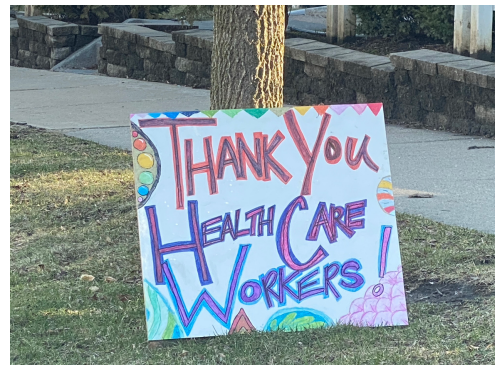
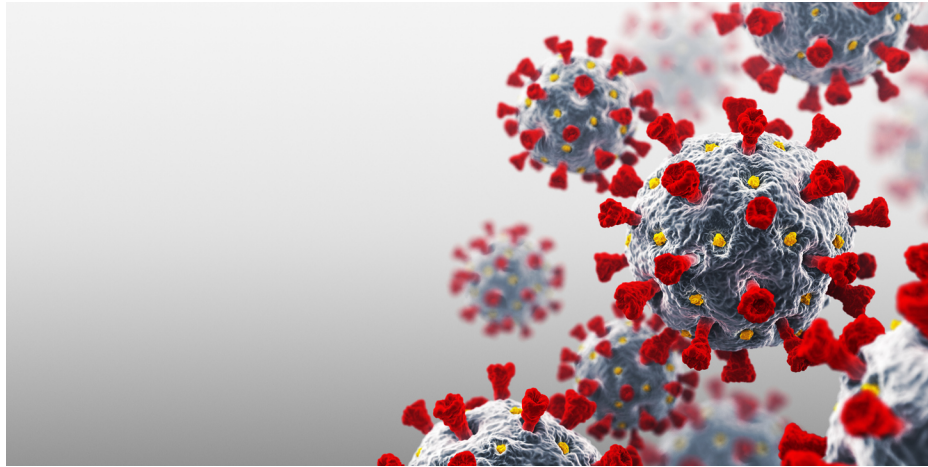
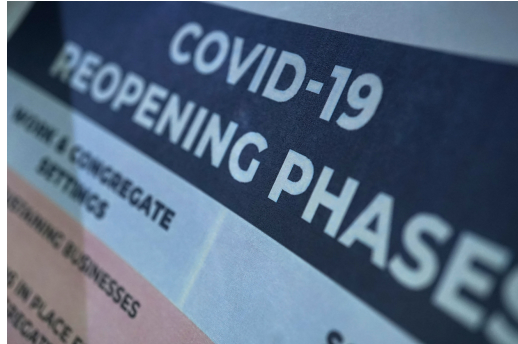




COVID-19 Report

Issue # 152

Wednesday, September 2, 2020

- Testing continues to improve, even as we await the widespread use of newly-approved rapid tests
 - **Test volume has trended up since mid-August.** This follows steady decline from mid-July to mid-August. Testing was up 8% on a week-over-week basis. This rate exceeds the minimum suggested by the World Health Organization (WHO)
 - **The test-positive rate continued its downward trend. Yesterday's 7-day average rate was the lowest for any seven-day period since late June.** It is significantly below the rate suggested by the CDC for PHASE III re-openings but, just above the stricter rate proposed by WHO
 - Most states are testing above the WHO-minimum target level. Several states, however, are experiencing test-positive rates above the CDC-targeted level, most significantly, Mississippi, Iowa and the Dakotas
- **New infection rates in the United States have been essentially flat for the past 8 days.** This rate had fallen sharply from July 25 to August 24. So, while the return-to-school has caused a spike in infections, school-re-openings may be contributing to a plateauing
 - New cases reported yesterday were higher than last Tuesday yet, lower than the previous eight Tuesdays. (You may recall that new cases follow a definitive day-of-week pattern: lowest on weekends then increasing each day until peaking on Thursday or Friday)
 - **States in the Heartland and Upper Midwest are becoming the new "hot-spots" for infections;** Iowa, Kansas, Missouri, North and South Dakota have experienced high and increasing infection rates of late. Alabama continues to be of concern, while the rest of the South seems to be seeing declining (but, still high) infection rates
- While infection rates eased the United States throughout August, they remain high in many South American countries - especially Argentina, Brazil, Columbia and Peru - as well as several island nations. **Aruba has the highest current rate of new infections in the world, followed by Turks and Caicos and the Maldives**
- **Infection rates have been rising again in Europe too, most notably in Spain**
- **Deaths continue to decline in the U.S.** Yesterday marked the fewest deaths reported on a Tuesday in seven weeks. Average deaths per day, on a 7-day basis, have been declining since early-August. **Still, the current rate is nearly 80% higher than its low experienced in early-July**
- Stress on healthcare resources - one of the drivers of calls for shutdowns - continued to ease
 - **Hospital census of COVID-19 patients declined yesterday – for the 35th time in the past 40 days.** Doing this time, census has fallen by 40%
 - **ICU census was up slightly yesterday,** pausing the month-and-a-half decline of 30%
 - Ventilator use continued to decline - **the rate of ventilator-managed hospital inpatients is 1/2 what it was in April**
 - ER visits for COVID-19 illnesses similarly continued to decline and are less than ½ the rate experienced in July

Vaccines

August 31 Update: There are 138 potential vaccines in the pipeline, three of which have been approved for limited use – although with great controversy

Nine vaccines in Phase III clinical trials – several anticipate results in October

Pre-Clinical –

Vaccines not yet in clinical trial

Phase I –

Vaccines testing safety and dosage

Phase II –

Vaccines in expanded safety trials

Phase III –

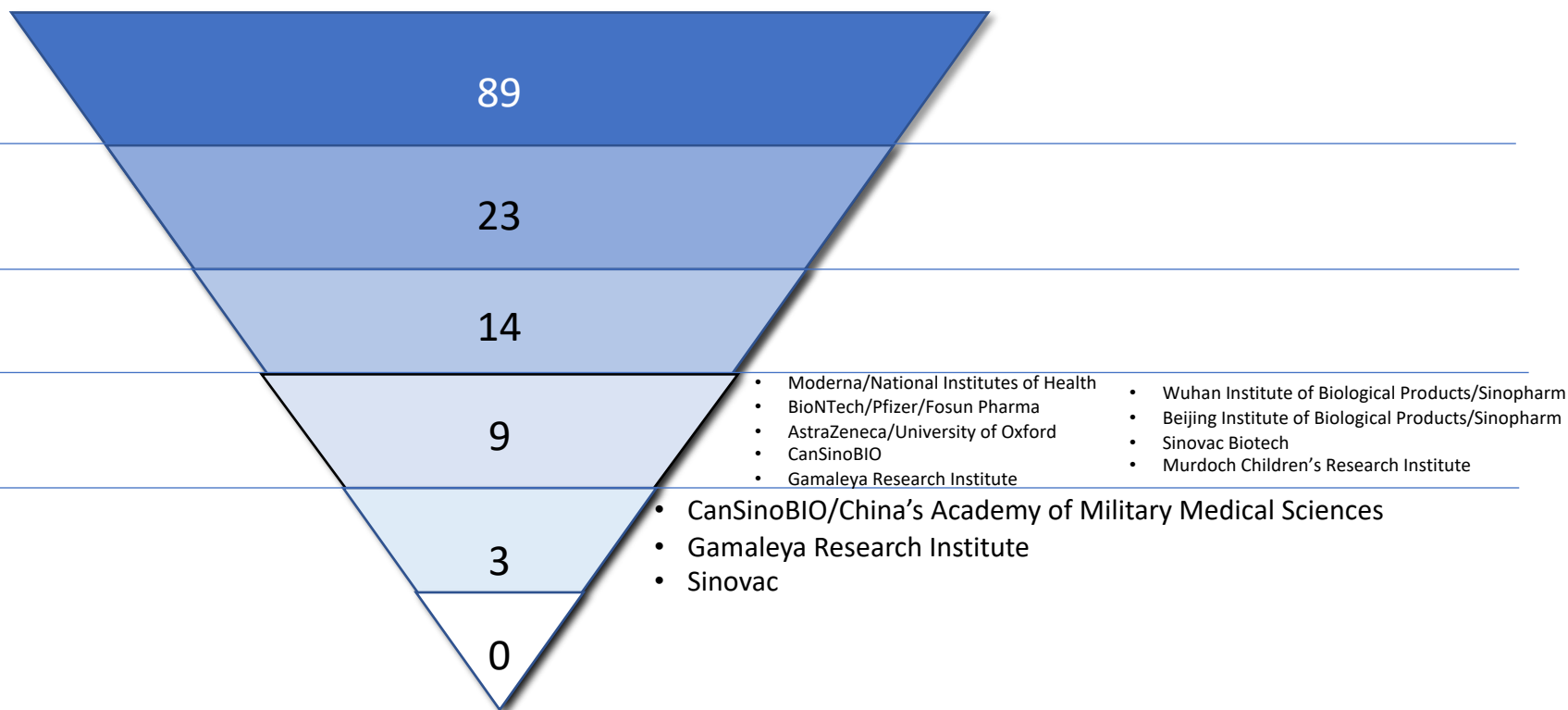
Vaccines in large-scale efficacy tests

Limited –

Vaccine approved for limited use

Full –

Vaccine approved for full use



* - Source: "Coronavirus Vaccine Tracker", New York Times, Updated August 31, 2020

