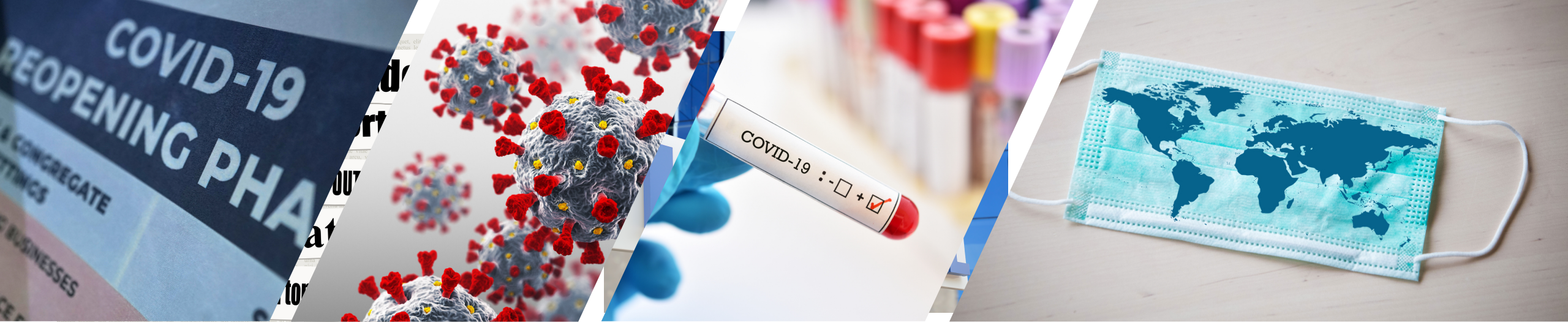
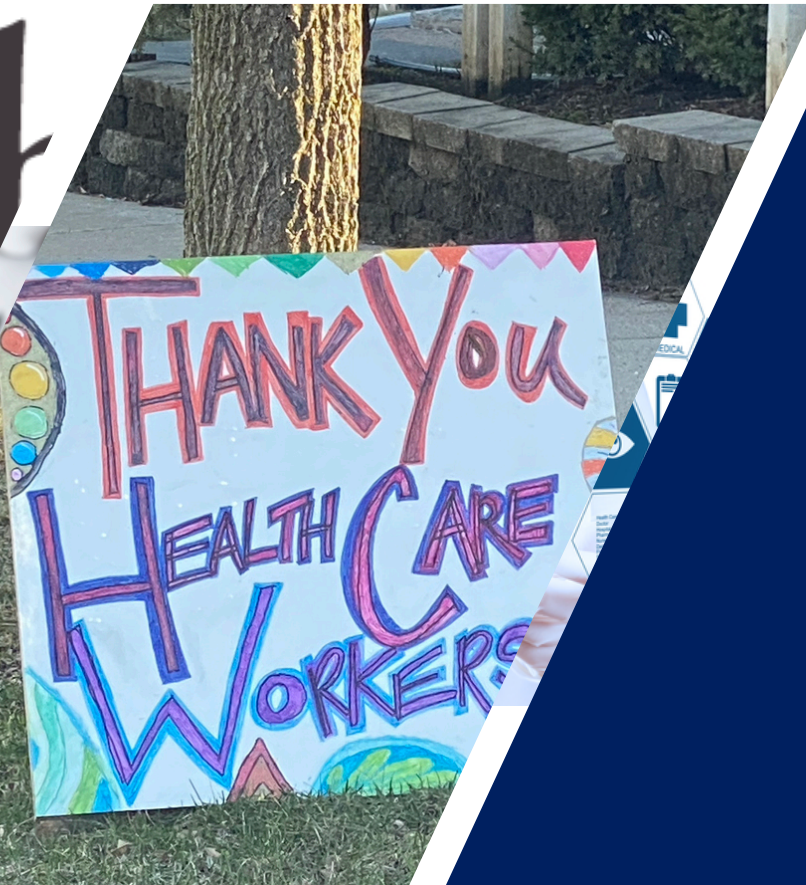




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Issue # 193

Friday, October 23, 2020

COVID-19 Report

Highlights

- Metro Areas Home to Major Universities
 - **The thirty-three metro areas in our university-sample group showed relative improvement in new infection rates versus the national average over the past week.** Last week, twenty-three of these thirty-three areas reported 7-day new infection rates per capita higher than the national average; this week, eighteen were above the national average
 - **For the second consecutive week, Lubbock, TX, home of Texas Tech University had both the highest rate of new infections per capita and the largest week-over-week increase in this rate**
 - Lubbock's rate is more than 2x the rate experienced by any other metro area in this study group, except St. Joseph County, IN (home of Notre Dame)
 - **Washtenaw, MI, home to the University of Michigan (and, my home too), had the second largest week-over-week increase in this rate.** Earlier this week, the county issued a two week "stay-home order" for U of M students, as students were reportedly the majority of the newly detected cases in the county. It should be noted, the University rolled-out its campus-wide rapid testing program two weeks ago - could this have triggered the surge in newly-detected cases?
- Large Central and large Fringe Metro Areas
 - **Of the sixty-four Large Central Metro Areas in the U.S., twenty experienced 7-day new infection rates per capita higher than the national average over the past week; twelve of these, however, and fifty-one of the full sixty-four, have seen these rates recede significantly from peak levels**
 - Of the 367 Large Fringe Metro Areas, eighteen experienced 7-day new infection rates / million >400 over the past week; Twelve of these are at or near peak levels. Thirty-one of these large Fringe Metro Areas experienced 7-day new daily infections/ million < 50 over the past week
- United States, Overall
 - **The 7-day new daily infection rate for the U.S. rose for the twentieth consecutive day. It is as high as it has been since August 2 and is at 92% of its late-July peak**
 - This rate will continue to climb until new cases start to decline on a week-over-week basis. This week-over-week measure has been increasing since September 15, however, it has somewhat stabilized for the past twelve days. A decline in this measure could foretell a subsequent decline in the new infection rate
 - **There were more new cases reported yesterday than on any other Thursday during this pandemic**
 - The increase in newly-detected cases is a product of two trends in testing: First, **the 7-day average test volume set another record high yesterday. Test volume has been trending upward since mid-September**
 - Second, the **7-day test-positive % has been trending up throughout October. The rate yesterday was the highest it has been since August 18**
 - The increase in new cases is also impacting Covid-19 hospital census. This census has increased twenty-nine consecutive days, on a same-day, prior-week basis. Nevertheless, this census is <70% of its late-July peak
 - **Encouragingly, Covid-19 census has not increased at the same rate as newly-detected cases during this most-recent surge**
 - **Further, during this period of increased Covid-19 census, the rate of Covid-19 patients requiring intensive care has declined; this experience holds for ventilator care, as well**
 - Tragically, deaths are also on the rise: **the 7-day average deaths has increased seven consecutive days;** This rate is now higher than it has been since September 19; It remains lower than it was during most of August and the first 1/2 of September and significantly lower than it was in April, May and the first 1/2 of June

Metro Areas Home to Major Universities:

Of the 33 major areas in our sample, 18 are experiencing infection rates* higher than the national average (down from 23 last week)

Lubbock, Texas, home to Texas Tech University again had the highest infection rate last week, followed by St. Joseph, IN (Notre Dame) Lancaster, NE (Nebraska), Dane, WI (Wisconsin), Cleveland, OH (Oklahoma) and Washington, AR (Arkansas)

Albemarle, VA (University of Virginia) Wake, NC (North Carolina State) and Monongalia, WV (West Virginia) had the lowest

