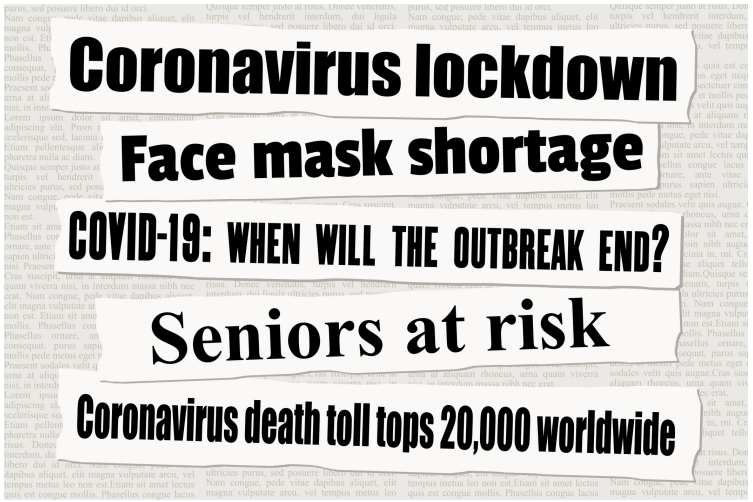
Issue # 192

Thursday, October 22, 2020

COVID-19 Report

Highlights

- **The are several states that are "on-fire"**, to borrow the language of Dr. Osterholm of the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota:
  - **Montana, North Dakota, South Dakota, Wisconsin and Wyoming are struggling with high and increasing infection rates and Covid-19 hospital census at or near peak levels**
  - **Montana, North Dakota, South Dakota and Wisconsin's 7-day new infection rate per capita are each higher than experienced by any other state at any time during the pandemic**
  - Except for California, Delaware, Hawaii and Maine, every state experienced an increase in this 7-day new infection rate relative to two weeks ago
  - California, Connecticut, District of Columbia, Maine and New York are generally doing well across key metrics
- **At the state-level, are we seeing the first true "second wave" in infections?**
  - There have been three distinct periods of rising infections in the U.S., with generally different stats fueling the rising infections during each period: March/April, June/July and September/October
  - The first period was concentrated in the Northeast, including Connecticut, Massachusetts, New Jersey, New York and Rhode Island
  - The second period was concentrated across the South and West
  - The current period is concentrated in the Midwest and Mountain States; States peaking during this period are experiencing generally higher peaks than states that peaked in earlier periods
  - With few exceptions to-date, states have not experienced high infection rates in more than one of these three periods (defined here as >300 new daily infections per million). The exceptions:
    - **Louisiana exceeded 300 new daily infections per million in March/April and again in June/July; Different parishes drove these infection spikes, however, in each period**
    - **Rhode Island exceeded this rate in March/April and has recently threatened the rate recently**
    - **Idaho and Tennessee each exceeded this rate in the June/July period and has again done so recently**
- **The U.S. is experiencing a rising 7-day average daily death total - with the rise in new infections, this is something to monitor**
  - This rate has risen six consecutive days
  - It remains, however, lower than it was for most of August and September and significantly lower than April, May and the first 1/2 of June
- **Rising Covid-19 inpatient census is a concern, particularly in certain states**
  - Nineteen states are within 15% of their peak Covid-19 census experienced during the pandemic; Nine of these are at peak
  - States that have experienced increases of >100 patients/day over the past week and that are at or near the peak census experienced to date: **Arkansas, Indiana, Minnesota, New Mexico, Ohio, Oklahoma, Tennessee and Wisconsin**
  - **The three states that have experienced the largest week-over-week increase in Covid-19 census, however - Texas, Illinois and Pennsylvania - remain at <50% of peak Covid-19 census**
- **Internationally, new cases are being detected at a high rate and Europe is "on-fire"**
  - **Newly detected daily cases have increased by nearly 20% in just the past eight days (from 330k per day to 390k per day)**
  - **Europe is home to the four countries with the highest 7-day new infection rates - Andorra, Belgium, Czech Republic and Vatican City - and, twelve of the highest fourteen**
  - United States ranks thirty-second in the world on this rate
  - Belgium, France, Gibraltar and the Netherlands have experienced both high 7-day rates and significant increases in this rate relative to two weeks ago



State-By-State Perspective

State-By-State Scorecard

Designed to reflect five critical measures of a state's current experience with Covid-19

At his point, we have elected not to provide an overall score – in our view, different audiences would assign different priorities to each of the five measures

For example, health systems might weigh the Covid-19 census v. peak highest; A community might weigh the deaths per case highest

Worse ← → Better

Metric		Black	Red	Orange	Yellow	Green	Blue
7-Day Average New Daily Reported Infections per Capita	Greater than	450	350	250	150	50	0
Week-over-Week Change in Newly Reported Cases	Greater than	30%	20%	10%	0%	-10%	N/A
7-Day Average Viral Tests per 7-Day Average Newly Reported Cases	Less than	5	10	25	50	75	N/A
7-Day Covid-19 Inpatient Census v. Peak Covid-19 Inpatient Census	Greater than	95%	85%	75%	50%	25%	0%
7-Day Deaths per 1000 New Cases (28-day lag)	Greater than	50	40	30	20	10	0

Health Industry Advisor, llc

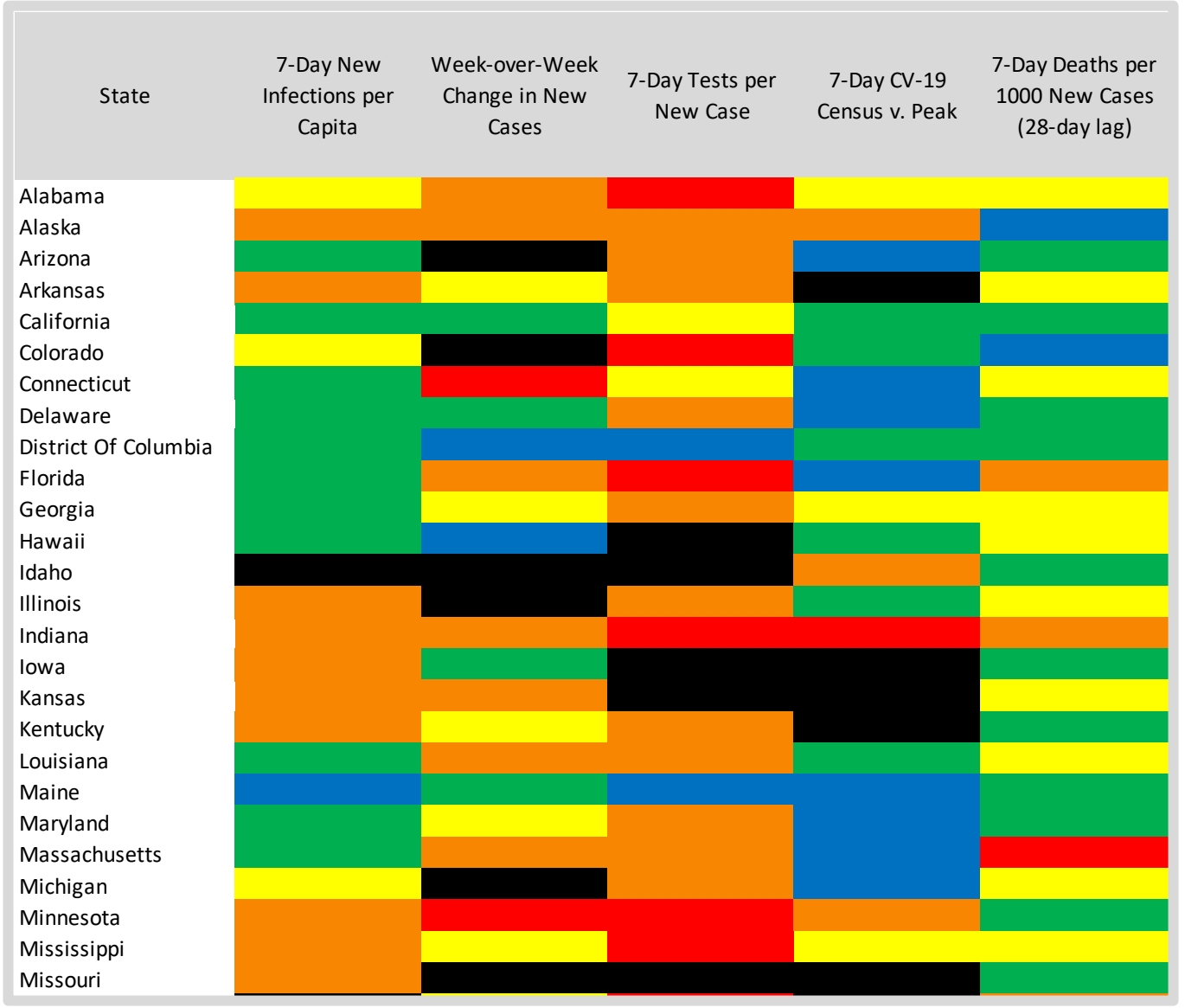
Scorecard (1 of 2)

Maine and the District of Columbia are doing well across all categories

California is doing well, save for its testing efficiency

Connecticut is doing well, save for week-over-week increases in newly reported cases

Idaho, Minnesota and Missouri are struggling, save for the case fatality rate

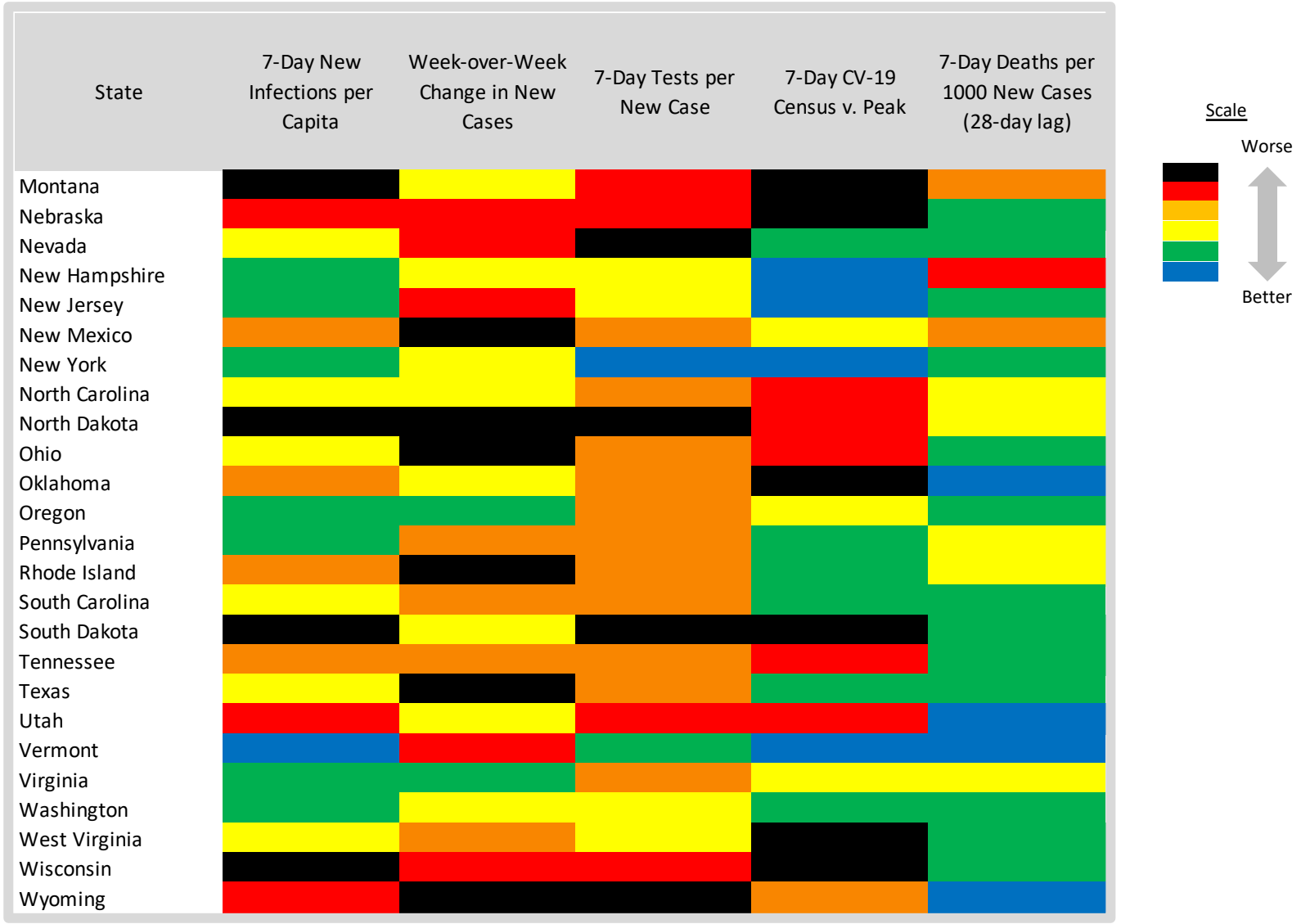


Scorecard (page 2 of 2)

