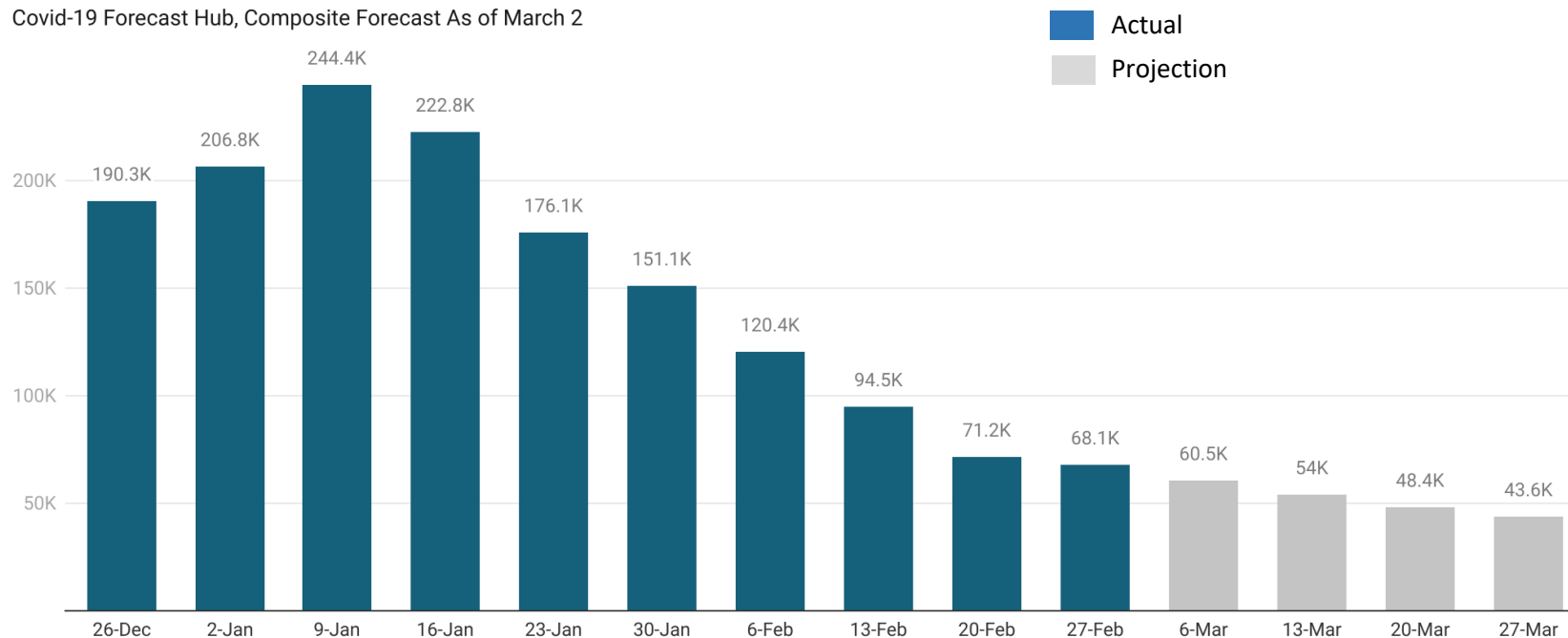
Covid-19 "Vital Signs"

Covid-19 Cases: Ensemble Forecast

The most recent ensemble forecast predicts a 34% drop in new daily cases by the end of March. By that point, new daily cases reach a twenty-three-week low.

Newly-Detected Cases Per Day

Covid-19 Forecast Hub, Composite Forecast As of March 2



For the week ending on the date shown

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

<https://viz.covid19forecasthub.org>

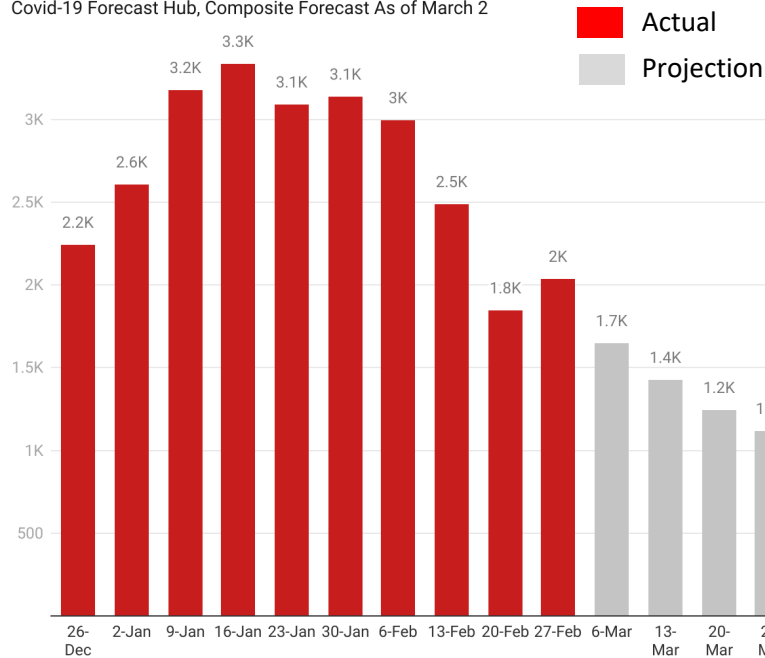
Covid-19 "Vital Signs"

Death Projections – Ensemble Forecast

Projected daily deaths fall each week of the forecast period; By the end of March, experts predict deaths will be one-third of what they were in mid-January. Projected deaths for the last week of March set a twenty-week low.

Newly-Reported Deaths Per Day

Covid-19 Forecast Hub, Composite Forecast As of March 2

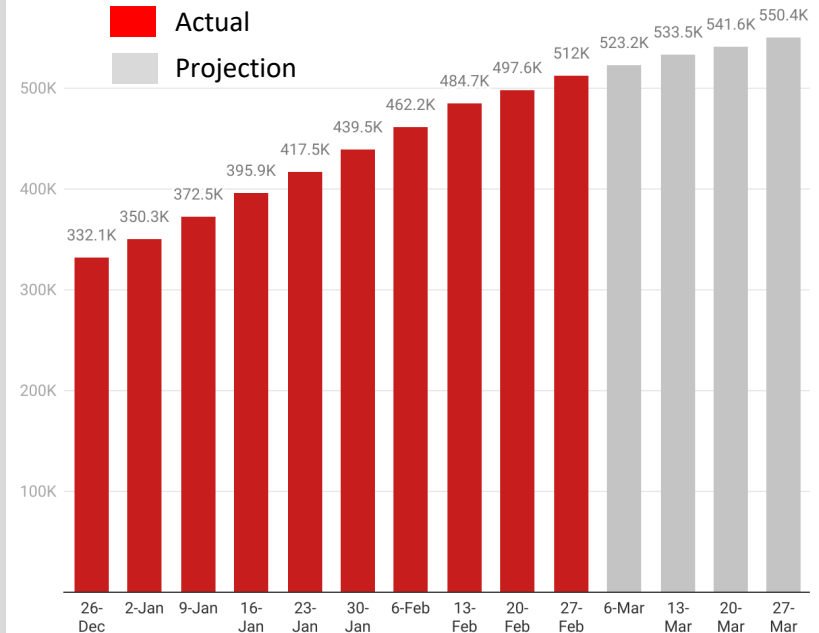


For the week ending on the date shown

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

Cumulative Deaths

Covid-19 Forecast Hub, Composite Forecast As of March 2



For the week ending on the date shown

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

<https://viz.covid19forecasthub.org>

Covid-19 "Vital Signs"

Estimated Infections IHME Projection

IHME lowered its estimated infection forecast for at least the third straight week. By April 8, projected infections fall to the lowest point of the pandemic and continue falling.