* 7-day average

Metro Areas With Major Universities: New Daily Infections / 1M Population

7-Day Average, As of October 22

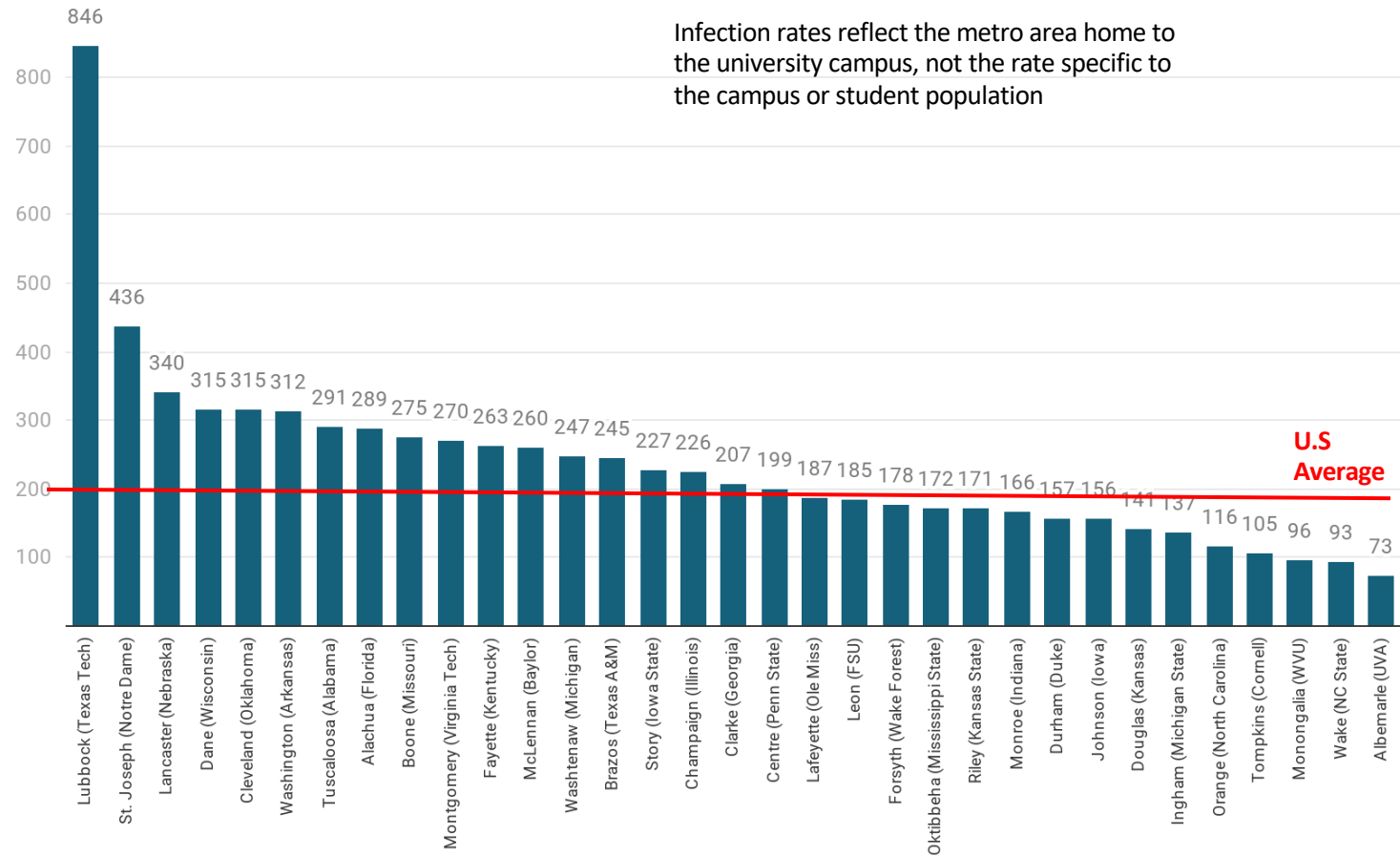


Chart: Health Industry Advisor LLC • Created with Datawrapper

Metro Areas Home to Major Universities:

Lubbock, Texas home to Texas Tech University experienced a dramatic increase in 7-day new daily infections per capita compared to one week ago; Washtenaw, MI (University of Michigan) was next highest

Centre, PA (Penn State) experienced the most significant decline in this rate

* 7-day average

Metro Areas With Major Universities: Week-Over-Week Change In New Daily Infections / 1M Population

7-Day Average, October 22 v. October 15

Infection rates reflect the metro area home to the university campus, not the rate specific to the campus or student population

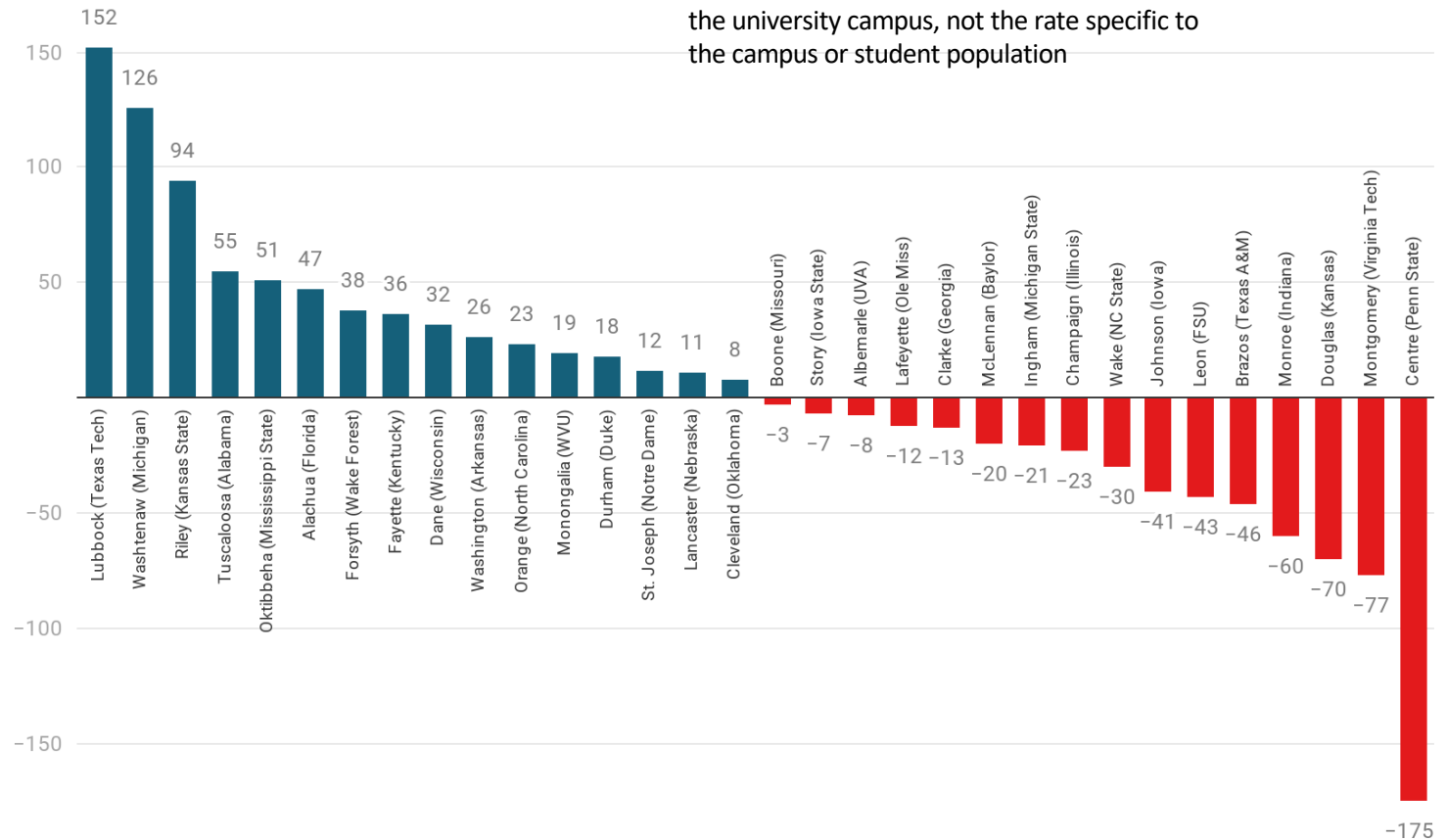


Chart: Health Industry Advisor LLC • Created with Datawrapper

Of the sixty-four Large Central Metro Areas, twenty experienced new daily infections per capita above the national average over the past seven days; Twelve of these twenty (and fifty-one of the sixty-four in total) have seen their infection rates recede from peak levels