Vermont and New York are doing well on most measures, although cases grew on a week-over-week basis

New Mexico and North Dakota are struggling across all measures

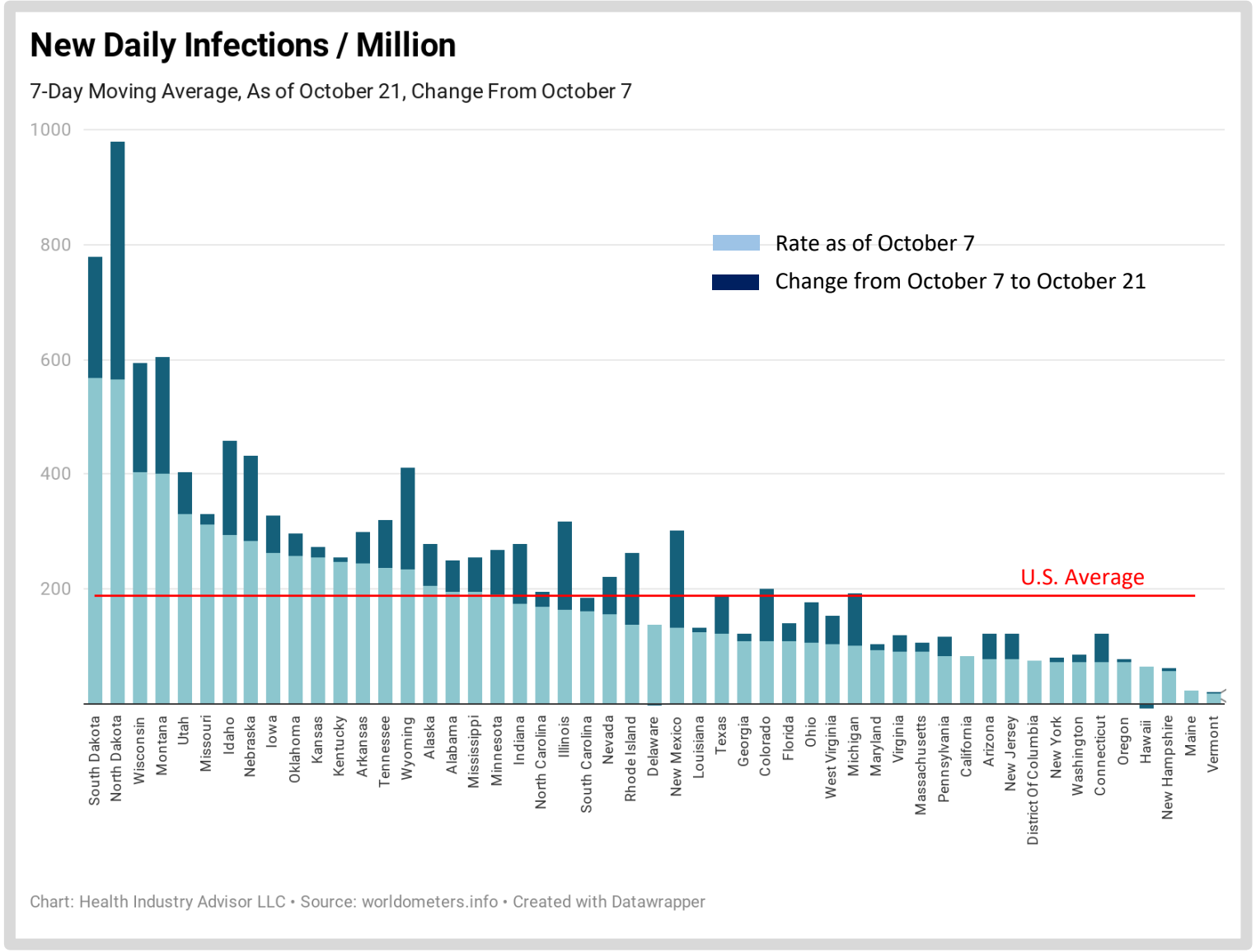
South Dakota, Tennessee, Utah, Wisconsin and Wyoming are struggling on most measures except for the case fatality rate



Health Industry Advisor, llc

7-Day Newly detected infections per capita have increased in every state except California, Delaware, Hawaii and Maine over the past two weeks

North Dakota, South Dakota, Montana and Wisconsin (in order) experienced the highest new infection rate over the past seven days. Each of these states experienced a sizable increase in this measure over the past two weeks



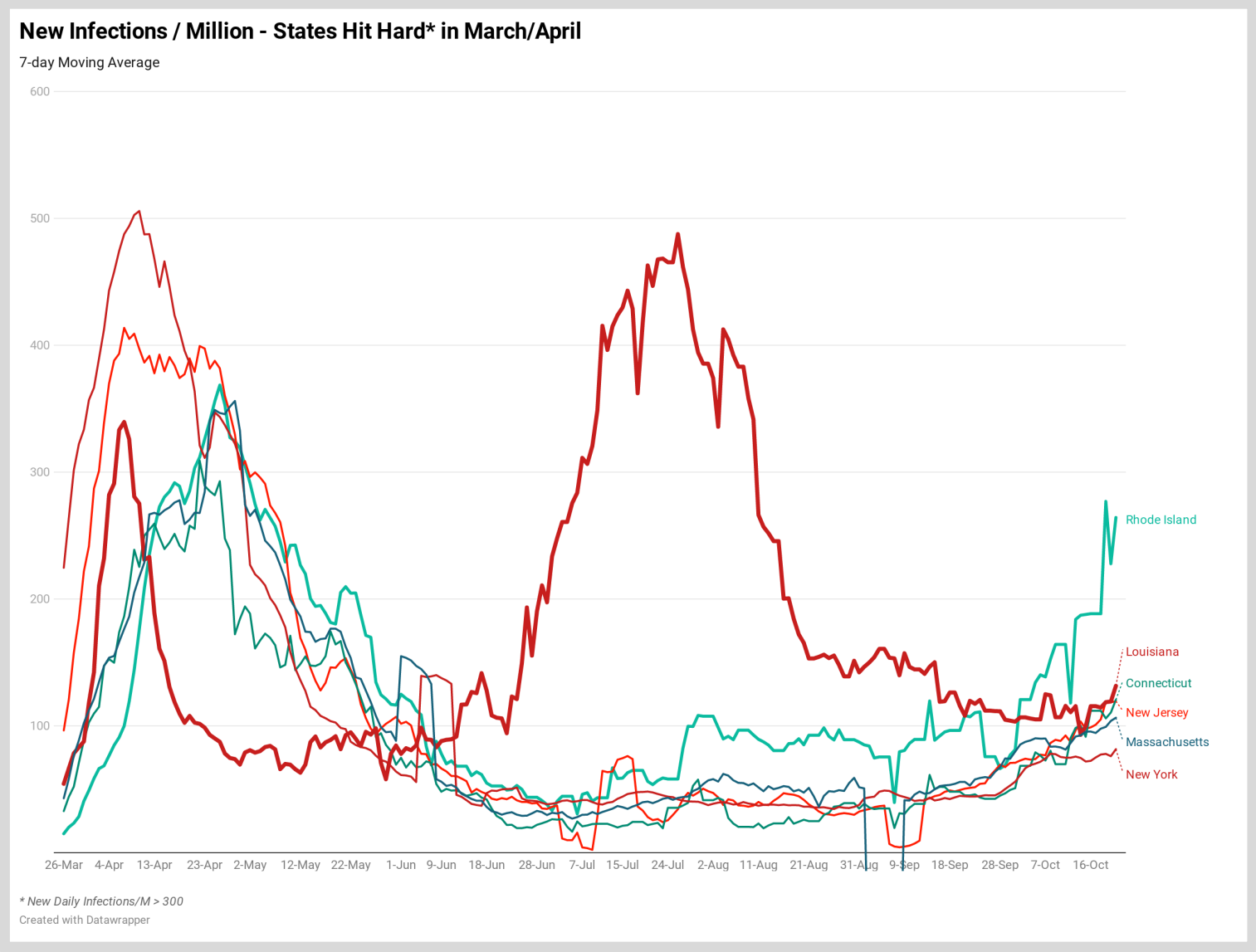
Health Industry Advisor, llc

States hit hardest by the virus in March/April are mostly in the Northeast

Except for Louisiana and Rhode Island, these states experienced relatively low infection rates since

Louisiana's double-peak was driven by surges in different parishes

Rhode Island appears that it may be on its way to a second wave

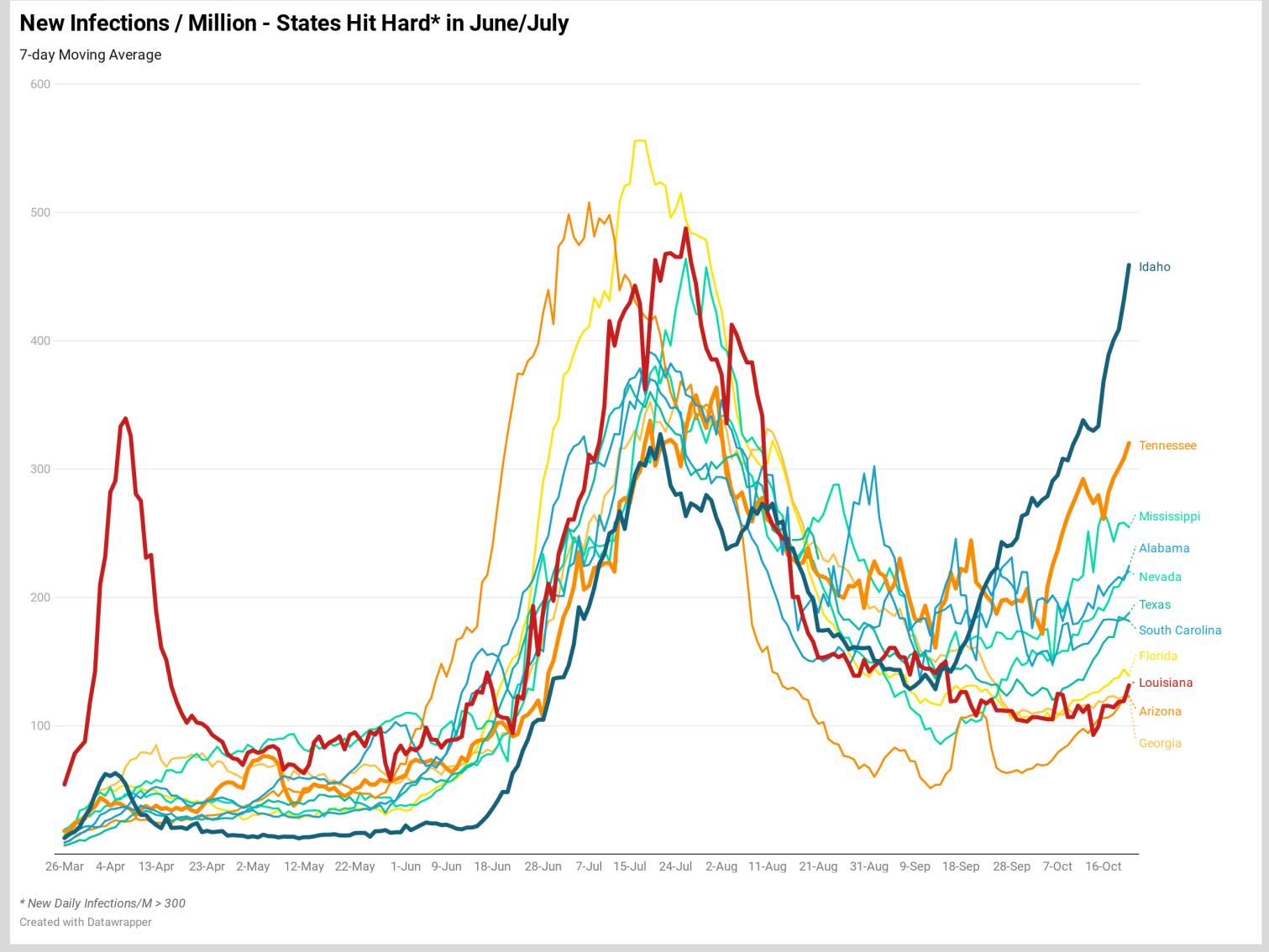


Health Industry Advisor, llc

The states hit hardest in July/August were all in the South or West

In Louisiana, the only state hard-hit in both March/April and June/July, it was different parishes that were hardest-hit during the two periods

