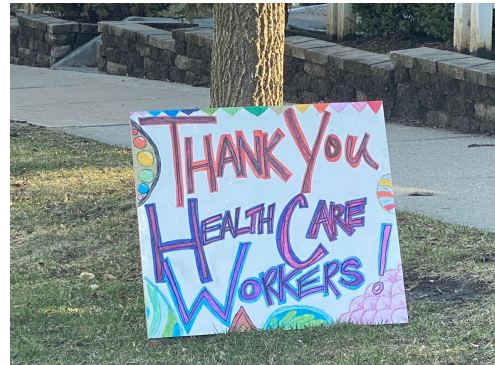
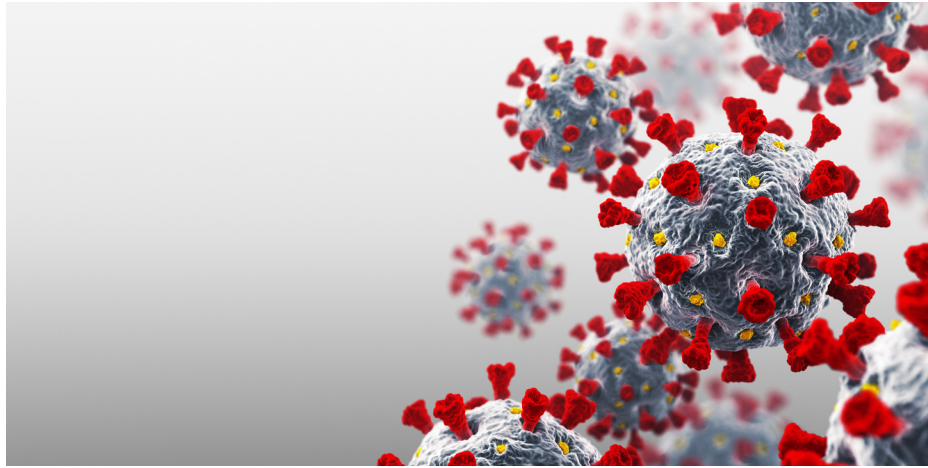
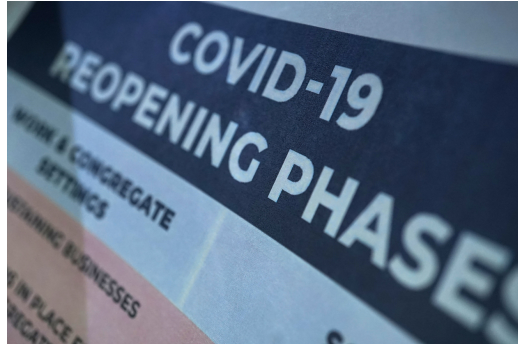




COVID-19 Report

Issue # 147

Thursday, August 27, 2020

Today's Highlights

- **We start with a (hopefully useful) construct for grasping the extent of the virus spread in the United States.** Among the takeaways from this construct:
 - If we randomly filled a large football stadium, we could isolate those people infected with the virus in one full section
 - Those with a known, active infection could be further isolated in the bottom 1/3 of this section
 - Two rows of fans in this section would have died with the virus
 - Fans that normally sit in half of one row of this section would be in the hospital
 - Two of these fans would be in the ICU; one would be on a ventilator
 - The odds that an actively-infected person would be in the hospital are 1/3 lower now than they were on May 1
- Getting back to testing - given the news items above
 - The state of Washington may have caught-up with reporting of negative tests - you may recall they had not reported such results since the end of July. Yesterday's unusually-high test count suggests they may have caught-up. Unfortunately for us, it limits any assessment of test volumes and test-positives for the state and for the U.S.
 - Excluding Washington, on a state level, **thirty states tested above the WHO recommended level for the past week**
 - **Twenty states reported test-positive % below the strict WHO standard of 5%; Conversely, eleven states were above the CDC-target of 10% for Phase III re-opening**
- Healthcare resource use
 - This continues to be a strong, positive story, with **COVID-19 inpatient days, ICU days, ventilator and ER visits each down by substantial amounts since July**
- Worldwide new infection rates
 - South America (as well as several small, island nations, as reported yesterday) is the locus of high new infection rates - Argentina, Brazil, Colombia and Peru, in particular, experienced high rates for the past week
 - **Infection rates across Europe, while lower than they were in March/April, have been rising of late; France and Spain, in particular, have experienced fast-rising rates**
- New cases and infection rates in the U.S.
 - **New cases are down 10% on a week-over-week basis; New cases have not increased on a week-over-week basis since July 19-25**
 - **New cases yesterday were the lowest on a Wednesday in the past 9 weeks** (recall that these new cases have followed a distinct day-of-week pattern: lowest on Sunday and increasing each day until peaking on Thursday or Friday)
 - The rate of new infections per capita were down a small fraction yesterday - pausing its month+ long decline
 - **Mississippi and North Dakota have experienced sharp increases in this infection rate since last week and now have the highest rates of any state; Alabama, Georgia and Tennessee also report relatively high rates** though only Alabama experienced an increasing rate in the past week
 - **Thirty-two states experienced a declining rate of new infections per capita versus a week ago**
- Deaths with Coronavirus
 - The **7-day average of daily deaths has declined for 9 consecutive days**; this rate is as low as it has been since July 20-26
 - Deaths reported yesterday were the fewest for a Wednesday in 5 weeks

How extensive has this virus spread to-date?

Perspective on the current state of SARS-CoV-2 Spread in the United States

Disclaimer: This is not meant in any way to minimize the seriousness of this pandemic. Instead, the construct is designed to illustrate the extent of the virus impact in the United States

If the fans inside Michigan Stadium were reflective of the U.S population as of August 25th . . .



Michigan Stadium

- largest stadium in the Western Hemisphere
- seats 107,601
- 44 sections and 90+ rows

. . . we could fit those infected with SARS-CoV-2 in the endzones – sections 11-13 & 33-35

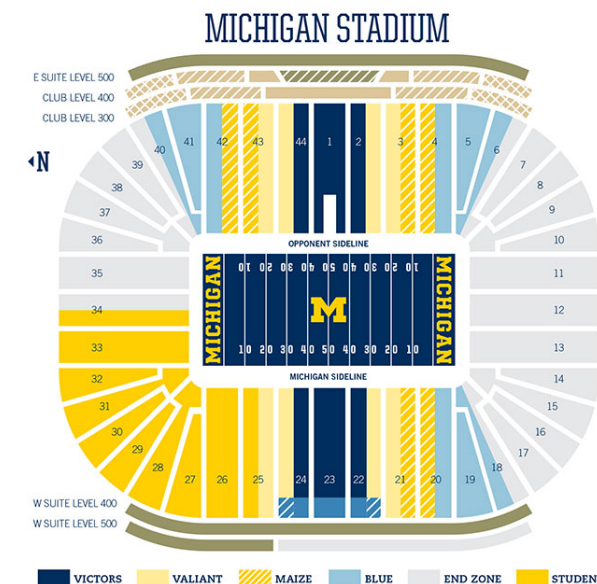
. . . but, those a confirmed case would fit in section 11, rows 1-72

. . . those that have died with the virus would have occupied just more than 2 rows of fans in section 11

. . . those with a known active infection would fit in 30 rows of section 11

. . . ½ of a single row in section 11 would be in the hospital, missing the game

. . . 2 fans would be in the ICU, with a single fan on a ventilator



How extensive has this virus spread to-date?