Estimated Infections

Institute for Health Metrics and Evaluation (IHME) Model, as of February 25

--- 2/4 Forecast - - - 2/12 Forecast ···· 2/20 Forecast — 2/25 Forecast

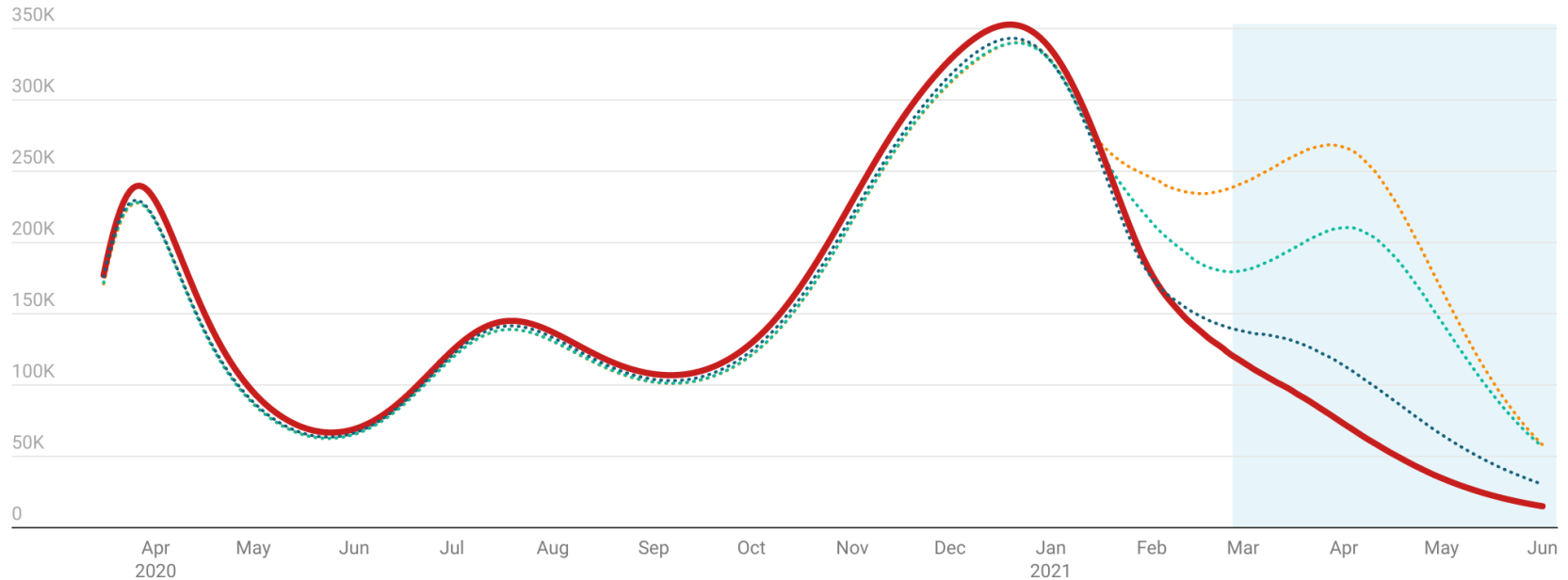


Chart: Health Industry Advisor LLC • Source: IHME • Created with Datawrapper

Covid-19 "Vital Signs"

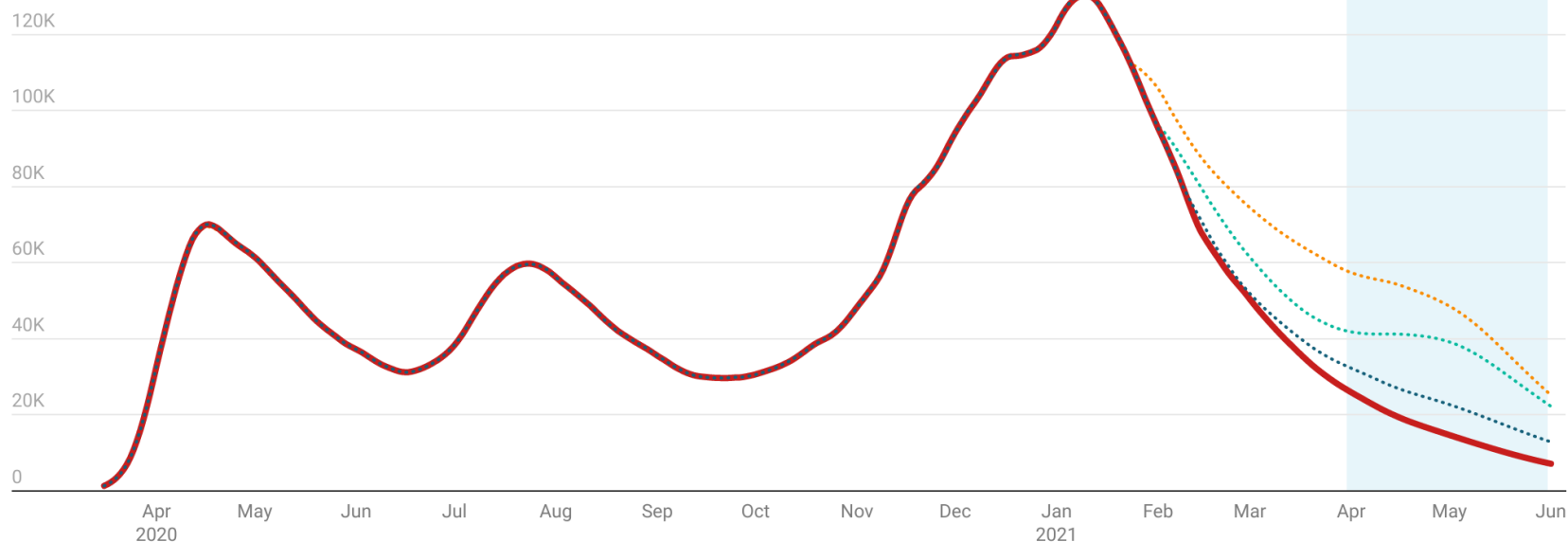
Covid-19 Inpatients – IHME Projections

Like its infection estimate, IHME lowered its Covid-19 hospitalization forecast from its three most-recent projections. By May 1, projected daily census is lower than it has been since March 26, 2020.

Covid-19 Inpatient Beds

Institute for Health Metrics and Evaluation (IHME) Model, as of February 25

--- 2/4 Estimate --- 2/12 Estimate --- 2/20 Estimate --- Column 2/25 Estimate



Dashed line reflects February 4th forecast

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

Covid-19 "Vital Signs"

Deaths With Covid-19: IHME Projection

Deaths with Covid-19 fell sharply last week from recent highs. IHME predicts deaths will continue falling through the end of May. By May projected daily deaths are lower than any time since March 27, 2020.

Covid-19 Deaths

Institute for Health Metrics and Evaluation, As of February 25

..... 2/4 Forecast 2/12 Forecast 2/20 Forecast — 2/25 Forecast



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

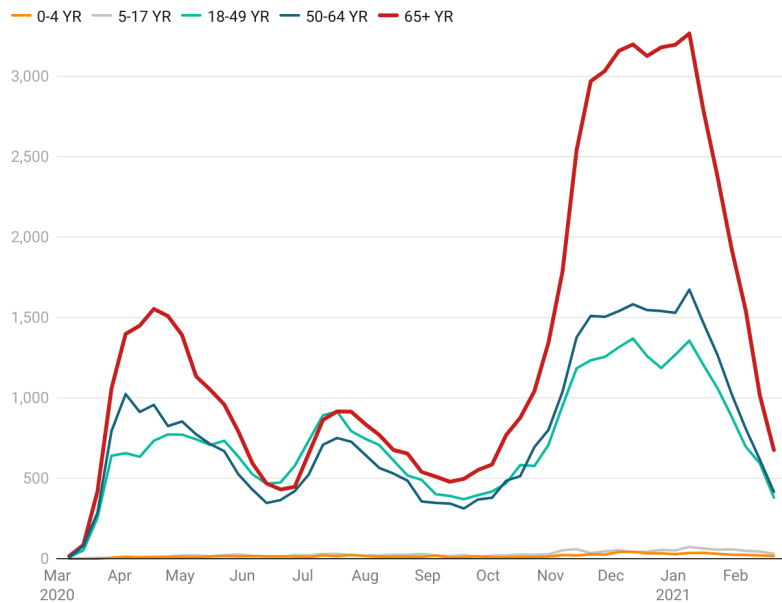
Covid-19 "Vital Signs"

Hospitalizations By Age Group

Senior citizens are driving the recent decline in Covid-19 hospitalizations. Although hospitalizations are declining across all age groups, the % of inpatient 65 and older dropped since the beginning of the year. It is likely too early for this to be caused by vaccinations.