Idaho and Tennessee may be experiencing a second wave

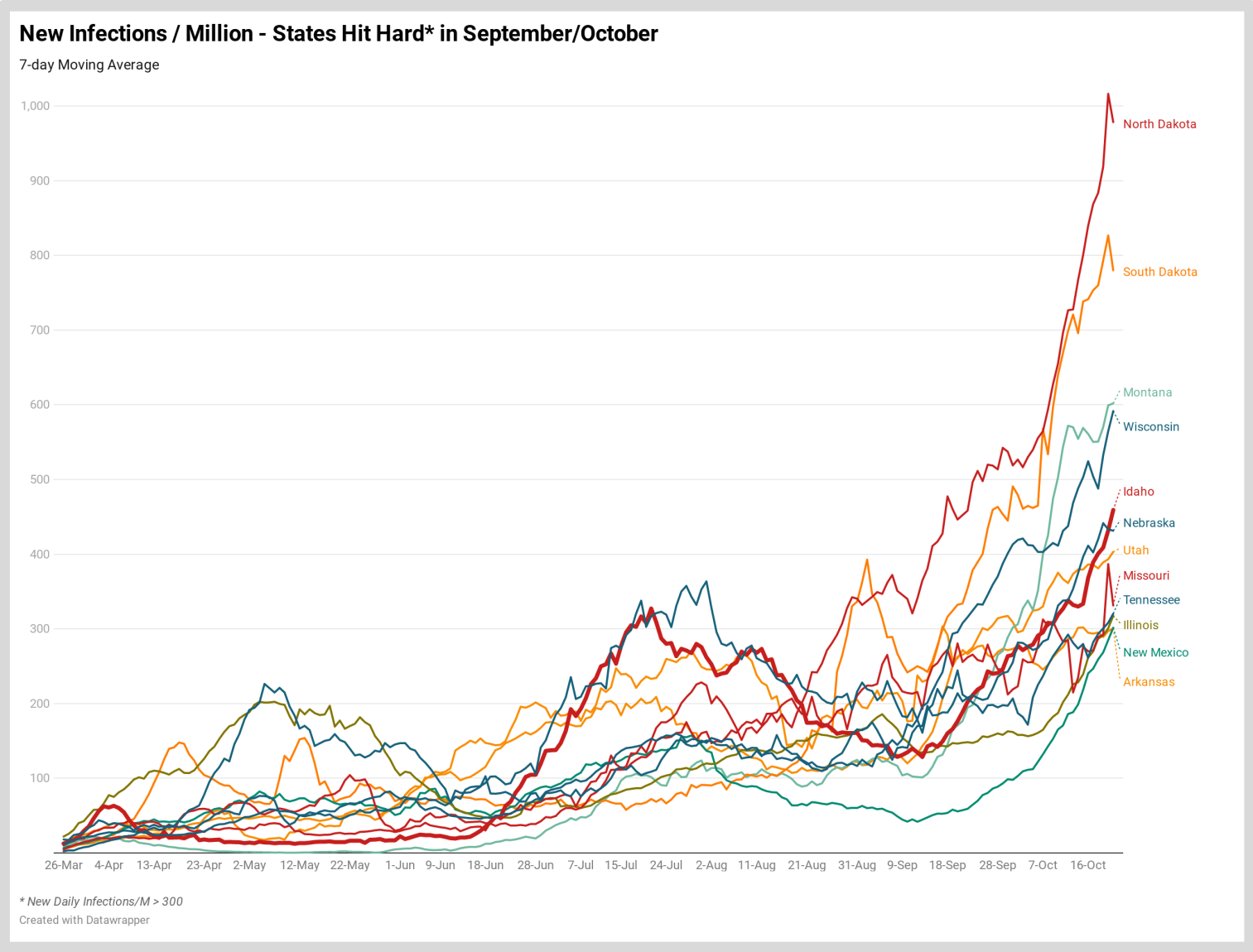


Health Industry Advisor, llc

The states currently hardest-hit by the infection spread are mostly in the Upper Midwest and are generally not heavily-populated

These surges have yet to peak

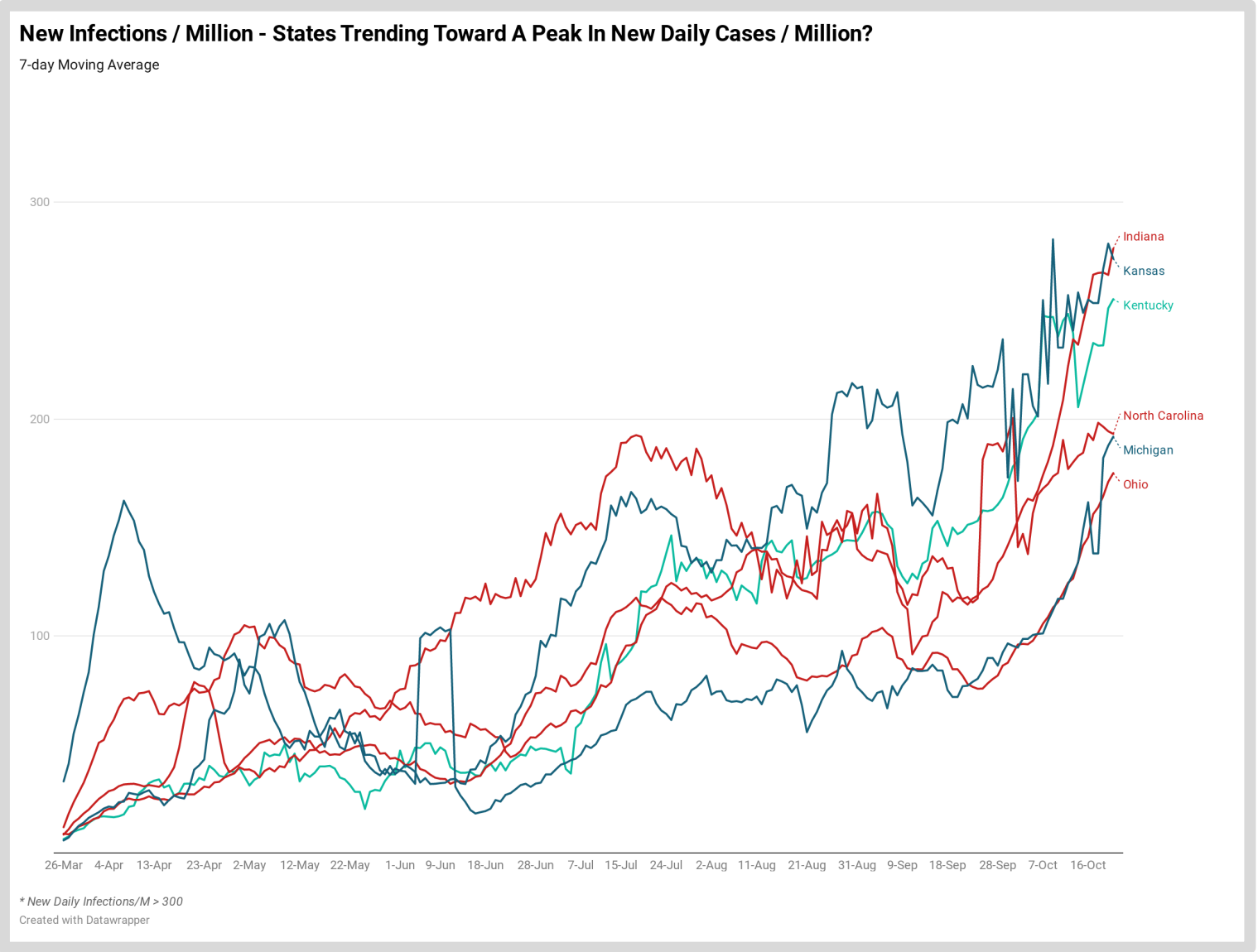
Infection rates in Montana, North Dakota, South Dakota and Wisconsin are higher than experienced in any other state and at any other time during the pandemic



Health Industry Advisor, llc

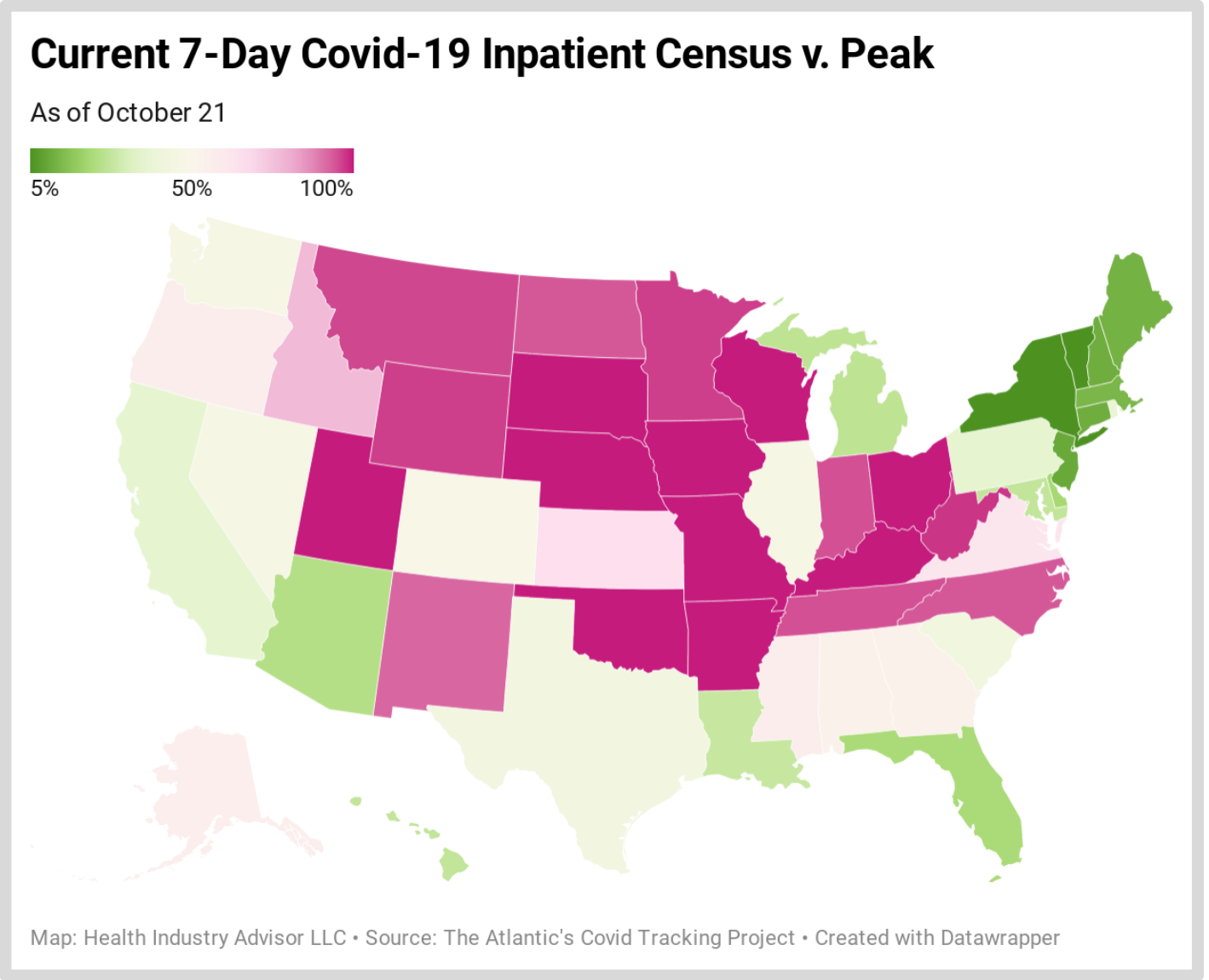
Several states are at risk of exceeding the 300 new daily infections per million level: Indiana, Kansas and Kentucky