More perspective on the current state of SARS-CoV-2 Spread in the United States – *What are the odds?*

As of August 25 (May 1) . . .



1 of every 7 (43) Americans may have been *infected* with the virus*

1 of every 8 (7) of these *infections* would be included in reported totals - “*known cases*”

(less than) 1 of every 2 (1) of these *known cases* would still be *active cases*; 1 of every 33 (17) would have *died*

1 of every 66 (17) of these *active cases* would be in the *hospital*

1 of every 5 (4) of those in the *hospital* would be in the *ICU*; 1 of every 18 (11) on a *ventilator*



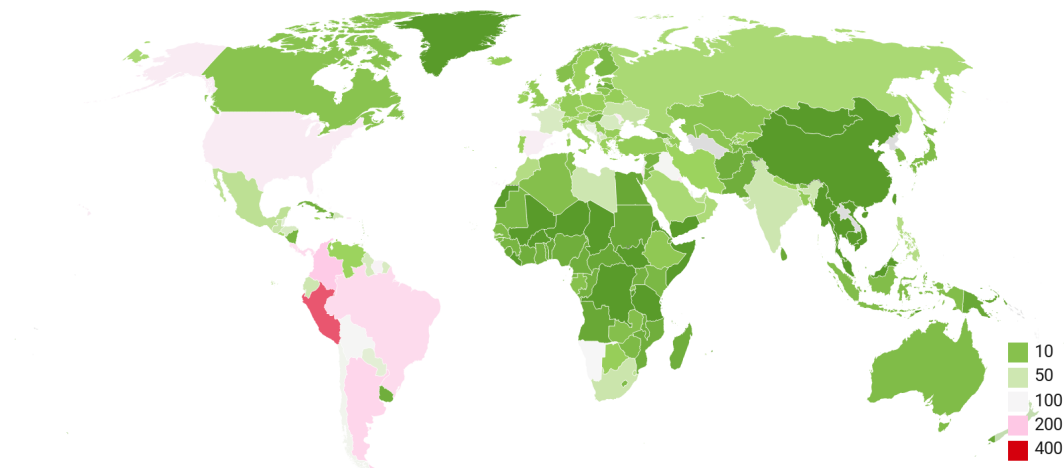
* - based on Youyang Gu's mean estimated total infections

South American countries Argentina, Brazil, Colombia and Peru are high in current New Daily Infection Rates

European countries generally have lower but, increasing rates - Spain and France in particular

New Daily Infections / 1 Million Population

Trailing 7-Day Moving Average, As of August 26



Health Industry Advisor LLC analysis

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

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

New Daily Infections / Million - Selected European Countries

Trailing 7-Day Moving Average

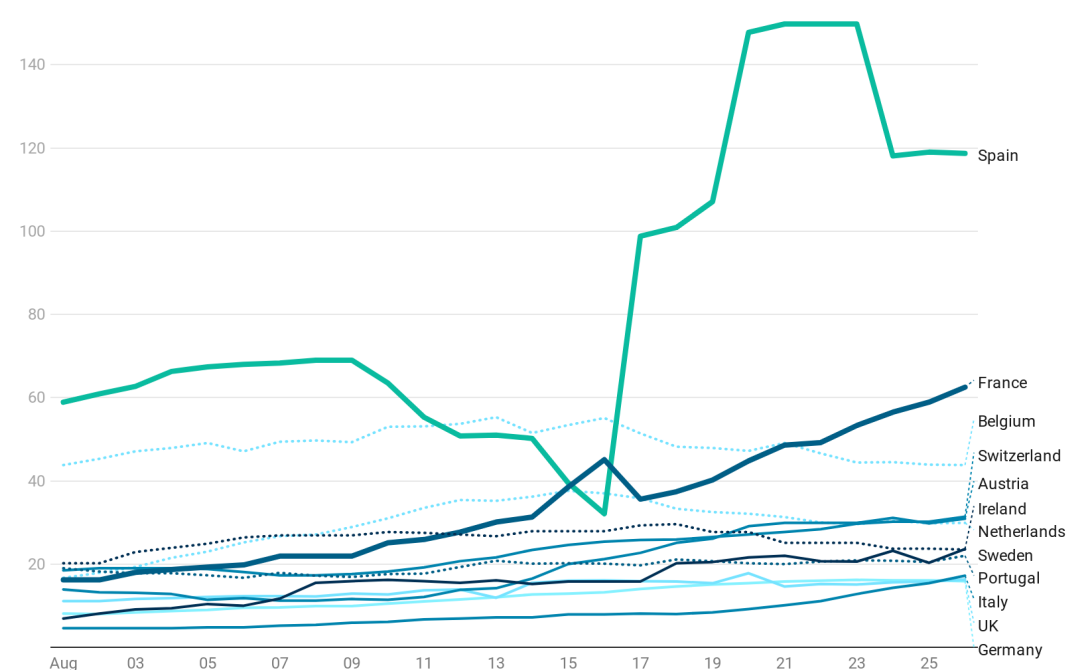


Chart: Health Industry Advisor LLC • Created with Datawrapper

Tuesday's Experience— New Cases & Deaths

There were fewer new cases yesterday than on any Wednesday in the last 9 weeks
Deaths were up significantly from Monday yet (typical day-of-week pattern); were the fewest on a Wednesday in past 5 weeks