Salt Lake City, UT and Milwaukee, WI experienced the highest new infection rates over the past week; Jefferson, KY and Davidson, TN rank 3rd and 4th, however, both areas have receded from peak new infection rates

New Daily Infections / Million - Large Central Metro Areas

7-Day Moving Average, October 22 v. Peak

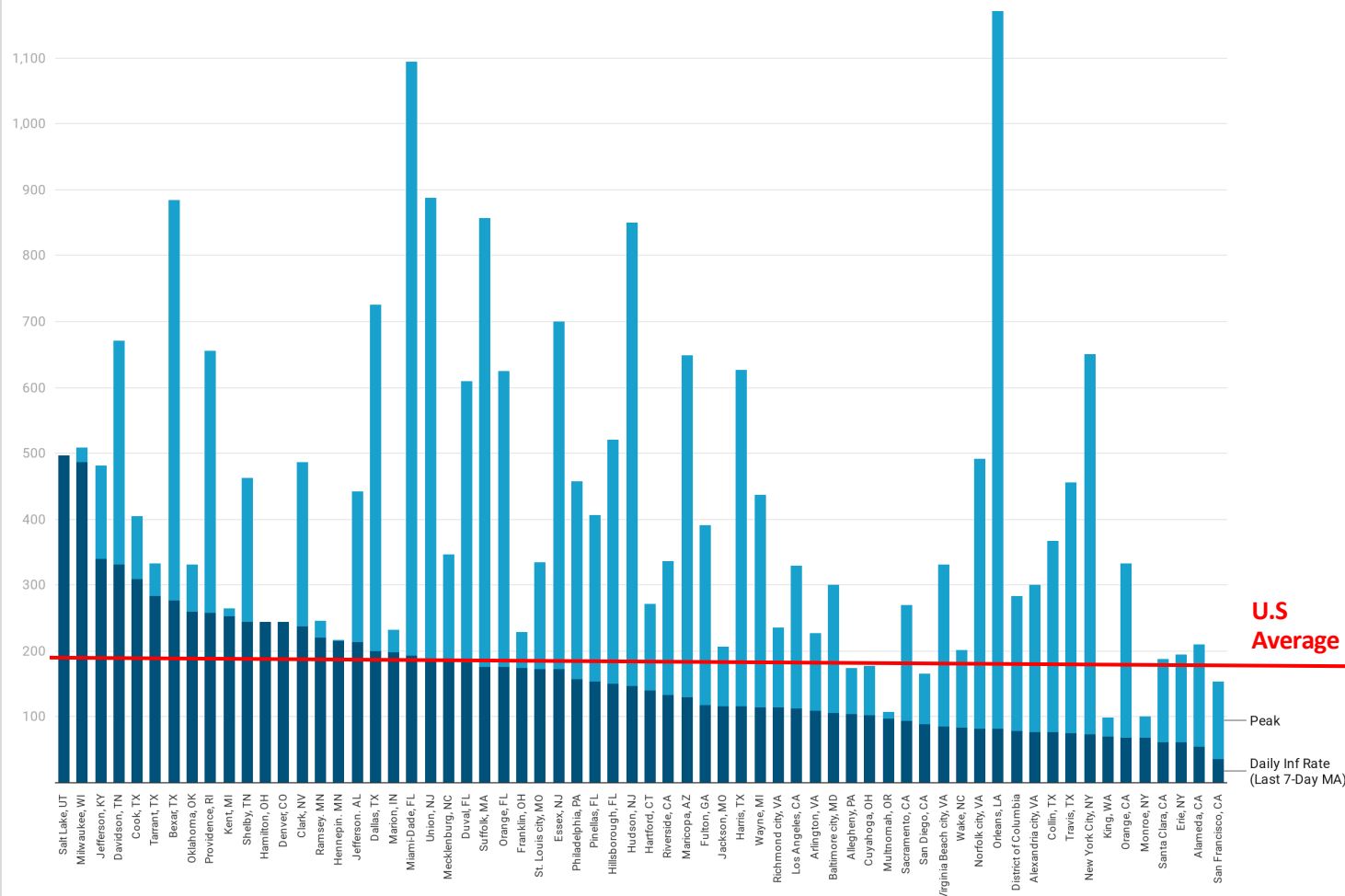


Chart: Health Industry Advisor LLC • Source: NY Times • Created with Datawrapper

Eighteen Large Fringe Metro Areas experienced 7-day new daily infection rates / million > 400 for the past week; Twelve of these are at or near peak infection rates

New Daily Infections / Million - Large Fringe Metro Areas

7-Day Moving Average, October 22 v. Peak

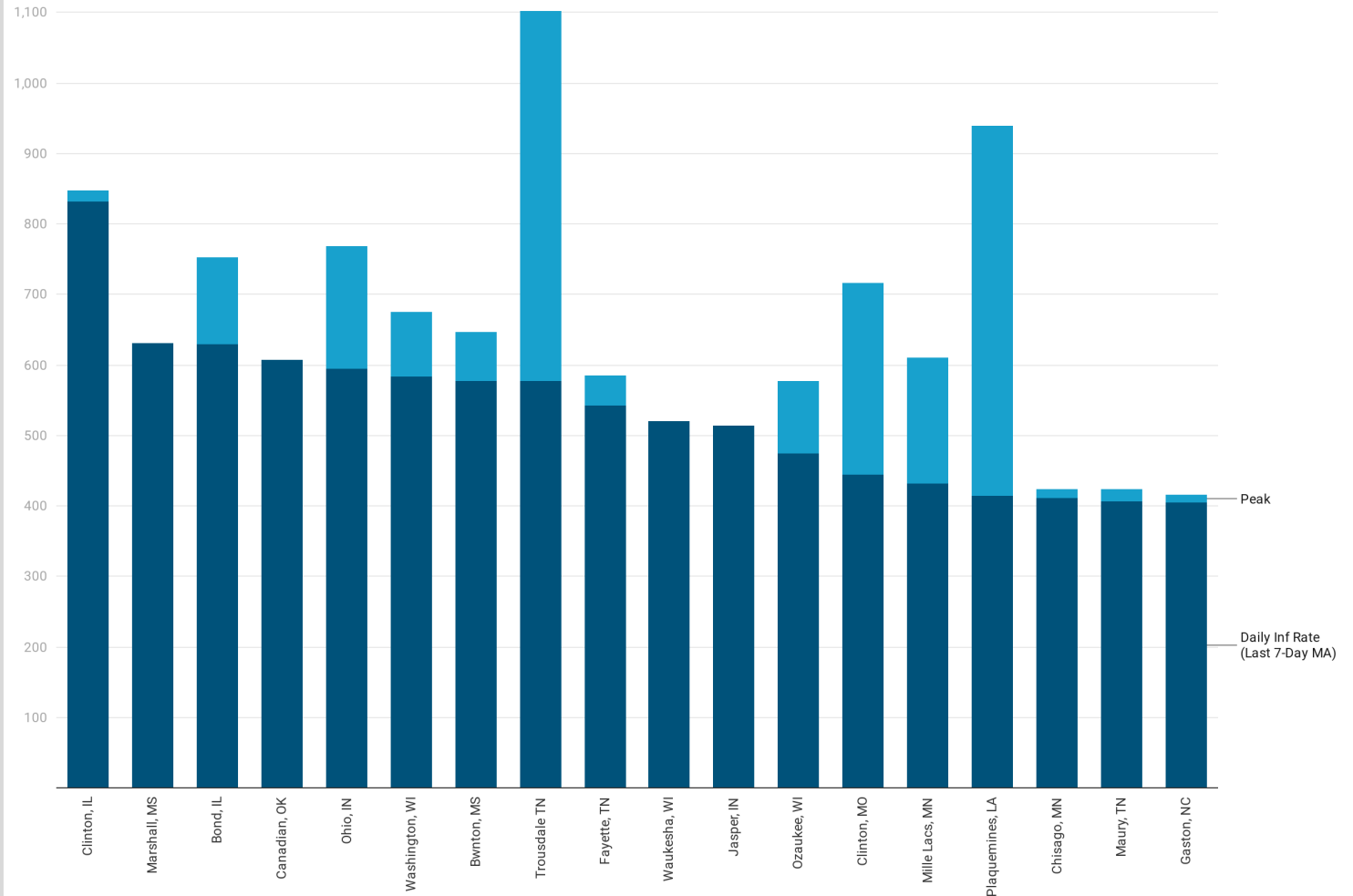


Chart: Health Industry Advisor LLC • Source: NY Times • Created with Datawrapper

Thirty-one Large Fringe Metro Areas experienced 7-day new daily infections per million < 50 over the past week; Infection rates for each of these areas have receded significantly from peak levels