Other states trending in that directions: North Carolina, Michigan and Ohio



Health Industry Advisor, llc

This graphic indicates how close current Covid-19 inpatient occupancy is to each state's peak Covid-19 occupancy during the pandemic



Health Industry Advisor, llc

The three states that have experienced the largest week-over-week increase in Covid-19 census, - Texas, Illinois and Pennsylvania – remain <50% of peak Covid-19 census experienced during the pandemic

Ohio and Wisconsin, however, which rank 4th and 5th in week-over-week increase in Covid-19 census, are at the peak census experienced during the pandemic

Week-Over-Week Change in Covid-19 Inpatient Days v. % of Peak in Inpatient Days Since Pandemic Start

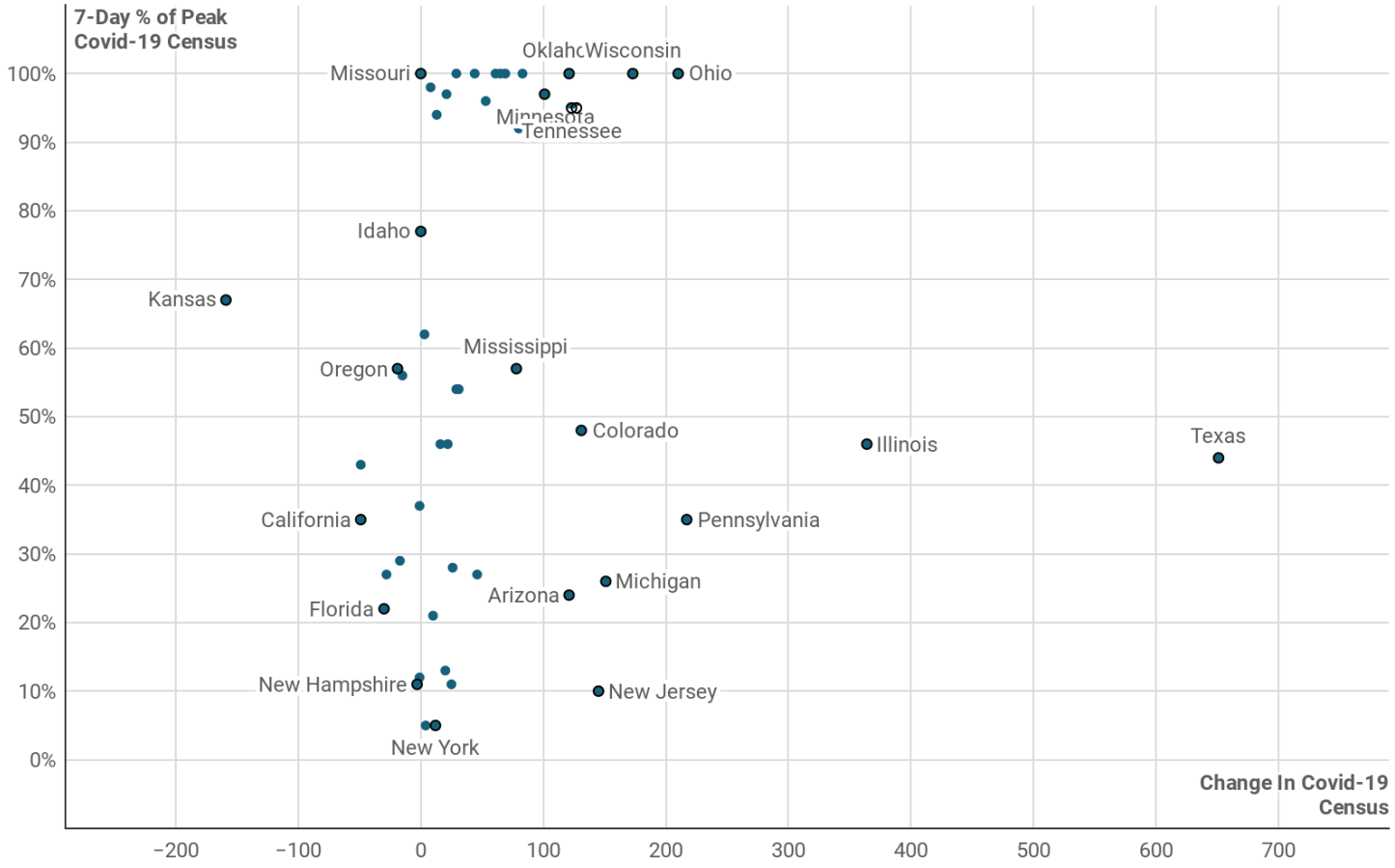


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Health Industry Advisor, llc

State-By-State Comparisons (page 1 of 3):

Hawaii, Idaho, Indiana and Iowa are notable in this schedule, with high rates of new infection, test-positive%, hospitalizations and week-over-week case increases

Arkansas and Iowa are high on many of these measures, although case growth in each state is relatively low

State-By-State Comparisons

As of October 21

State	Cases per 1M Population	Deaths per 1 Million Population	Tests per 1M Population Past 7 days	Test-Positive % (7-Day Moving Average)	New Daily Cases Per 1M Population (7-Day M.A.)	Tests / New Case	7-Day M.A. Hospital Census % of Peak	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 28-Day Lag
Alabama	35.2k	577	1,365	15.8%	224	6	52%	15%	20
Alaska	15k	93	5,916	4.4%	280	21	85%	12%	7
Arizona	31.8k	804	1,293	8.9%	123	10	20%	31%	15
Arkansas	32.8k	580	3,315	8.7%	301	11	96%	4%	20
California	22.2k	435	3,077	2.4%	82	37	35%	-3%	17
Colorado	14.8k	381	1,573	10.8%	200	8	36%	37%	9
Connecticut	17.6k	1,281	5,716	1.9%	121	47	10%	23%	26
Delaware	23.7k	688	2,162	6.2%	134	16	19%	-2%	17
District Of Columbia	23.2k	910	6,117	1.2%	74	83	34%	-12%	13
Florida	35.2k	755	1,144	12.0%	139	8	23%	12%	32
Georgia	32.1k	726	1,966	6.2%	123	16	53%	6%	22
Hawaii	9.9k	143	56	100.0%	56	1	37%	-12%	27
Idaho	29.6k	305	1,473	27.2%	459	3	77%	38%	11
Illinois	27.4k	758	5,293	5.5%	317	17	39%	41%	22
Indiana	21.9k	598	1,461	18.3%	279	5	87%	18%	34
Iowa	34k	502	608	49....	328	2	100%	-1%	14
Kansas	24.8k	327	1,290	19.4%	274	5	100%	14%	25

Health Industry Advisor, llc

State-By-State Comparisons (page 2 of 3):

Montana is of concern due to high new infection, hospitalization and case fatality rates

Kentucky and Nebraska are of concern due to high new infection and hospitalization rates

New Mexico is of concern due to high new infection, hospitalization, case growth and case fatality rates

State-By-State Comparisons

As of October 21

State	Cases per 1M Population	Deaths per 1 Million Population	Tests per 1M Population Past 7 days	Test-Positive % (7-Day Moving Average)	New Daily Cases Per 1M Population (7-Day M.A.)	Tests / New Case	7-Day M.A. Hospital Census % of Peak	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 28-Day Lag
Kentucky	19.6k	305	4,333	5.4%	255	17	99%	6%	18
Louisiana	37.8k	1,245	3,233	4.2%	131	25	27%	14%	25
Maine	4.4k	109	6,200	0.4%	22	276	13%	-2%	13
Maryland	22.4k	671	1,755	5.8%	102	17	24%	4%	11
Massachusetts	20.7k	1,407	2,105	4.7%	106	20	13%	16%	
Michigan	15.9k	743	3,927	4.6%	192	20	23%	49%	27
Minnesota	21.8k	414	2,655	10.5%	270	10	80%	21%	16
Mississippi	37k	1,083	1,452	17.7%	255	6	51%	1%	25
Missouri	26.4k	445	-1,270	-25.4%	331	-4	100%	54%	17
Montana	21.4k	257	5,602	10.2%	602	9	99%	6%	34
Nebraska	30k	298	2,310	18.2%	431	5	100%	22%	16
Nevada	29.3k	562	454	46....	220	2	45%	21%	16
New Hampshire	7.1k	345	2,231	2.8%	60	37	13%	4%	
New Jersey	25.2k	1,843	3,958	2.9%	119	33	8%	24%	16
New Mexico	17.5k	453	3,919	6.6%	301	13	56%	60%	31
New York	26.7k	1,723	6,248	1.2%	82	77	5%	8%	16
North Carolina	23.5k	384	3,140	6.3%	193	16	89%	7%	21

Health Industry Advisor, llc

State-By-State Comparisons (page 3 of 3):

North Dakota is of concern across all measures

Wisconsin is of concern due to high infection, hospitalization and case growth rates

South Dakota is of concern due to high new infection and hospitalization rates

Vermont is faring week save for a large week-over-week increase in new cases (from a low base)

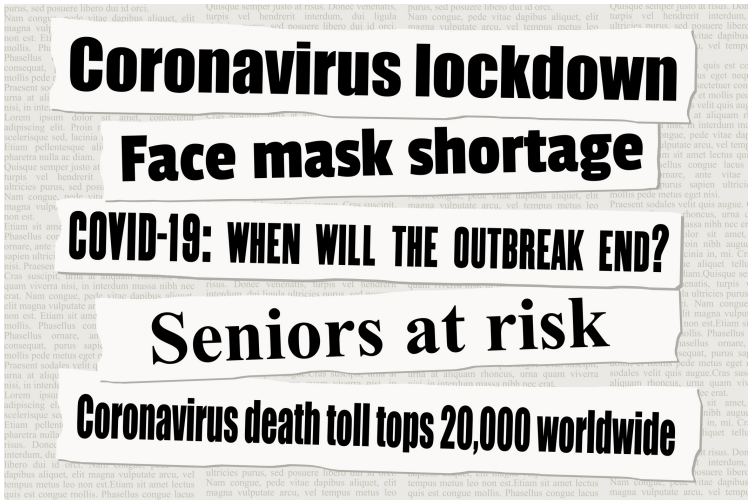
State-By-State Comparisons

As of October 21

State	Cases per 1M Population	Deaths per 1 Million Population	Tests per 1M Population Past 7 days	Test-Positive % (7-Day Moving Average)	New Daily Cases Per 1M Population (7-Day M.A.)	Tests / New Case	7-Day M.A. Hospital Census % of Peak	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 28-Day Lag
North Dakota	42k	554	2,324	39.5...	978	2	88%	34%	22
Ohio	15.6k	441	3,4...	4.8%	175	20	91%	38%	19
Oklahoma	27.1k	306	3,4...	8.3%	297	12	99%	1%	10
Oregon	9.4k	151	1,465	5.4%	77	19	63%	-6%	16
Pennsylvania	14.6k	675	1,219	9.2%	116	11	27%	10%	27
Rhode Island	26.1k	1,103	4,216	6.6%	264	16	37%	44%	27
South Carolina	31.9k	720	3,118	5.8%	182	17	46%	11%	15
South Dakota	37.6k	376	2,133	37.2%	780	3	100%	8%	18
Tennessee	33.5k	435	3,589	8.4%	320	11	87%	14%	15
Texas	30k	613	2,132	7.1%	188	11	38%	31%	18
Utah	29.4k	174	2,572	15.1%	403	6	91%	8%	5
Vermont	3.1k	93	1,347	1.2%	19	72	0%	26%	0
Virginia	19.5k	412	2,132	5.7%	120	18	62%	-6%	22
Washington	13.3k	300	3,177	3.1%	85	37	43%	5%	19
West Virginia	11.2k	231	3,881	4.1%	153	25	99%	18%	17
Wisconsin	29.2k	289	4,439	12.6%	592	8	100%	26%	11
Wyoming	15.6k	105	1,749	21.3%	412	4	80%	40%	7