New Daily Cases

Through August 26

Wednesdays Highlighted

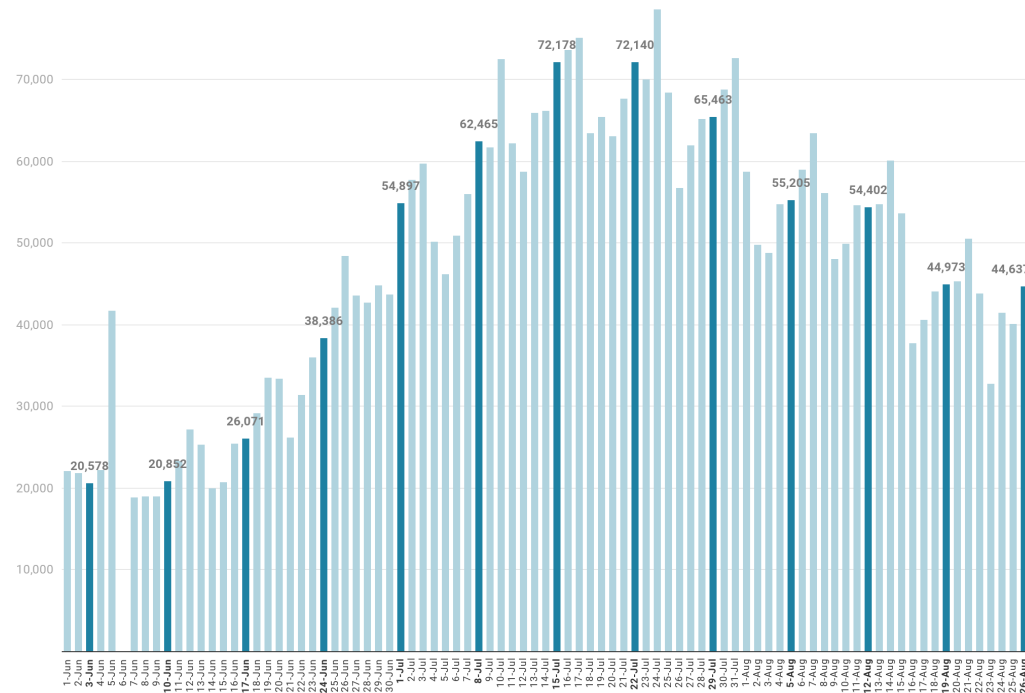


Chart: Health Industry Advisor LLC • Source: eorlometers.info • Created with Datawrapper

New Deaths

Through August 26

Wednesdays Highlighted

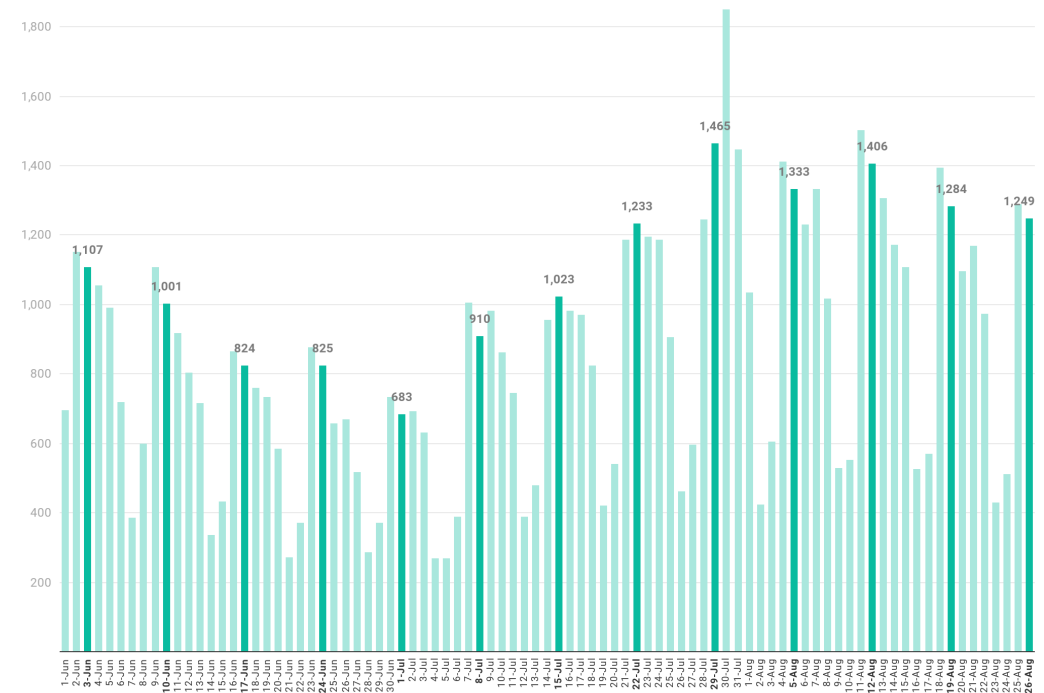


Chart: Health Industry Advisor LLC • Source: eorlometers.info • Created with Datawrapper

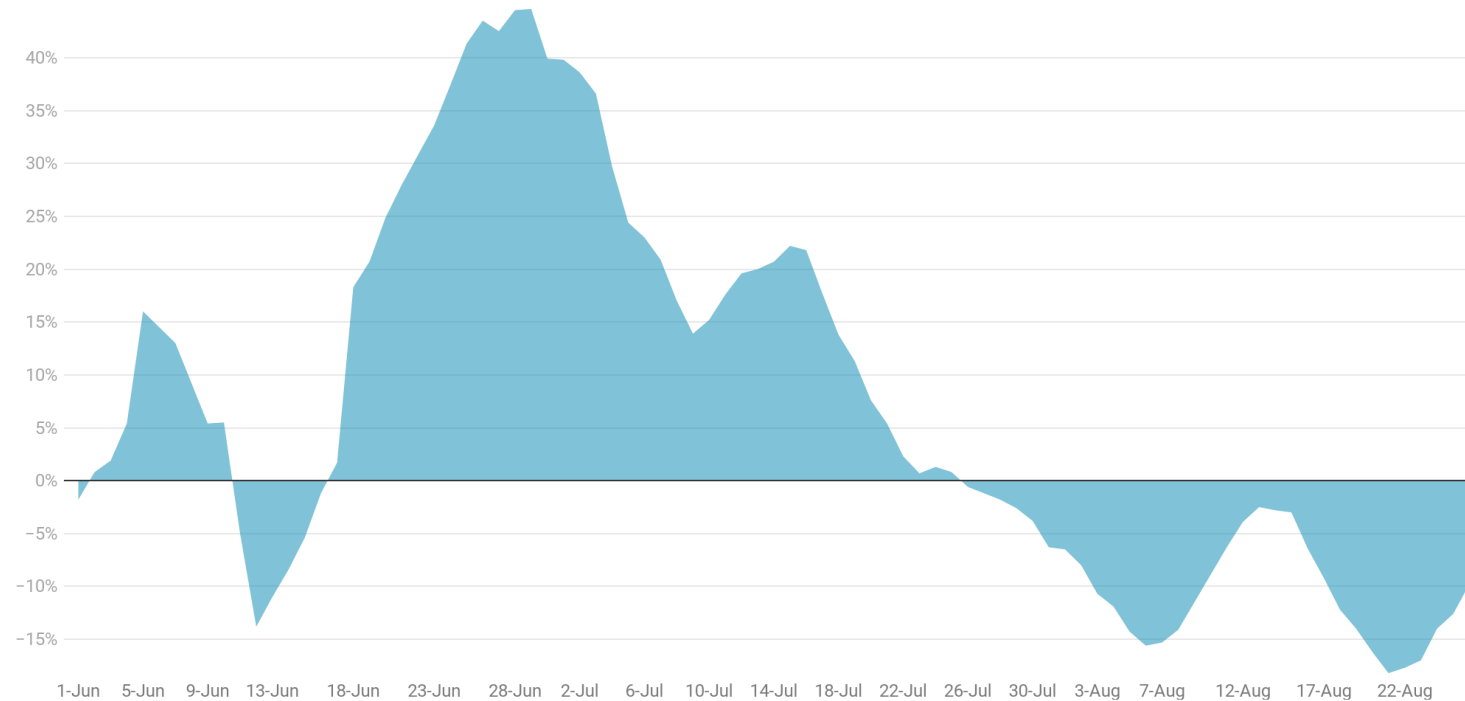
Note the daily pattern: new cases are typically low on Sunday, then increase each day through the week. While we have been noting this for the past few weeks, researchers from MIT, Boston University and Harvard Medical School confirmed this in [a report published by CIDRAP on August 17](#)

