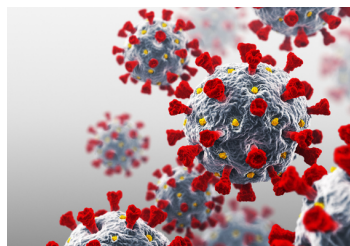


Covid-19 Report

Issue # 259

January 13, 2021



Covid-19 Highlights

Vaccines and Immunity

- **We need to achieve a run-rate of at least 1 million doses administered per day in the US; we are averaging fewer than 750,000.**
- The vaccination challenge notwithstanding, we may have reached a milestone yesterday, on the path to herd immunity: with the number of Americans vaccinated to-date and the estimated true infections (under both the Gu and Yale School of Public Health models), **25% of Americans may have immunity from the virus.**

Cases and Death Projections

- Every Tuesday, the Covid Hub Tracker provides an updated "ensemble" forecast of cases and deaths with Covid-19 for the current and upcoming 3 weeks. This ensemble forecast encompasses the models from more than 50 universities and research organizations
- **This week's forecast has new cases running about 20% higher than what was forecasted just last week; however, it also indicates new cases rising more slowly or even declining somewhat week-over-week for the next few weeks**
- **The new forecast for deaths is also significantly higher than last week's forecast; nevertheless, deaths are projected to decline this week from last then, increase slowly for the next three weeks**

Hospitalizations and Healthcare Resource Use

- **For the first time in a while, the Covid-19 hospitalizations declined on a week-over-week basis.** As we have been sharing in this report, these hospitalizations declined several times day-over-day during the past week

- **The stress of Covid-19 patients on the healthcare system is not uniformly shared across the country; Arizona, California, Connecticut, Georgia, New York and Nevada report Covid-19 hospital occupancy significantly higher than many other states**
- The % of Covid-19 patients requiring intensive care has been declining for the past several weeks; the % requiring ventilator care has been stable during this time
- Flu visits to the ER remain very low, especially given how deep we are into the flu season. In most years, hospital stays with flu-related conditions occupy large portions of our hospital capacity. With the high Covid-19 load, this relief is welcome

New Case Rates

- **The 7-day average new case rate in the US has been showing signs of leveling-off in recent days and, declined slightly yesterday**
- **Gu's model indicates that the reproduction rate (R_t) declined for the most recent eight consecutive days reported** (the model's design works back 14 days to estimate R_t and infections; thus, the latest available date is December 29)
- Similarly, **Gu's model shows daily growth in new infections slowing around the Christmas holiday and declining on December 29**
- The Yale model suggests a far bleaker picture: this model shows new infections rising sharply day-over-day and now exceeding 1 million new infections per day

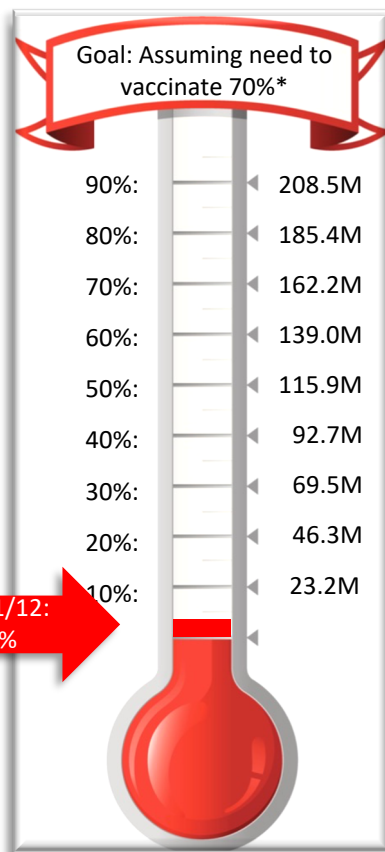
Testing

- Test volumes continue rebounding to per-holiday levels; **as test volumes improve, the test-positive rate is now receding - yet remains higher than public health officials advocate**

Covid-19

Vaccine Tracking

Sufficient doses have been distributed to the states to administer one dose to nearly all the Phase 1a target population; However, only 36% of these doses have been administered. At this point, vaccinations are only about 50% of the initial Phase 1a target



Vaccination: Phase 1a Progress

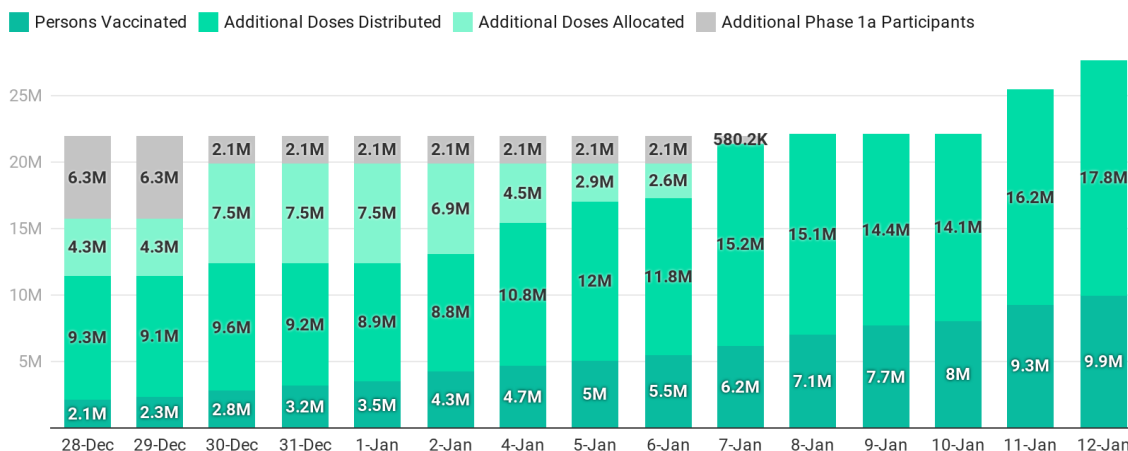


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

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/health/vaccine-tracker/)

Covid-19

Road To Herd Immunity

More than 25% of Americans may now have immunity, either via infection of vaccination; In 13 states, this may be >30% - AR, AZ, ID, MS, ND, NE, NJ, NY, OK, RI, SD, TN and WI