Table: Health Industry Advisor LLC • Created with Datawrapper

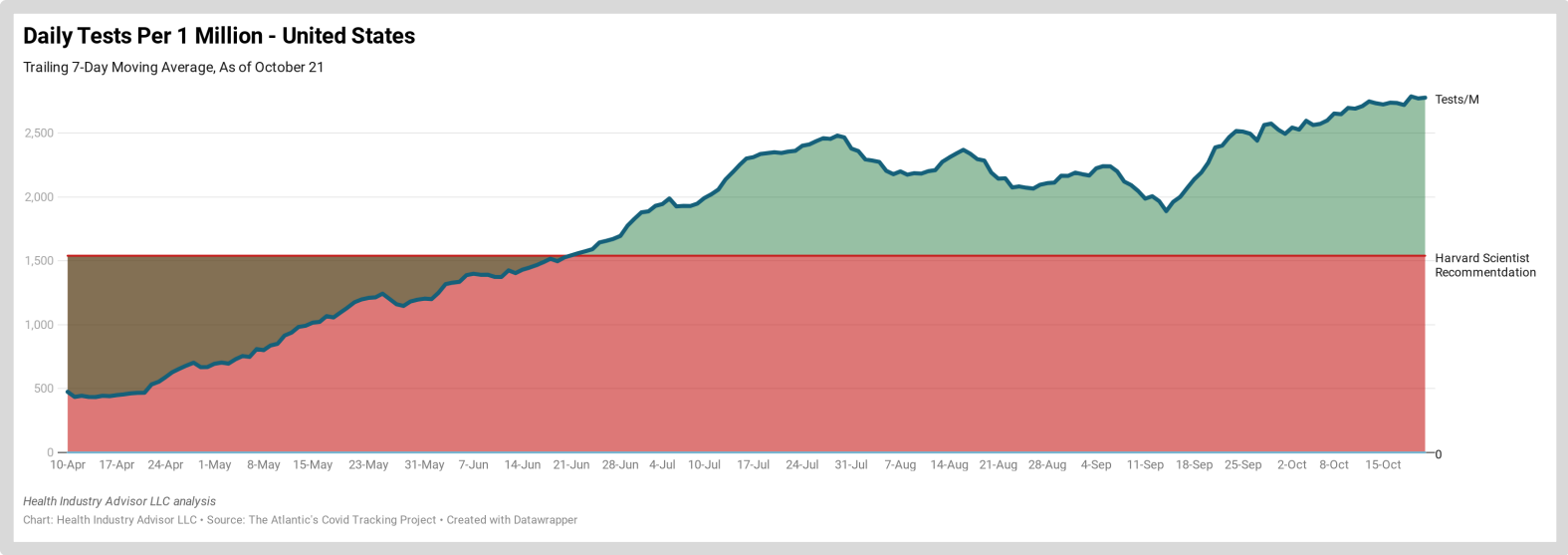
Health Industry Advisor, llc

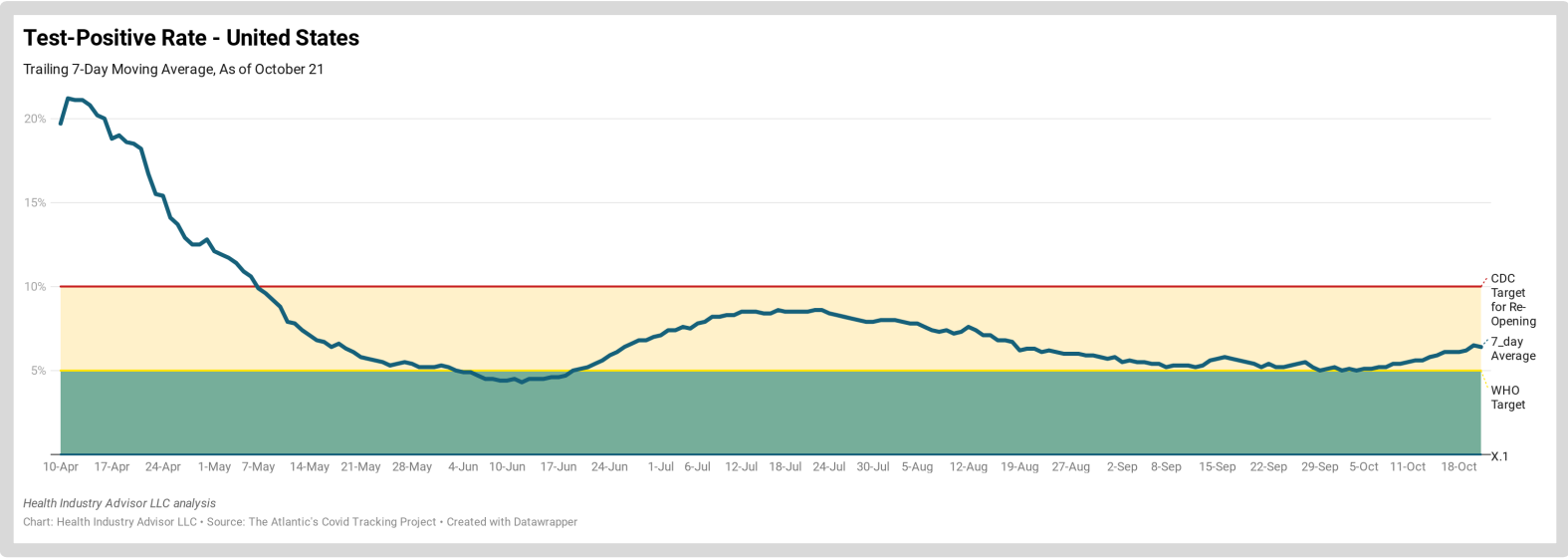


National Perspective

The 7-day average testing volume set a record on Monday and remains at a high level

The 7-day test-positive rate, however, has been trending upward since the beginning of October, although it declined slightly yesterday



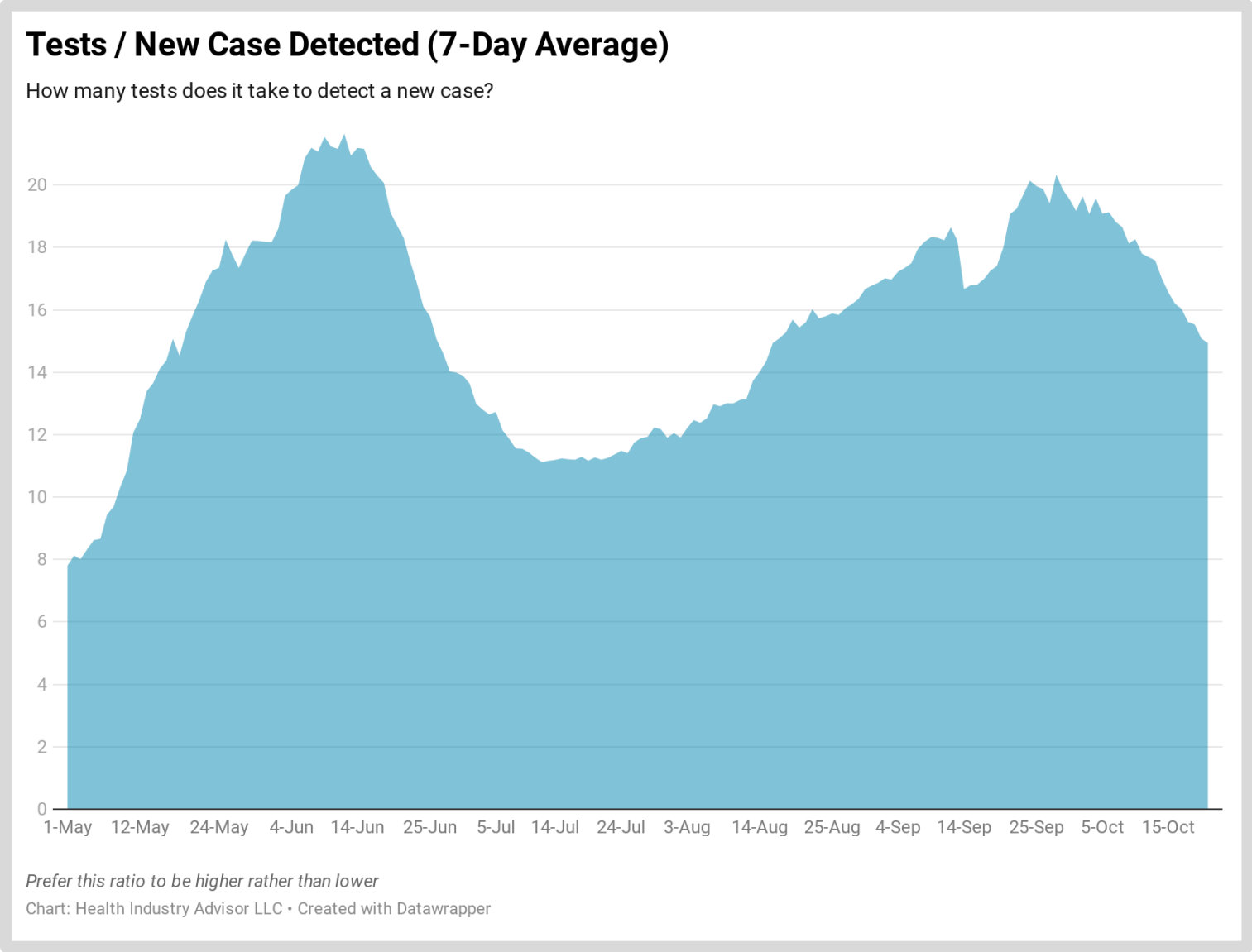


A measure of the effectiveness of testing is the ratio of tests performed to newly-detected cases

A low ratio indicates that testing may not be adequate to identify all new infections (i.e., may only be testing the most severe infections)

A high ratio indicates that testing may be sufficient to to capturing a high percentage of infections

This ratio has been declining for the past month – perhaps, testing is not keeping up with the surge in new infections