United States

Week-over-week, new cases are down 10%; new cases haven't increased week-over-week since July 25

Week-Over-Week Change In New Cases

Through August 26

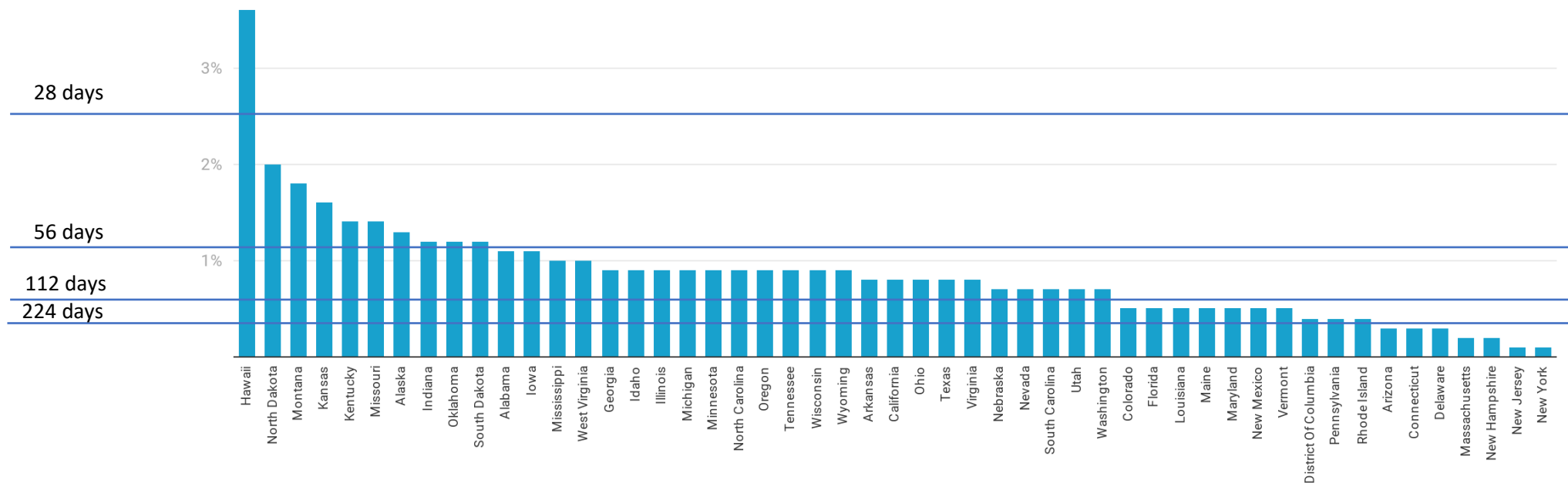


Health Industry Advisor LLC analysis

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

Growth Rate in Total Cases

Trailing 5-Day Moving Average, Through August 26



Health Industry Advisor LLC analysis

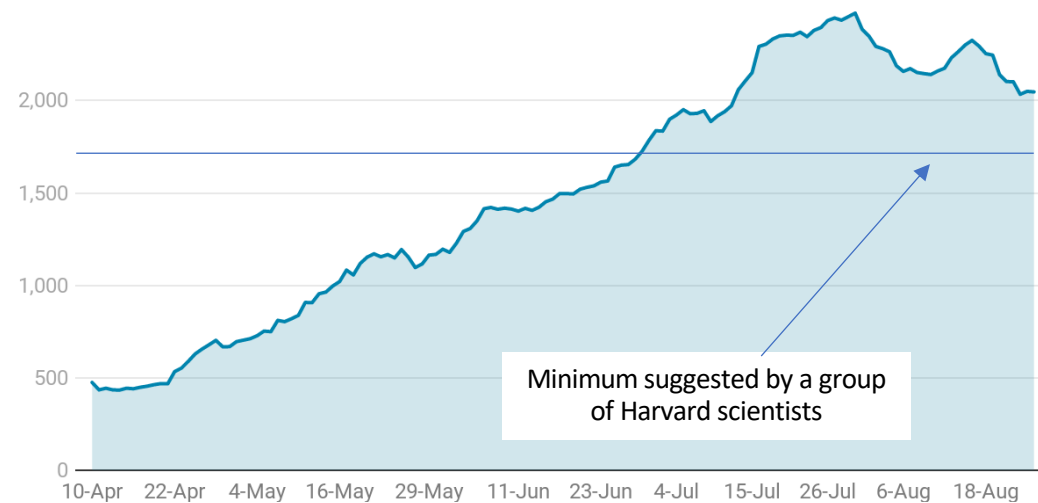
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Testing volume and test-positive rates reported yesterday were impacted by the state of Washington reporting an unusually large number of tests – it had not reported negative tests for the prior 25 days, so this may have been a “catch-up”

