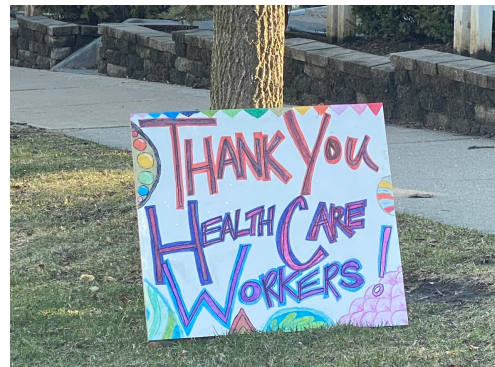
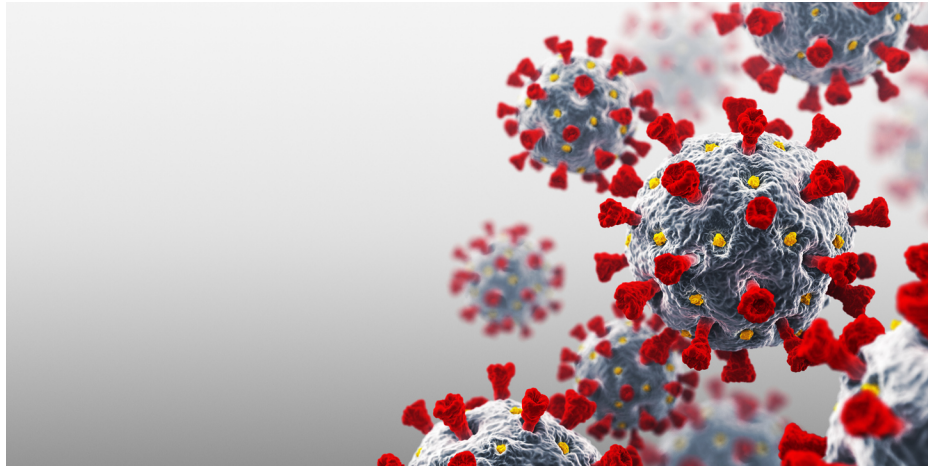
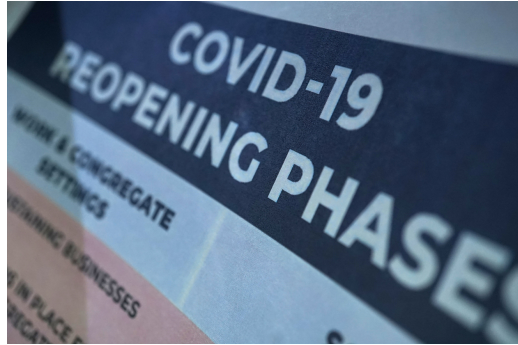




# COVID-19 Report

Issue # 131

Monday, August 10, 2020

## Today's Highlights

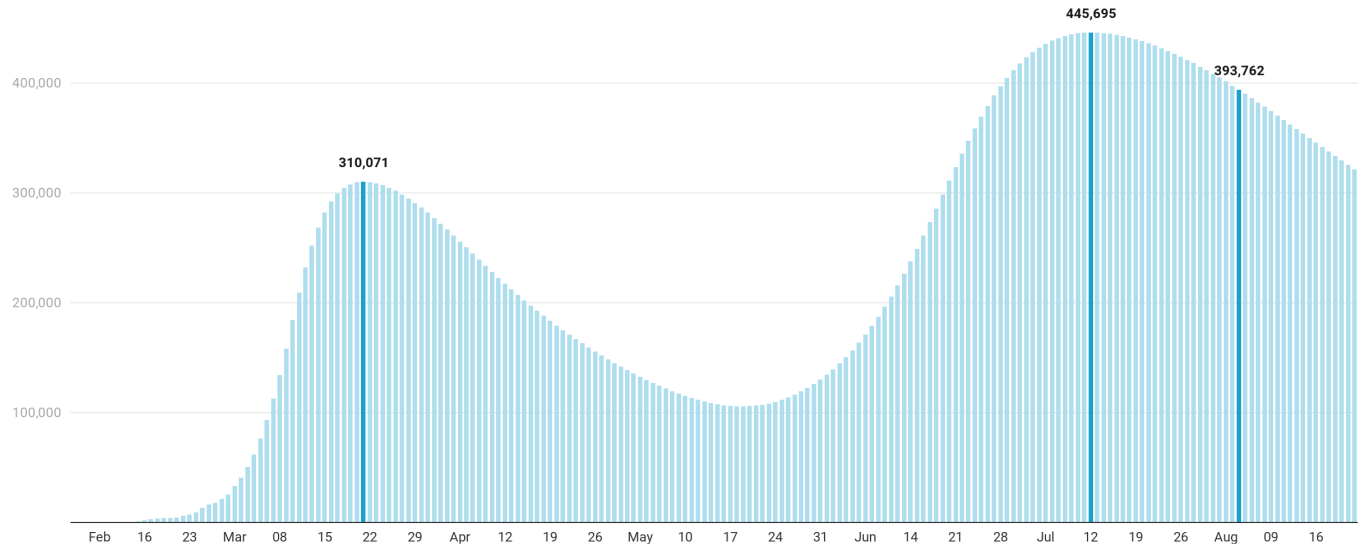
- Digging deeper into the model developed by MIT data scientist Youyang Gu, we assessed the infection spread in hard-hit states and countries around the world. Should Gu's model, and the pattern demonstrated in states hard-hit early (CT, MA, NJ, NY) and more recently (AZ, CA, FL, TX), hold true elsewhere:
  - The original hard-hit states experienced slowing infections after the estimated infection prevalence (% of population infected) was between 12-22%; This pattern repeated for the recently hard-hit states. (Gu refers to this as *effective herd immunity*)
  - Hawaii, Indiana, North Dakota and Virginia - the four states that set new highs for infection rates yesterday - each remain below this effective immunity range. Indiana and Virginia are approaching this range; North Dakota and Hawaii, however, could experience a more-prolonged path before infections slow
  - Hard-hit Brazil and Peru could be reaching a point in which infections slow; Argentina, Colombia, Israel, Panama and others are at risk of prolonged infection spread
- New cases continue on a downward trend in the United States
  - New cases reported on Saturday and Sunday were lower than any weekend since the July 4th holiday (weekends tend to have fewer reported cases than weekdays, likely due to states' reporting processes)
  - On a week-over-week basis, cases are down 11.3% - the rate at which cases are slowing, however, has declined recently
- On an interesting side note - recall early in the crisis when we heard of cases doubling every few days; As of yesterday, case growth has slowed sufficiently in Connecticut that it would now take 2.25 years for cases to double
- New daily infections per capita, on a 7-day moving average basis, were stable from Saturday to Sunday; this rate had declined for fourteen consecutive days prior to Sunday
- The reduced stress on the healthcare system is a most-welcome trend:
  - Hospital census of COVID-19 patients declined again yesterday, continuing a 17-day trend; this census is down 18% during this period
  - The rate at which active cases are being managed in the hospital, which was already low (2.9%) in mid-July, fell further as of yesterday, to 2.1%
  - ICU census of COVID-19 patients also dropped, this for the 11th consecutive day; it is down ~12% during this period
  - Compared to mid-April, even with 8 more states now reporting ICU patients, this ICU census is down ~40%
  - ER visits for COVID-19-like illnesses also continued its more-than-month-long decline. This rate is just over 1/2 its early-June peak
- Lastly - and perhaps, most importantly - deaths continued to decline on Sunday:
  - The 7-day moving average deaths per day has declined for the past five days; it is down 22% during this period
  - This rate fell below 1,000 yesterday, for the first time since July 27

## CDC report suggests that infection rate is higher than reported: How many true infections are there in the United States?