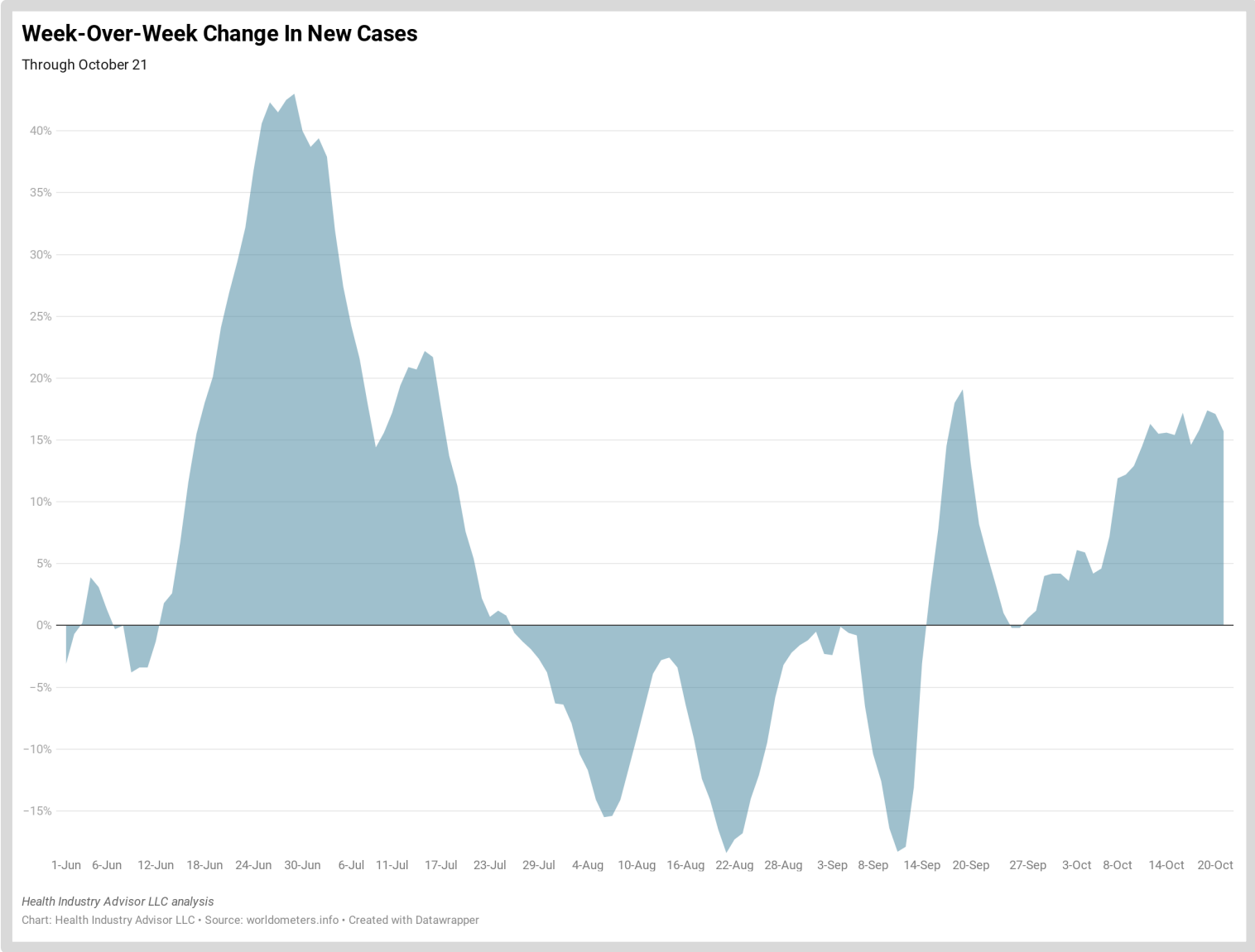


Health Industry Advisor, llc

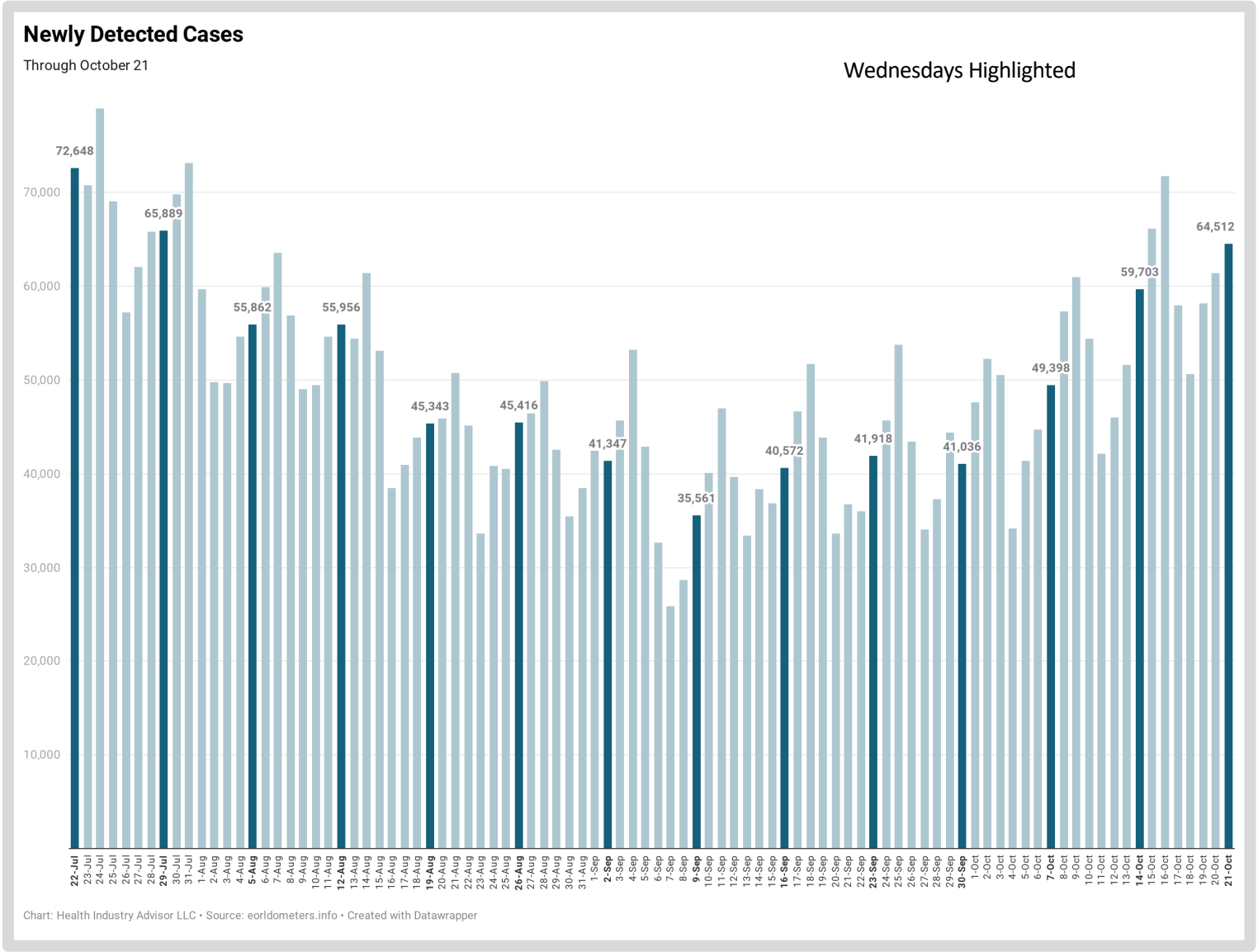
Following a seven-week period of decline, new cases began increasing on a week-over-week basis on September 15

A pause or will the rate of cases growth begun to decline? Yesterday, this rate was up 15.7% on a week-over-week basis it has bounced between 15.2-17.2% for the past eight days)

This rate had previously peaked at 19.1% on September 19 and 43% on June 29



There were more newly detected cases reported yesterday than on any Wednesday since July 29

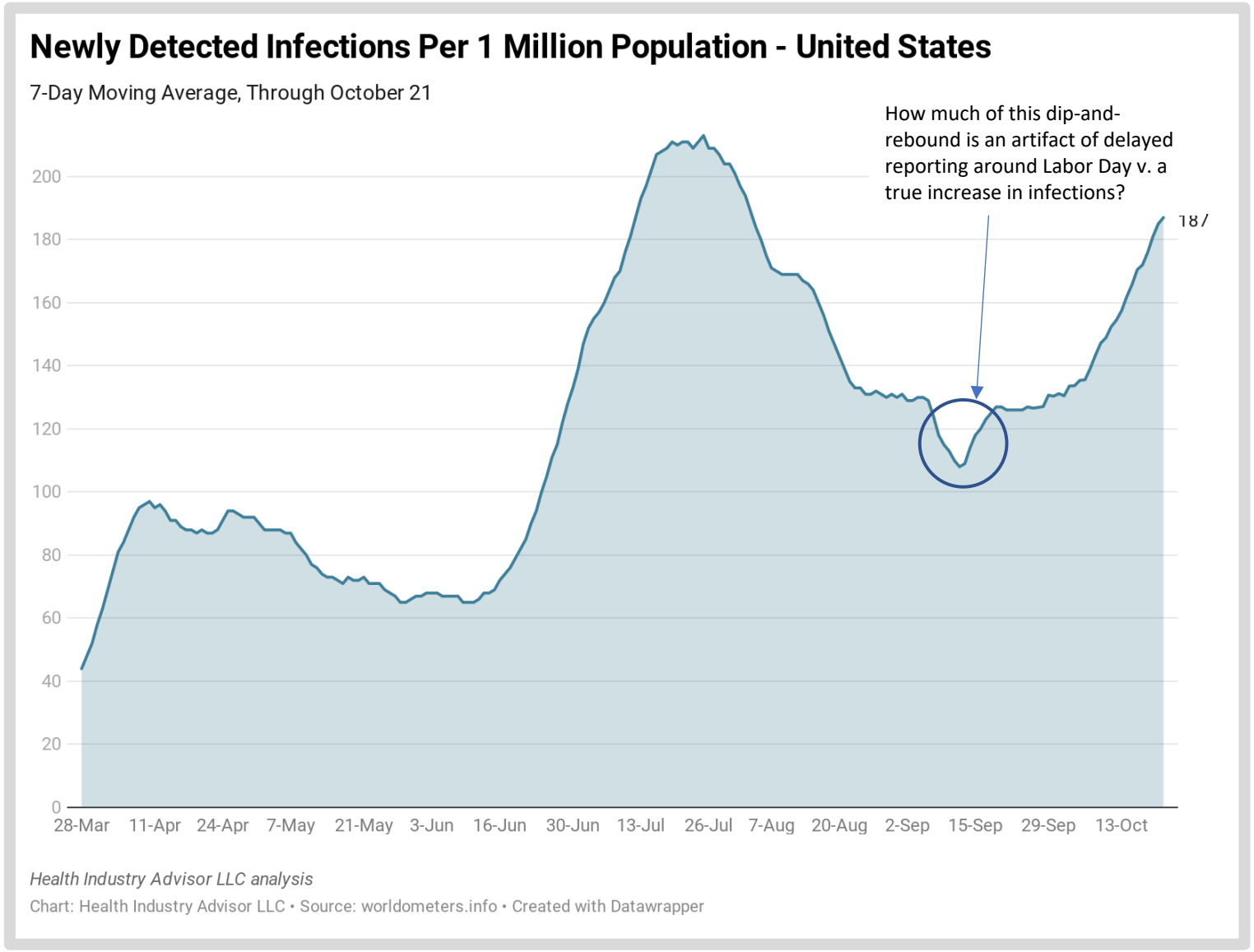


Health Industry Advisor, llc

The rate of new infections per capita* in the U.S. rose for the nineteenth consecutive day