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 August 26

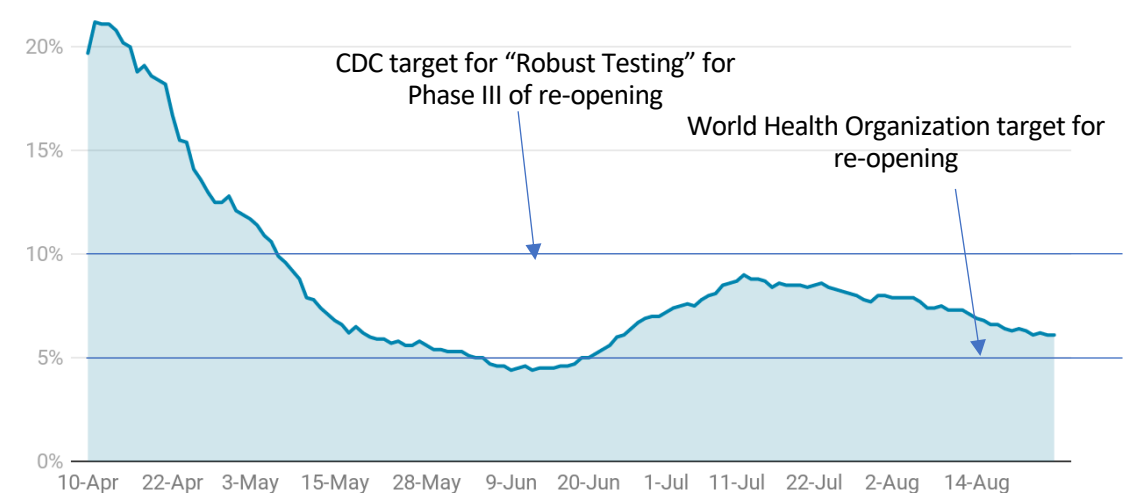


Health Industry Advisor LLC analysis

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 August 26



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 has only reported positive results from August 1-25.

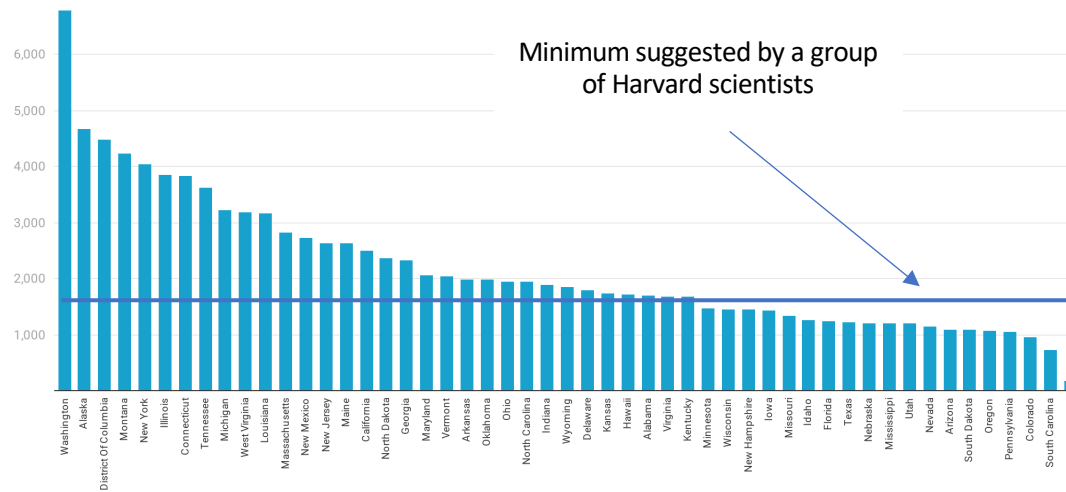
State-By-State

Thirty* states are above minimum-suggested testing rates for the past week
Eleven states have test-positive rates above the CDC-target (10%) for Phase III re-opening; Twenty states* have rates $\leq$ the stricter WHO target (5%)

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 August 26



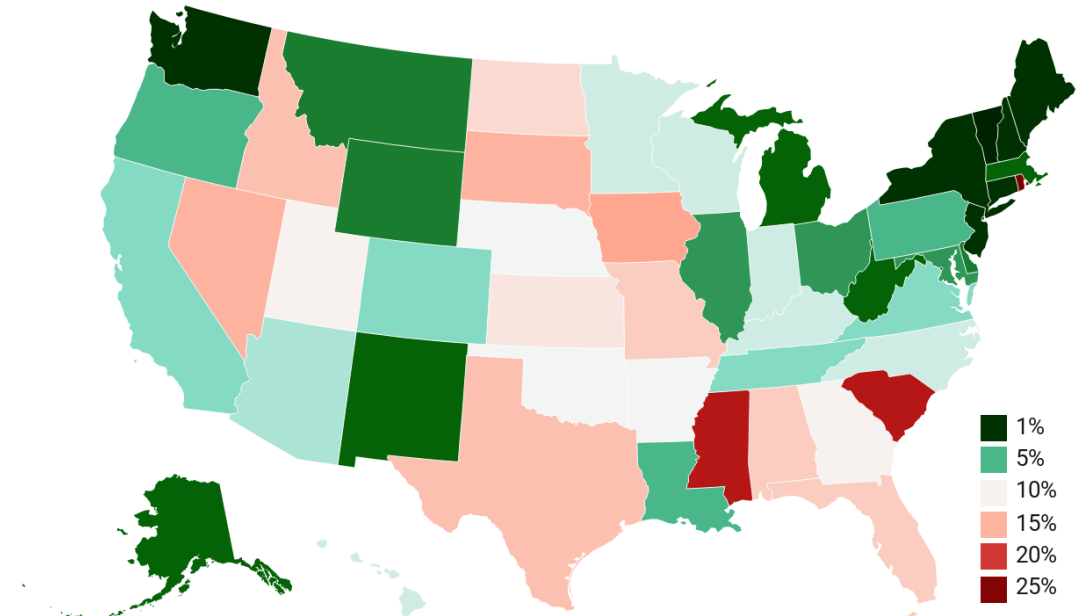
Health Industry Advisor LLC analysis

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

* -Due to a computer glitch, Washington had not reported negative test results from August 1- 25. It then reported a higher than normal test volume on August 26. Thus, we have not included this state in the totals in the headline