- True infection rates are unknown, due to poor availability of testing; low and asymptomatic cases, etc.
- Gu\* hypothesizes a model that incorporates test-positive rates
- Gu concludes:
  - Infection rate in US peaked on July 12 at ~450,000 new daily cases – higher than ~300,000 mini-peak in March
  - Implied infection fatality rate dropped from 1% in March to 0.6% in May to 0.25% in July, due to:
    - Lower median age
    - Improved treatments
    - Better protection of vulnerable persons
    - Earlier detection
  - Infections slow after reaching 10-35% population prevalence – *presuming that effective infection mitigation efforts are maintained*. Effective herd immunity is lower now than in March/April

### True New Daily Infections - Model Projections

United States



True New infections - daily confirmed cases x (16 \*(positivity rate)\*0.5+2.5)  
Chart: Health Industry Advisor LLC • Source: Youyang Gu • Created with Datawrapper

[\\*Source: "Estimating True Infections: A Simple Heuristic to Measure Implied Infection Fatality Rate", Youyang Gu, July 29, 2020 \(Updated August 5\)](#)

When Could States See Slowing Infections?  
 Connecticut, Massachusetts, New Jersey and New York all saw slowed infections when infection prevalence was 10-20%; Arizona, California, Florida, Georgia and Texas have had similar results recently

## Infection Prevalence

Using Mean Estimate From Gu Model, As of August 8

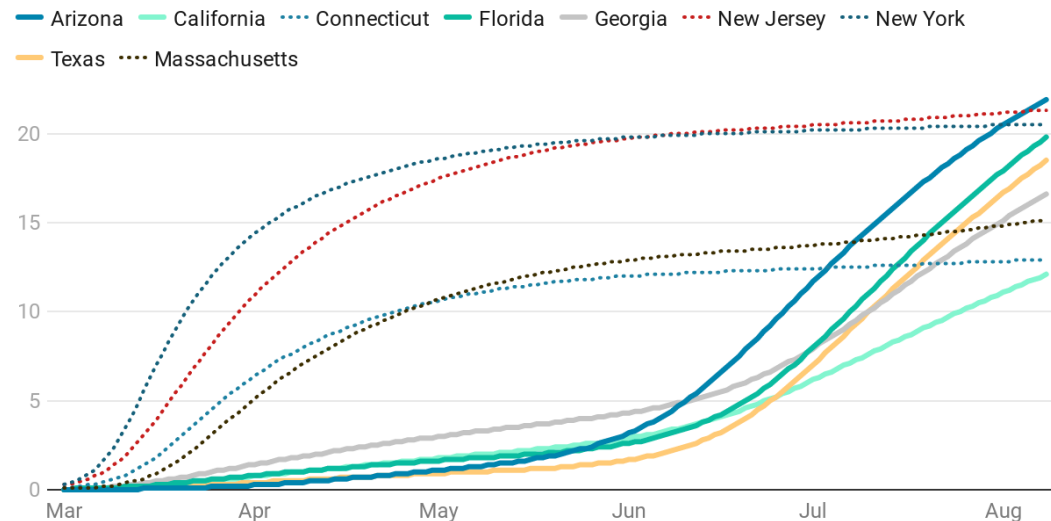
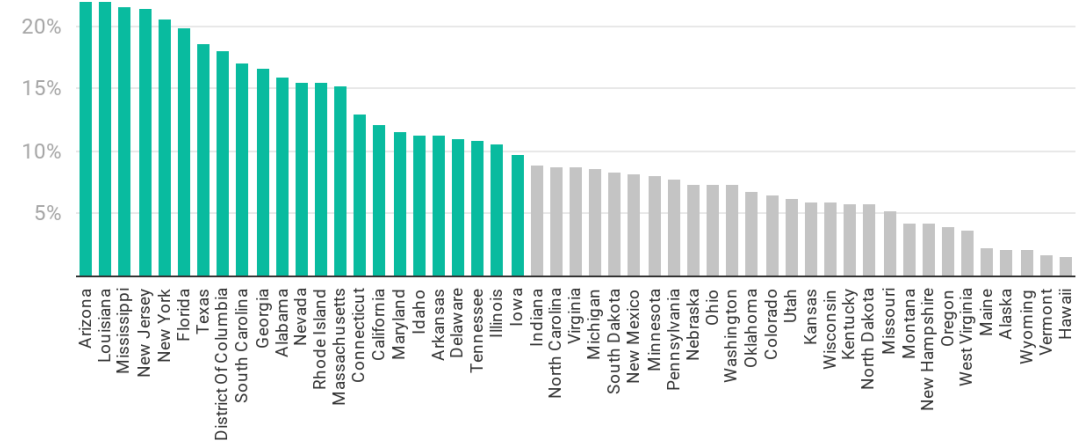


Chart: Health Industry Advisor LLC • Created with Datawrapper

## Mean Estimated Infection Prevalence

As of August 8



Based on MIT Data Scientist Youyang Gu's Model

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

Several Countries Have Estimated Mean Infection Rates > 10%  
Could See Infection Spread Slow (Or, Have Already Done So)

Brazil and Peru have Estimated Mean Infection Rates > 10%  
Could Begin to See Infection Spread Slow  
Other Countries Could Have Prolonged Infection Spread