Road to Herd Immunity

Infection & Vaccine (First Dose) Prevalence, As of January 12

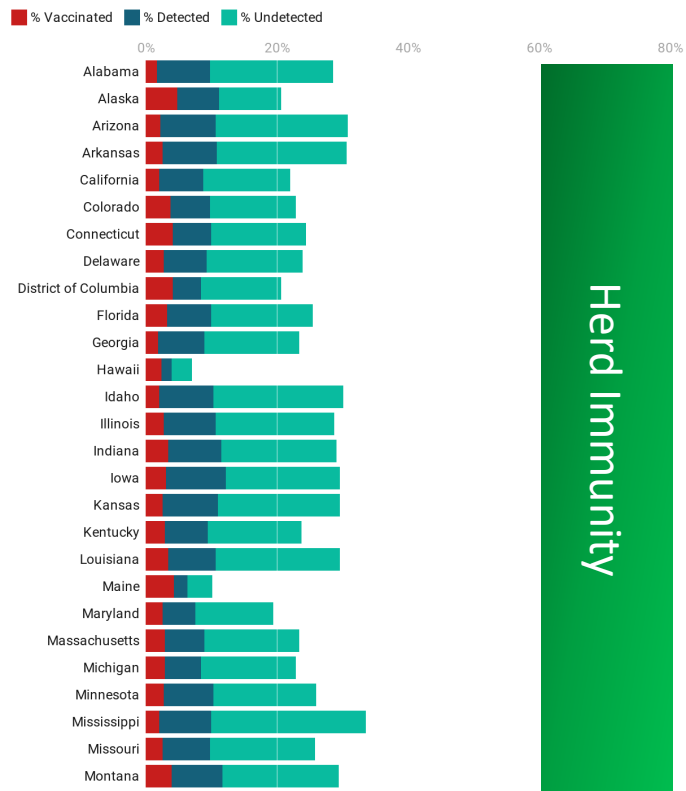


Chart: Health Industry Advisor LLC • Source: Youyang Gu; Bloomberg • Created with Datawrapper

Road to Herd Immunity

Infection & Vaccine (First Dose) Prevalence, As of January 12

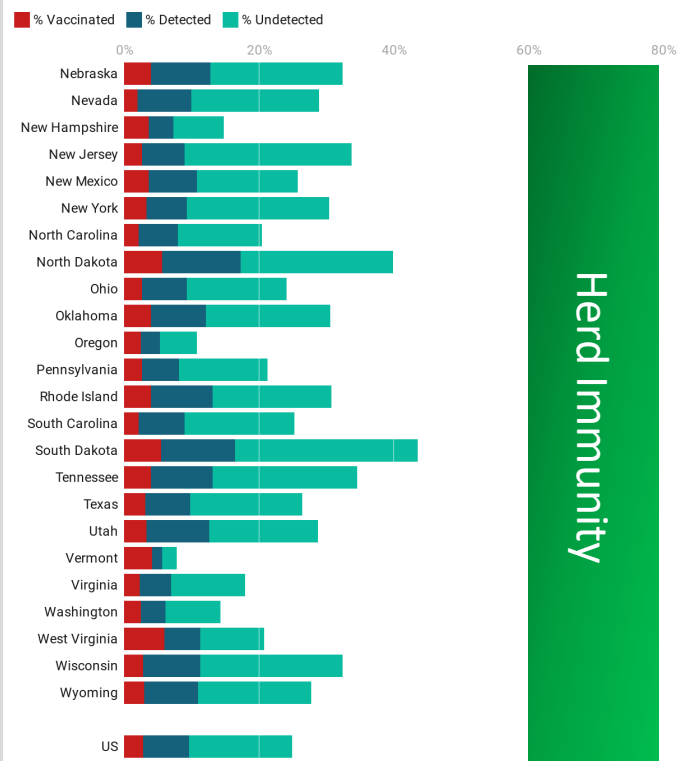


Chart: Health Industry Advisor LLC • Source: Youyang Gu; Bloomberg • Created with Datawrapper

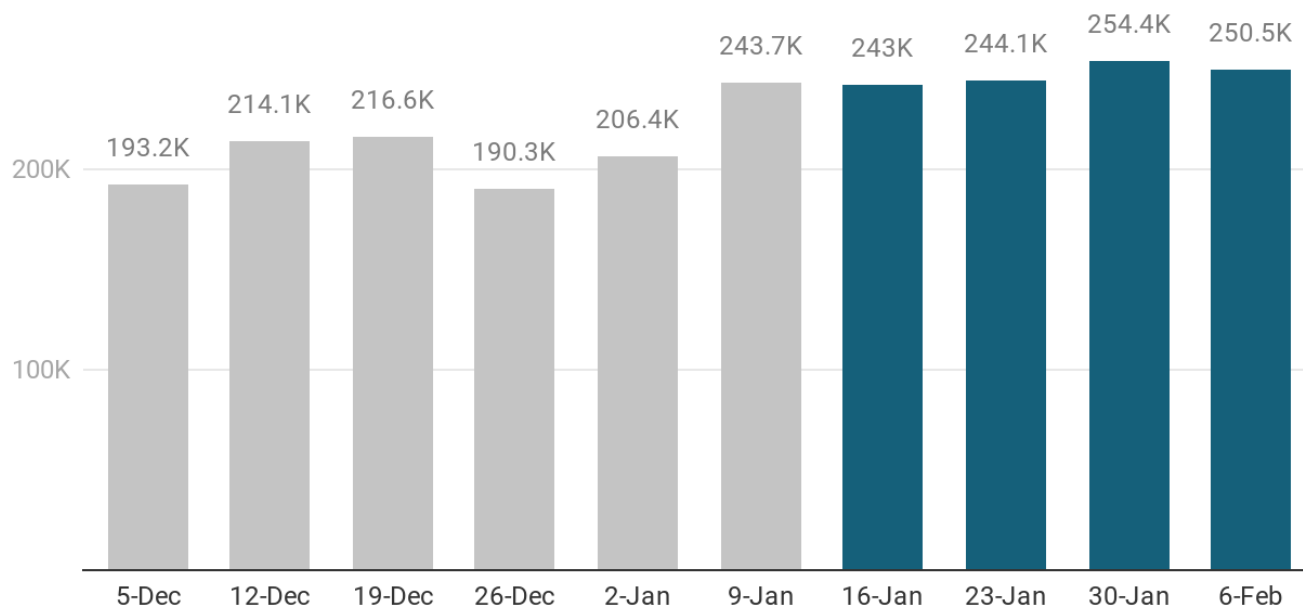
Covid-19

Covid-19 Cases (Ensemble Forecast - US)

These forecasts are about 20% higher than those made a week ago; still, new cases are projected to increase more slowly or even stabilize in January

Newly-Detected Cases Per Day

Covid-19 Forecast Hub, Composite Forecast As of January 9



For the week ending on the date shown

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

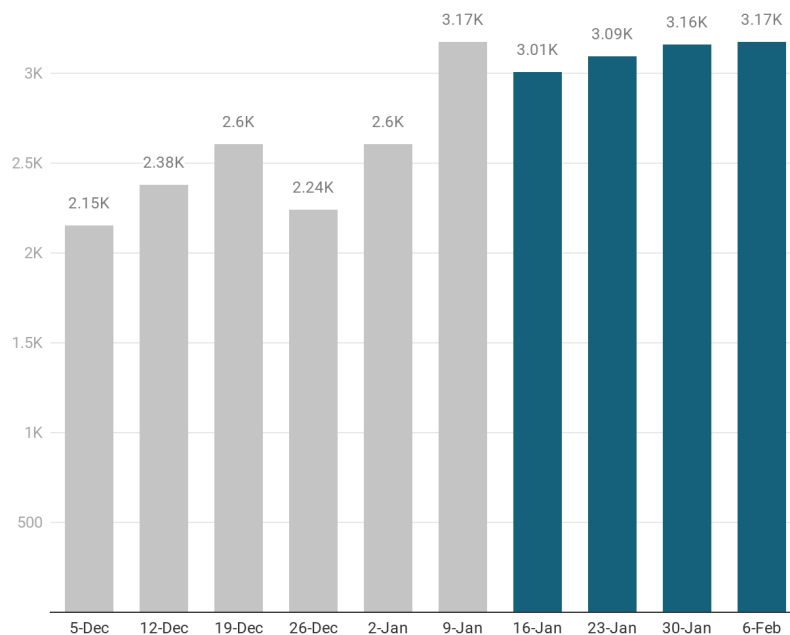
Covid-19

Death Projections (US)