Test-Positive Rate

Trailing 7-Day Moving Average, As of August 26



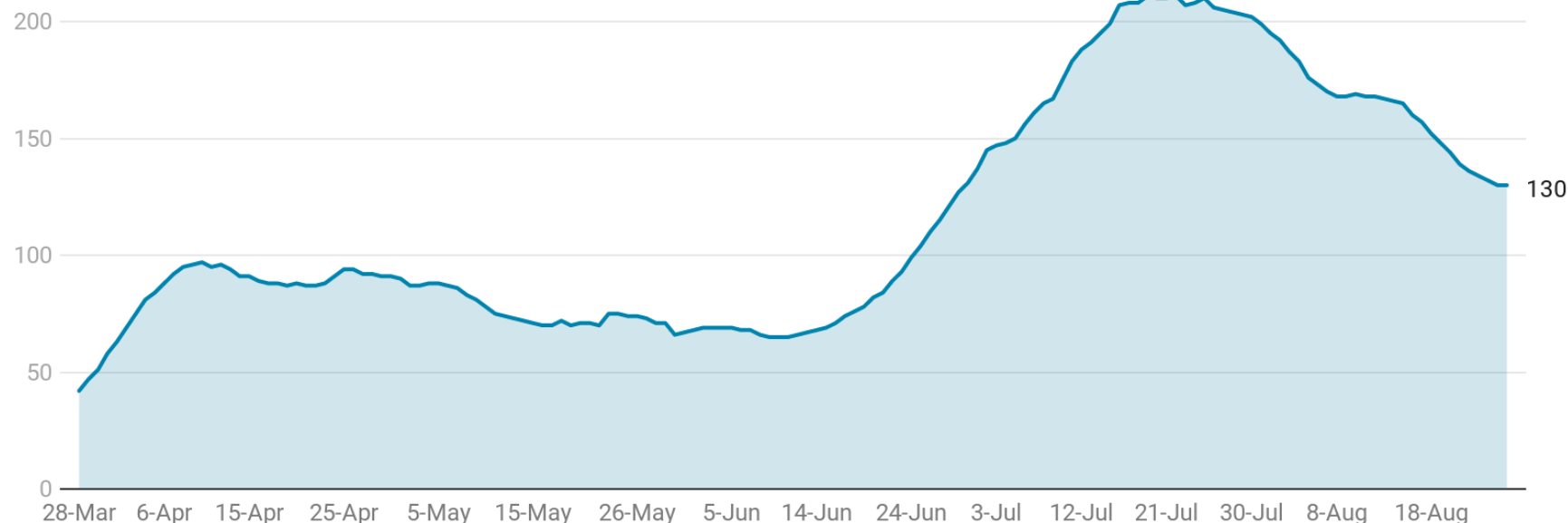
Health Industry Advisor LLC analysis

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

New infections per capita* was unchanged yesterday yet, has steadily declined since its peak during the third week of July
Now at its lowest point in 8 weeks

New Infections Per 1 Million Population - United States

Trailing 7-Day Moving Average, Through August 26



Health Industry Advisor LLC analysis

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

ing average

State-By-State – New Infections per Capita

Mississippi and North Dakota now have the highest rates of new infections. Their rates, along with Alabama, Georgia and Tennessee* were >200 for the past week
Thirty-two states experienced declining rates from a week ago

New Daily Infections / Million

Trailing 7-Day Moving Average

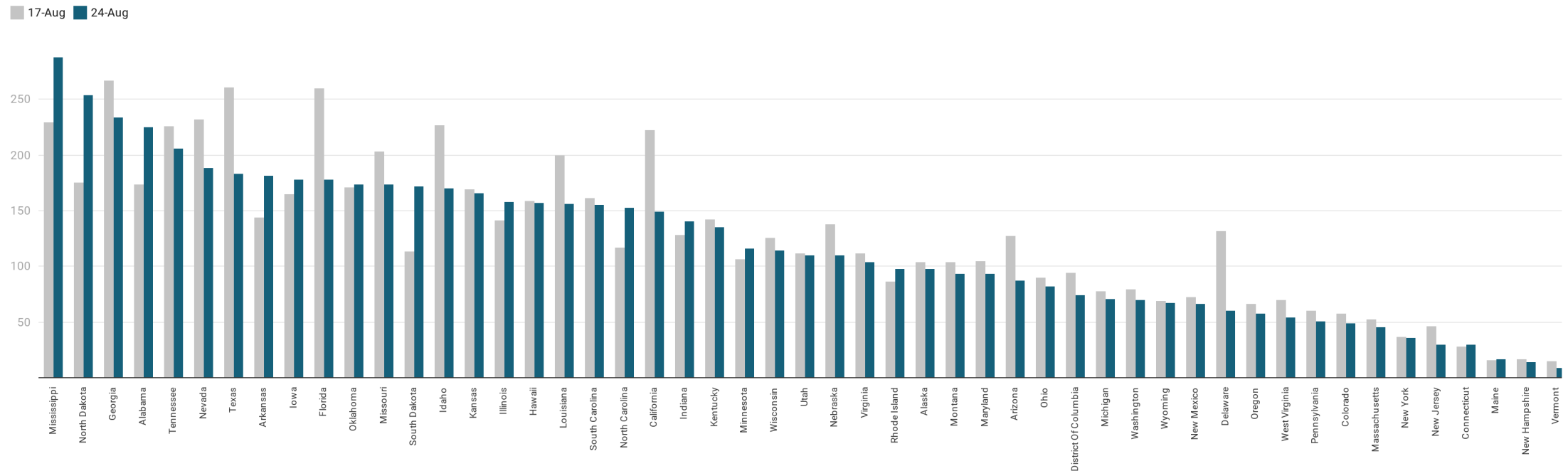
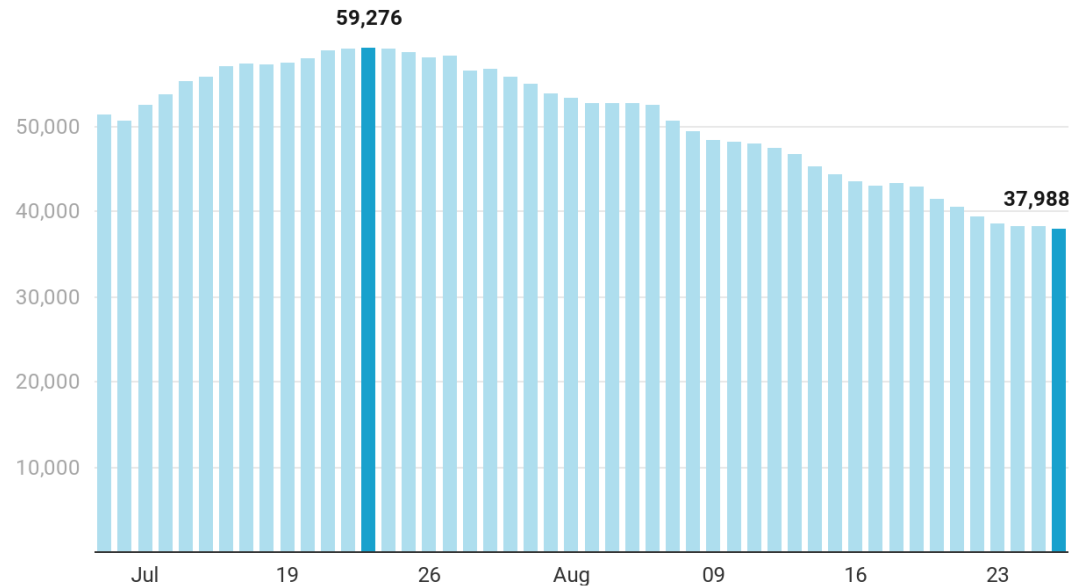