## Estimated Mean Infection Prevalence

Selected Countries, As of August 8

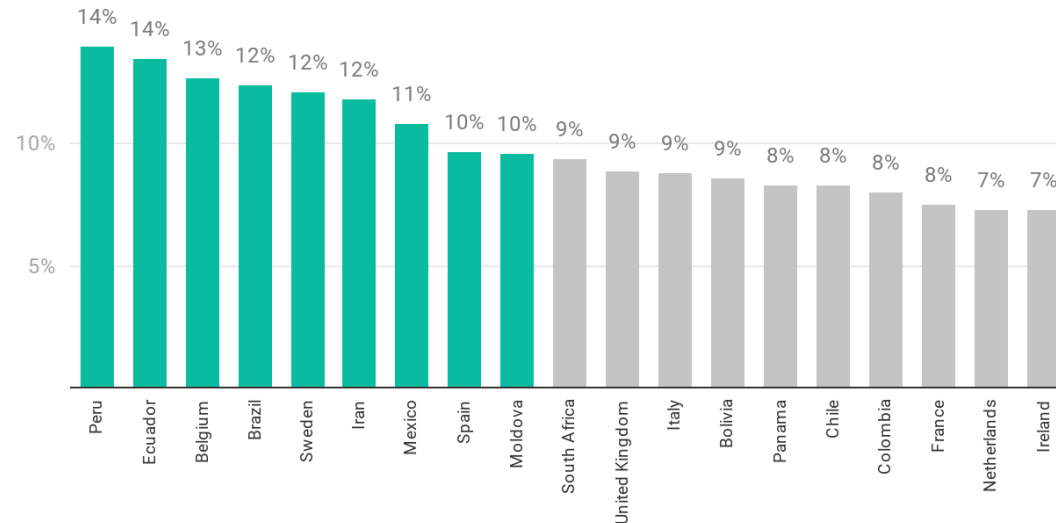


Chart: Health Industry Advisor LLC • Created with Datawrapper

## Countries With High New Daily Infections / Million Population

Trailing 7-Day Moving Average

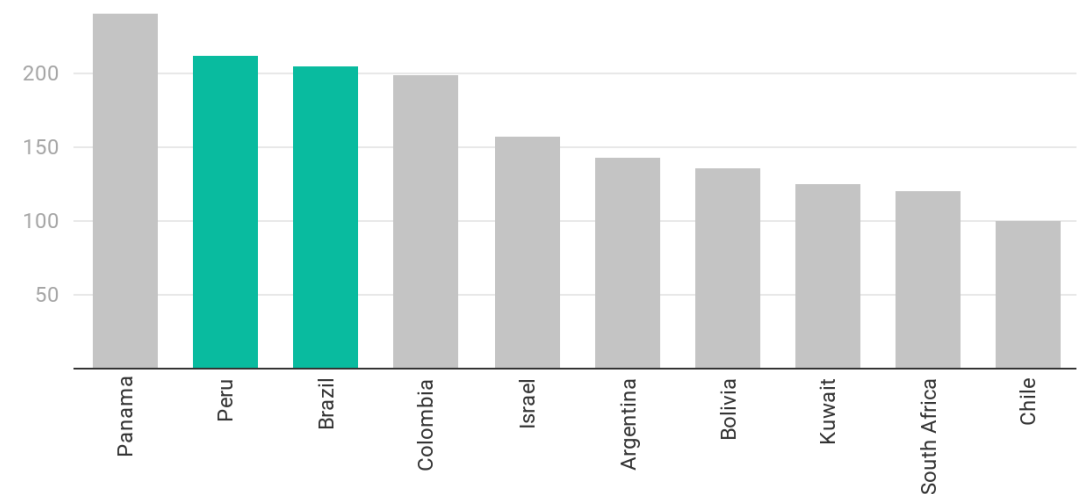


Chart: Health Industry Advisor LLC • Created with Datawrapper

Applying the Infection Prevalence Estimates, Indiana and Virginia could experience more infection spread before it slows; Hawaii and North Dakota have a longer road to travel. Internationally, Colombia has further to travel than Brazil, Mexico and Peru

Gu\* has suggested that at 10-35% infection prevalence, infection spread can slow

## Infection Prevalence

Using Mean Estimate From Gu Model, As of August 8

— Hawaii — Indiana — North Dakota — Virginia

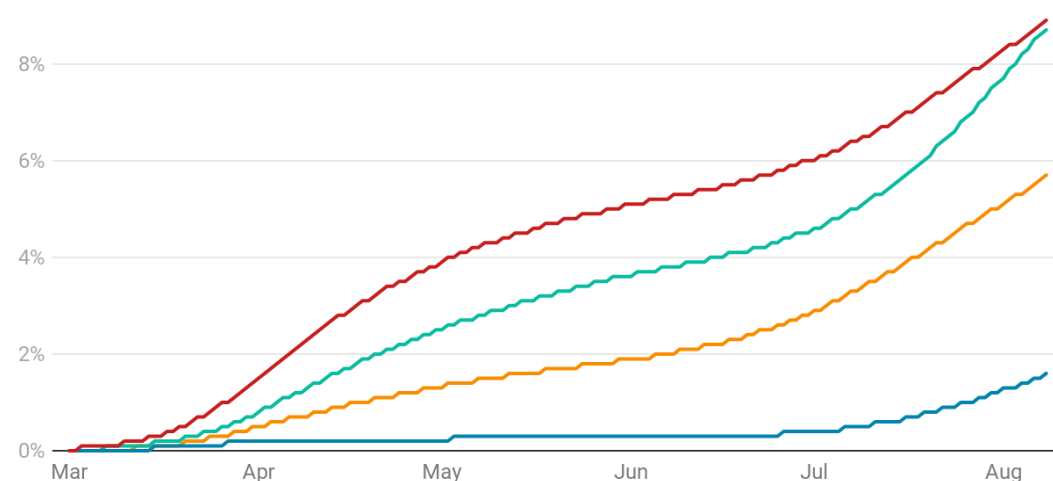


Chart: Health Industry Advisor LLC • Created with Datawrapper

## Infection Prevalence

Using Mean Estimate From Gu Model, As of August 8

— Brazil — Colombia — Peru — Mexico

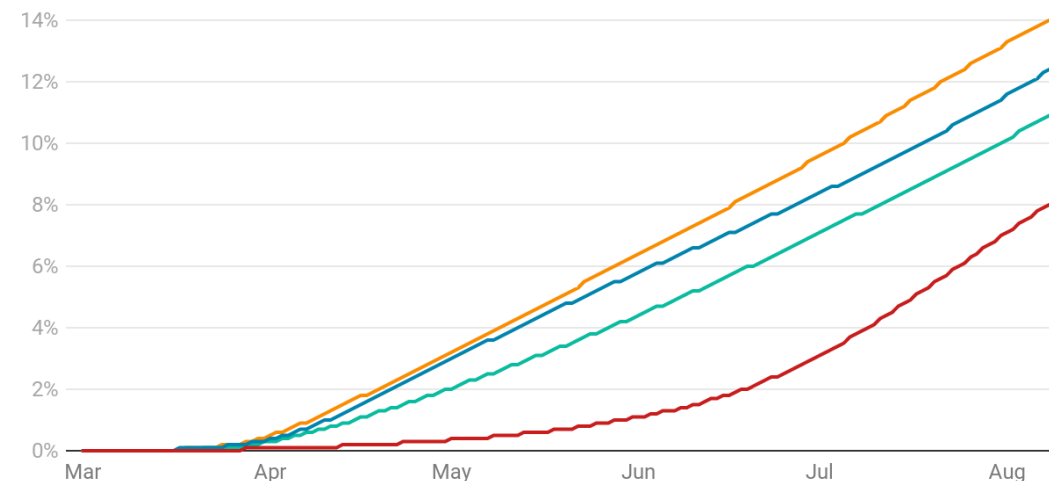


Chart: Health Industry Advisor LLC • Created with Datawrapper

[\\*Source: "Estimating True Infections: A Simple Heuristic to Measure Implied Infection Fatality Rate", Youyang Gu, July 29, 2020 \(Updated August 5\)](#)