Deaths with coronavirus are projected to be lower this week than last, then increase week-to-week into February; Cumulative deaths are projected to surpass 400k in two weeks

Newly-Reported Deaths Per Day

Covid-19 Forecast Hub, Composite Forecast As of January 9

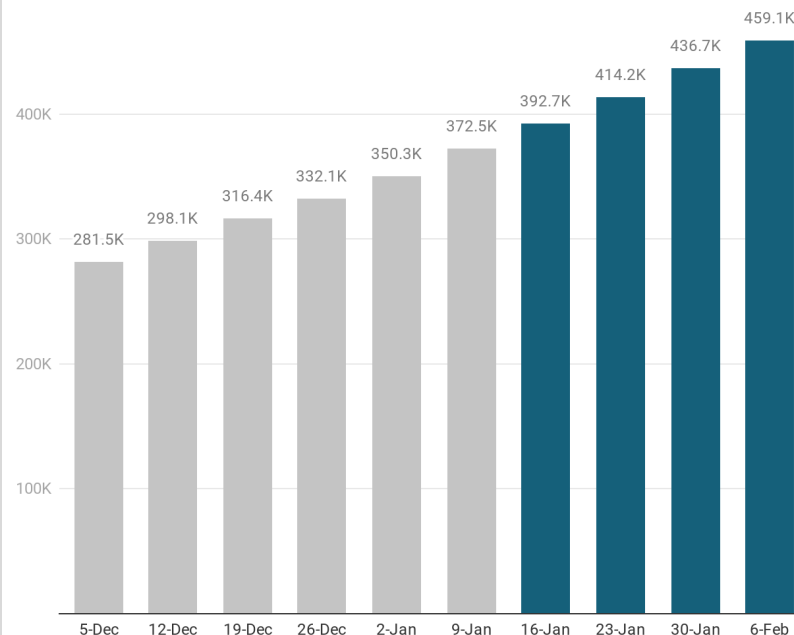


For the week ending on the date shown

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

Cumulative Deaths

Covid-19 Forecast Hub, Composite Forecast As of January 9



For the week ending on the date shown

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

Covid-19

Deaths Reported With Coronavirus

Tragically, yesterday and indeed the past week, brought the highest number of deaths reported with coronavirus that we have experienced since the onset of the pandemic

Daily Deaths Reported With Coronavirus

As of January 12

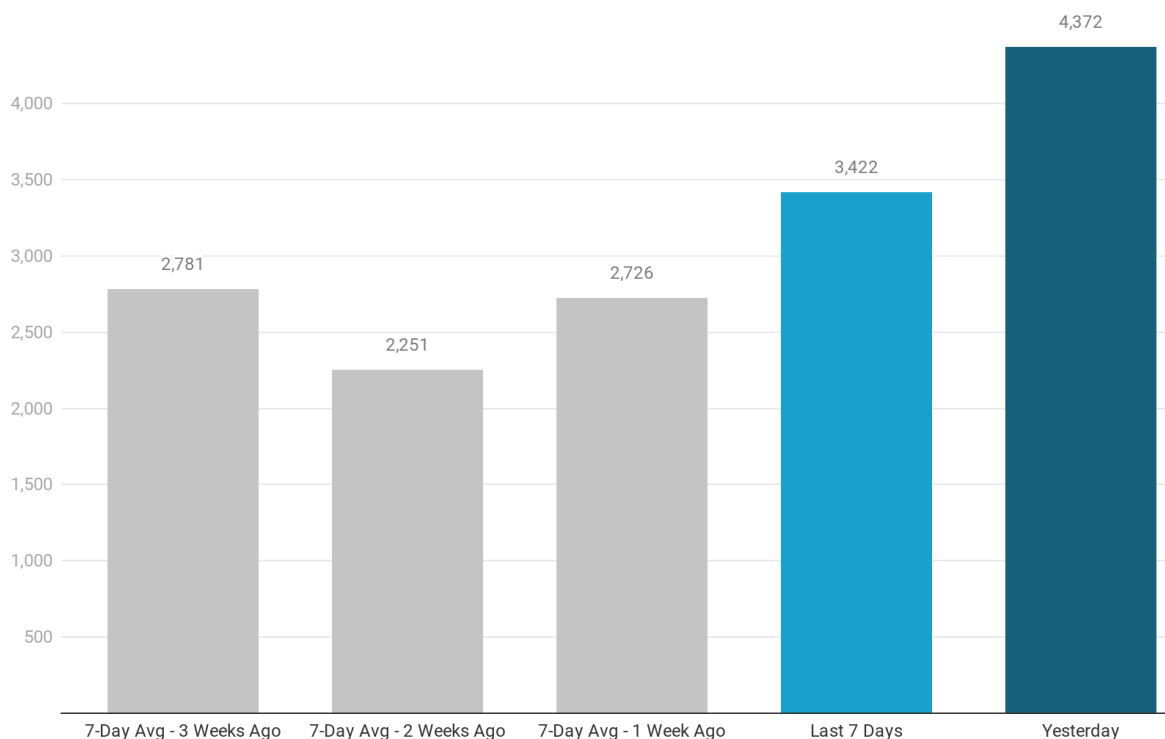


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 Hospitalizations

Covid-19

Breaking a string of week-over-week increases, Covid-19 hospitalizations declined slightly over the past week. The % of these patients requiring ICU care has diminished; the % on ventilators has been stable

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 12

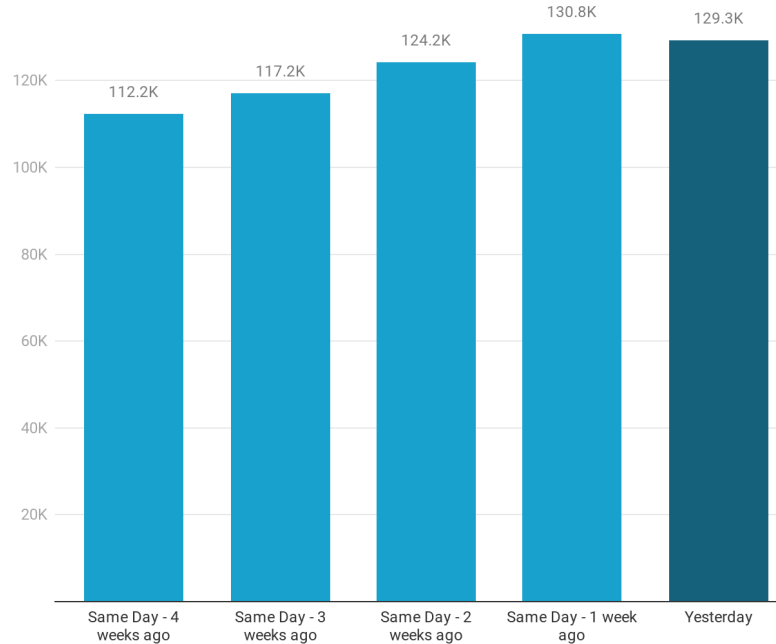


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% in ICU - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 12