New Daily Infections / Million - Large Fringe Metro Areas

7-Day Moving Average, October 22 v. Peak

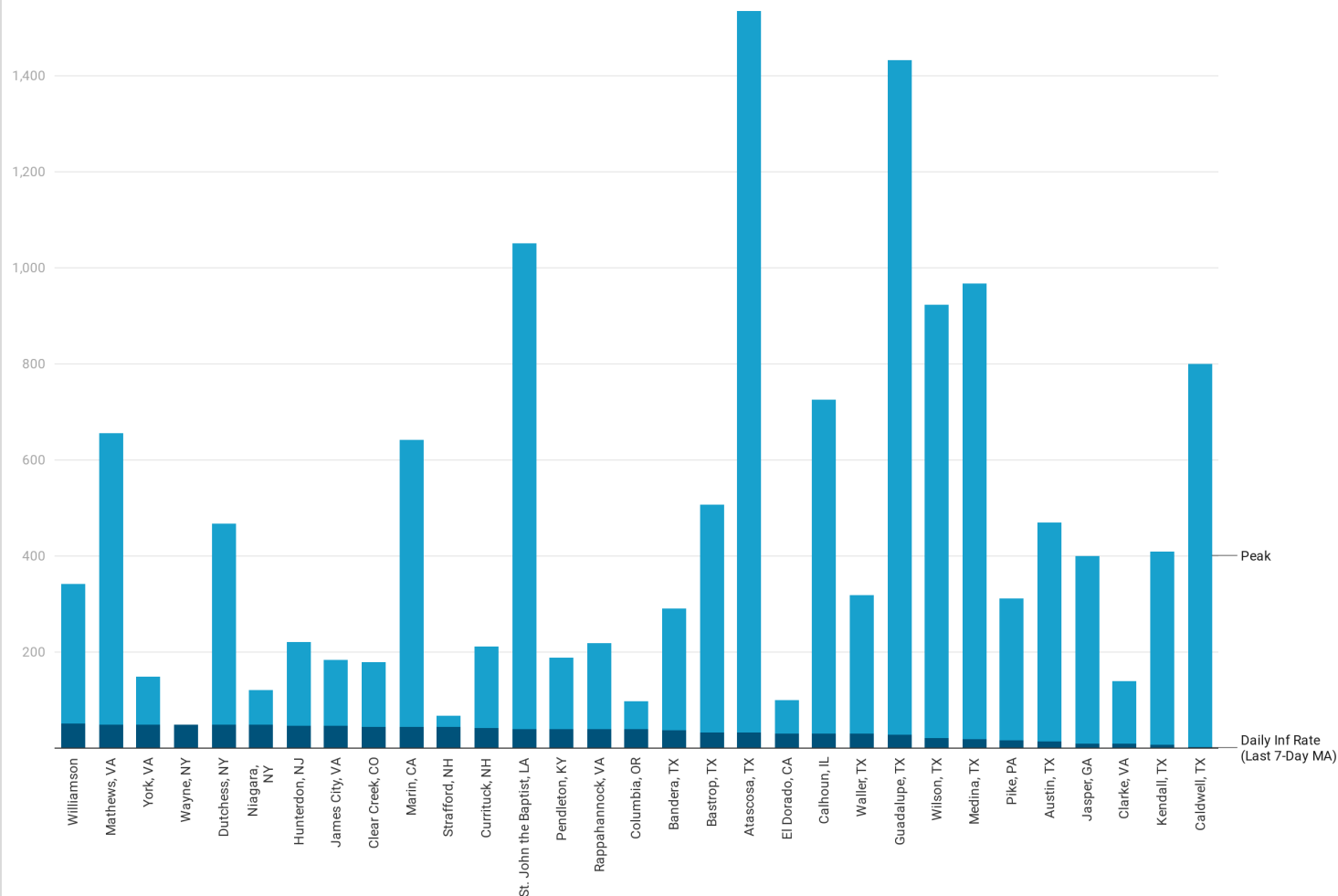


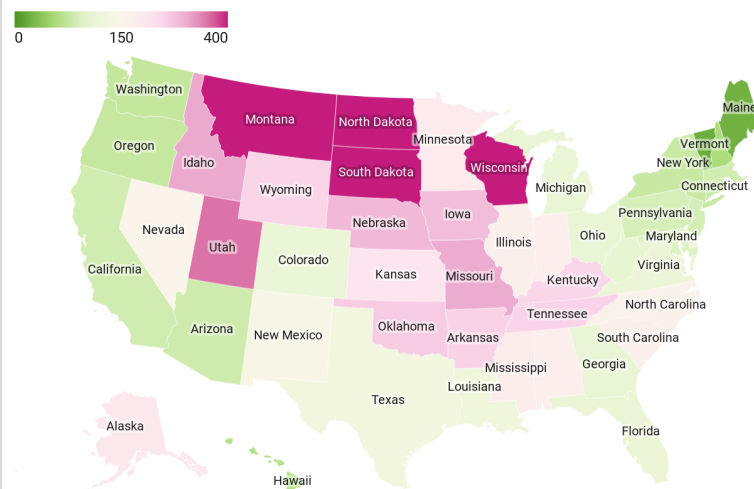
Chart: Health Industry Advisor LLC • Source: NY Times • Created with Datawrapper

New daily infections rates have continued to surge across the Upper Midwest and Mountain States

There are now eight states experiencing 7-daily new infection rates / million >400: Idaho, Nebraska, Utah and Wyoming join Montana, North Dakota, South Dakota and Wisconsin, which exceeded this level two weeks ago as well

New Infections / Million

7-Day Moving Average, As of October 8

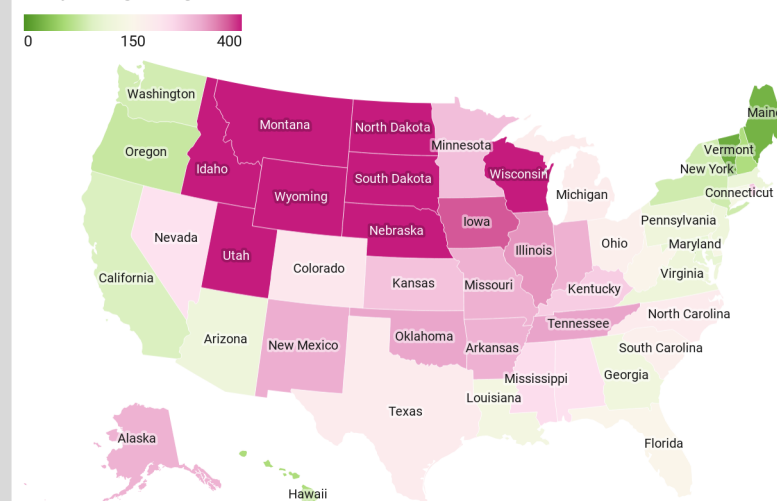


As of October 8

As of October 22

New Infections / Million

7-Day Moving Average, As of October 22



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

This rate is the highest it has been since August 2 and is at 92% of its peak level, which occurred in late-July