Laboratory-Confirmed Covid-19 Associated Hospitalizations

Count By Age Group

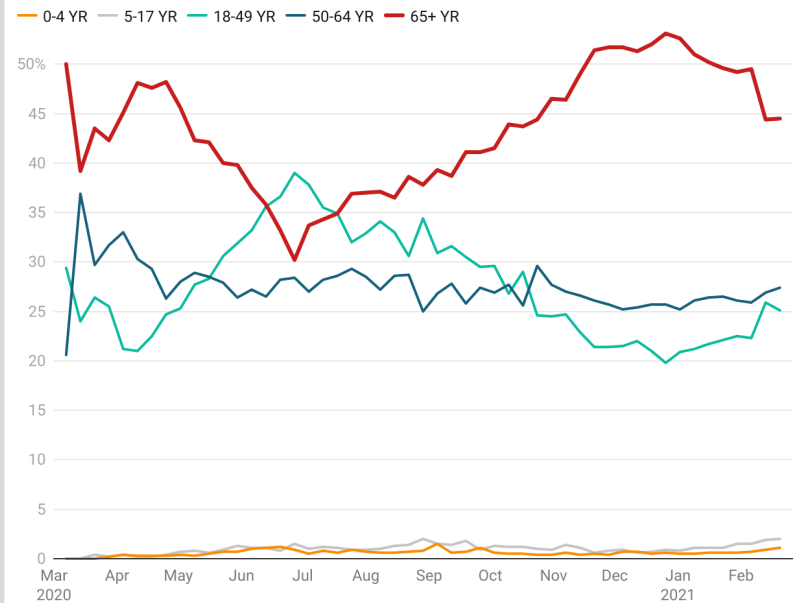


COVID-NET: COVID-19-Associated Hospitalization Surveillance Network, Centers for Disease Control and Prevention. https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html. Accessed on March 2, 2021

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

Laboratory-Confirmed Covid-19 Associated Hospitalizations

Percentage By Age Group



COVID-NET: COVID-19-Associated Hospitalization Surveillance Network, Centers for Disease Control and Prevention. https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html. Accessed on March 2, 2021

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

Covid-19 “Vital Signs”

Immunity: Projected v. Estimated

With better-than-anticipated vaccine rates, estimated immunity levels are outpacing our “Current Projection” model. We added an “Accelerated” Projection to address this, as well as recent announcements of faster vaccination rollout.

Estimated Immunity

Current Estimates v. HIA Projection

Estimated -Gu HIA Projection Model Estimated - Yale HIA Accelerated Projection

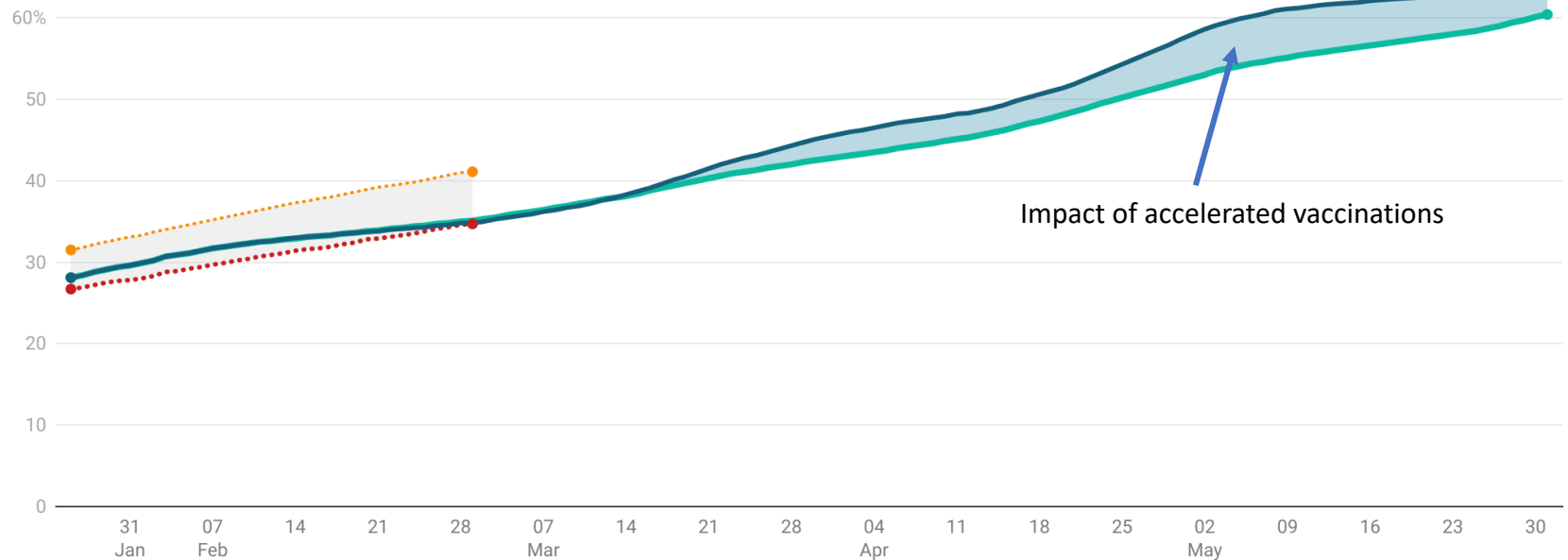
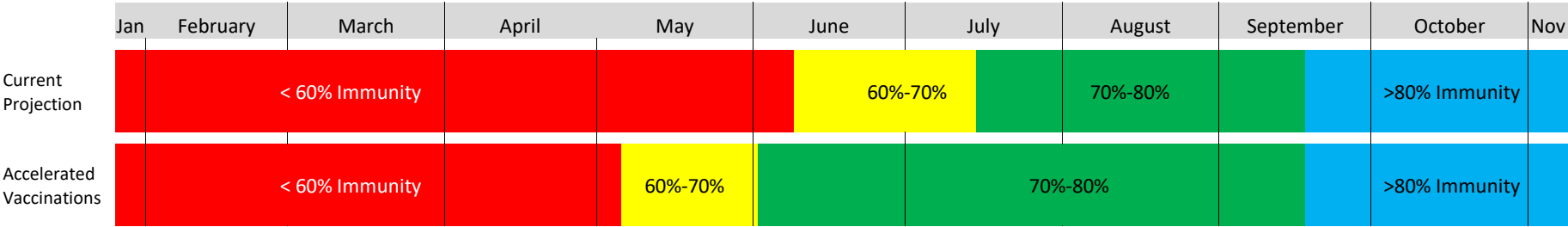


Chart: Health Industry Advisor LLC • Created with Datawrapper



Immunity Projections - Timeline

Our “Accelerated” Projection delivers 60% immunity by May 6th and 70% by June 2nd. The “Current” Projection model targeted June 9th for 60% immunity and July 15th for 70%.



For illustration purposes only. Timeline is highly-dependent on the underlying assumptions. Results will likely vary from these projections.