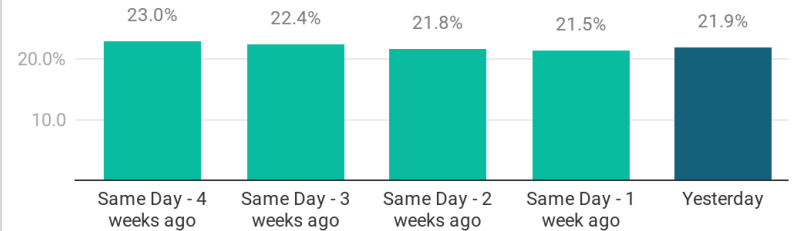


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

% on Ventilators - Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of January 12

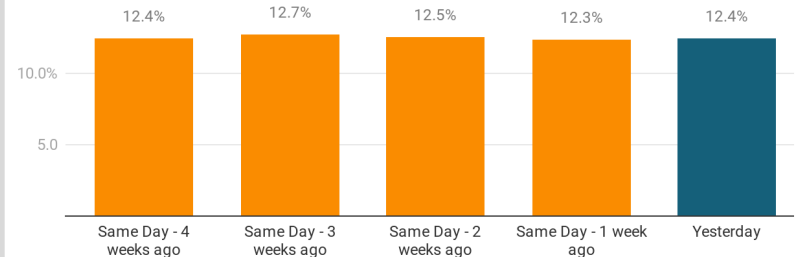


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

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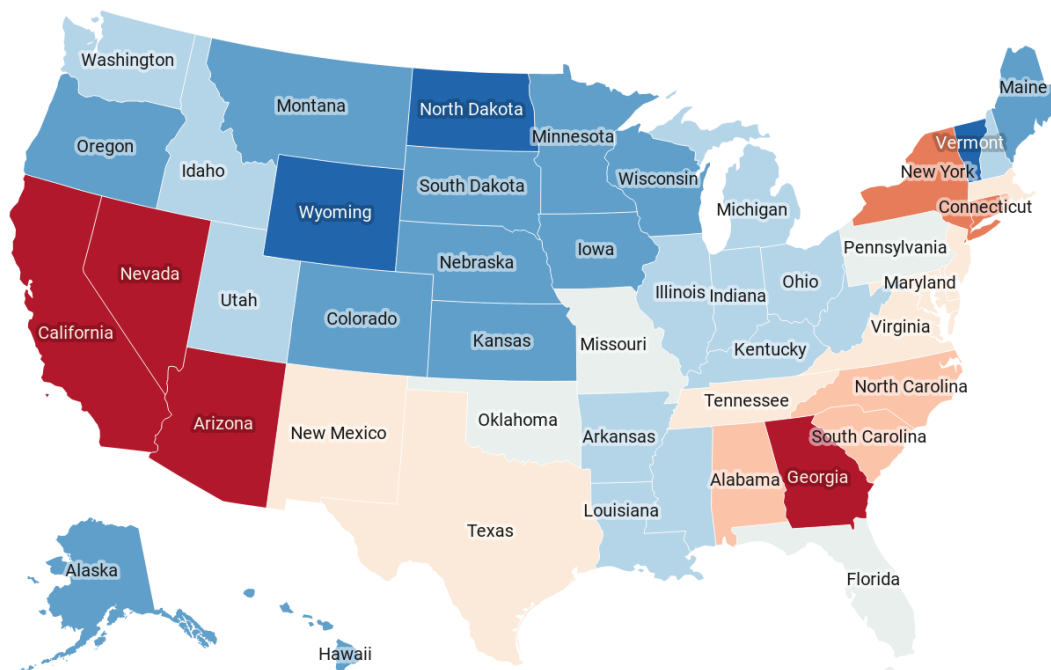
Covid-19 Inpatient Occupancy

Greatest strain on hospital beds continues to be in Arizona, California and Nevada and now Georgia; Situation is also a concern in Connecticut and New York

Covid-19 Patients As % of All Inpatient Beds

As of January 12

< 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

% of ER Visits For Respiratory Illnesses

Visits for Covid-19 like illnesses increased throughout November and December; recent declines may be owing to reporting delays. Visits for influenza remain low, particularly for this point 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 January 9