* - 7-day moving average basis

Newly Detected Infections Per 1 Million Population - United States

7-Day Moving Average, Through October 22



Health Industry Advisor LLC analysis

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

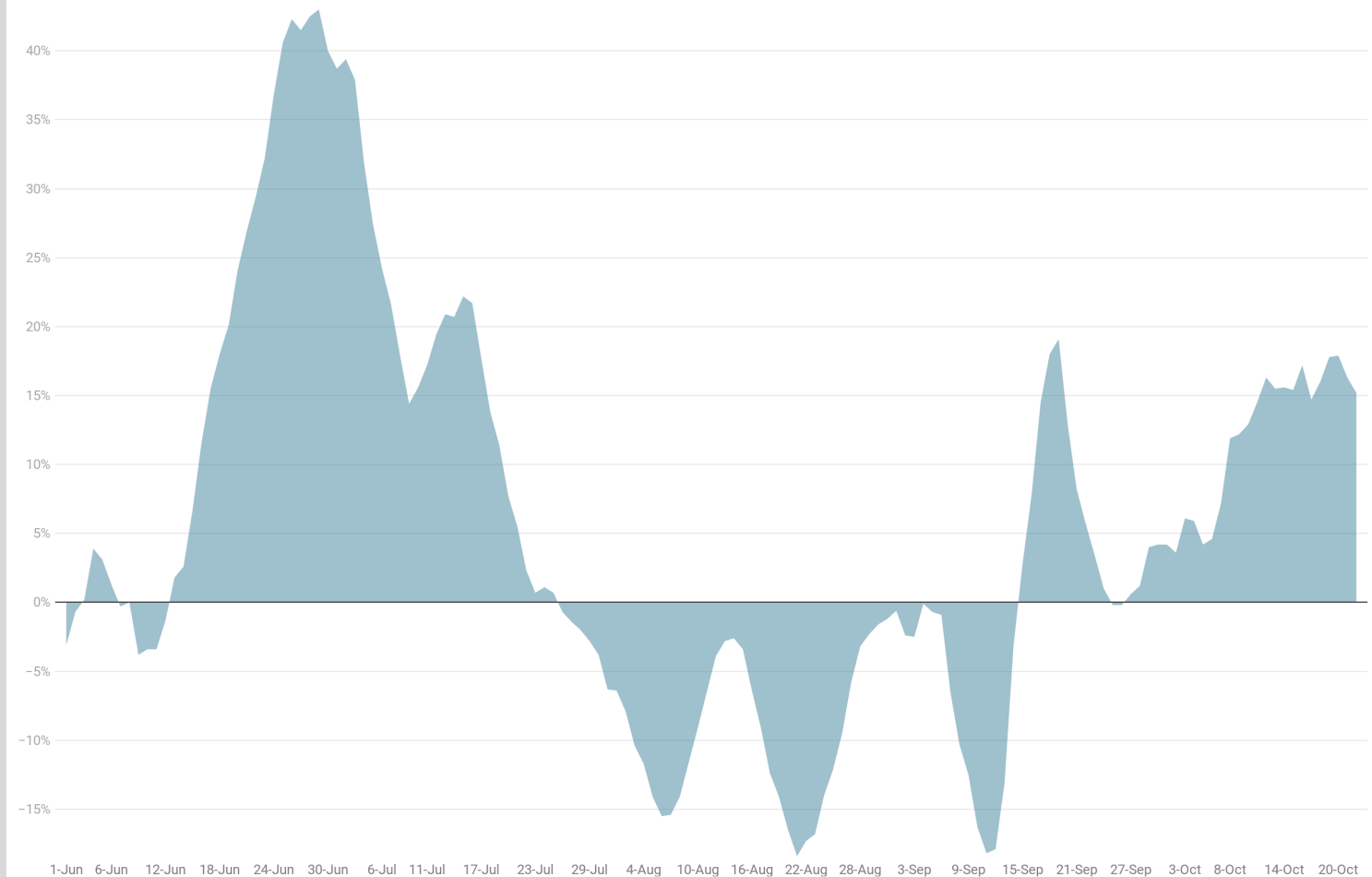
Following a seven-week period of decline, new cases began increasing on a week-over-week basis on September 15

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

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

Week-Over-Week Change In New Cases

Through October 22



Health Industry Advisor LLC analysis

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

There were more newly detected cases reported yesterday than on any Thursday since the pandemic began