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

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

Hospital Census: COVID-19 Patients

As of August 26

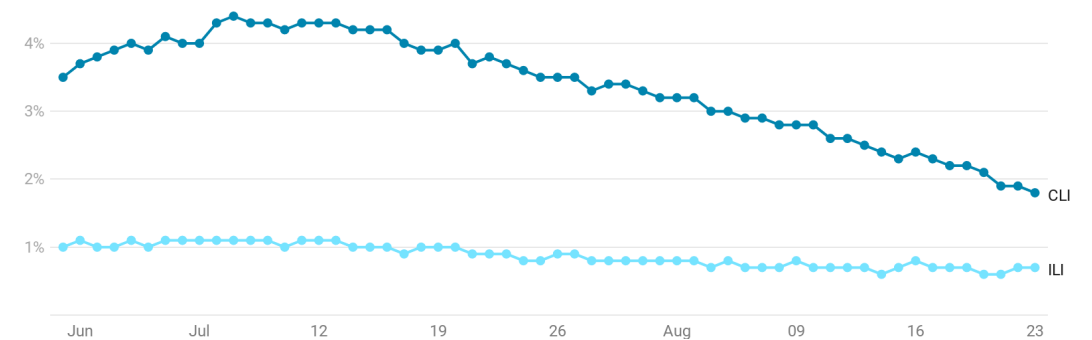


Florida data first available on July 10

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

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

As of August 23



Health Industry Advisor LLC analysis

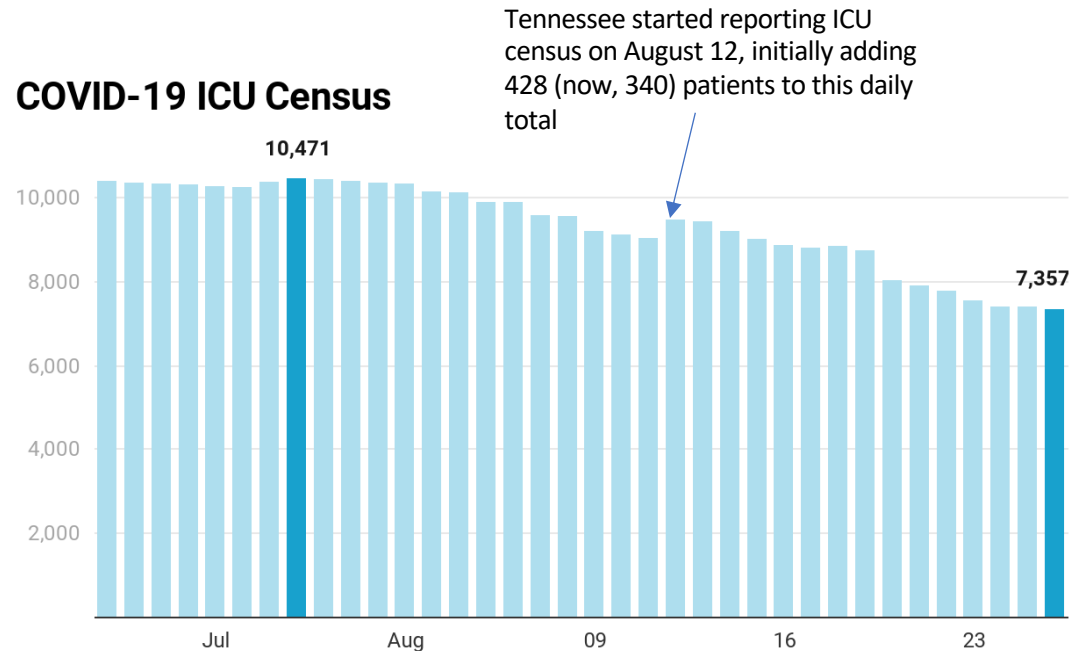
Chart: Health Industry Advisor LLC • Source: Centers for Disease Control • Created with Datawrapper

Stress on ICU beds and ventilators continues to ease:

Daily ICU census has declined since mid-July

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

COVID-19 ICU Census

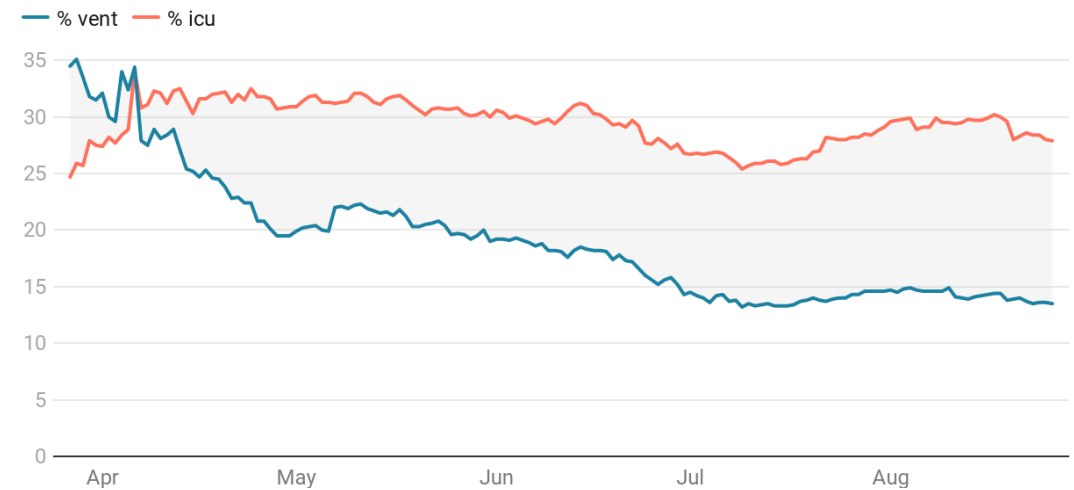


For states reporting these data: AZ, CA, ID, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MS, NV, NJ, NY, NC, OH, OK, OR, RI, SC, TX, UT, VA, WI & WY

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 August 26



Health Industry Advisor LLC analysis

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

3.3 million have recovered from the coronavirus in the U.S.