## New Cases

Through August 9

Weekend Days Highlighted

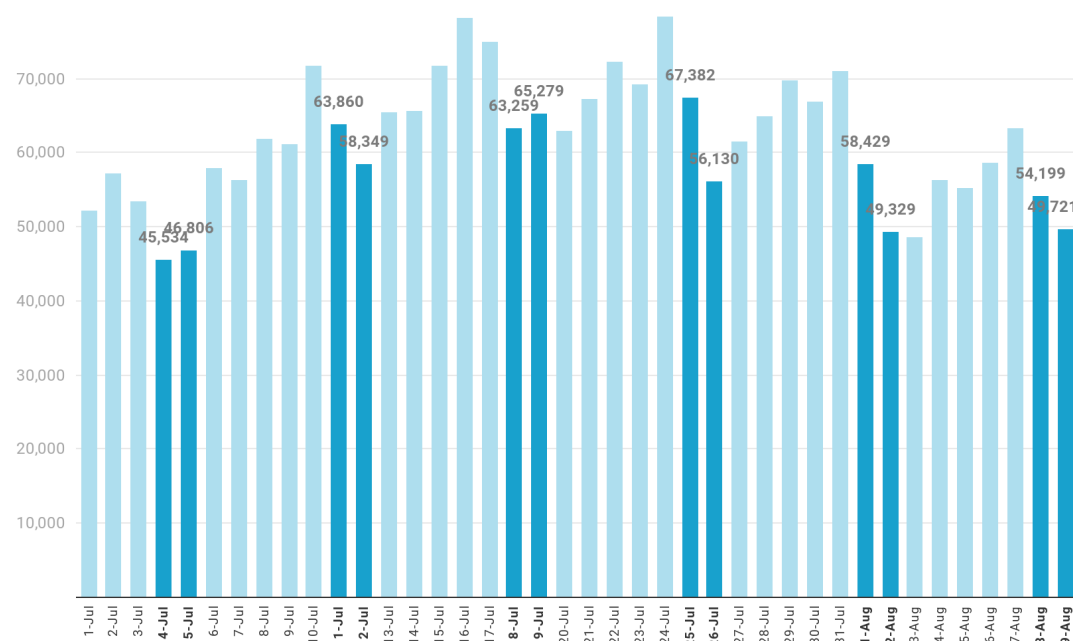
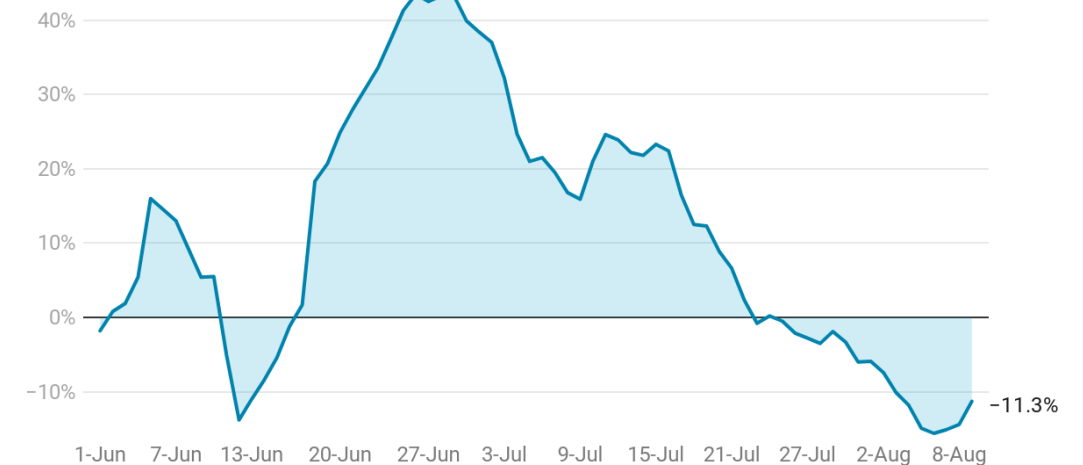


Chart: Health Industry Advisor LLC • Source: eorlometers.info • Created with Datawrapper

## Week-Over-Week Change In New Cases

Through August 9



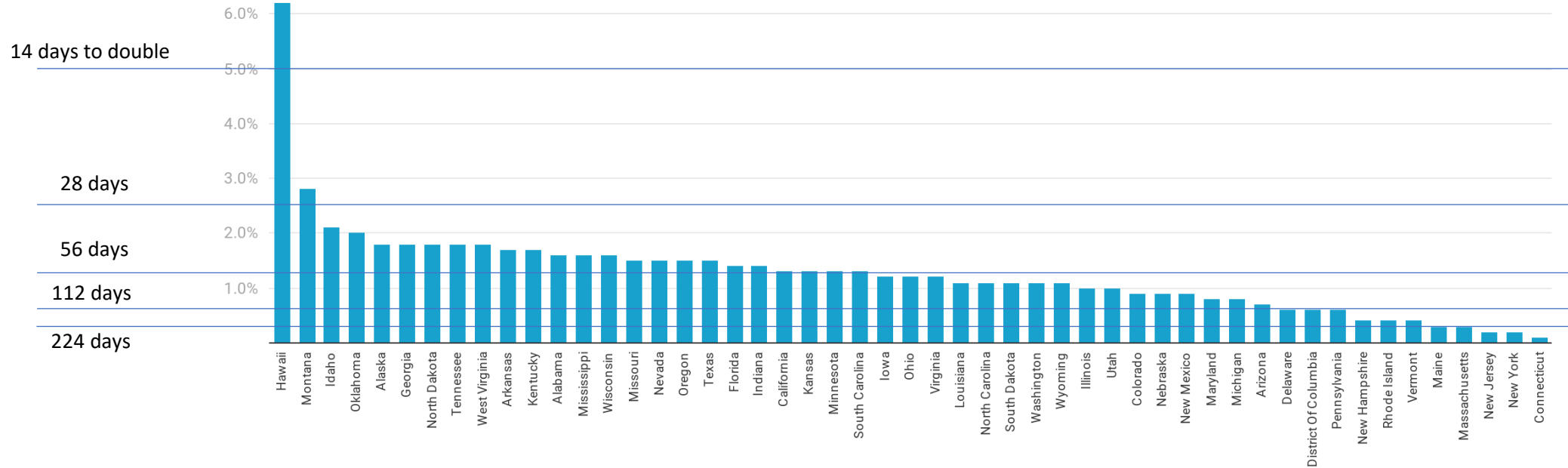
Health Industry Advisor LLC analysis

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

Case growth is slowing but, Hawaii remains the outlier. At current rates, cases are doubling every 11-12 days in Hawaii; every 825 days in Connecticut; 59-60 days for the United States overall