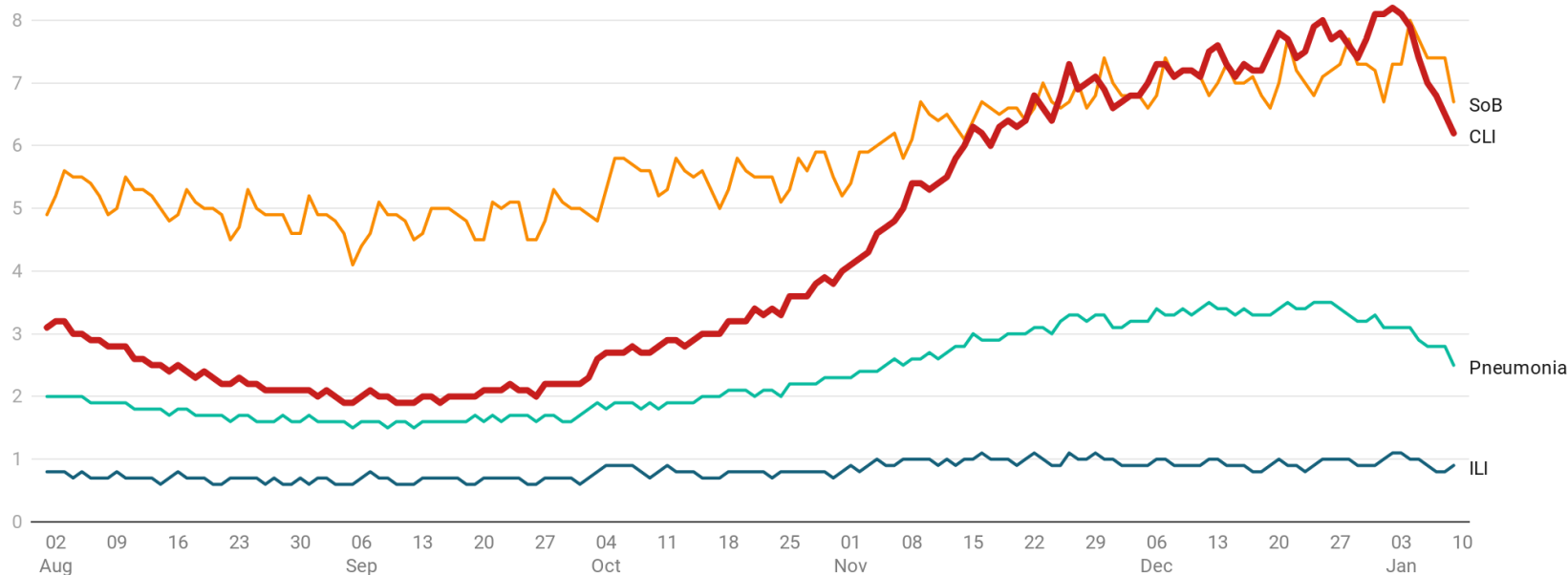


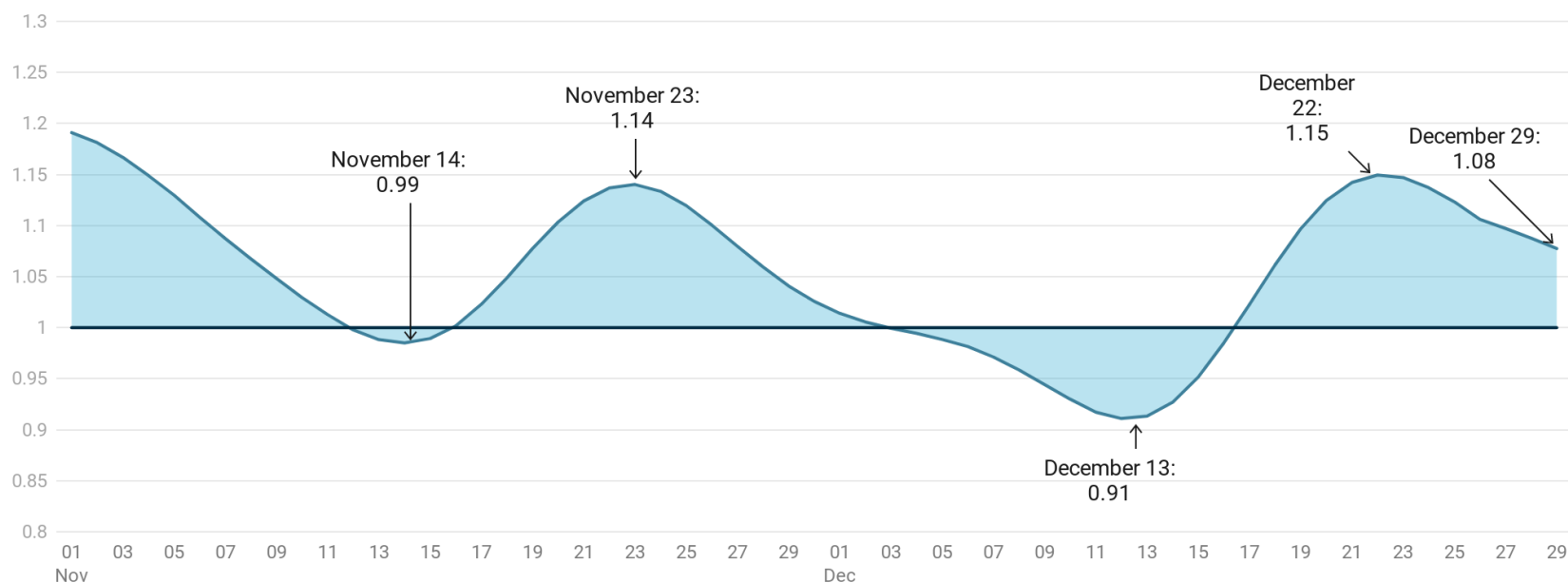
Chart: Health Industry Advisor LLC • Source: CDC • Created with Datawrapper

Reproduction Rate (R_t) – Gu* Model

Gu's estimate of R_t reached an intermediate peak on December 22 before declining the next 7 days; it remains >1

Reproduction Rate (R_t) - U.S.

Youyang Gu Estimate, November 1 - December 29



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

Two Models of Estimated Daily Infections

Models from both Youyang Gu and the Yale School of Public Health suggests that actual infections are at all-time highs. The Yale model suggests that new infections are accelerating and now exceed 1M per day; Gu's model estimates that infection declined slightly on December 29

- 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

Gu & Yale School of Public Health Models

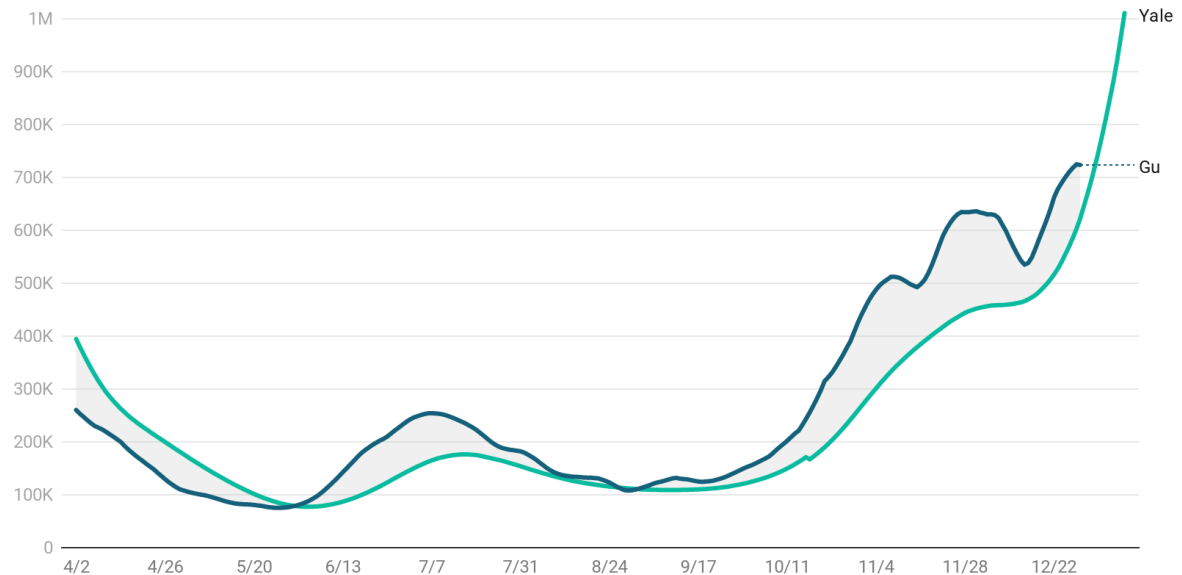


Chart: Health Industry Advisor LLC • Source: Youyang Gu, Yale School of Public Health • Created with Datawrapper