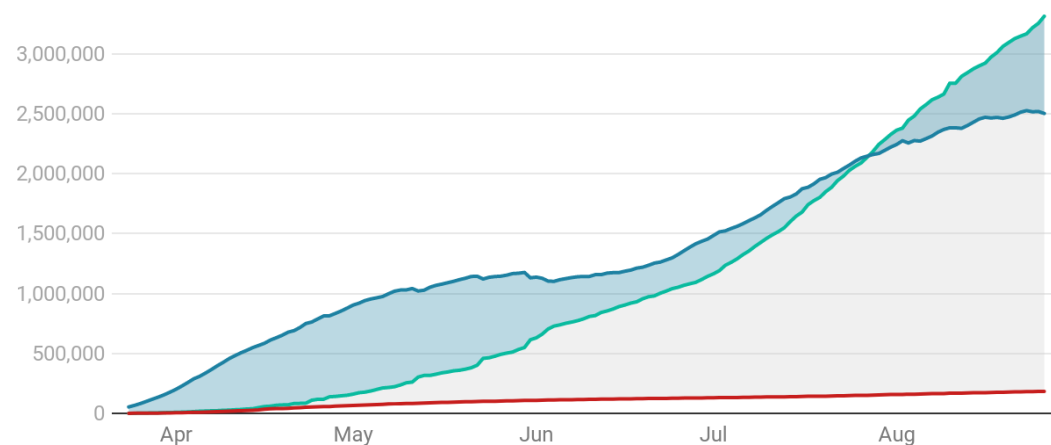
30% more recoveries than active cases at this point

18 people have recovered from the virus for each death

Active Cases v. Recoveries & Deaths

Through August 26

— Active Cases — Recoveries — Deaths

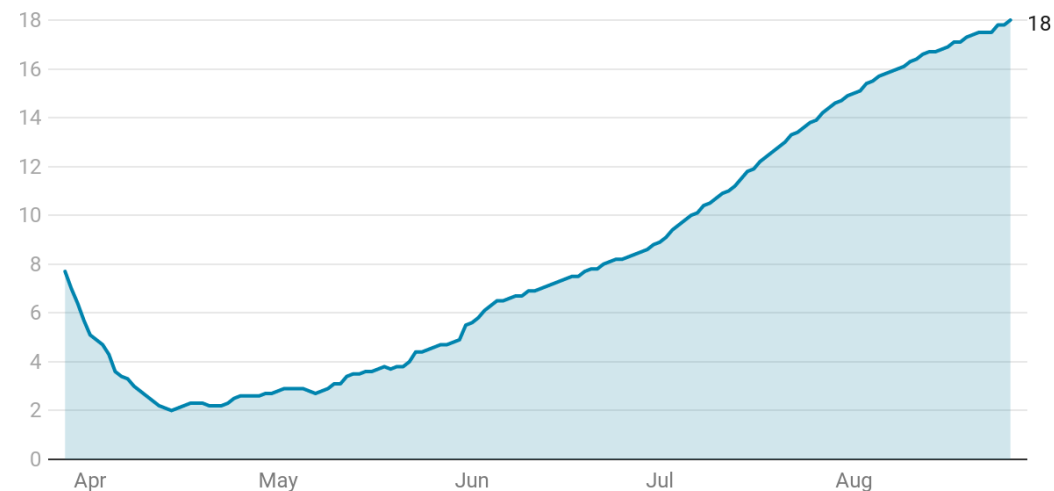


Health Industry Advisor LLC analysis

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

Recoveries: Deaths - United States

As of August 26



Health Industry Advisor LLC analysis

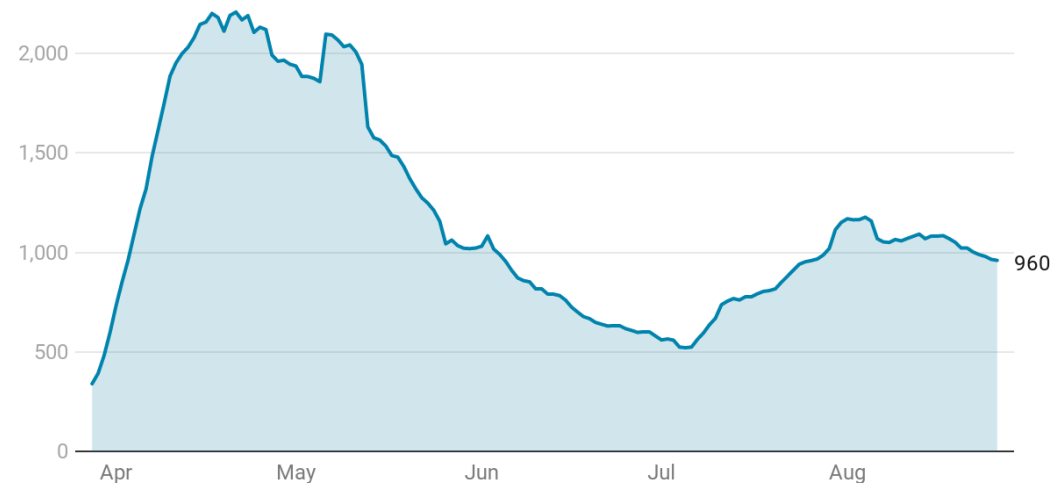
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Daily deaths (7-day average) have trended down for past 9 days; now at their lowest point since July 20-26

Deaths per reported case now <3.1%

Deaths Recorded With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of August 26

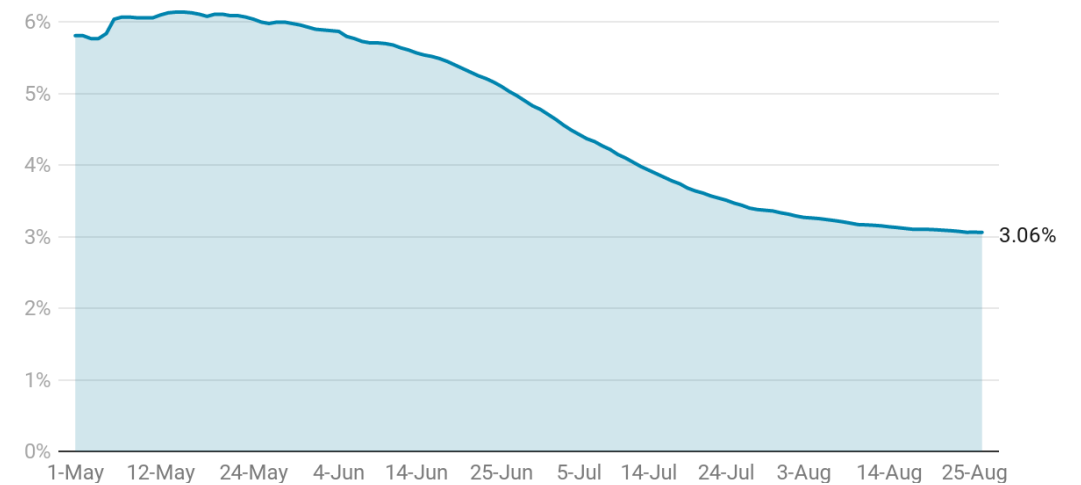


Health Industry Advisor LLC analysis

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

Deaths Per Case

As of August 26



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>