## Growth Rate in Total Cases

Trailing 5-Day Moving Average, Through August 9



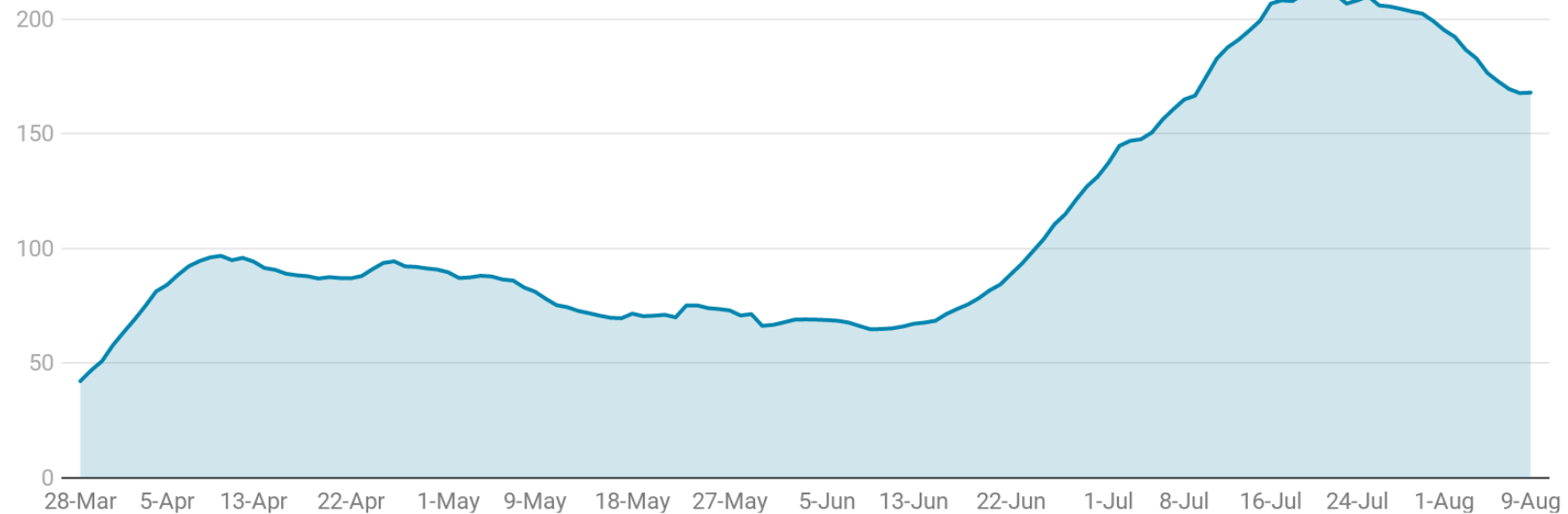
Health Industry Advisor LLC analysis

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

**New infections per capita\* was steady yesterday, following 14 consecutive days of declines**

## New Infections Per 1 Million Population - United States

Trailing 7-Day Moving Average, Through August 9



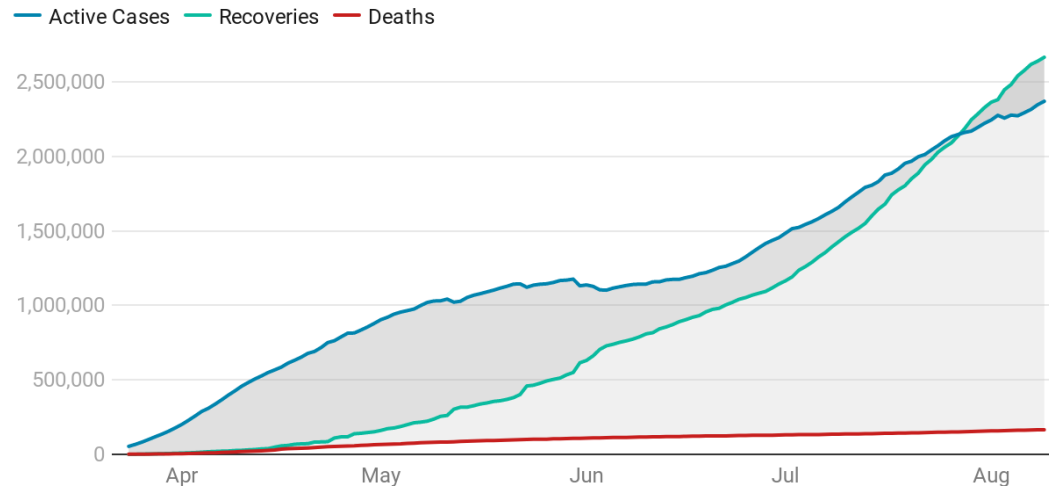
*Health Industry Advisor LLC analysis*

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

ng average

### Active Cases v. Recoveries & Deaths

Through August 9

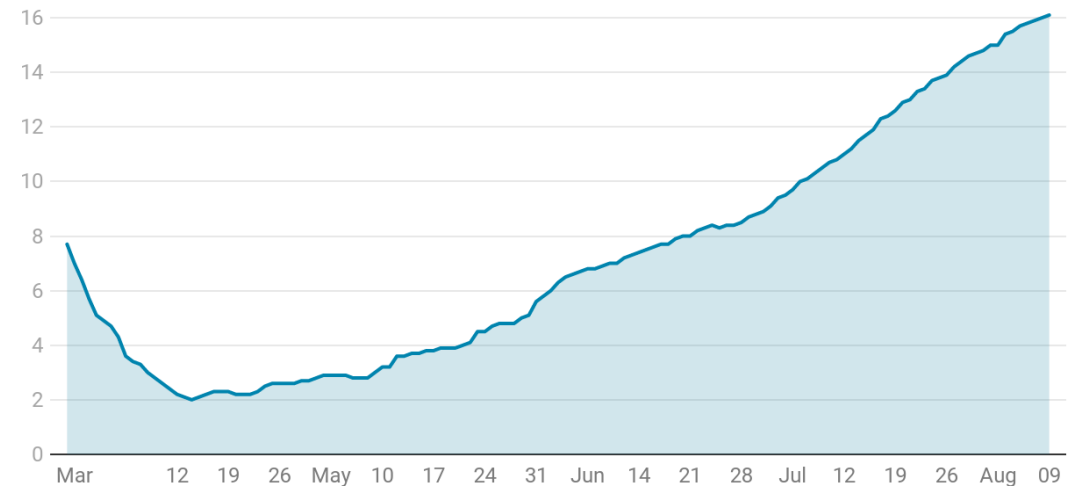


*Health Industry Advisor LLC analysis*