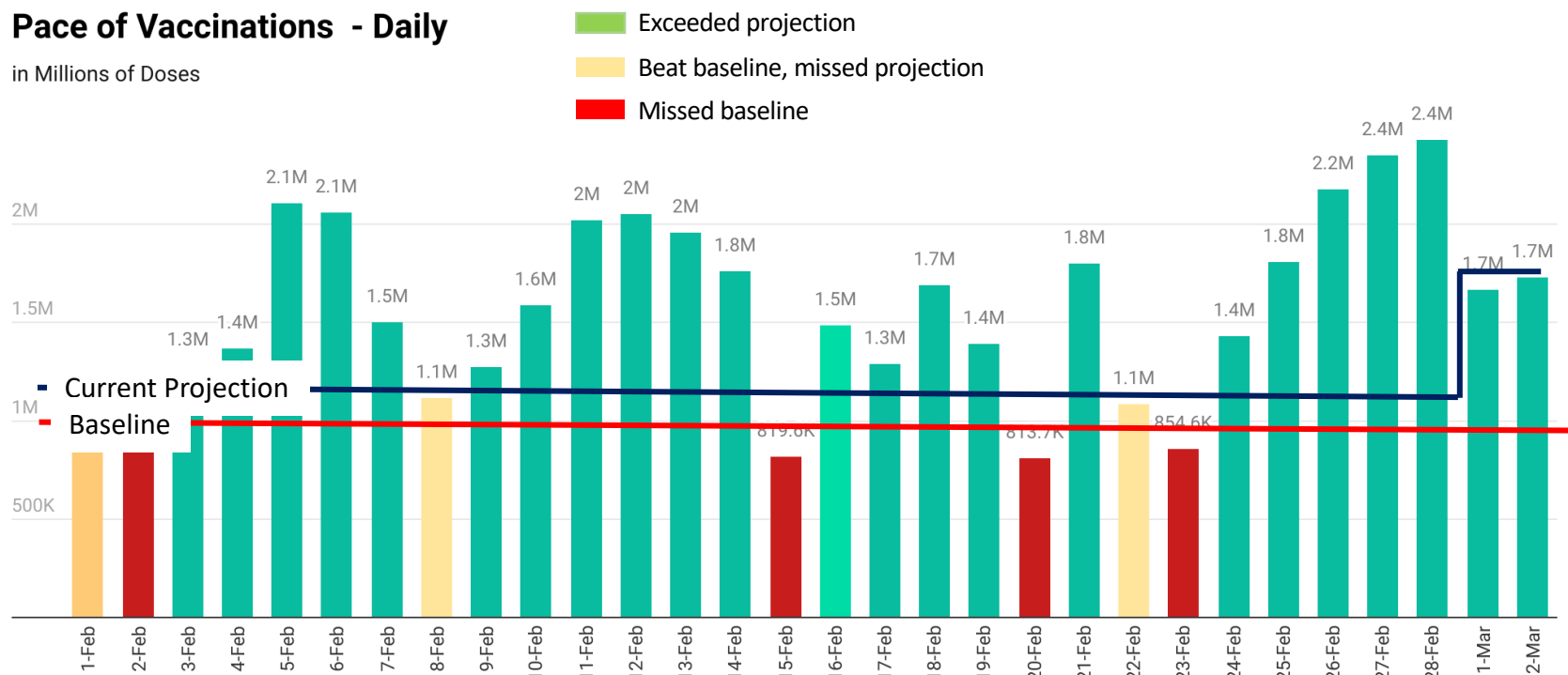
Covid-19 "Vital Signs"

Pace of Vaccinations

Vaccinations exceed earlier projections, even before the Johnson & Johnson vaccine is used.

Pace of Vaccinations - Daily

in Millions of Doses



Baseline: 100 Million Doses in 100 Days Current Projection: Ramped-Up Vaccinations; Additional 100M Pfizer and Moderna doses; and JNJ vaccine available on 3/1

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

“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



Vaccine Tracking

To date, the US has administered 78.6 million doses, with 25.9 million people jabbed twice. As of yesterday, more than 20% of U.S. adults have received at least one dose; more than 10% have received two.

Vaccination Progress

Most Recent Two Weeks

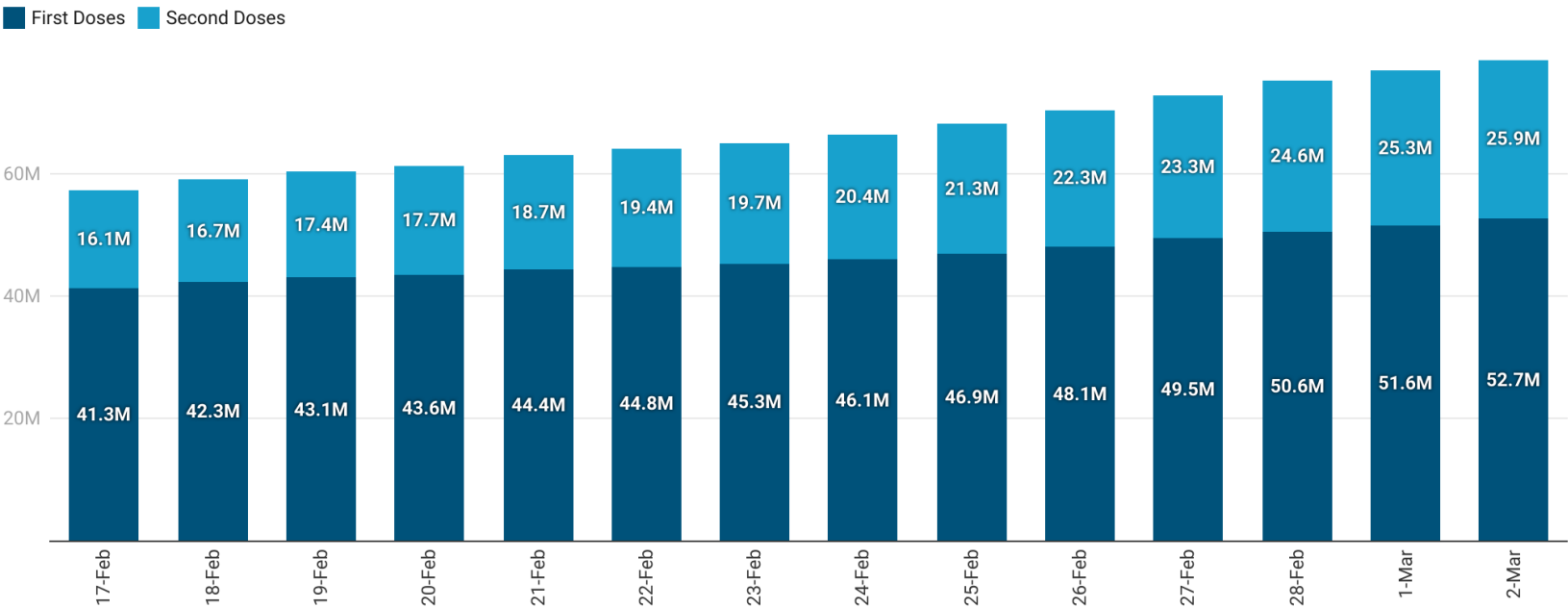


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

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

Vaccines Distributed v. Unused

Yesterday, the 100 millionth dose was distributed. As vaccine distribution increases, we have established a pipeline of unused doses for administration in the next several days..