Newly Detected Cases

Through October 22

Thursdays Highlighted

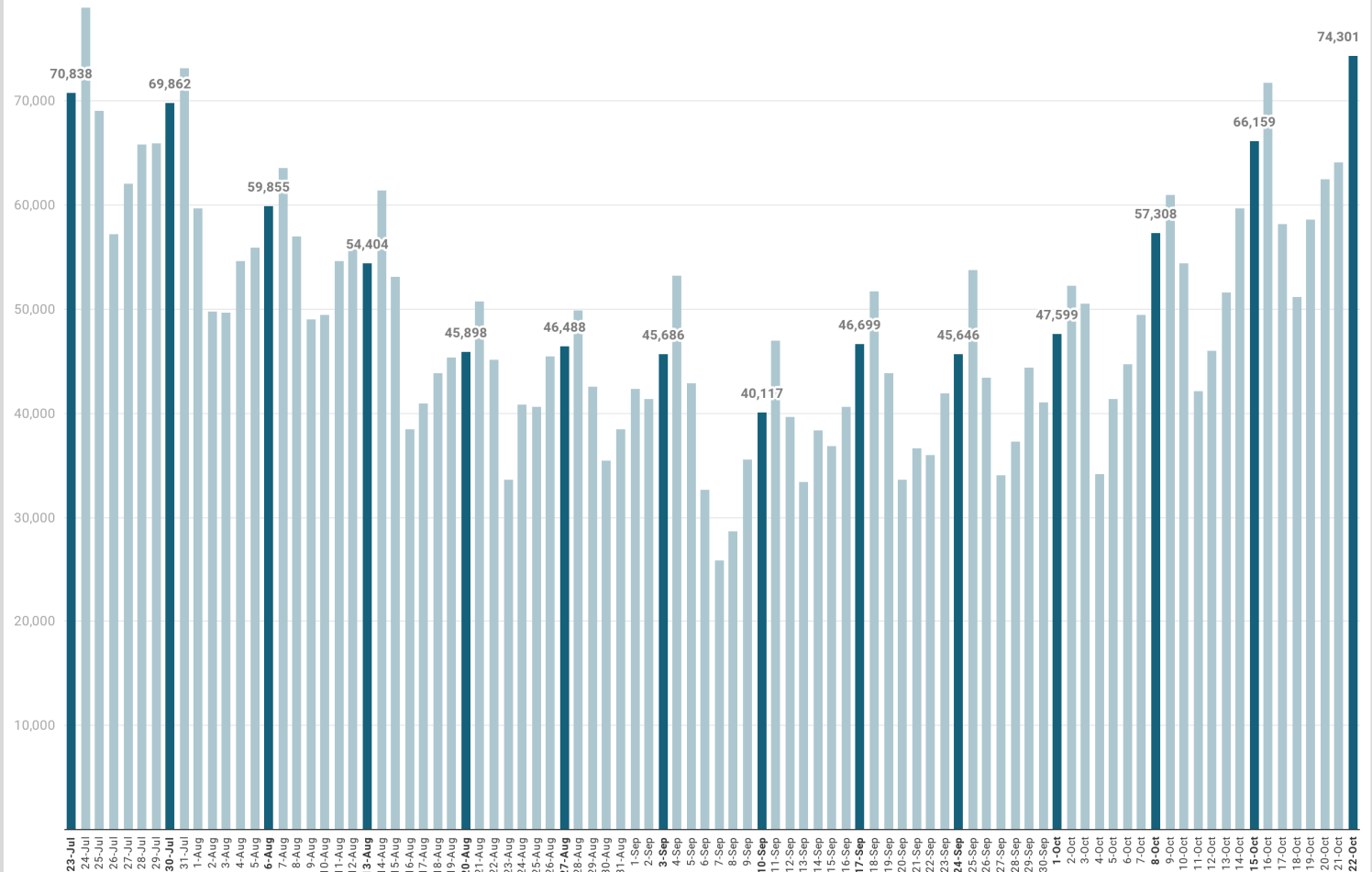


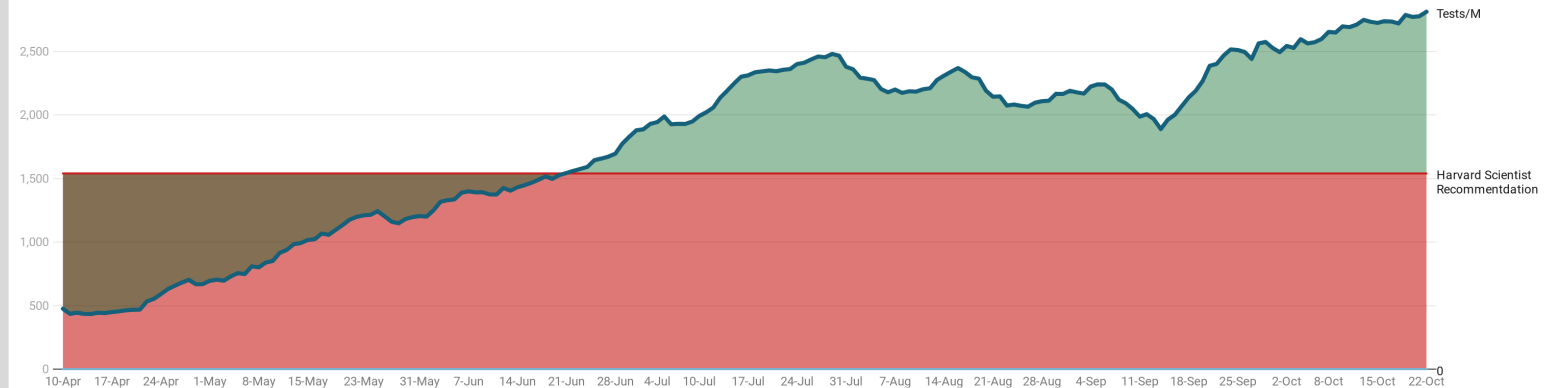
Chart: Health Industry Advisor LLC • Source: eorlometers.info • Created with Datawrapper

The 7-day average testing volume set another record on Wednesday

The 7-day test-positive rate, however, has been trending upward since the beginning of October; It is now higher than it has been since August 18

Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of October 22

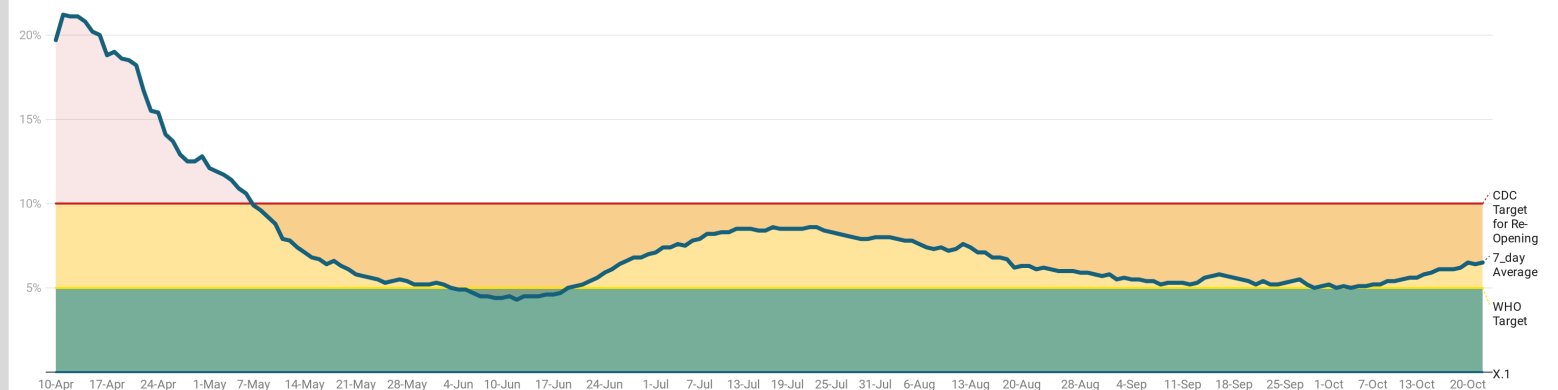


Health Industry Advisor LLC analysis

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 October 22



Health Industry Advisor LLC analysis

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

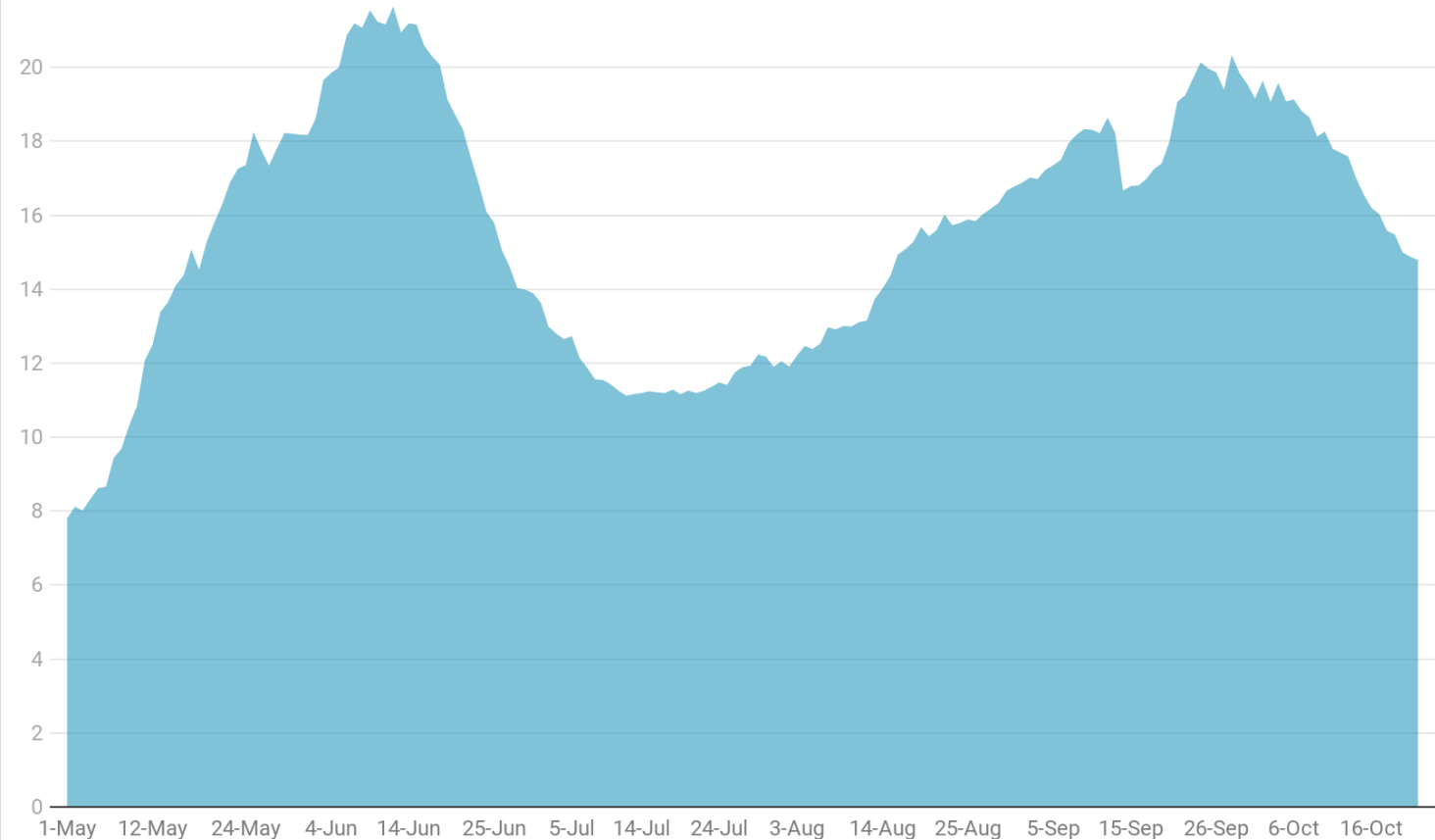
A measure of the effectiveness of testing is the ratio of tests performed to newly-detected cases

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

This rate is now lower than it has been at any time since August 15

Tests / New Case Detected (7-Day Average)

How many tests does it take to detect a new case?