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

### Recoveries: Deaths - United States

As of August 9

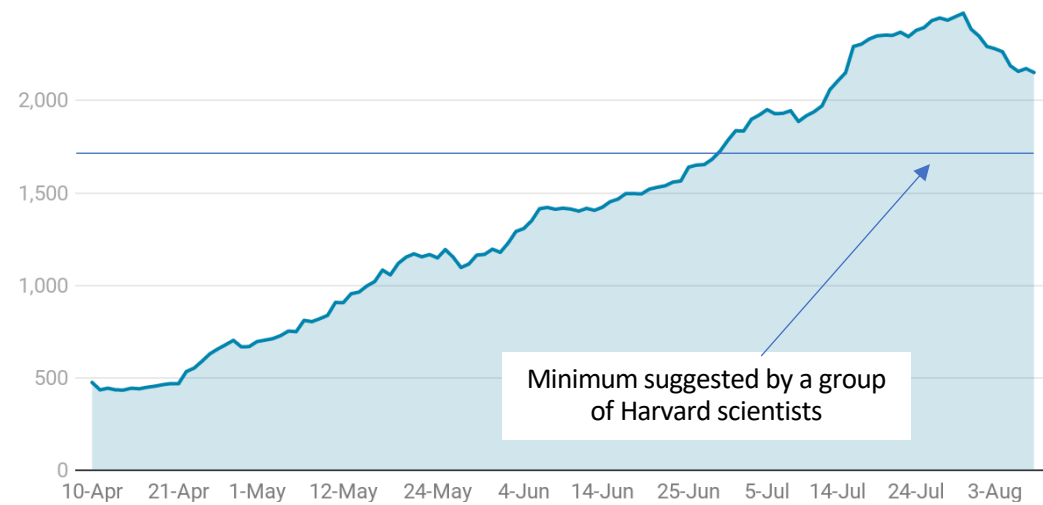


*Health Industry Advisor LLC analysis*

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

## Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of August 8

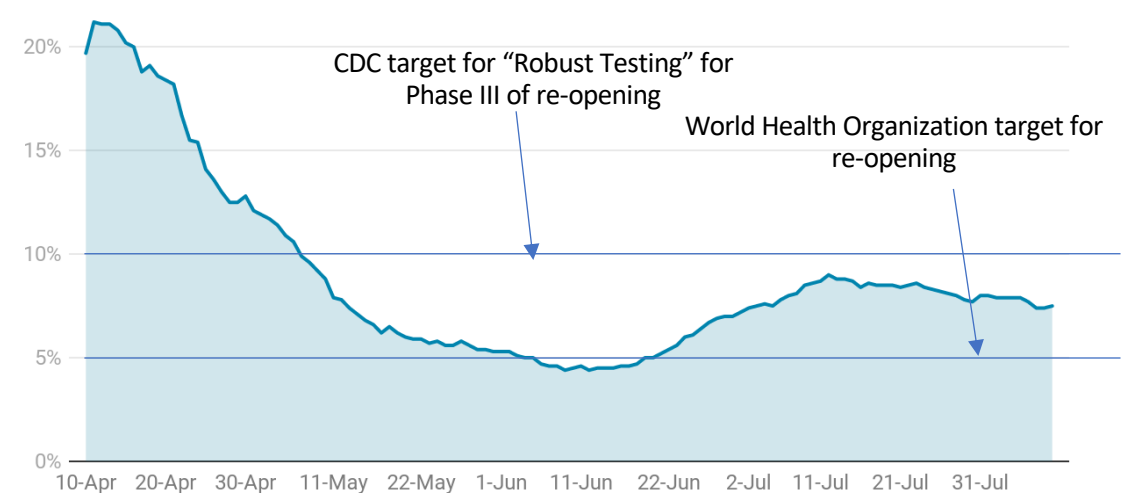


Health Industry Advisor LLC analysis

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 9



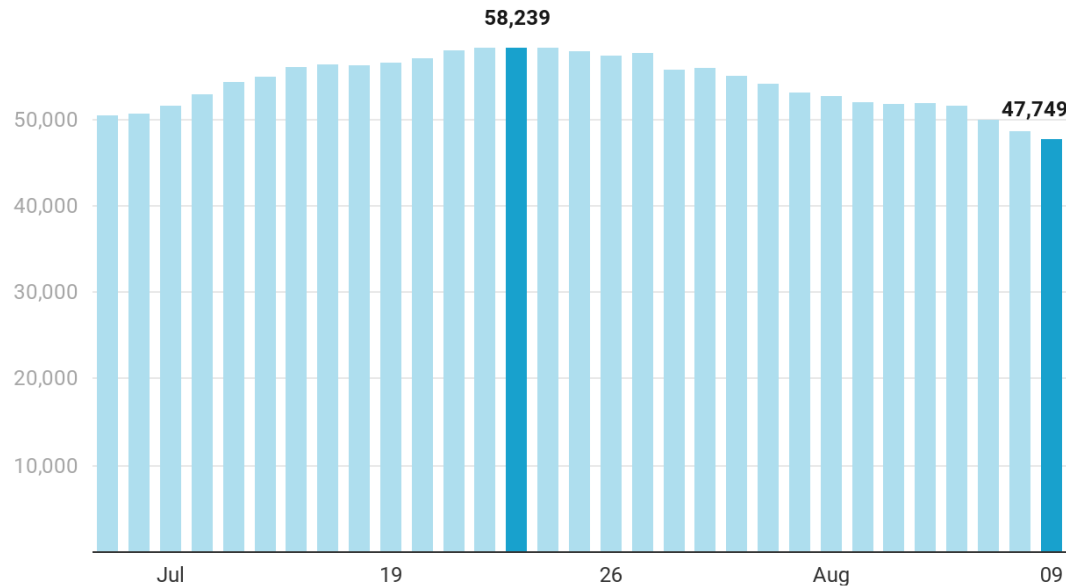
Health Industry Advisor LLC analysis

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

COVID-19 census was lowest since Florida started reporting on July 10; Down 18% from peak; Few (and, fewer) active cases being treated in the Hospital