% of Doses Distributed & % Unused - Cumulative

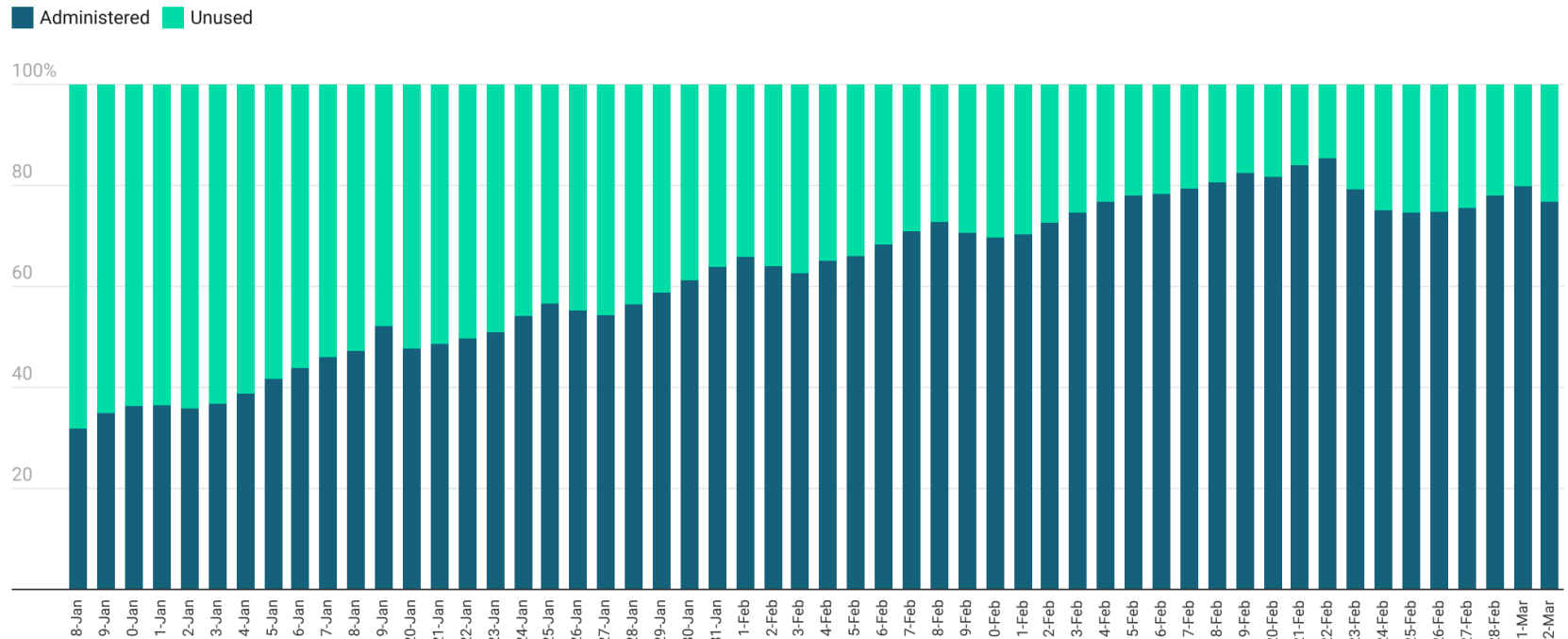


Chart: Health Industry Advisor LLC • Source: Bloomberg • Created with Datawrapper

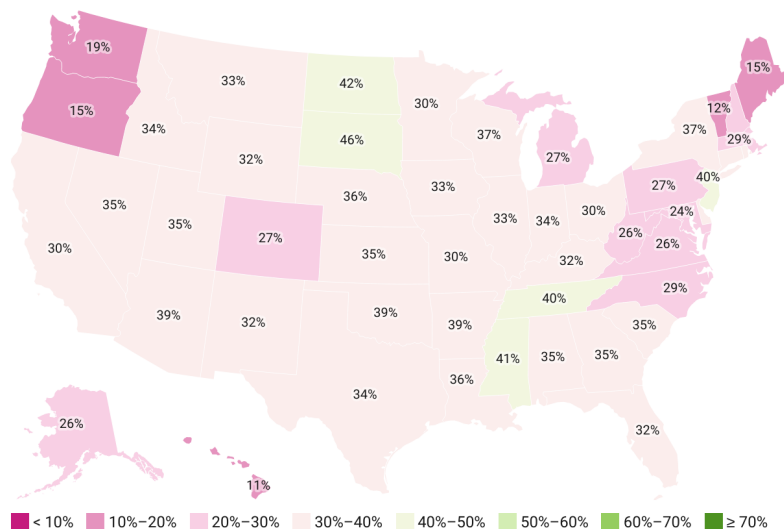
Alternative Views Of Immunity By State

Using Gu's model, estimated immunity exceeds 40% in Mississippi, North Dakota, South Dakota, and Tennessee. Using Yale/Harvard's estimate, estimated immunity exceeds 40% in Arizona, Arkansas, Louisiana, New Mexico, New Jersey, New York and Texas too.

Estimated immunity reflects estimated infections and vaccinations to-date. Immunity assumes a 14-day lag

Estimated Immunity Prevalence, As of February 16

Based on Vaccinations To-Date & Gu Estimated Infection Model

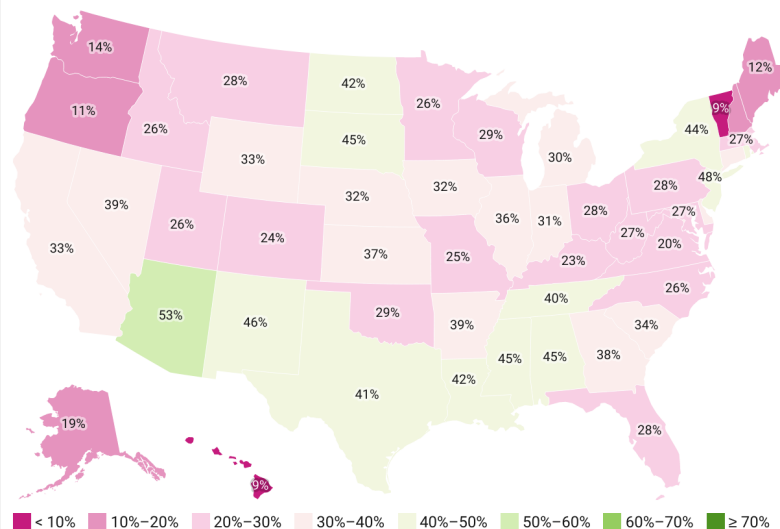


Presumed 14-day lag for immunity.

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

Estimated Immunity Prevalence, As of March 1

Based on Vaccinations To-Date & Harvard/Yale Estimated Infection Model



Presumed 14-day lag for immunity.

Map: Health Industry Advisor LLC • Source: Harvard/Yale Schools of Public Health • Created with Datawrapper

Estimated infections from: Youyang Gu: [Covid-19projections.com](https://covid19projections.com)

Estimated infections from Yale/Harvard : <https://covidestim.org>

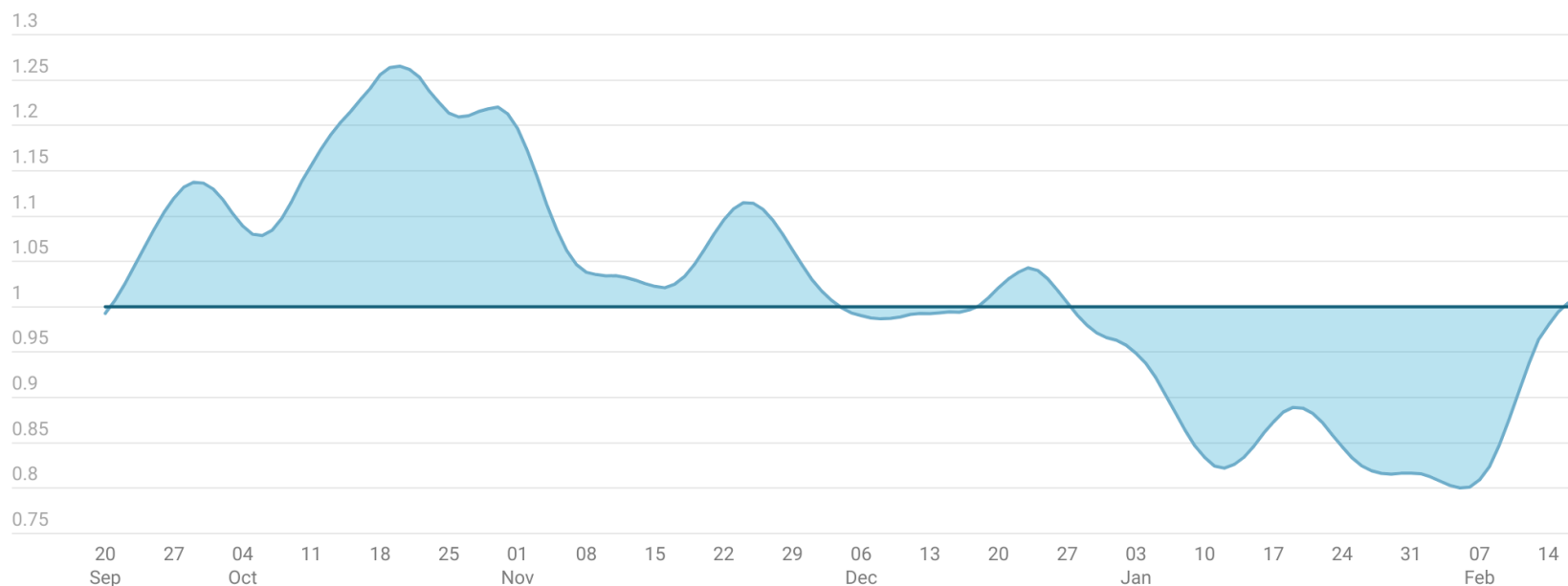
Reproduction Rate (R_t) – Gu* Model

Gu's R_t estimate breached the critical 1.0 level on February 16th, the first time since late-December.