<https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>

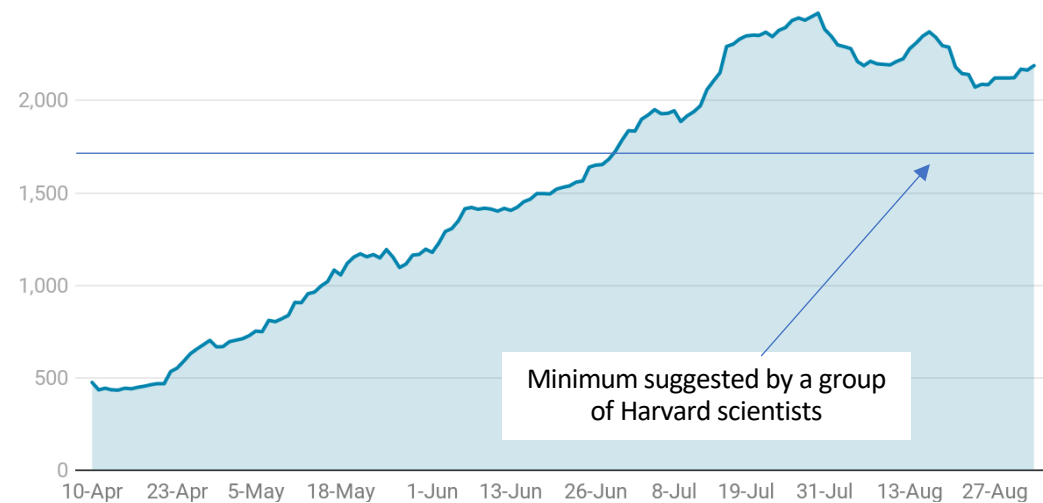
The United States government, via Operation Warp Speed, is investing heavily to accelerate the vaccine development process

- Operation Warp Speed is a multi-agency effort to accelerate the availability of multiple vaccines
 - Typical vaccine development takes years; fastest to-date is 4.5 years – mumps vaccine
 - Goal is to accomplish it for SARS-CoV-2 in 1.5 years or less
- Program plans to achieve this by minimize investment risk, allowing companies to progress faster. Typically, companies:
 - Control their investment risk by proceeding through development process using a series of Go/No-Go decision points – by funding the development effort, the government allows these companies to move more quickly (this is primarily an investment issue, not a safety issue)
 - Delay production until after a vaccine is proven both safe and efficacious – government is funding production simultaneous with the Phase III clinical trials for safety and efficacy
- With a goal of making 300 million doses of a safe, effective vaccine(s) by January 1, the government has committed more than \$10B in at least six development efforts
 - Moderna/NIH - \$2.5B, for 100 million doses, with an option for an additional 400 million
 - BioNTech/Pfizer - \$1.9B, also for 100 million doses, with an option for an additional 400 million (they claim capacity for 1.3 billion worldwide by the end of 2021)
 - AstraZeneca/Oxford University - \$1.2B, for 300 million doses
 - Novavax - \$1.6B, for 100 million doses
 - Sanofi/GlaxoSmithKline - \$2B, for 100 million doses
 - Johnson & Johnson - \$1B, for 100 million doses
- Of these six efforts, Moderna/NIH, BioNTech/Pfizer and AstraZeneca/GSK are in Phase III clinical trials, with results reportedly expected in October

Testing refers to tests for active infection, as reported via state health agencies; does not reflect antibody testing for prior infection

Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of September 1

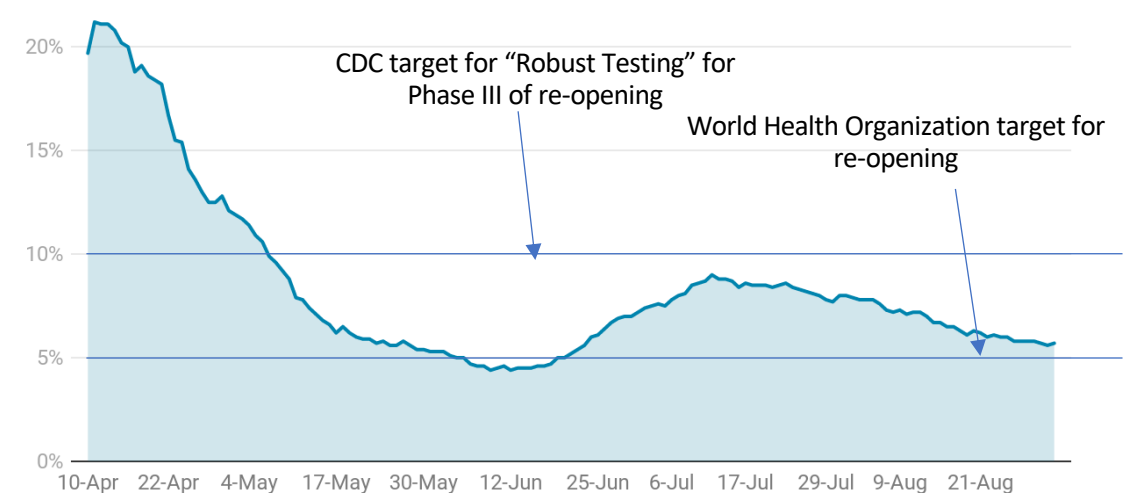


Health Industry Advisor LLC analysis

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

Test-Positive Rate - United States

Trailing 7-Day Moving Average, As of September 1



Health Industry Advisor LLC analysis

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

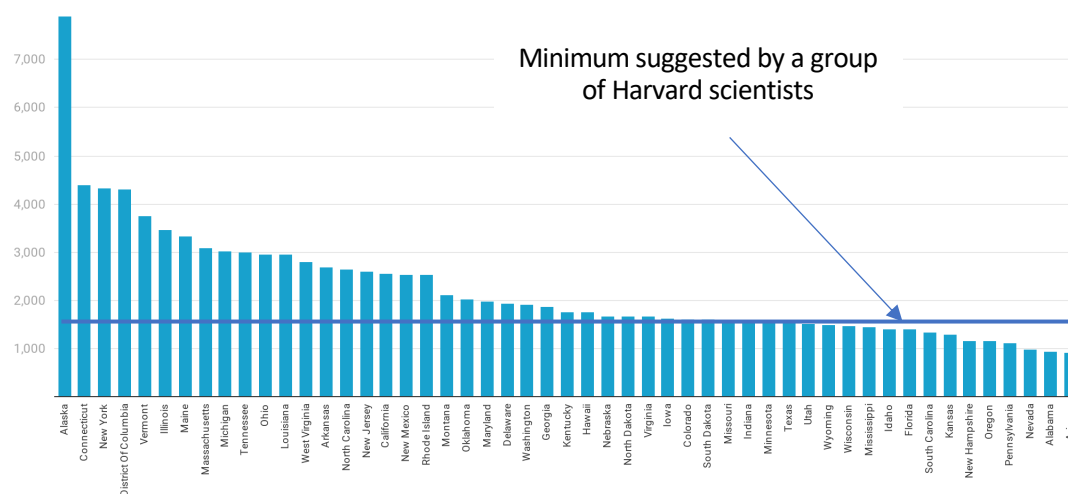
Note: On August 11, North Carolina made a significant adjustment, removing 220,000 tests from their YTD totals. We manually removed this negative adjustment from the August 11 data to better reflect actual testing for that date

Note: Due to a computer glitch, Washington batch-reported on August 26 all its negative test results from August 1-25. We "smoothed" the data, by applying a constant test-positive rate to estimate the negative tests by day for this period

Testing refers to tests for active infection, as reported via state health agencies; does not reflect antibody testing for prior infection