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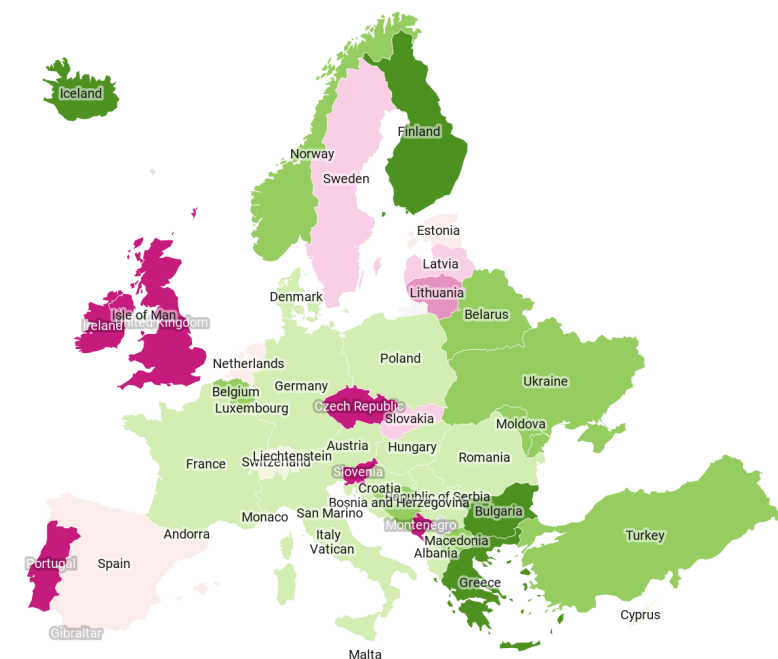
Newly Detected Cases Per Million

Case rates remain high in Czechia, Ireland, Israel, Montenegro, Portugal, Slovenia Sweden and the UK; Rates continue to increase in Israel and Portugal, while they are showing signs of receding in Ireland, Sweden and the UK

New Daily Infections / Million - Europe

7-Day Moving Average, As of January 12

Legend: < 100, 100-200, 200-300, 300-400, 400-500, 500-600, 600-700, ≥ 700



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

Newly Detected Cases Per Million

7-Day Moving Average

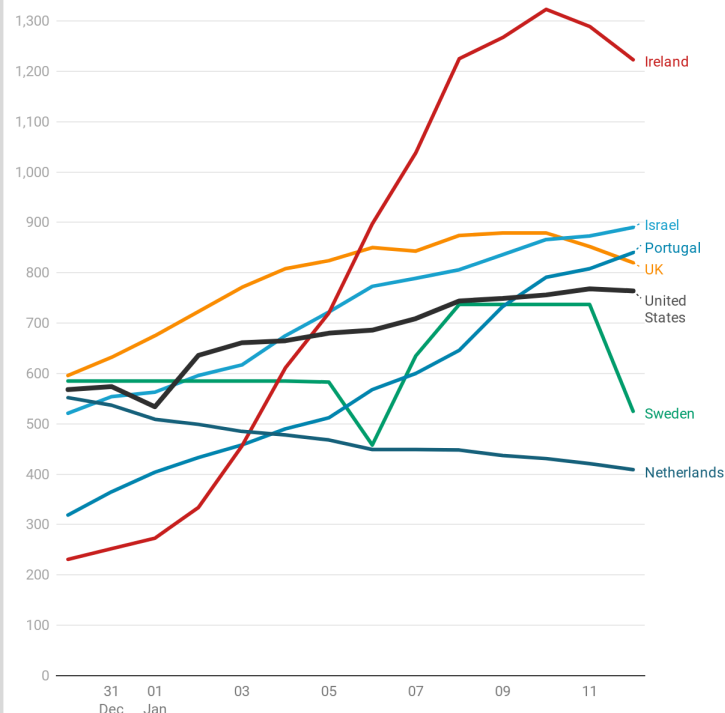


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19

Newly Detected Cases / Million - US

Newly detected cases (7-day average) appear to have slowed in the past several days – indeed, it declined modestly yesterday