Reproduction Rate (R_t) - US

*Youyang Gu: Covid-19projections.com

Youyang Gu Estimate, September 20, 2020 - February 16, 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"

Estimated Daily Infections & New Case Rates

Estimated new infections and reported cases are plunging in the US. The Yale/Harvard and Gu models suggests that infections have plummeted 70% since the beginning of the year. The 7-day new case rate fell for the fifth straight day, reaching its lowest point since October 23rd.

Estimated Daily Infections v. Detected Cases

Gu & Yale/Harvard Schools of Public Health Models

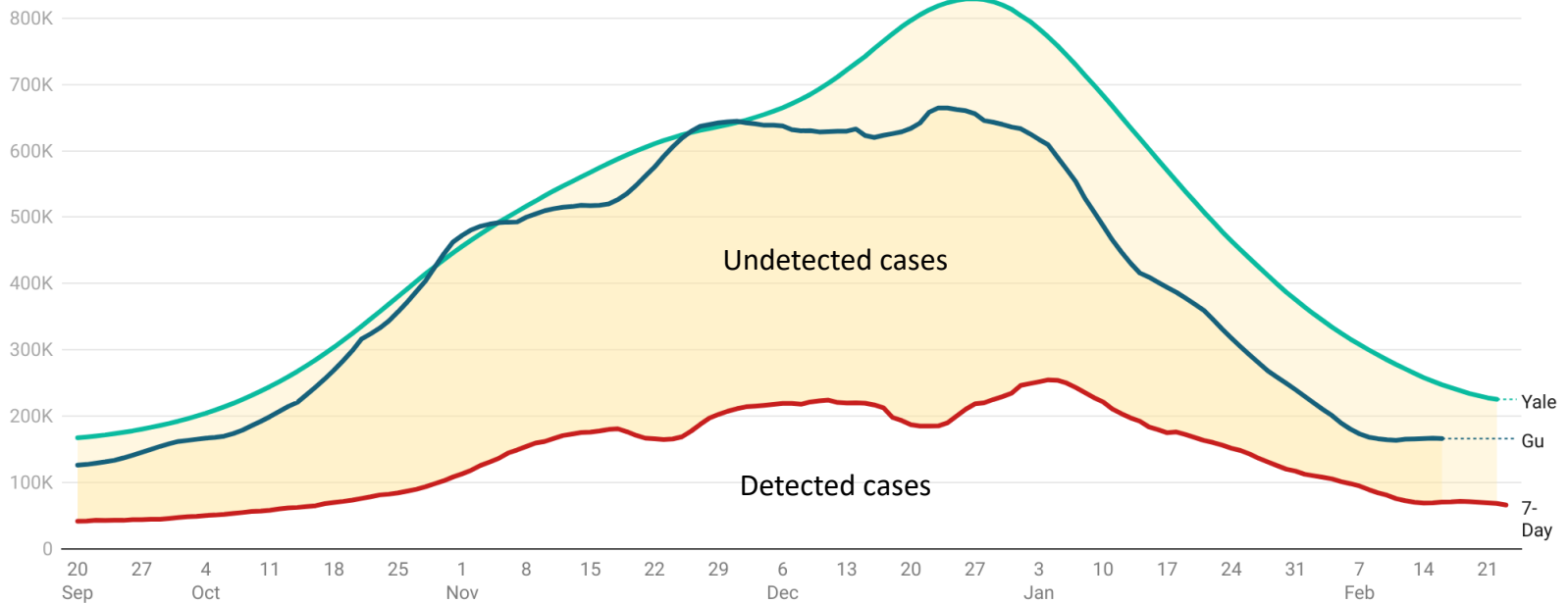


Chart: Health Industry Advisor LLC • Source: Youyang Gu, Yale School of Public Health • Created with Datawrapper

Two models:

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

Covid-19 "Vital Signs"

New Cases / Million

New daily case rates are lower than they were two weeks ago (prior to the impact of the snowstorm and power outages).

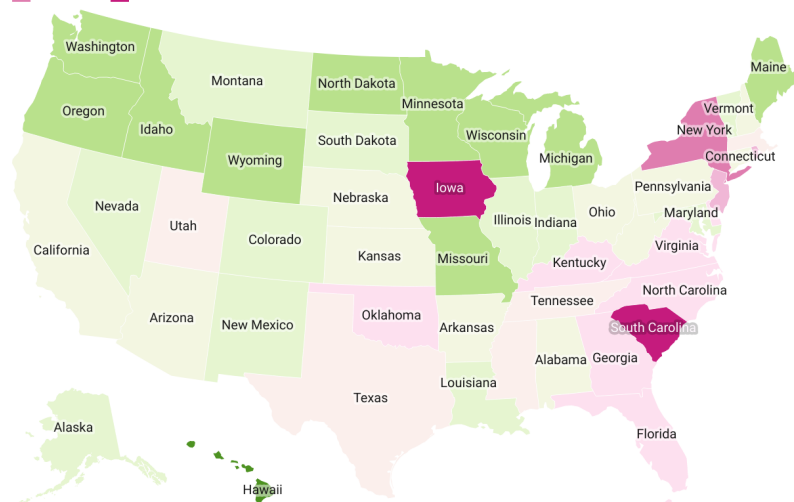
February 16

March 2

New Cases / Million

7-Day Moving Average, As of February 16

< 50 50-100 100-150 150-200 200-250 250-300 300-350 350-400
 400-450 ≥ 450

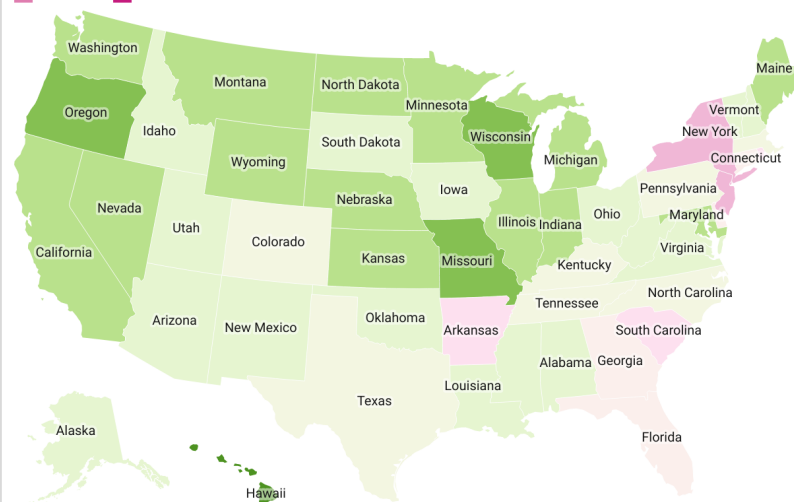


Map: Health Industry Advisor LLC • Created with Datawrapper

New Cases / Million

7-Day Moving Average, As of March 2

< 50 50-100 100-150 150-200 200-250 250-300 300-350 350-400
 400-450 ≥ 450



Map: Health Industry Advisor LLC • Created with Datawrapper

Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospital census plunged in the past two months. Covid-19 patients occupied under 15% of US beds yesterday versus 42% six weeks ago.