Daily Tests Per 1 Million Population

Trailing 7-Day Moving Average. As of September 1

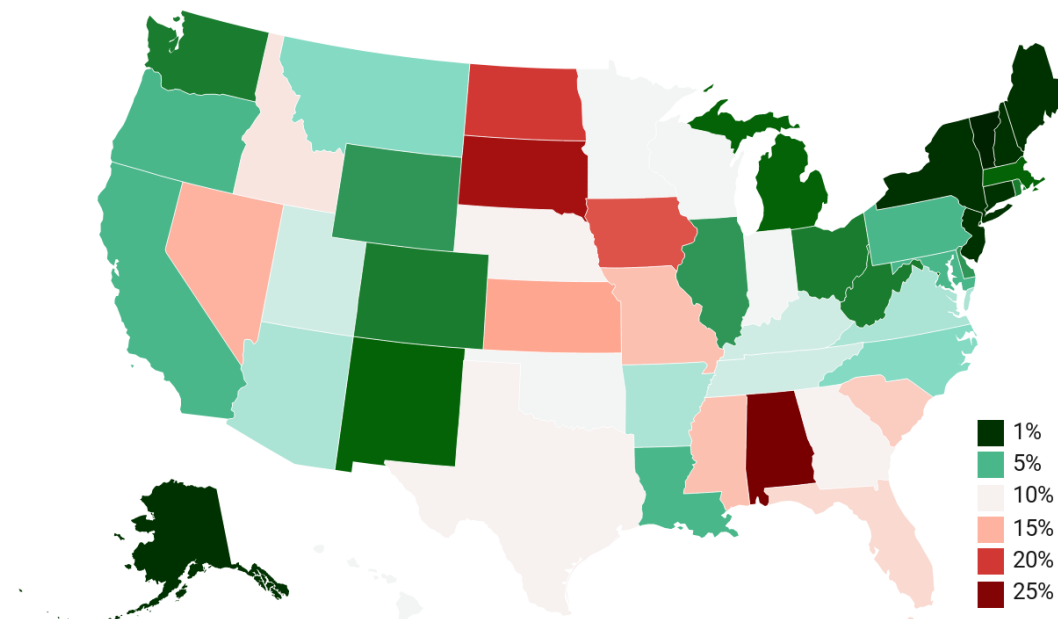


Health Industry Advisor LLC analysis

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

Test-Positive Rate

Trailing 7-Day Moving Average, As of September1



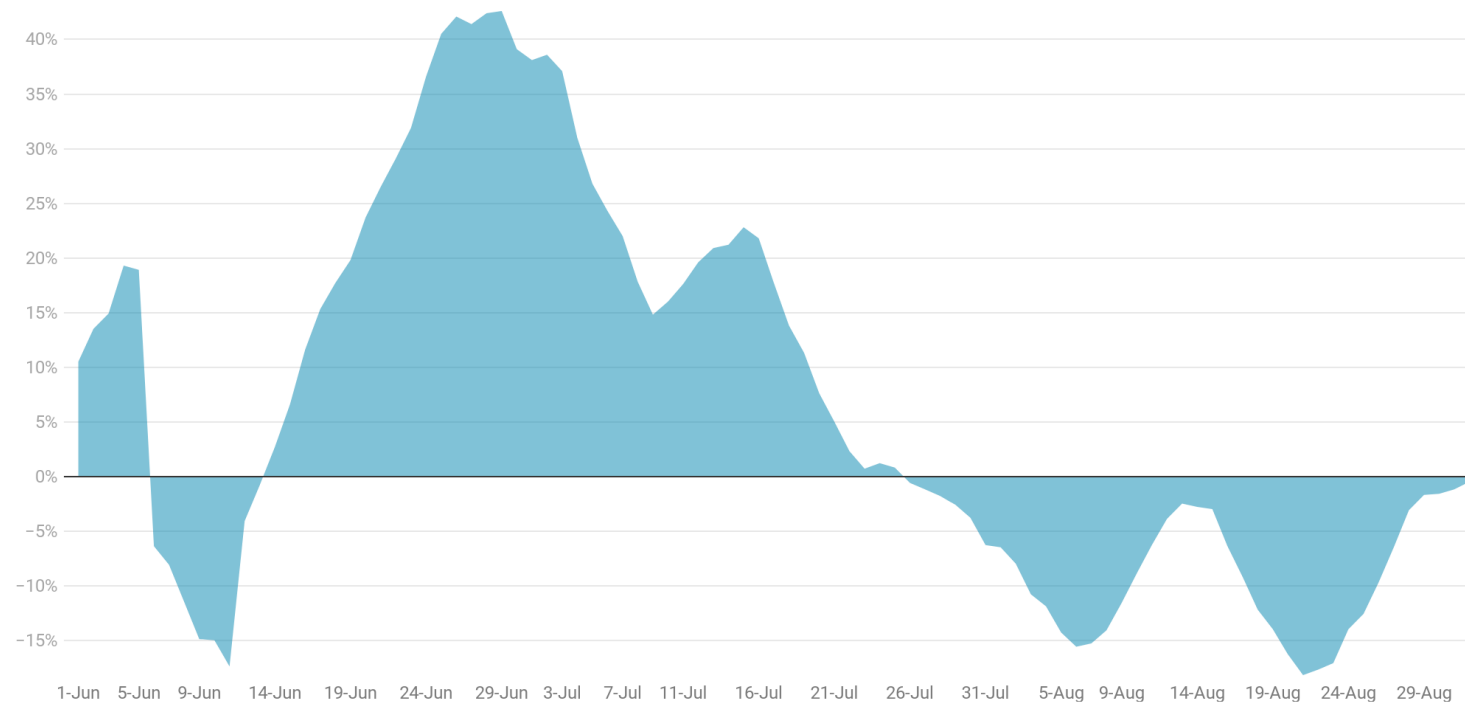
Health Industry Advisor LLC analysis

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

Week-over-week, new cases are down by 0.5%; new cases haven't increased week-over-week since July 25