Newly-Detected Cases / Million - US

7-Day Moving Average

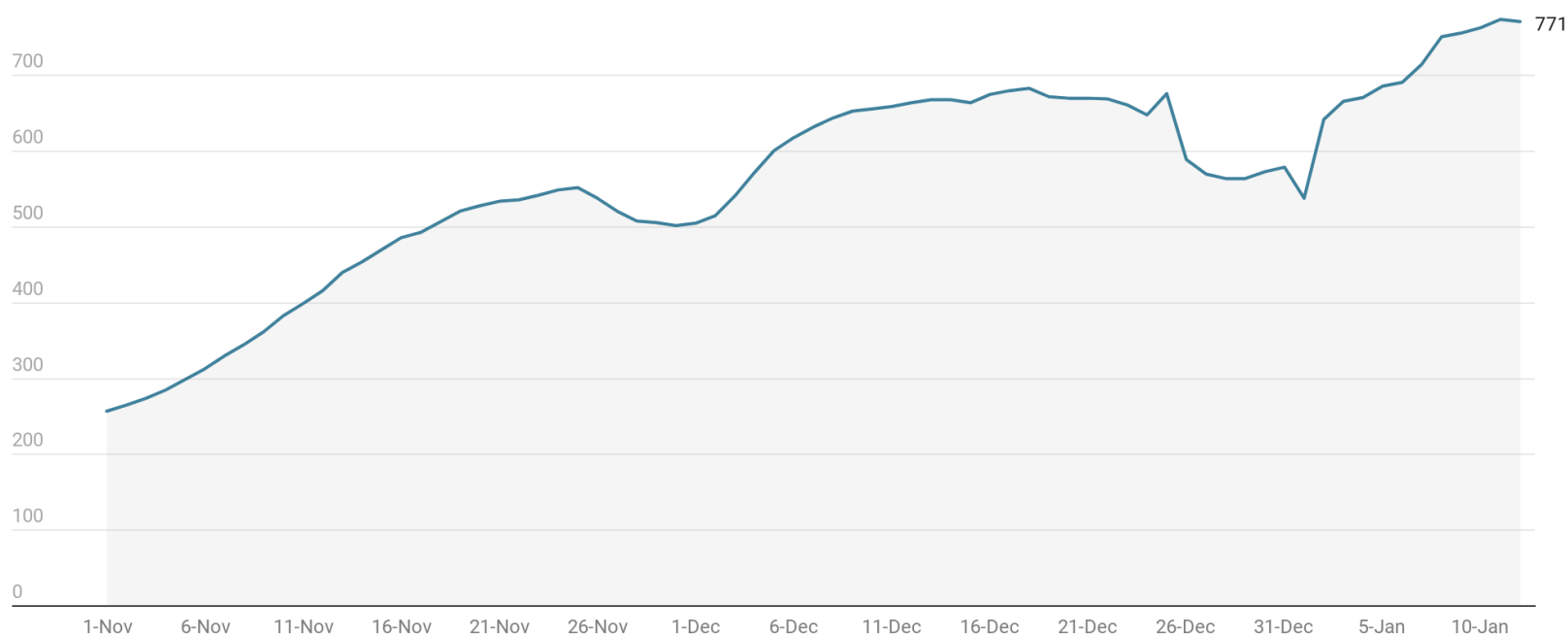
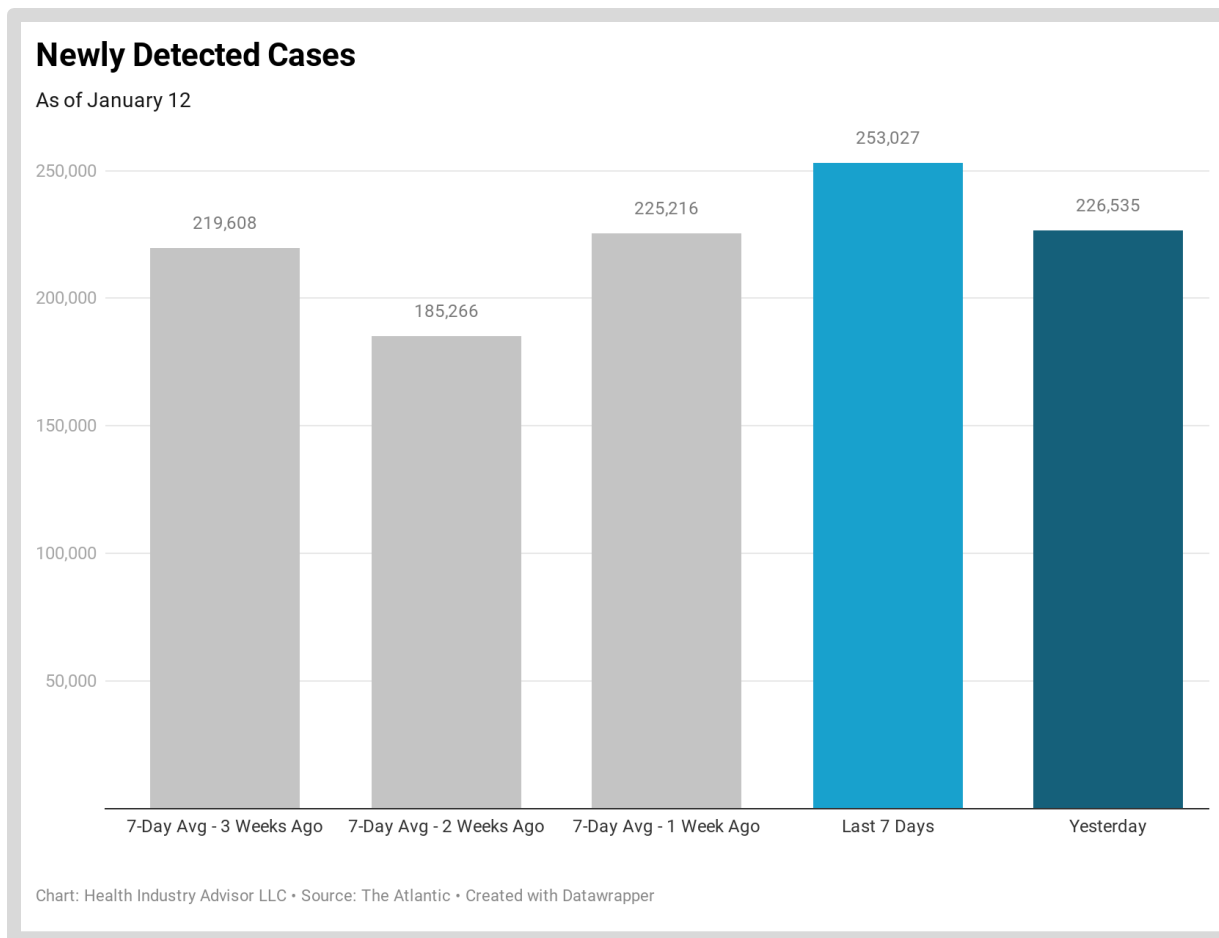


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19

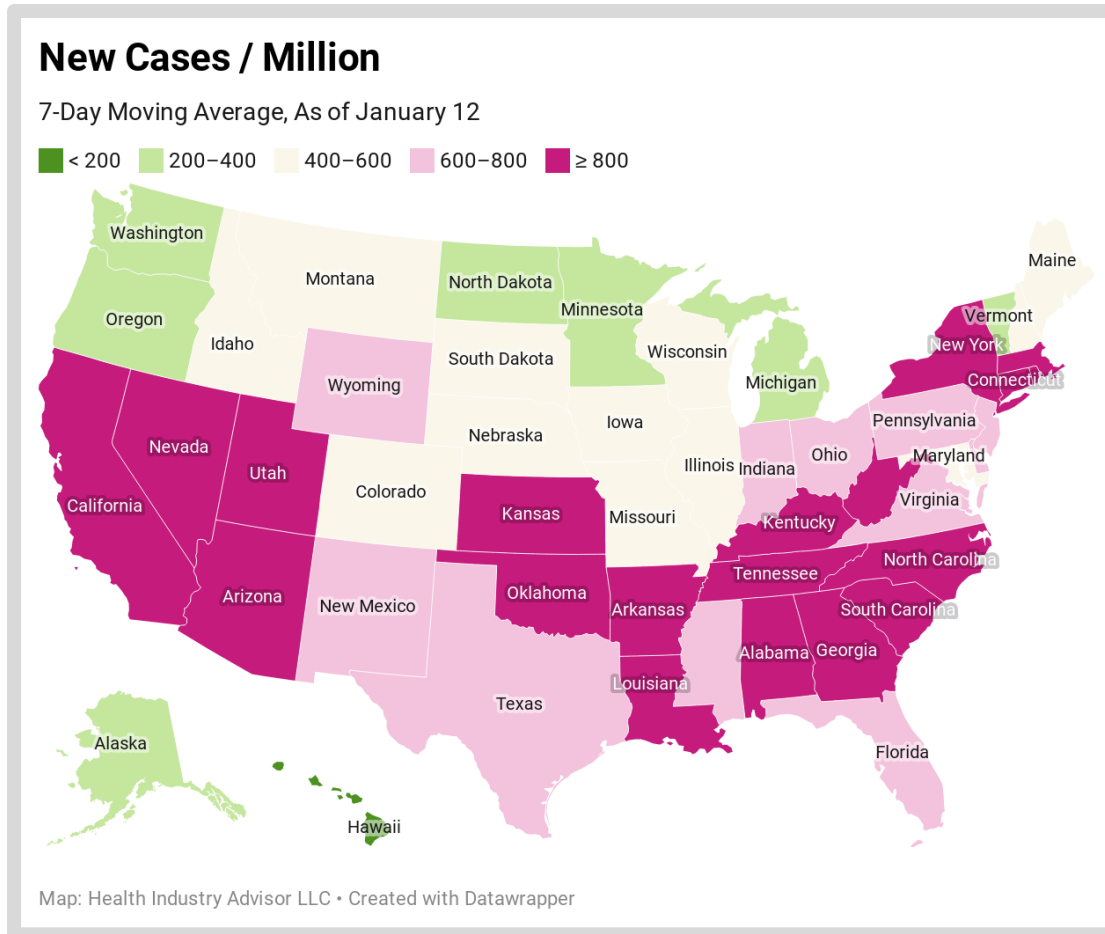
Newly Detected Cases

New cases yesterday were below the 7-day average again yesterday, and were lower than reported last Tuesday; the 7-day average may be high because of delayed reported from the holidays