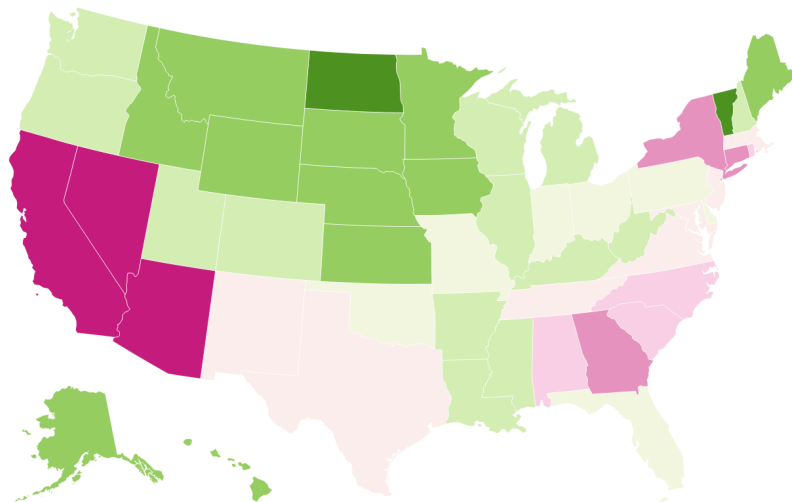
January 6

March 2

Covid-19 Patients As % of All Inpatient Beds

As of January 6

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

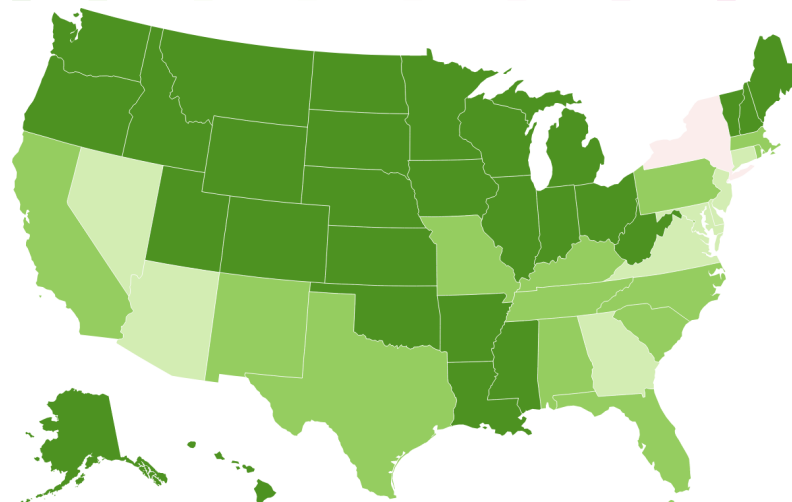


Map: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Covid-19 Patients As % of All Inpatient Beds

As of March 2

■ < 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"

Newly Detected Cases Per Day

In the US, 7-day new case rates dropped during each of the past three weeks, plunging 40% during that time. Outside the US, rates increased over the past two weeks, however, led by increases in Brazil, India, Czechia, France, Italy, Hungary, Jordan, and Turkey.

Newly Detected Cases

As of March 2

United States Outside the US

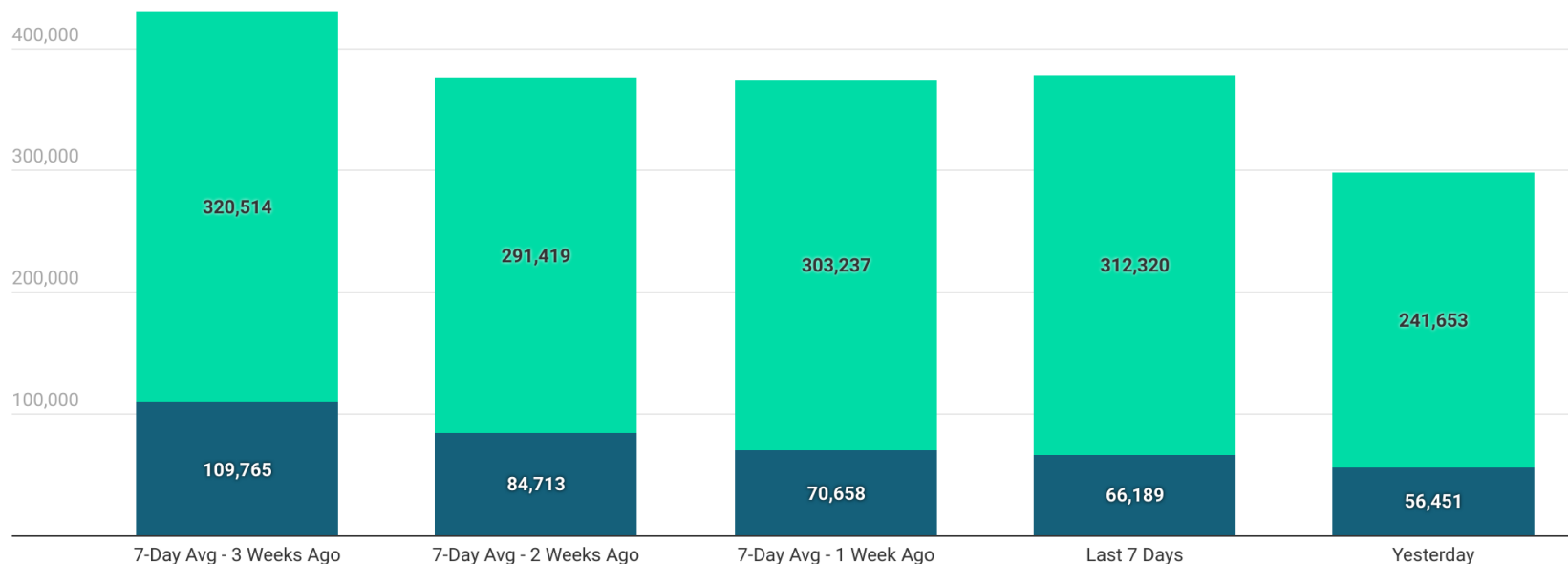


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospitalizations plunged over the past month, with 86,000 fewer patients yesterday than on January 6 (65% decline). ICU and ventilator days declined each of the past three weeks.

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of March 2

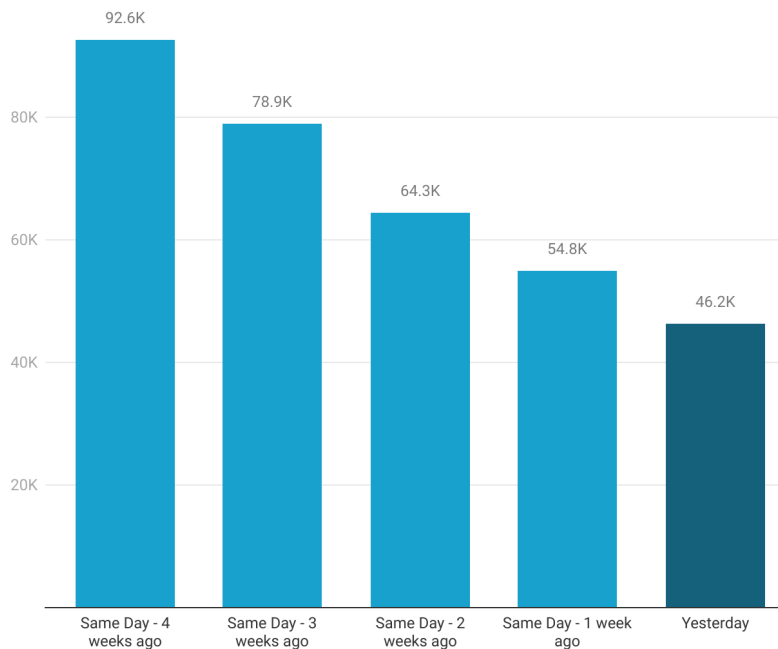


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 Patients in the ICU

Compared to Same Day, Prior Weeks, As of February 28

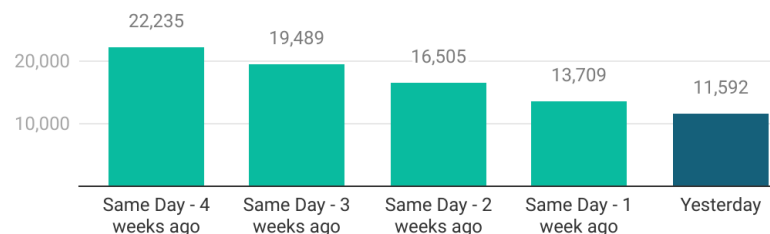


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 Patients on Ventilators

Compared to Same Day, Prior Weeks, As of March 2

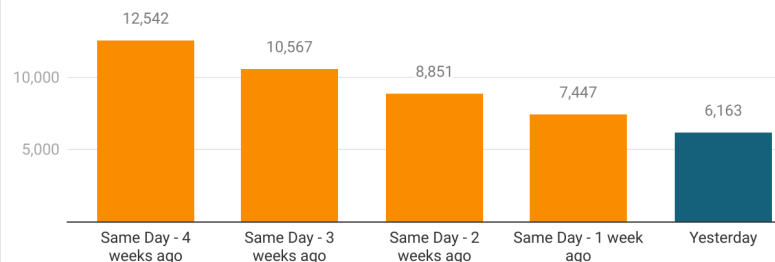


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Testing (US)

Test volume increased week-over-week, reversing recent trends. Test-positivity improved over the three preceding weeks, reaching a nineteen-week low.