Week-Over-Week Change In New Cases

Through September 1

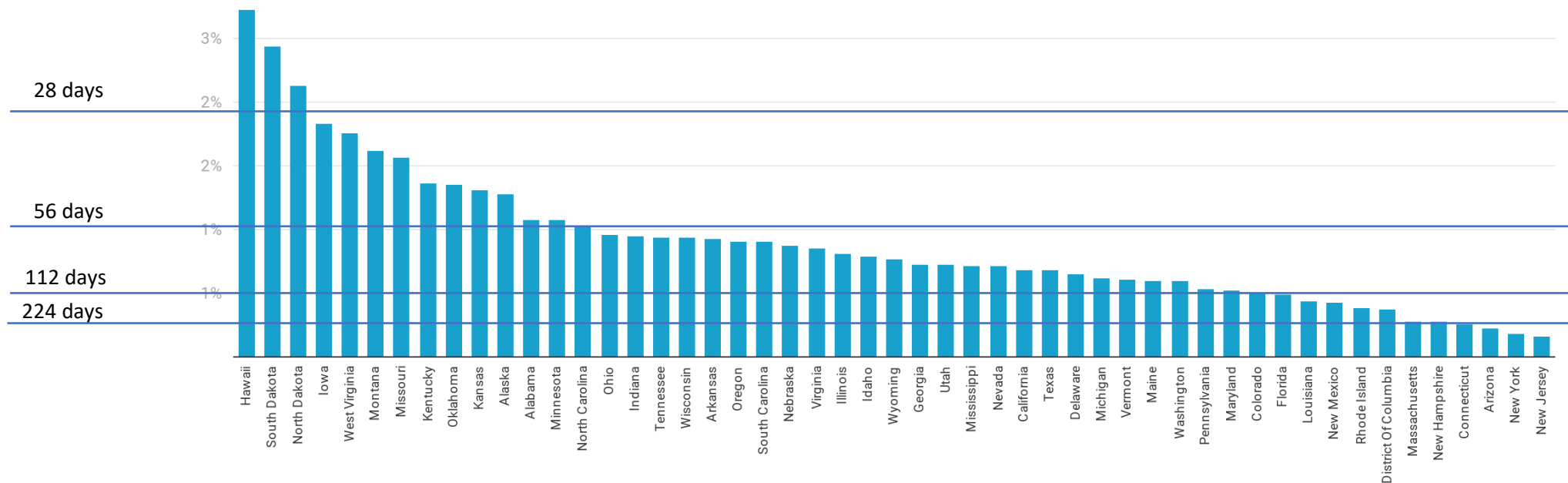


Health Industry Advisor LLC analysis

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

Growth Rate in Total Cases

Trailing 5-Day Moving Average, Through September 1



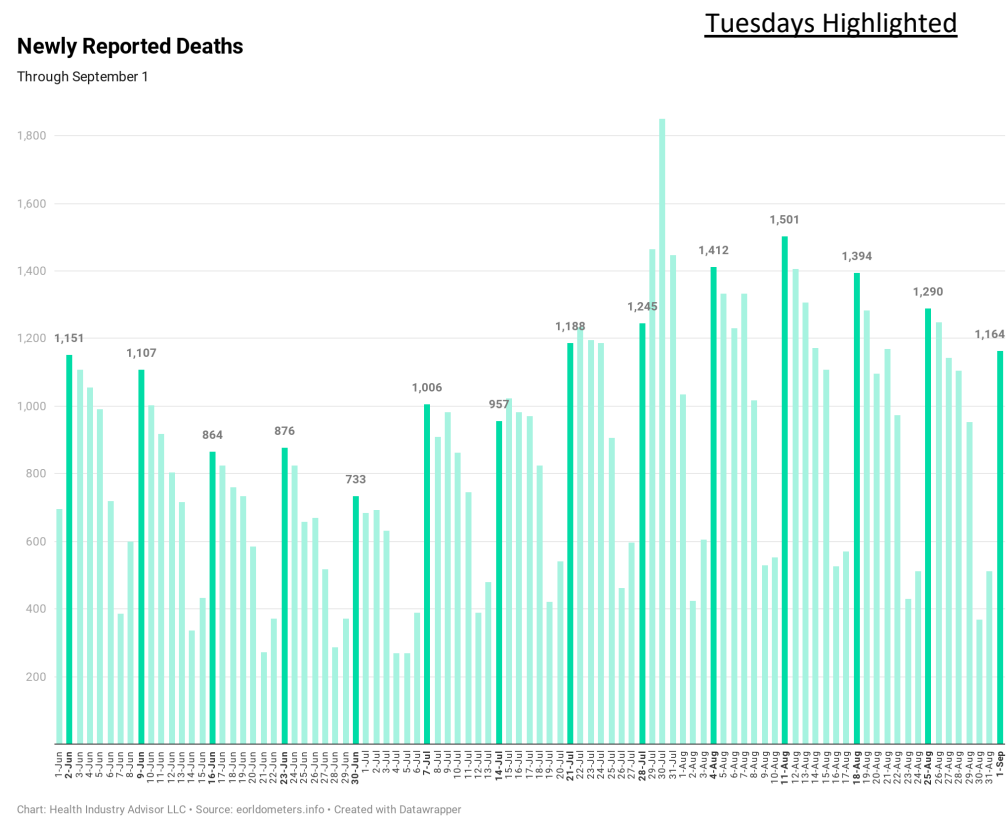
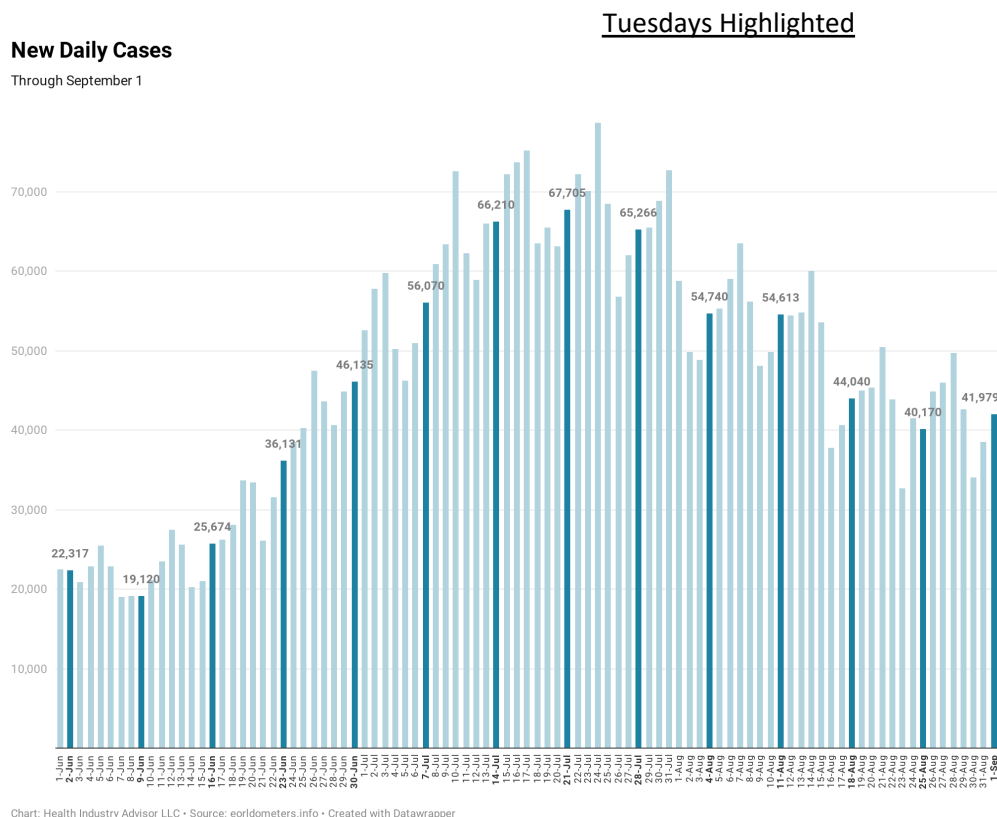
Health Industry Advisor LLC analysis

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

Tuesday's Experience— New Cases & Deaths

New cases on Tuesday were higher than last Tuesday but, lower than previous eight Tuesdays – Still, 2x the low on June 9

Fewer deaths reported yesterday than prior 6 Tuesdays – 60% higher than low on June 30

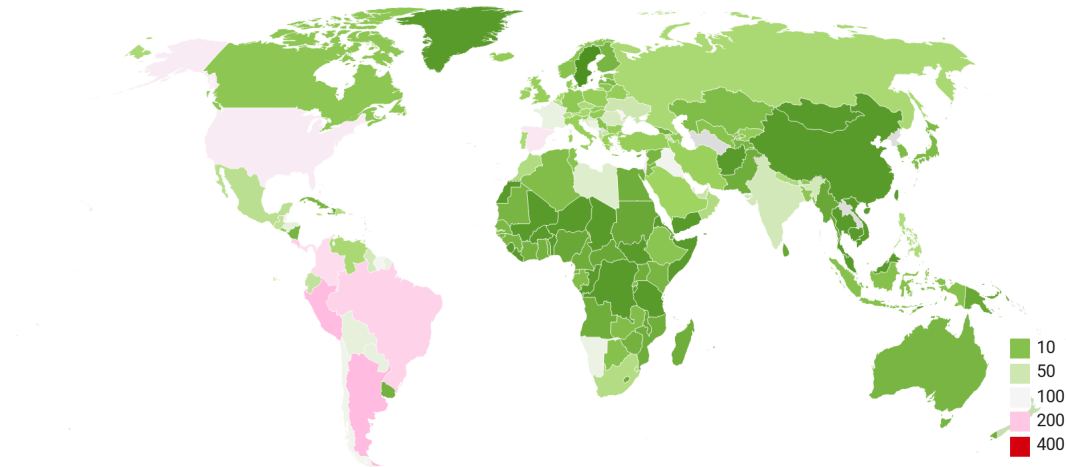


Note the daily pattern: new cases are typically low on Sunday, then increase each day through the week. While we have been noting this for the past few weeks, researchers from MIT, Boston University and Harvard Medical School confirmed this in [a report published by CIDRAP on August 17](#)

Infection intensity is now highest in certain islands and in South America
Infection rates have eased in the U.S., Oman and South Africa
Rates in Europe are relatively low yet, increasing, most notably in Spain