This rate is the highest it has been since August 3

* - 7-day moving average basis



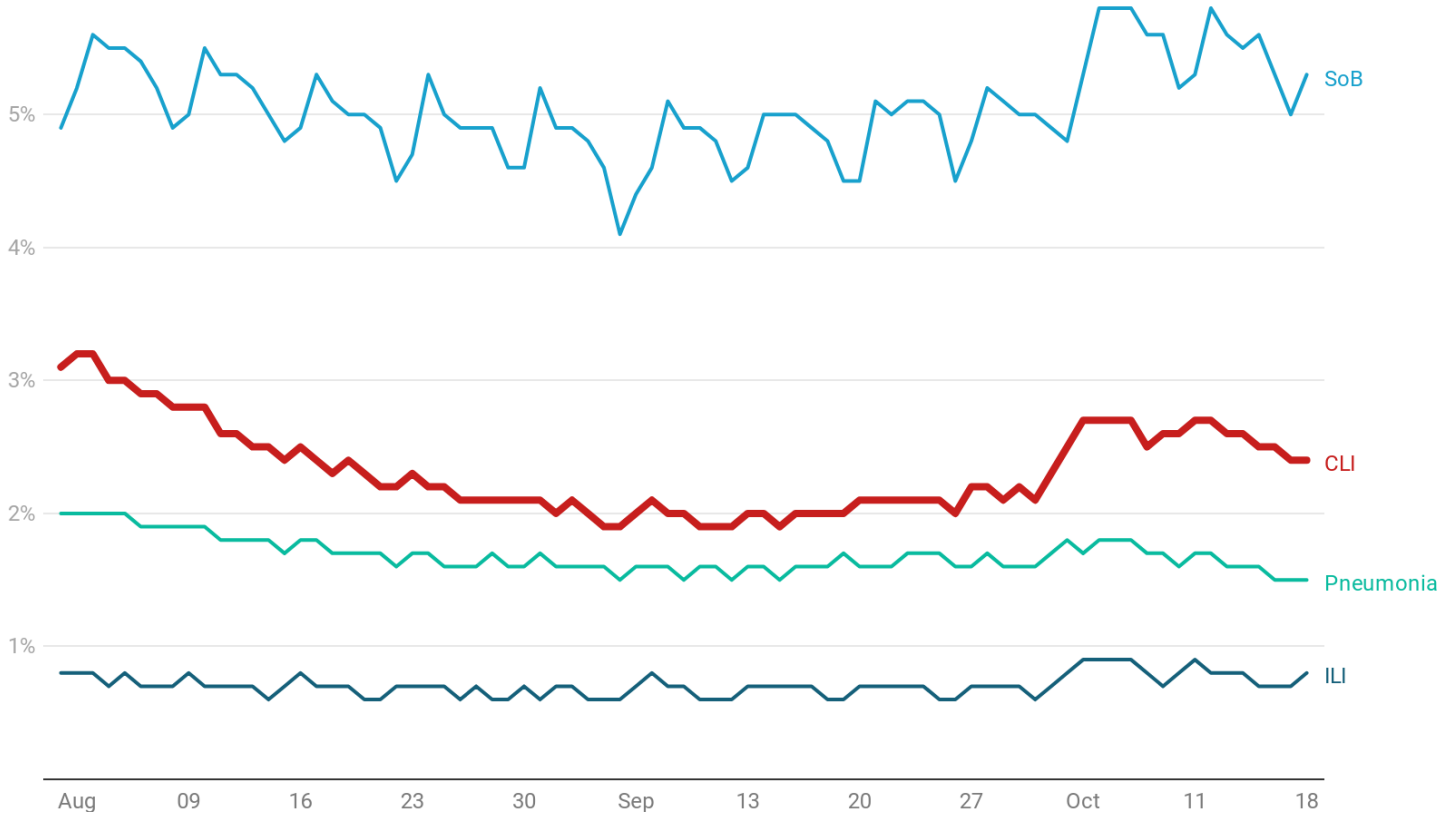
Health Industry Advisor, llc

The % of ER visits for COVID-19-like illnesses (CLI) has eased over the past seven days; this rate remains less than ½ of what it was in mid-July

Although the flu season has officially begun, we have yet to observe any impact on the rate of influenza-like illness (ILI) visits to the ER

% of Emergency Department Visits for COVID-Like Illness (CLI), Influenza-Like Illness (ILI), Pneumonia & Shortness-of-Breath (SoB)

As of October 18



Health Industry Advisor LLC analysis

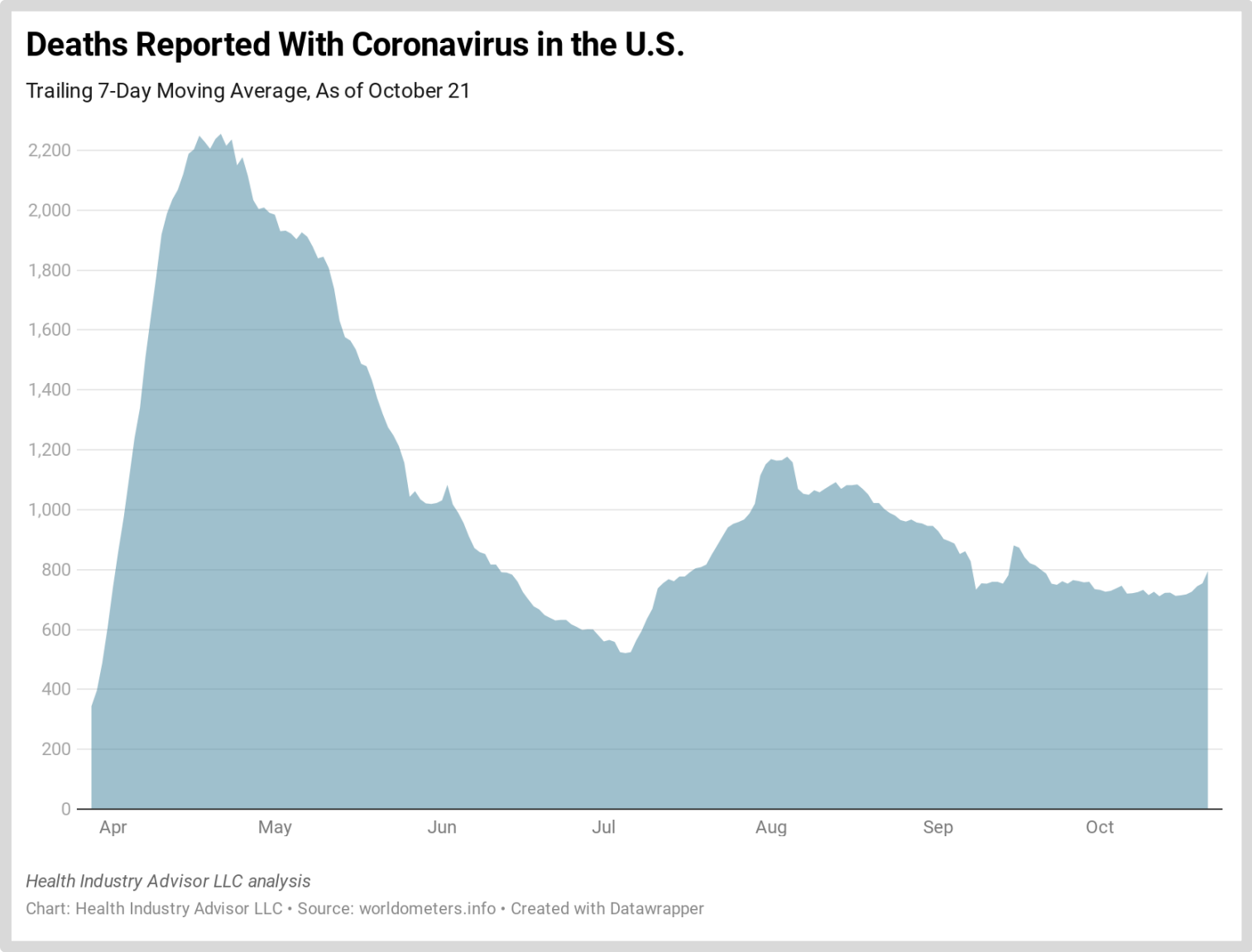
Chart: Health Industry Advisor LLC • Source: Centers for Disease Control • Created with Datawrapper

Health Industry Advisor, llc

The recent uptick in newly-detected cases is beginning to effect deaths:

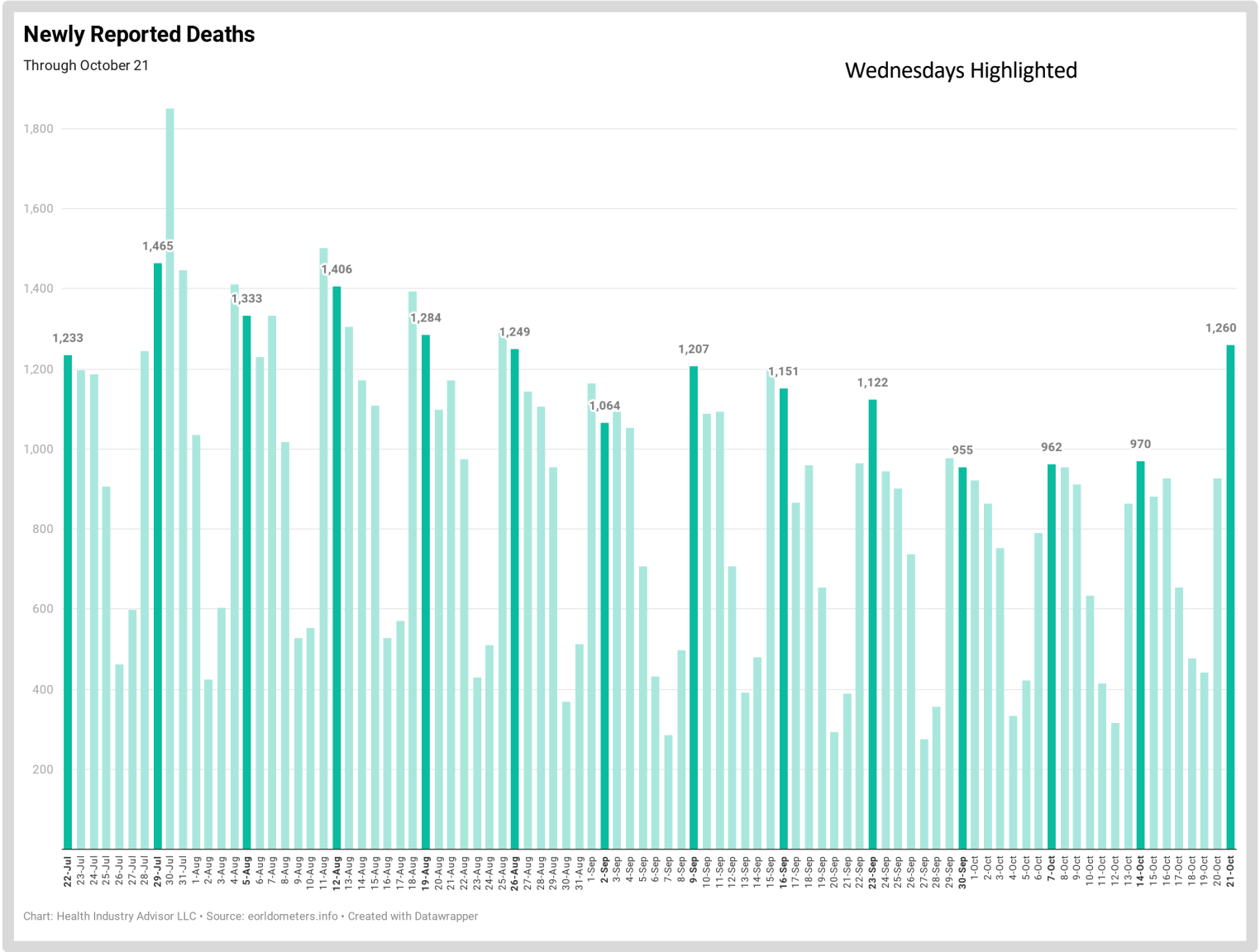
The 7-day average deaths per day has increased on six consecutive days, and is the highest recorded for the month of October

Still, it remains lower than it was for most of August and September, as well as significantly lower than it was in April, May and the first ½ of June