Tests / Million / Day (US)

As of February 28

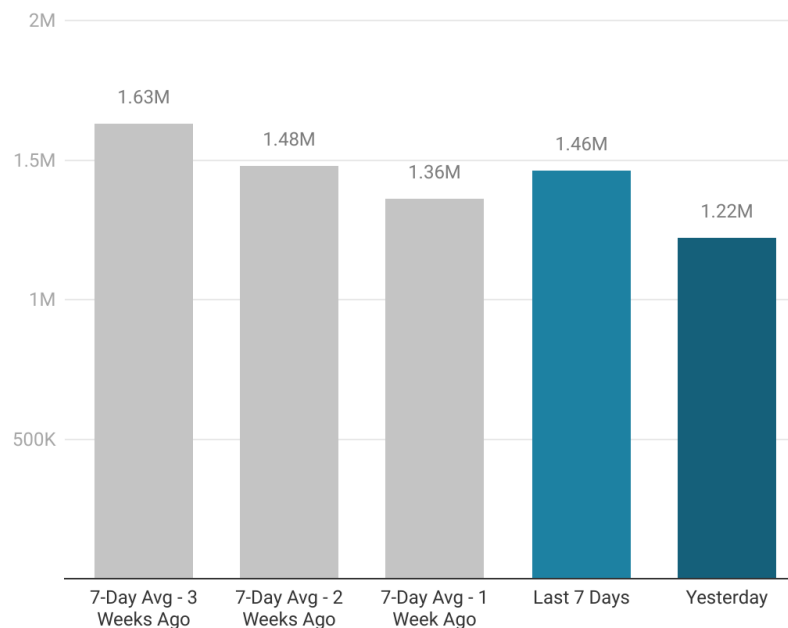


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Test-Positivity Rate

As of March 2

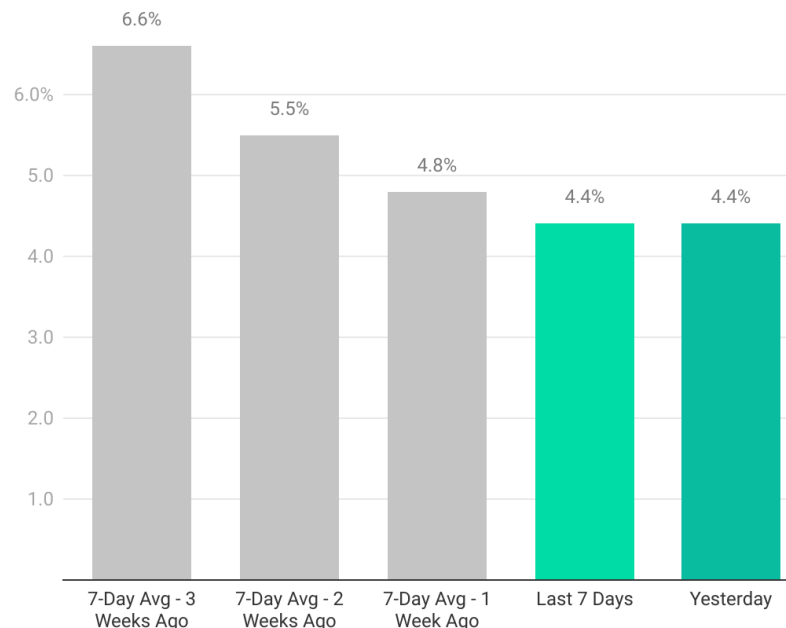


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Deaths Reported With Coronavirus

The 7-day average death rate fell 10% from last week. This rate is fallen more than 35% in three weeks and is now lower than its has been since the beginning of December.

Daily Deaths Reported With Coronavirus

As of March 2

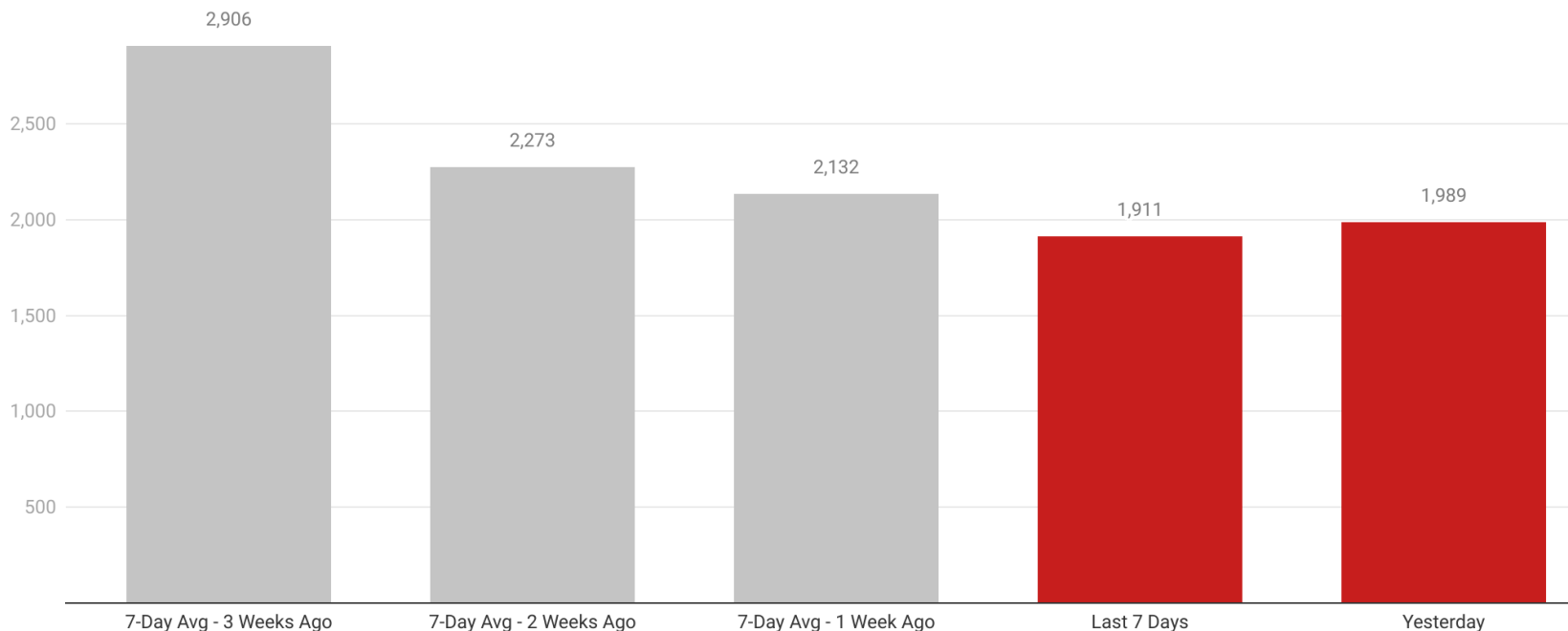


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

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>