New Daily Infections / 1 Million Population

Trailing 7-Day Moving Average, As of September 1

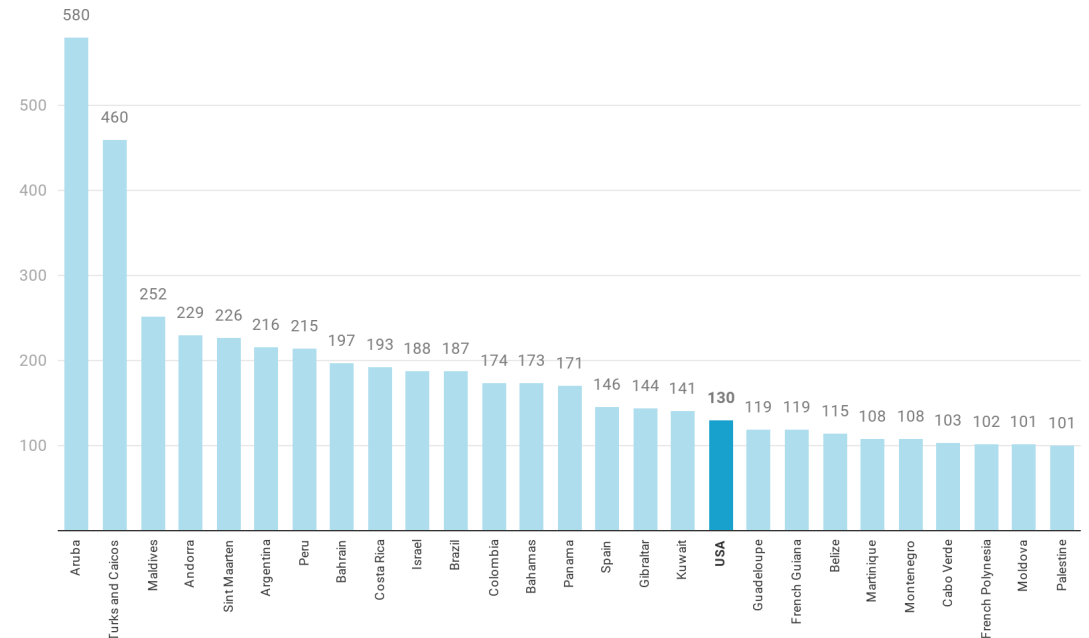


Health Industry Advisor LLC analysis

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

New Daily Infections / Million Population

Trailing 7-Day Moving Average, As of September 1



Health Industry Advisor LLC analysis

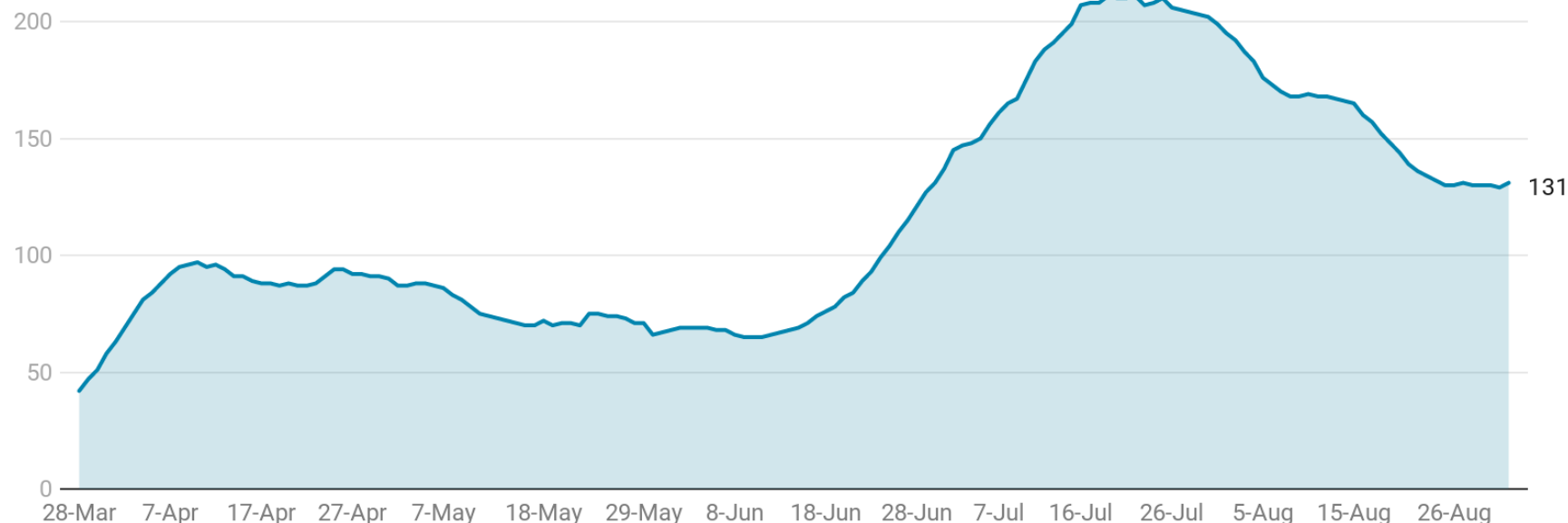
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

* - per million per day, trailing 7-day moving average

New infections per capita* has been essentially flat for the past 8 days, pausing the gradual decline from July 25 – August 24

New Infections Per 1 Million Population - United States

Trailing 7-Day Moving Average, Through September 1



Health Industry Advisor LLC analysis

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

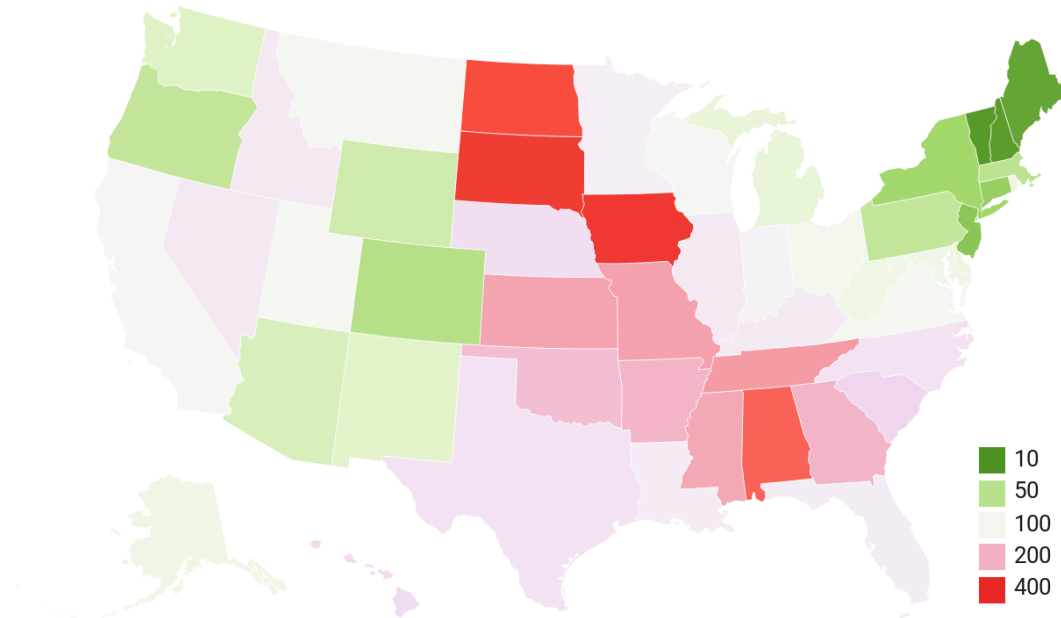
* - per million per day, trailing 7-day moving average

State-By-State – New Infections per Capita

As infection rates* have eased across the Southeast and West, the Heartland is now experiencing accelerating infections. Rates are particularly high and increasing in Iowa and the Dakotas