New Case Rate By State

New case rates are highest across the South and along the East Coast



Covid-19

Newly Detected Cases / Million

Case rates continue to rise in Arizona, California, New Jersey and New York; these have declined in Rhode Island and appear to have stabilized in Florida and Georgia

Newly Detected Cases Per Million

7-Day Moving Average

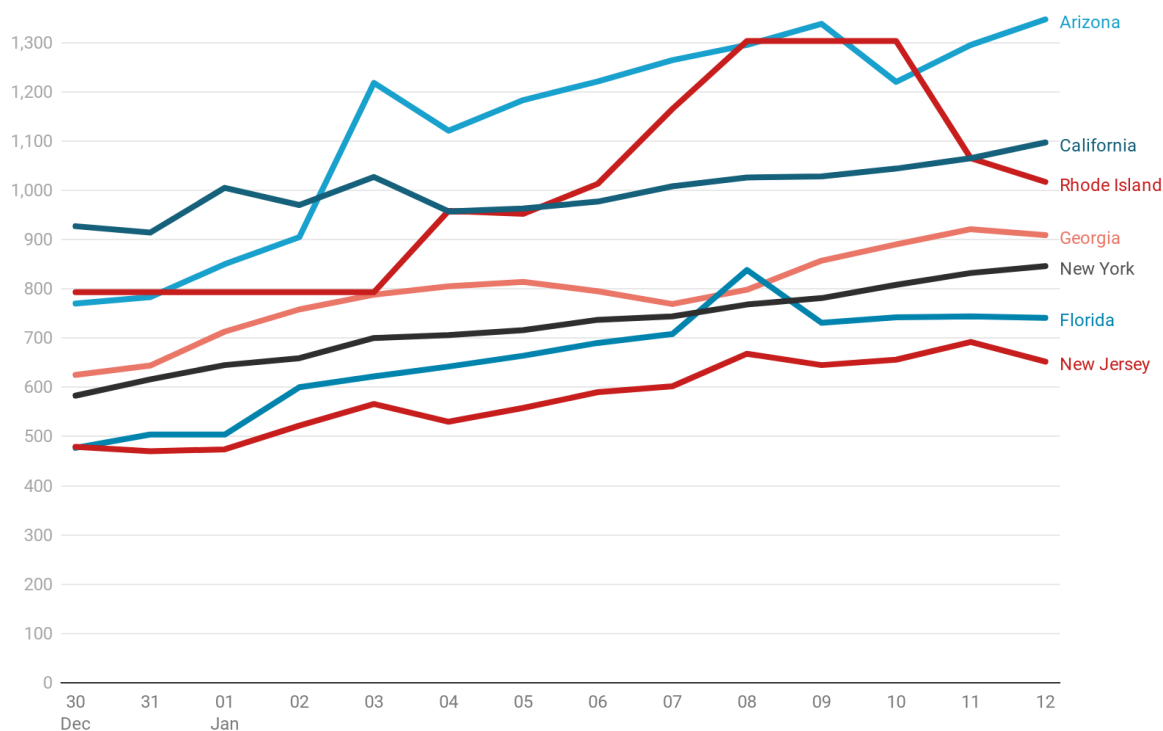


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19

Testing Results - US

Test volume showed signs of continued growth yesterday; volumes may be returning to pre-holiday levels. With this higher volume, the test-positive rate was lower for the day; however, it remains high by recent standards and by public health guidelines

Tests / Million / Day (US)

As of January 12

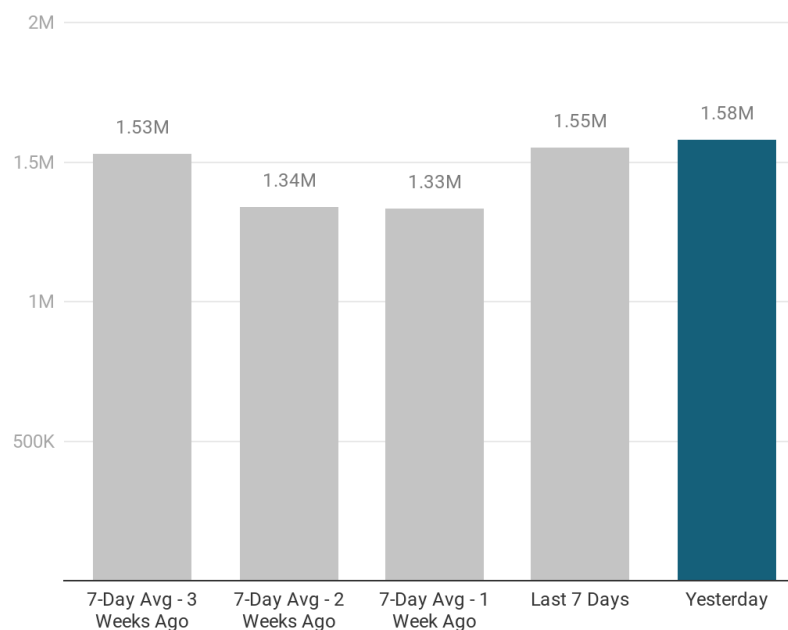


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Test-Positivity Rate

As of January 12

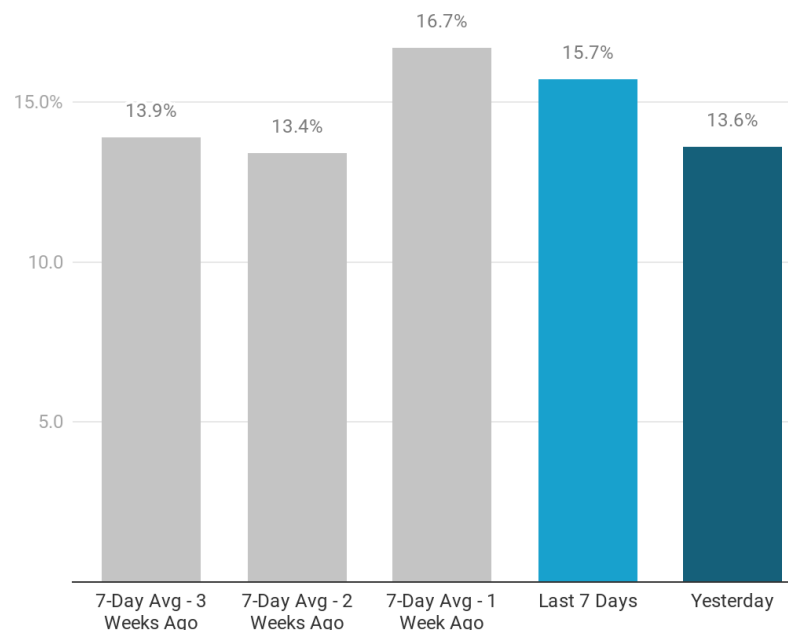


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19

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>
- Oliver Wyman Pandemic Navigator, <https://pandemicnavigator.oliverwyman.com/forecast?mode=country®ion=United%20States&panel=mortality>
- Bloomberg Vaccine Trackers, <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/?sref=Z0b6TmHW>