Prefer this ratio to be higher rather than lower

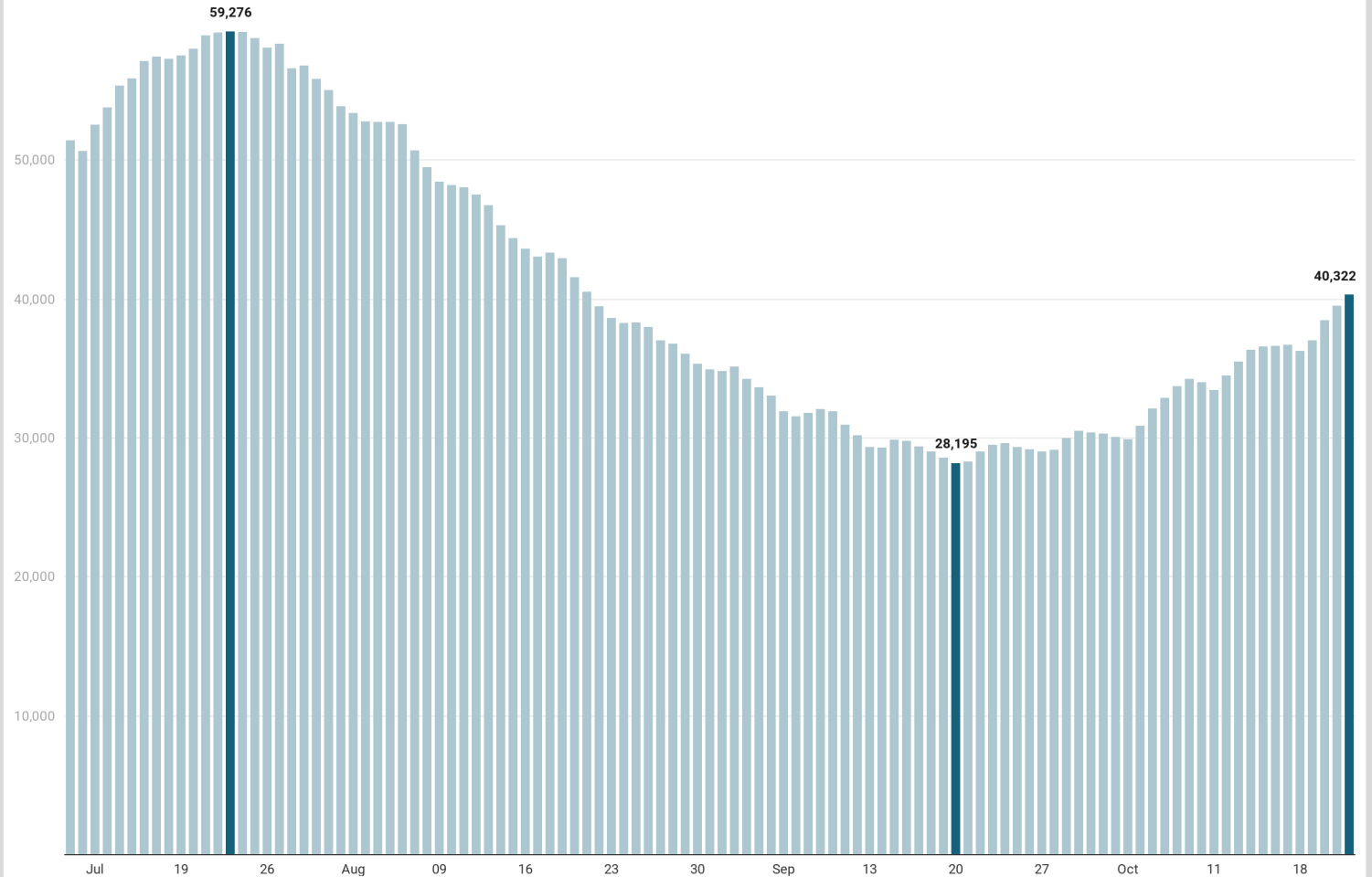
Chart: Health Industry Advisor LLC • Created with Datawrapper

On a same-day, prior-week basis, inpatient Covid-19 census increased for the 29th consecutive day

This census is 68% of what it was at its peak in late-July yet, has regained 40% of the reduction in realized from late-July to September 20

Hospital Census: COVID-19 Patients

As of October 20



Florida data first available on July 10

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

Note that, while Covid-19 hospital census moves up-and-down with newly-detected cases, the impact of new cases on Covid-19 census has diminished over time

While hospitalizations trended down consistent with new cases in August/September, hospitalizations have not increased at the same rate as new cases in October