New Daily Infections Per 1 Million Population

Trailing 7-Day Moving Average, As of September 1



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

Week-Over-Week Change in New Daily Infections / Million

Trailing 7-Day Moving Average, September 1 v. August 25

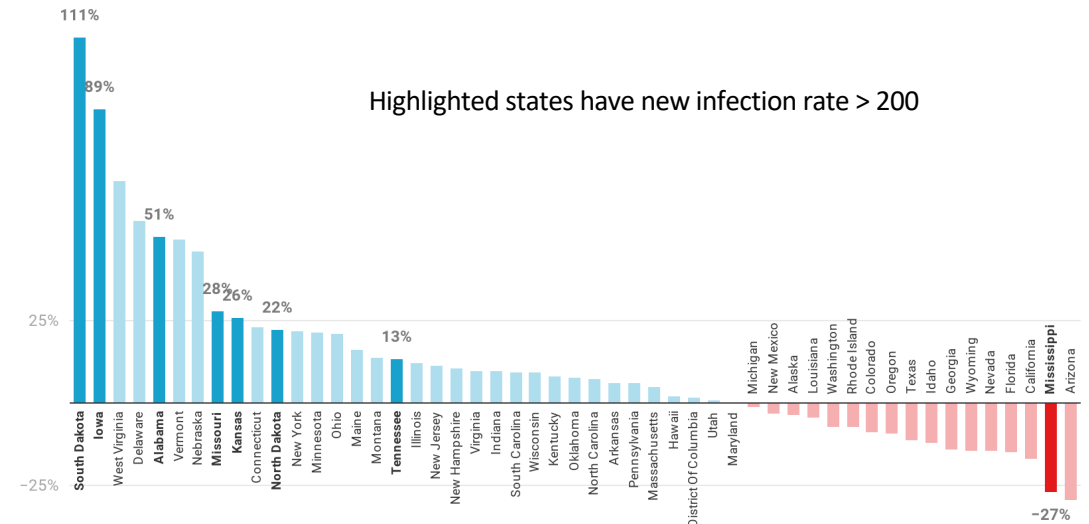


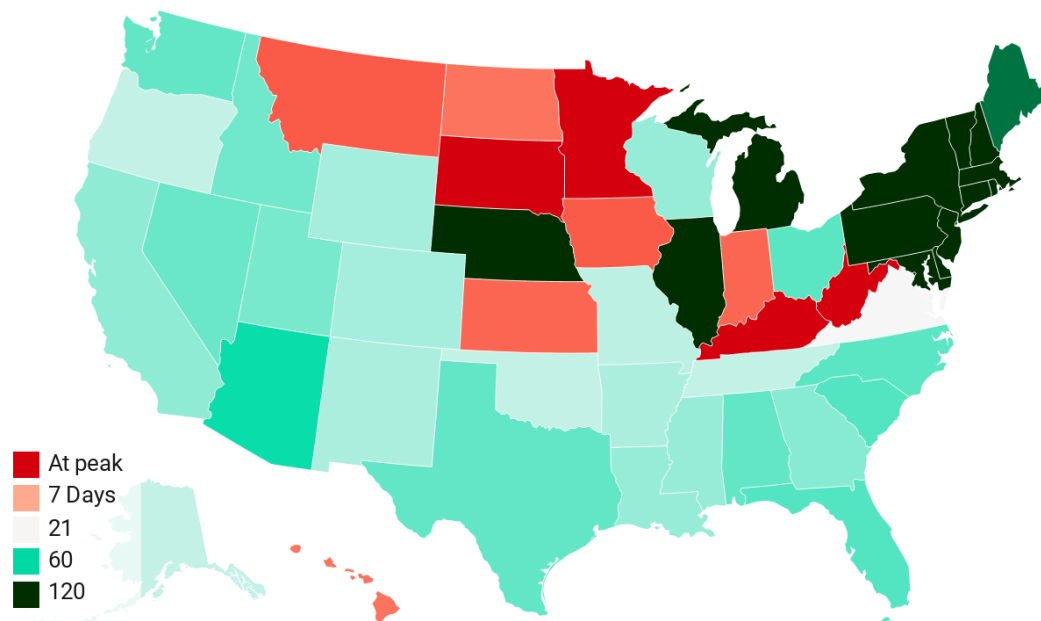
Chart: Health Industry Advisor LLC • Created with Datawrapper

* - per million per day, trailing 7-day moving average

Eleven states experienced their peak infection rate in the past 4 weeks, including Kentucky which set a new high yesterday 38 days after previous high and West Virginia which set a new high yesterday 35 days after its previous high

Days Since Peak New Infections Per Capita

Trailing 7-Day Moving Average, As of September 1



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

Trailing 7-Day Moving Average, As of September 1

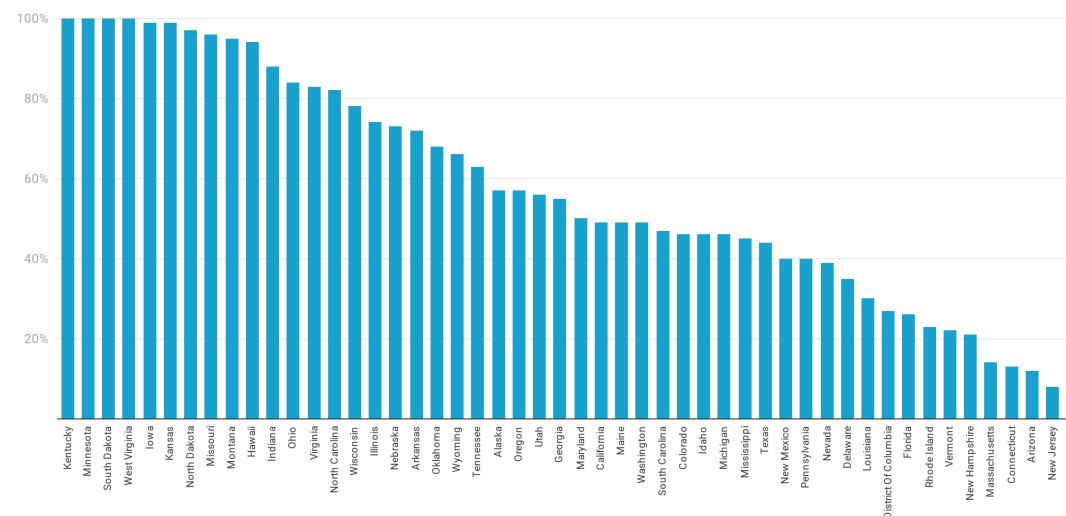


Chart: Health Industry Advisor LLC • Created with Datawrapper

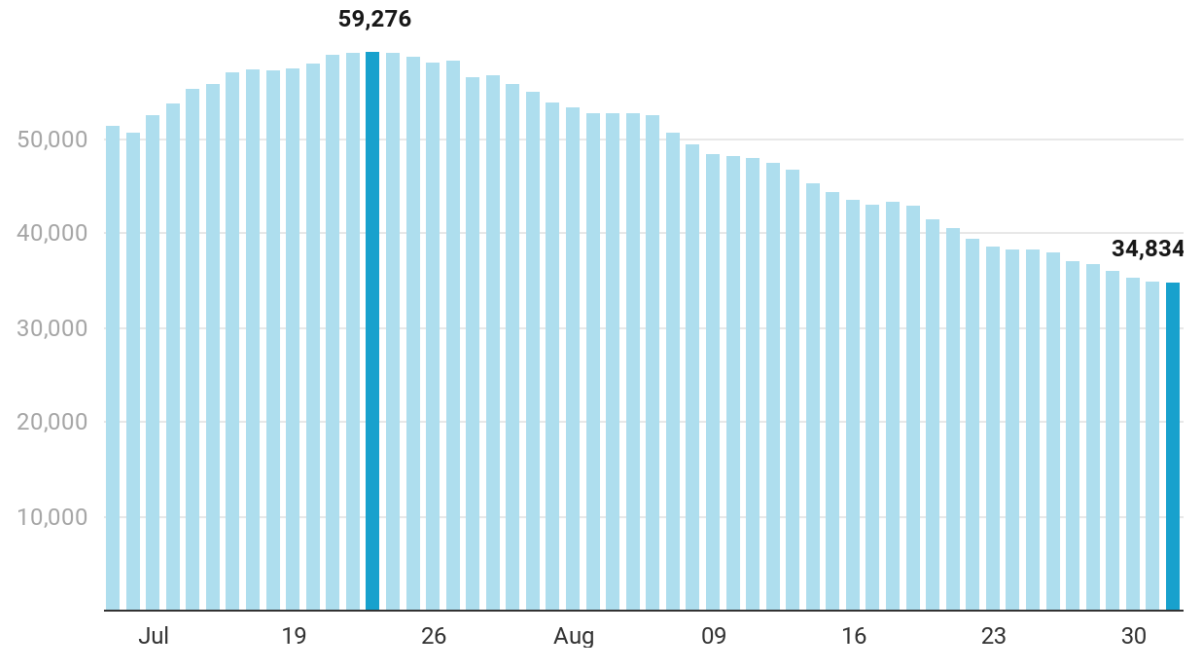
United States

COVID-19 inpatient declined again yesterday, continuing a trend that began more than a month ago

This census has declined on 35 of the past 40 days, dropping 40% during this time

Hospital Census: COVID-19 Patients

As of September 1



Florida data first available on July 10

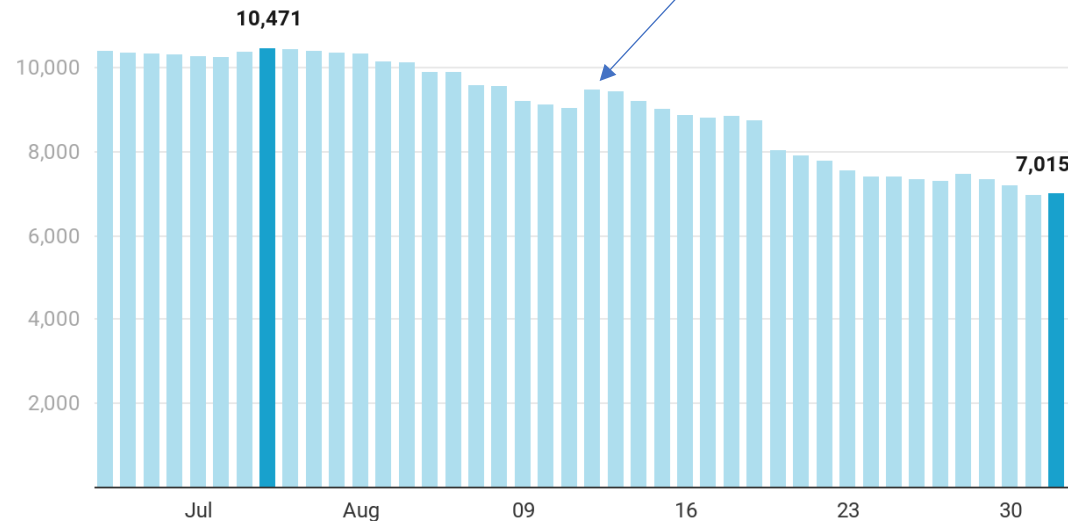
Chart: Health Industry Advisor LLC • Source: the Atlantic's Covid Tracking Project • Created with Datawrapper