## Hospital Census: COVID-19 Patients

As of August 9

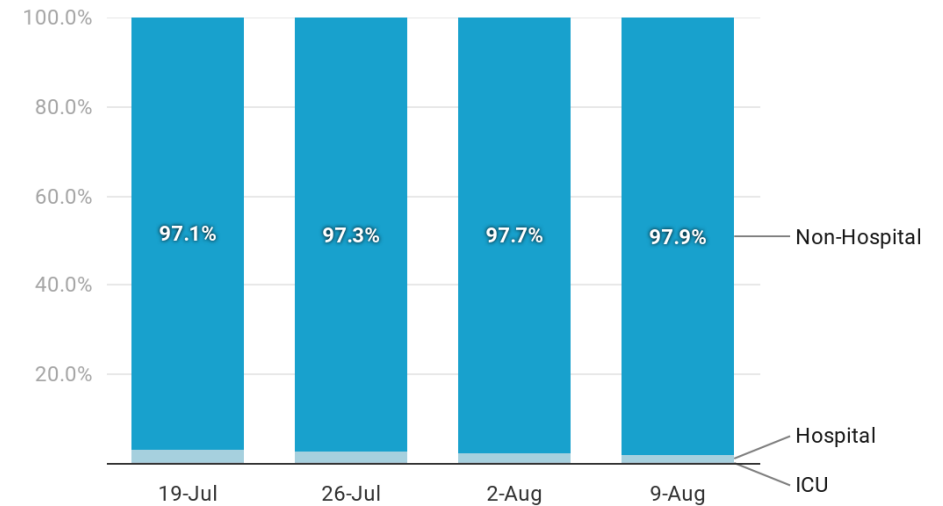


Florida data first available on July 10

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

## Where Active Cases are Being Managed

As of July 19 & 26, August 2 & 9



Includes states that consistently reported hospital data

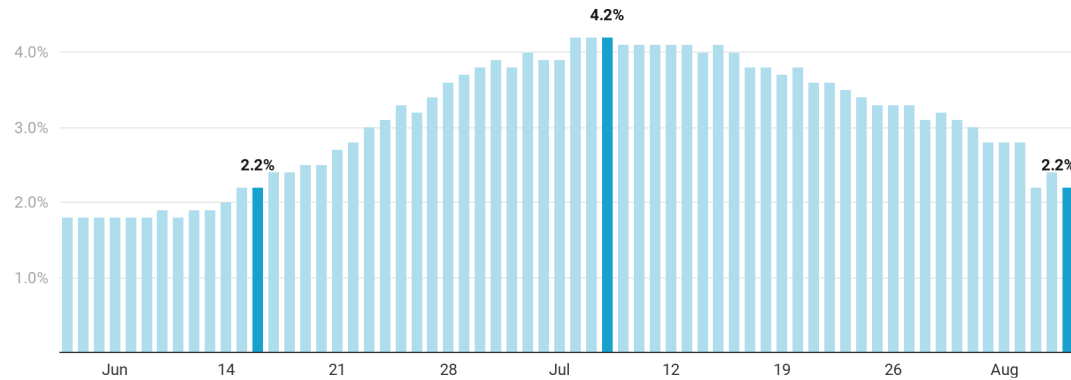
Chart: Health Industry Advisor LLC • Created with Datawrapper

Stress on ICU beds and ERs are also easing; Notably, with eight fewer states reporting, ICU census was ~40% higher in mid-April

ER Visits for COVID-19 are Declining

% of Emergency Department Visits for COVID-Like Illness

As of August 6

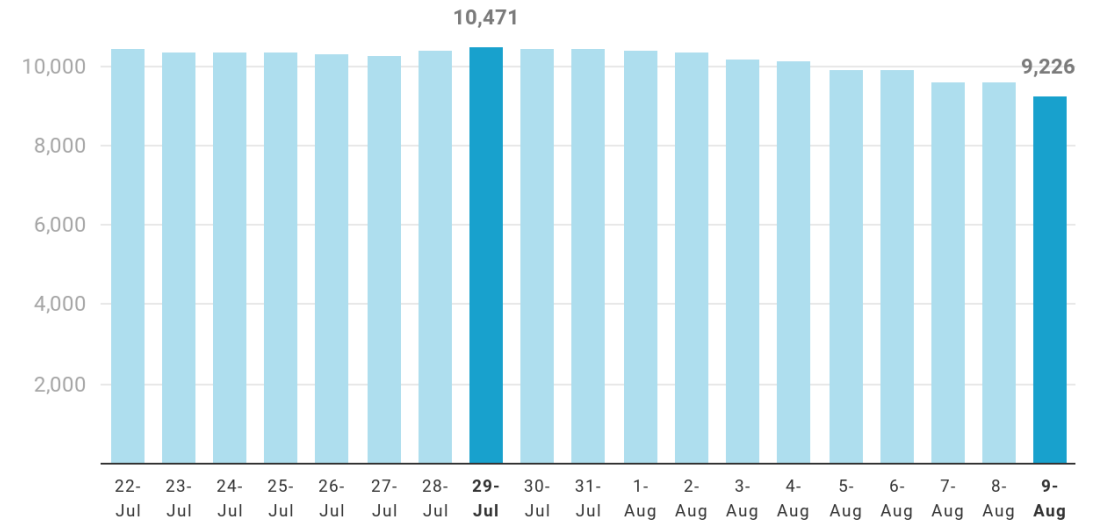


Health Industry Advisor LLC analysis

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

ICU COVID-19 Census Also Down

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

### Deaths Recorded With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of August 9

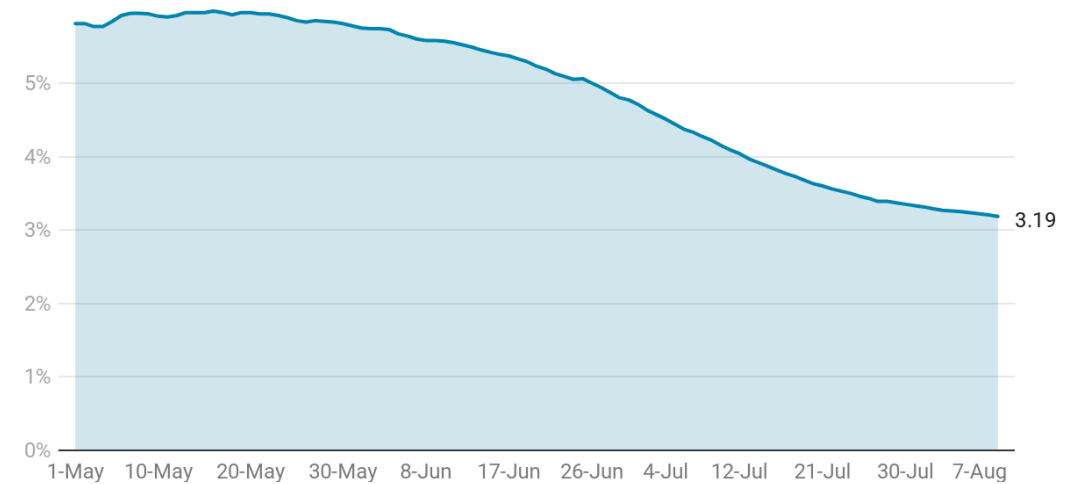


Health Industry Advisor LLC analysis

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

### Deaths Per Case

As of August 9



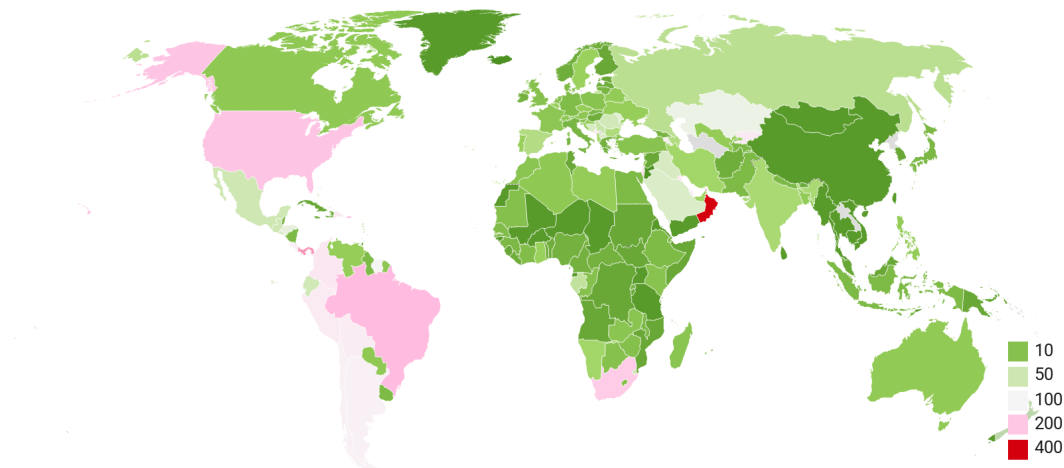
Health Industry Advisor LLC analysis

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

Over the past two weeks, infection spread has eased somewhat in the United States and South Africa; intensified in Colombia and Peru