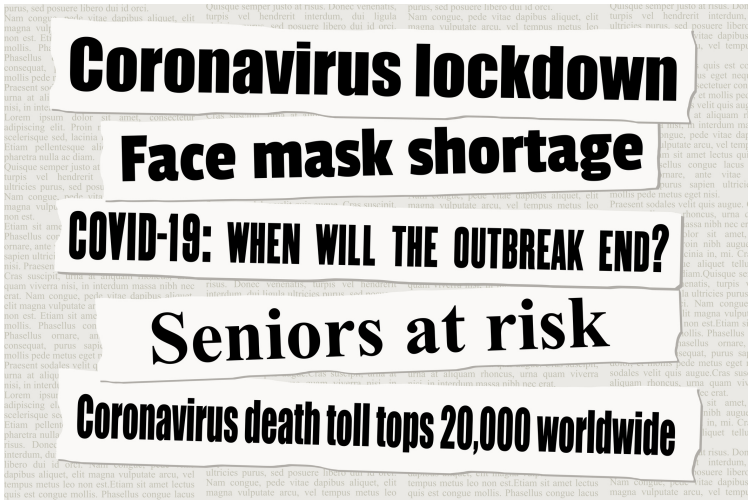


Health Industry Advisor, llc

There were more deaths reported yesterday than on any Wednesday August 19



Health Industry Advisor, llc

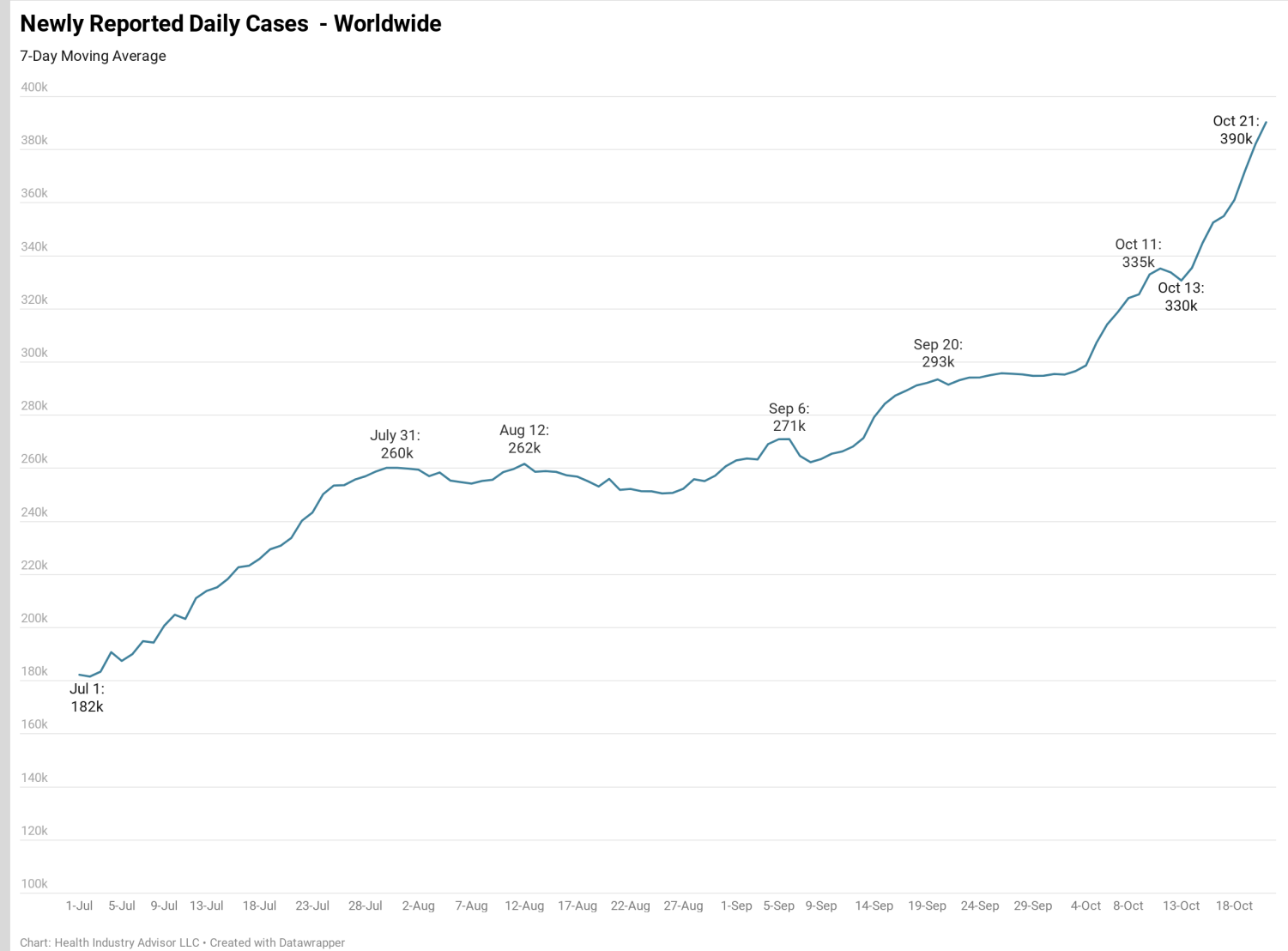


International Perspective

After leveling in late-August through early-September, new daily cases worldwide* have been increasing at a significant rate

New daily cases are now averaging ~390k each day

* - 7-day moving average basis



Health Industry Advisor, llc

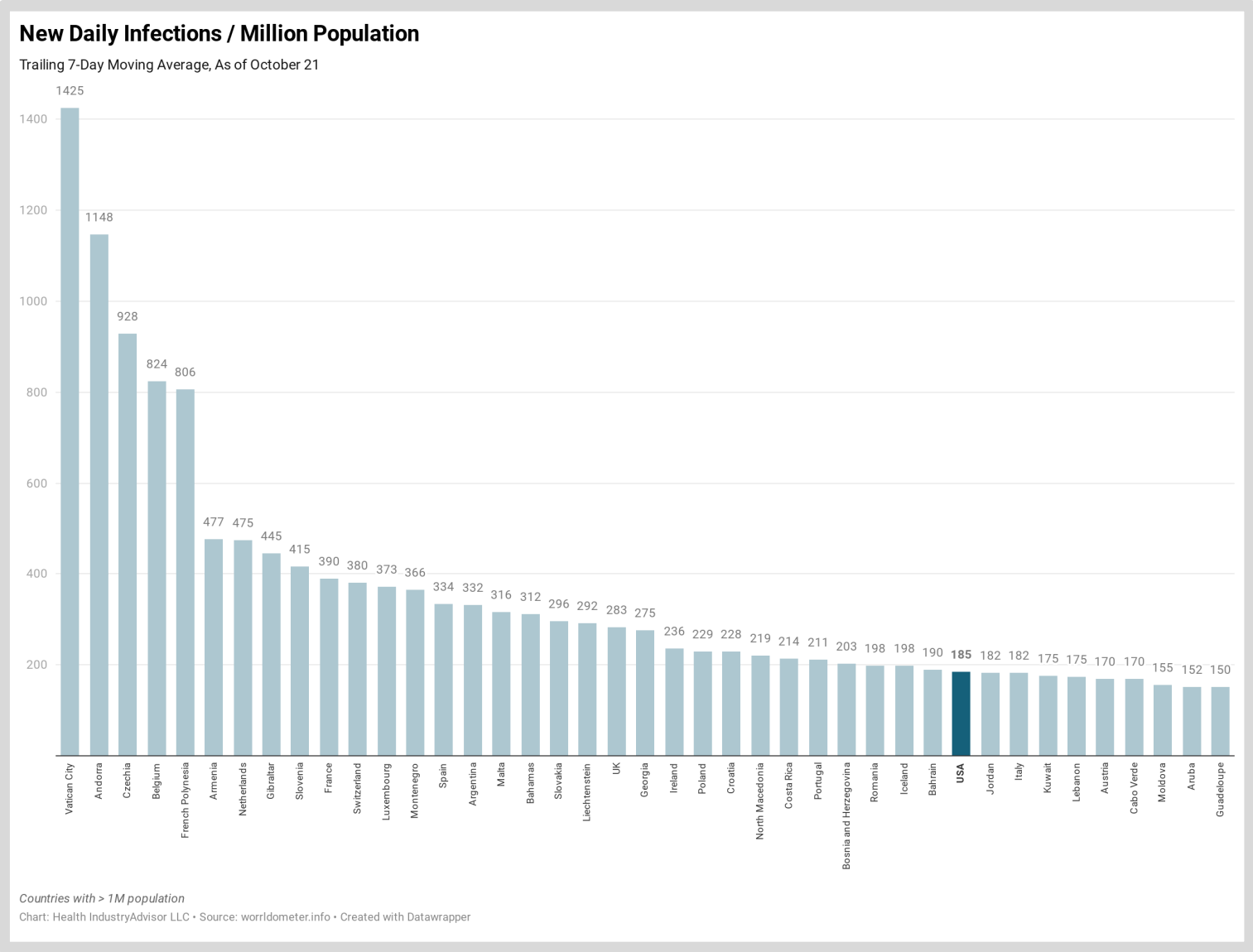
Forty-one countries currently have new daily infection rates/1M* > 150

The Andorra, Belgium, Czech Republic and Vatican City are experiencing infection rates significantly higher than other countries

Europe is home to the four countries with the highest rates, and twelve of the top fourteen

The United States ranks thirty-second among all countries worldwide

* - 7-day moving average basis

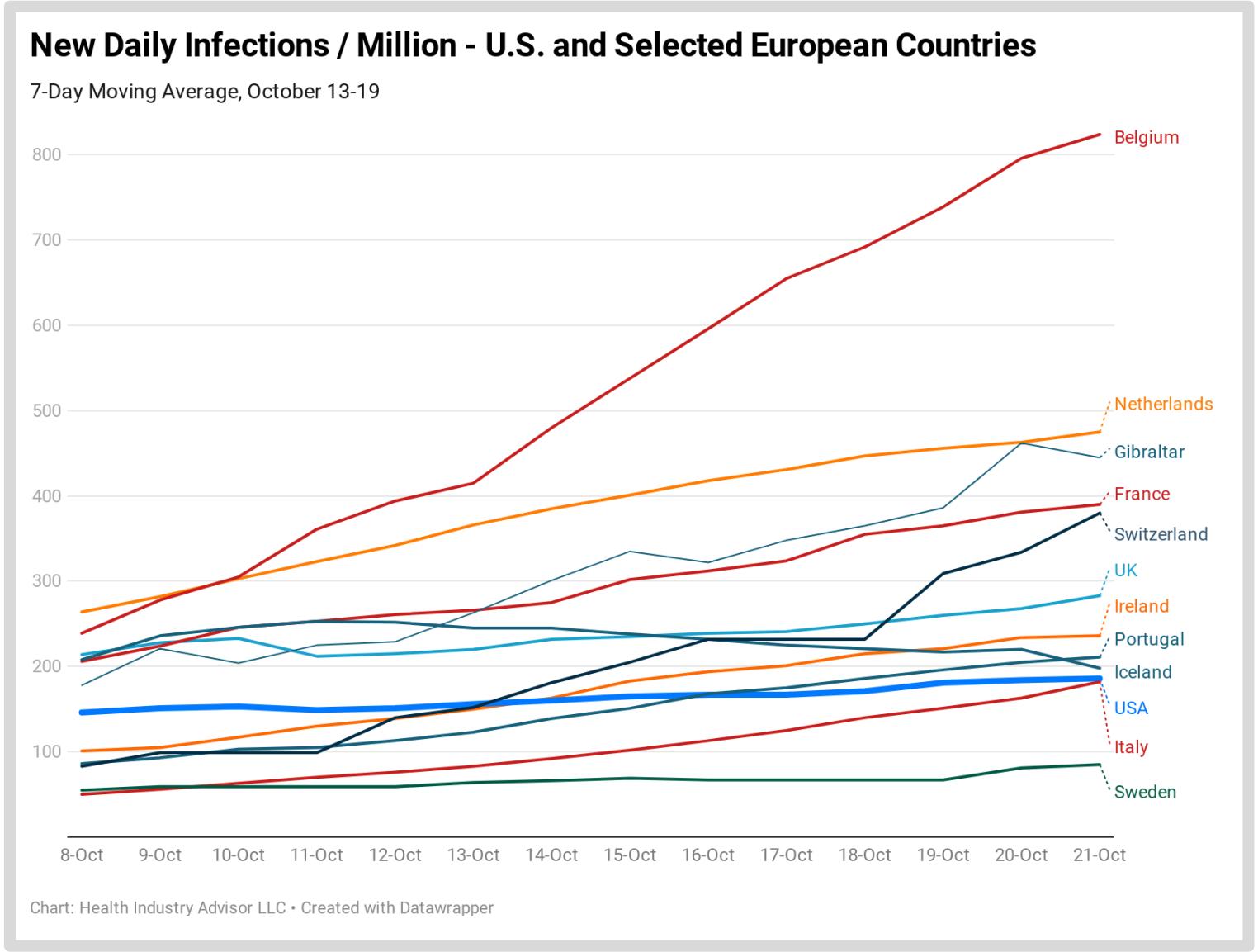


Health Industry Advisor, llc

Infections have spread rapidly across Europe over the past two weeks – most notably in Belgium, France, Gibraltar, the Netherlands, Switzerland and the United Kingdom

Rates in the countries are higher and, in some cases, increasing more sharply than in the United States

Sweden, with its controversy about how it has handled the pandemic, Remains a relatively low rate



Health Industry Advisor, llc

Data 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, 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