Stress on ICU beds and ventilators continues to ease:

Daily ICU census has declined >30% since mid-July

Recently, % of inpatients in the ICU or on ventilators are both steady or decreasing
...even as census declines

COVID-19 ICU Census

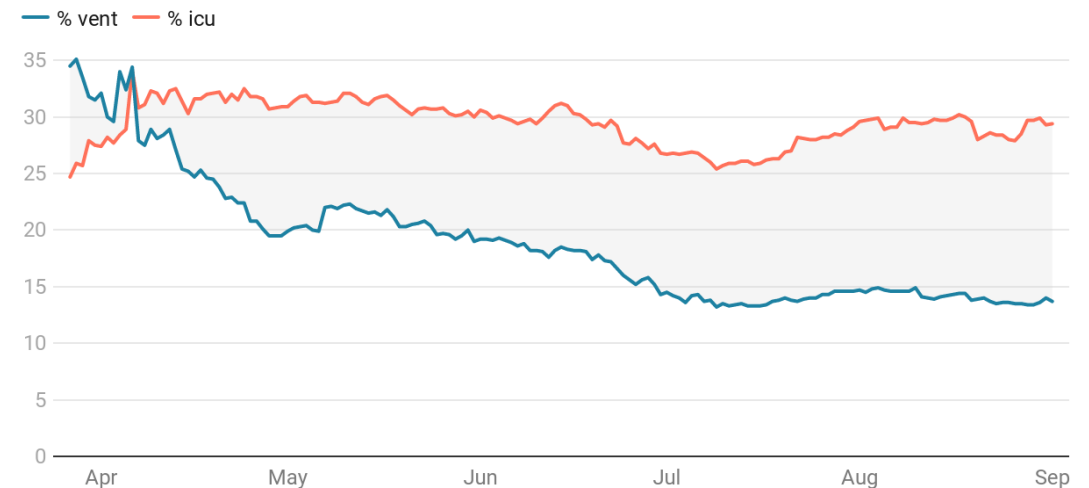


For states reporting these data: AZ, CA, ID, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MS, NV, NJ, NY, NC, OH, OK, OR, RI, SC, TX, UT, VA, WI & WY

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

Severity of Hospitalized Patients

% of patients on ventilators and in the ICU, As of September 1



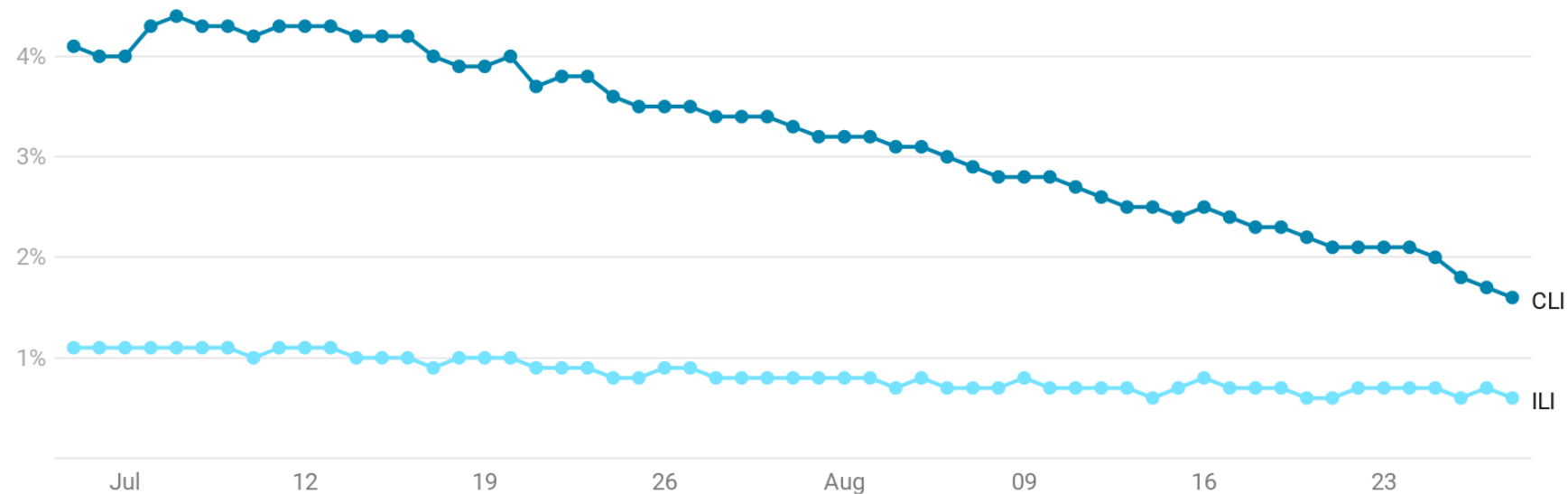
Health Industry Advisor LLC analysis

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

COVID-19 Visits to the ER have been declining all summer
Flu season – which is of great interest in how we manage the Fall – has yet to arrive

% of Emergency Department Visits for COVID-Like Illness (CLI) and Influenza-Like Illness (ILI)

As of August 28



Health Industry Advisor LLC analysis

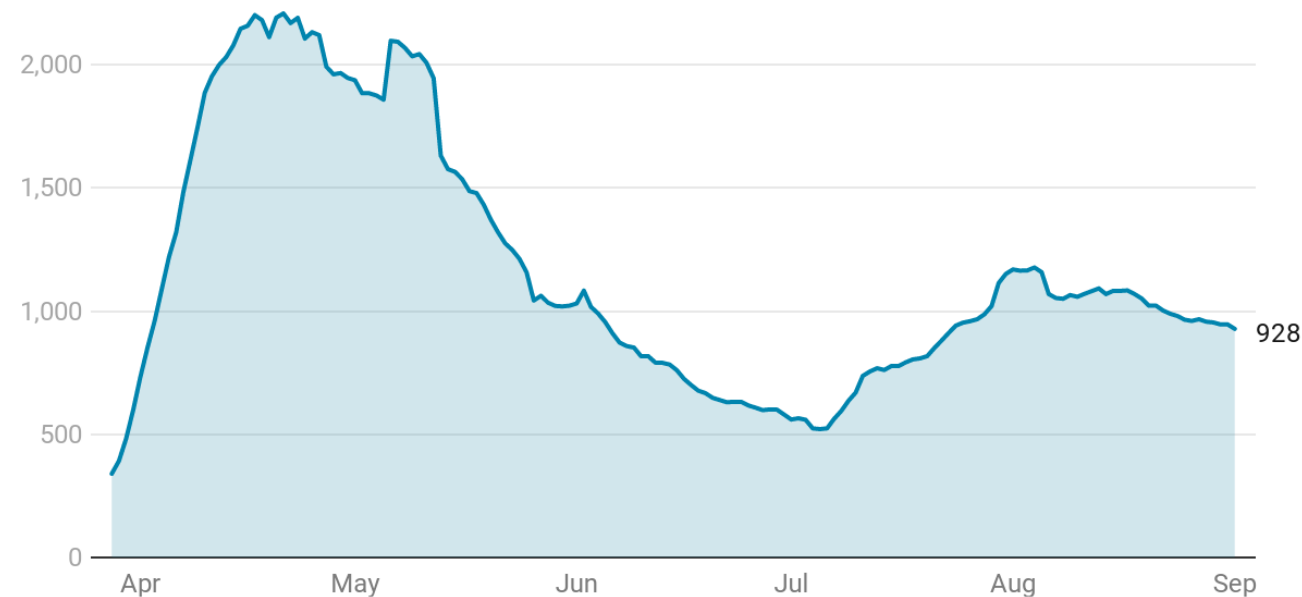
Chart: Health Industry Advisor LLC • Source: Centers for Disease Control • Created with Datawrapper