### New Daily Infections / 1 Million Population

Trailing 7-Day Moving Average, As of July 26

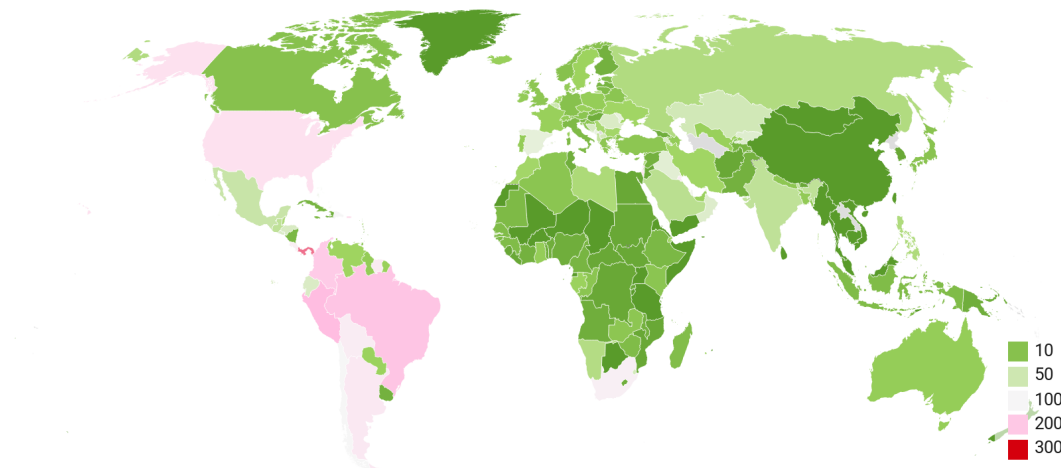


Health Industry Advisor LLC analysis

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

### New Daily Infections / 1 Million Population

Trailing 7-Day Moving Average, As of August 9

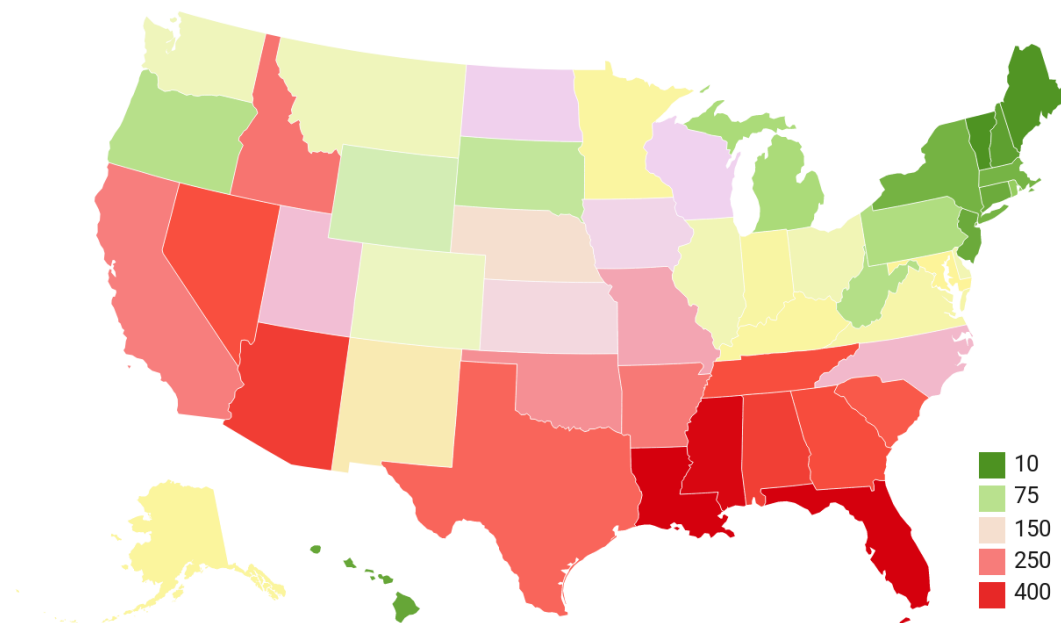


Health Industry Advisor LLC analysis

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

### New Daily Infections Per 1 Million Population

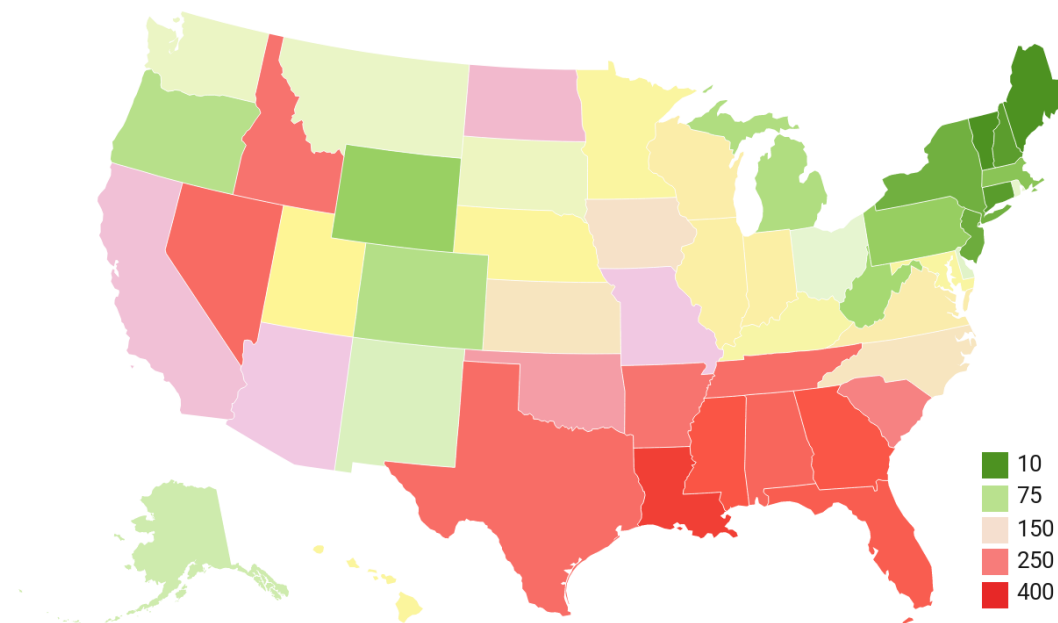
Trailing 7-Day Moving Average, As of July 26



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

### New Daily Infections Per 1 Million Population

Trailing 7-Day Moving Average, As of August 9



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

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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](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>