United States – Deaths with Coronavirus

7-day average deaths have been declining for past three weeks - has averaged fewer than 1,000 per day since July 17-23

Deaths Reported With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of September 1

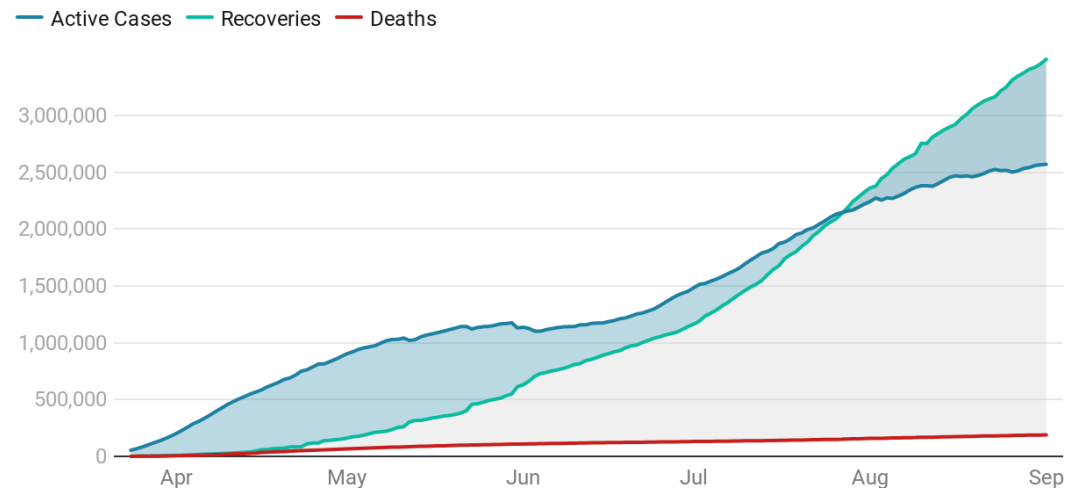


Health Industry Advisor LLC analysis

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

Active Cases v. Recoveries & Deaths

Through September 1

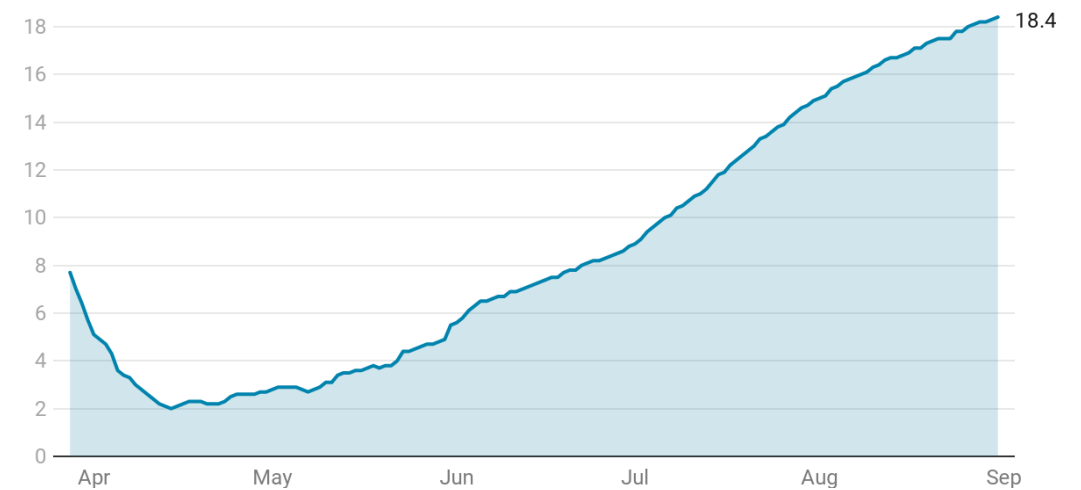


Health Industry Advisor LLC analysis

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

Recoveries: Deaths - United States

As of August 31



Health Industry Advisor LLC analysis

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

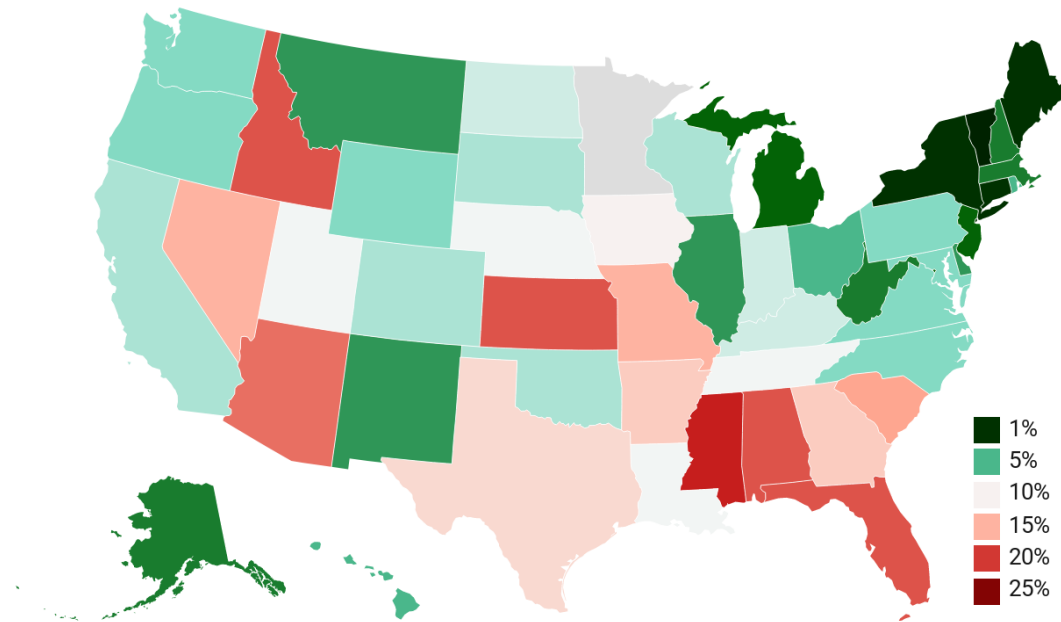
The following data sources are accessed on a daily or weekly basis:

- 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>

Testing refers to tests for active infection, as reported via state health agencies; does not reflect antibody testing for prior infection

Test-Positive Rate

Trailing 7-Day Moving Average, As of July 31

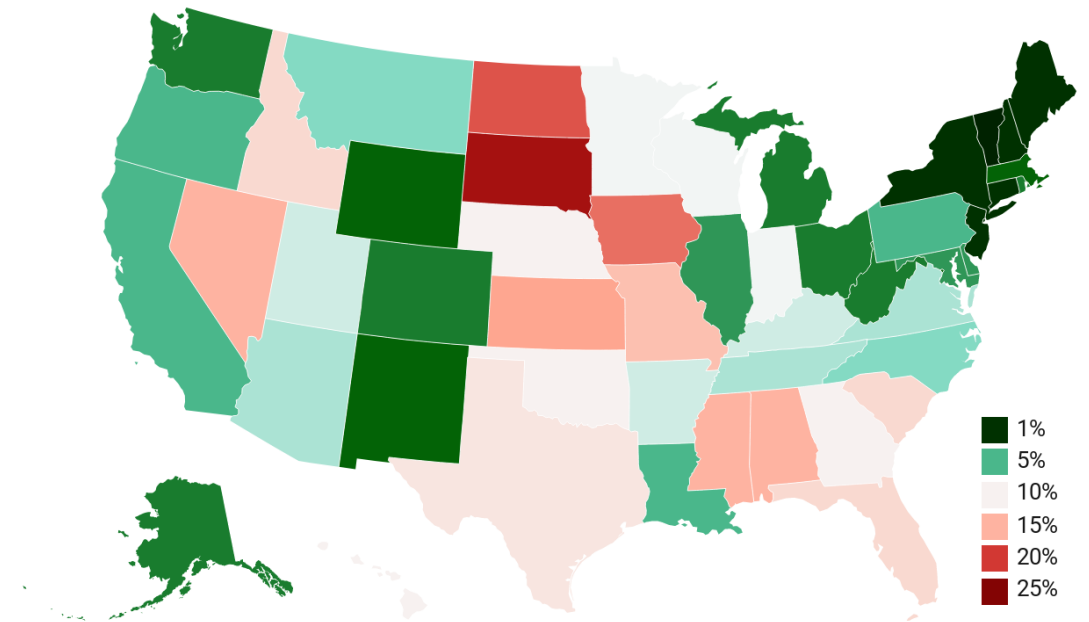


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Test-Positive Rate

Trailing 7-Day Moving Average, As of August 31



Health Industry Advisor LLC analysis

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