Daily New Detected Cases v. Covid-19 Hospital Census

As of October 22

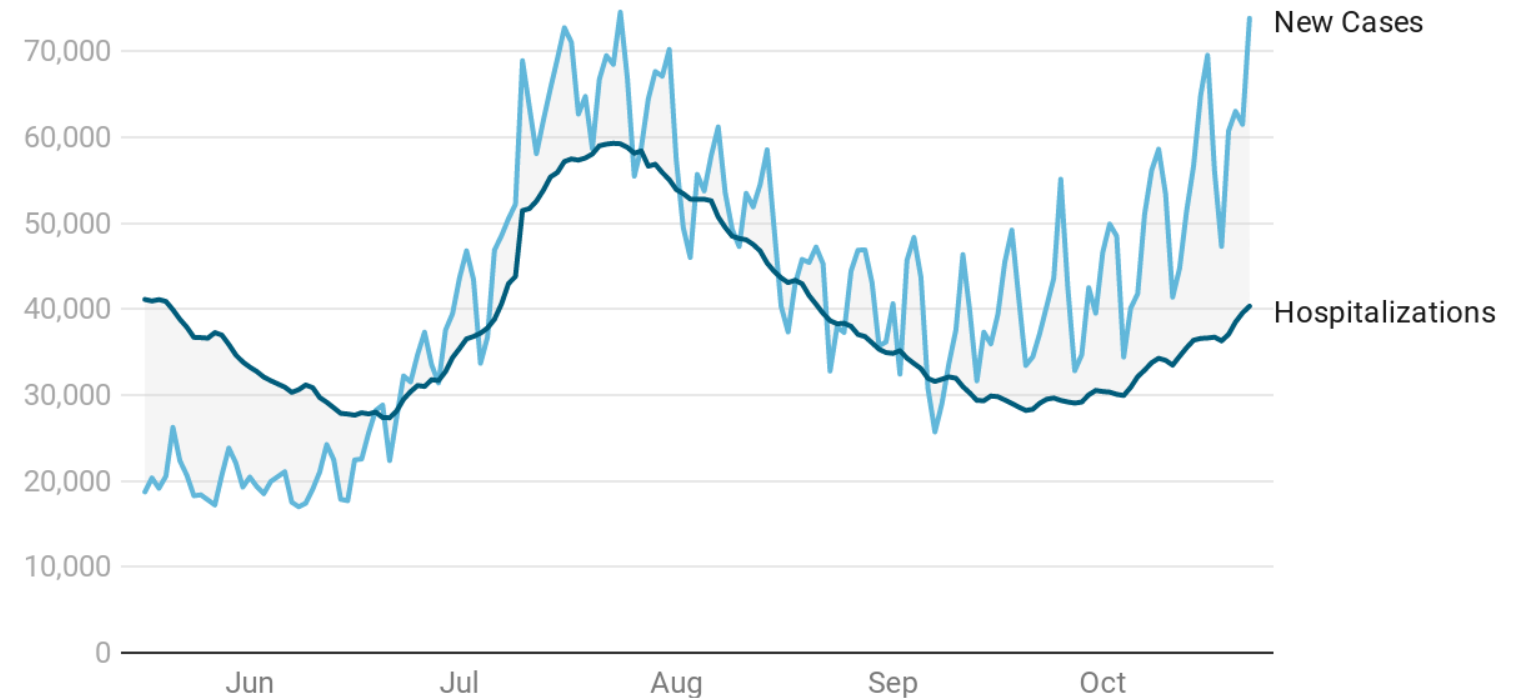


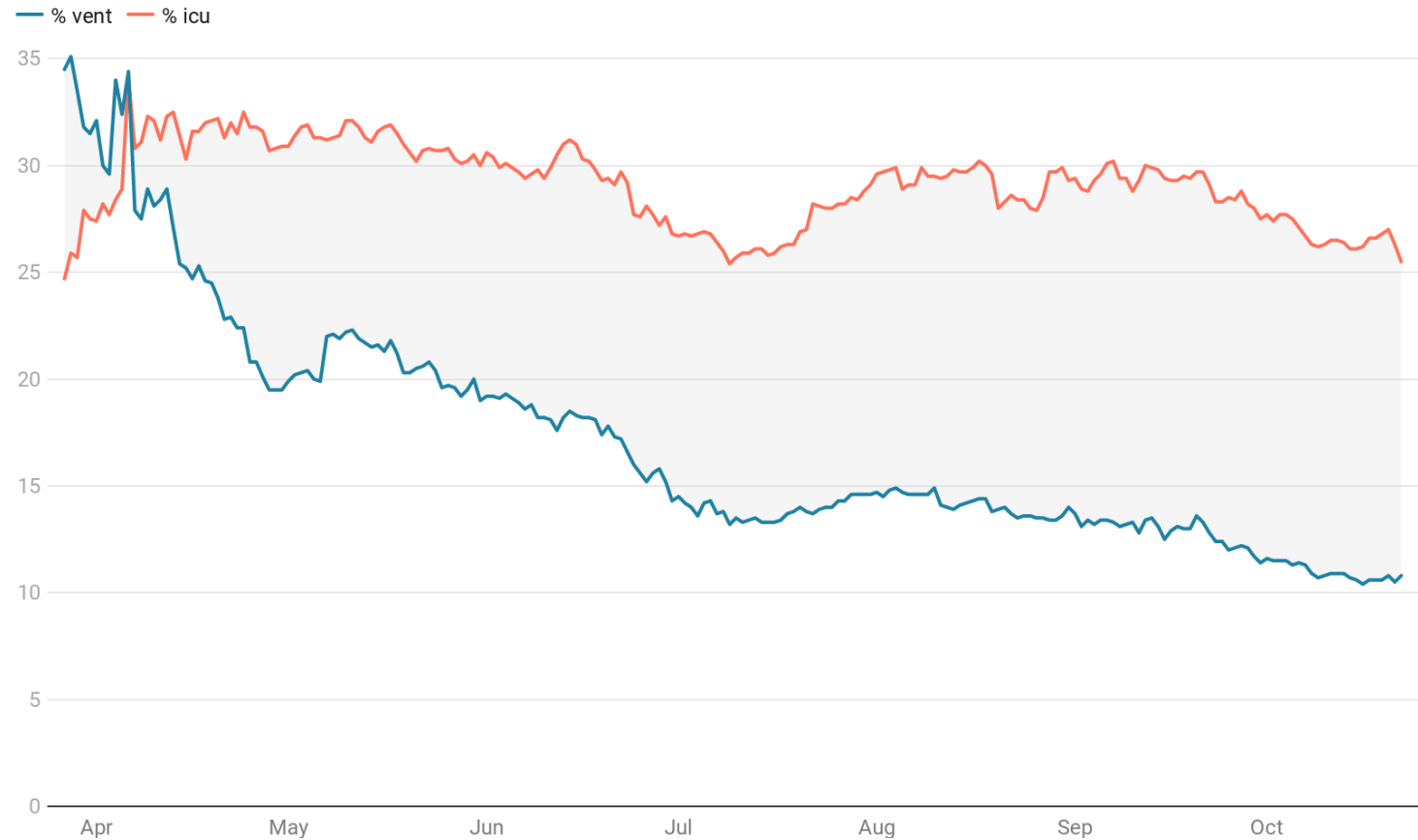
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking project & worldometers.info • Created with Datawrapper

During the recent rise in Covid-19 inpatient census, the % of those inpatients requiring intensive care has declined

The % of Covid-19 inpatients requiring ventilator care has steadily declined since April

Severity of Hospitalized Patients

% of patients on ventilators and in the ICU, As of October 22



Health Industry Advisor LLC analysis

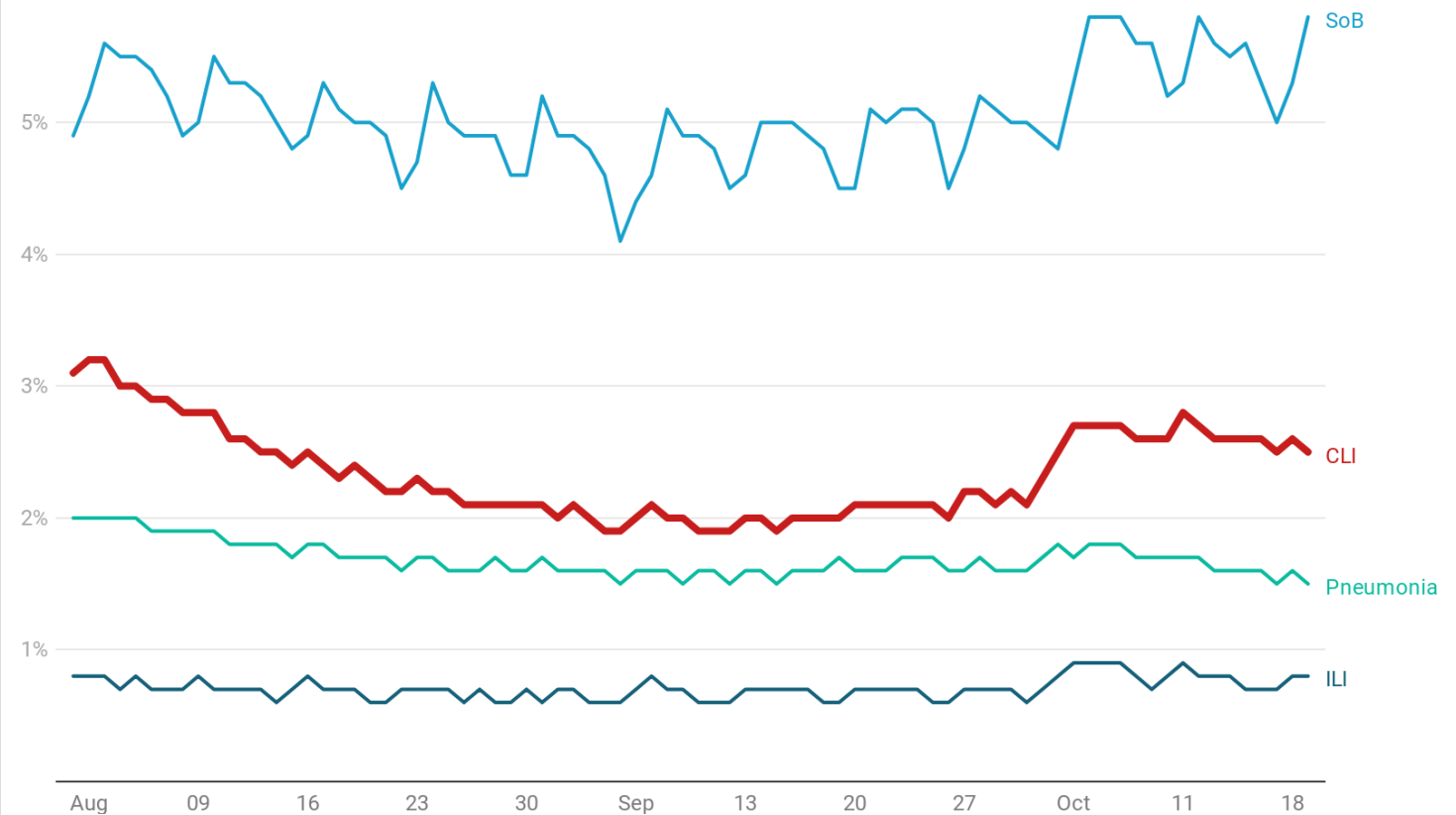
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

The % of ER visits for COVID-19-like illnesses (CLI) has eased during October; this rate remains significantly lower than 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 19



Health Industry Advisor LLC analysis

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

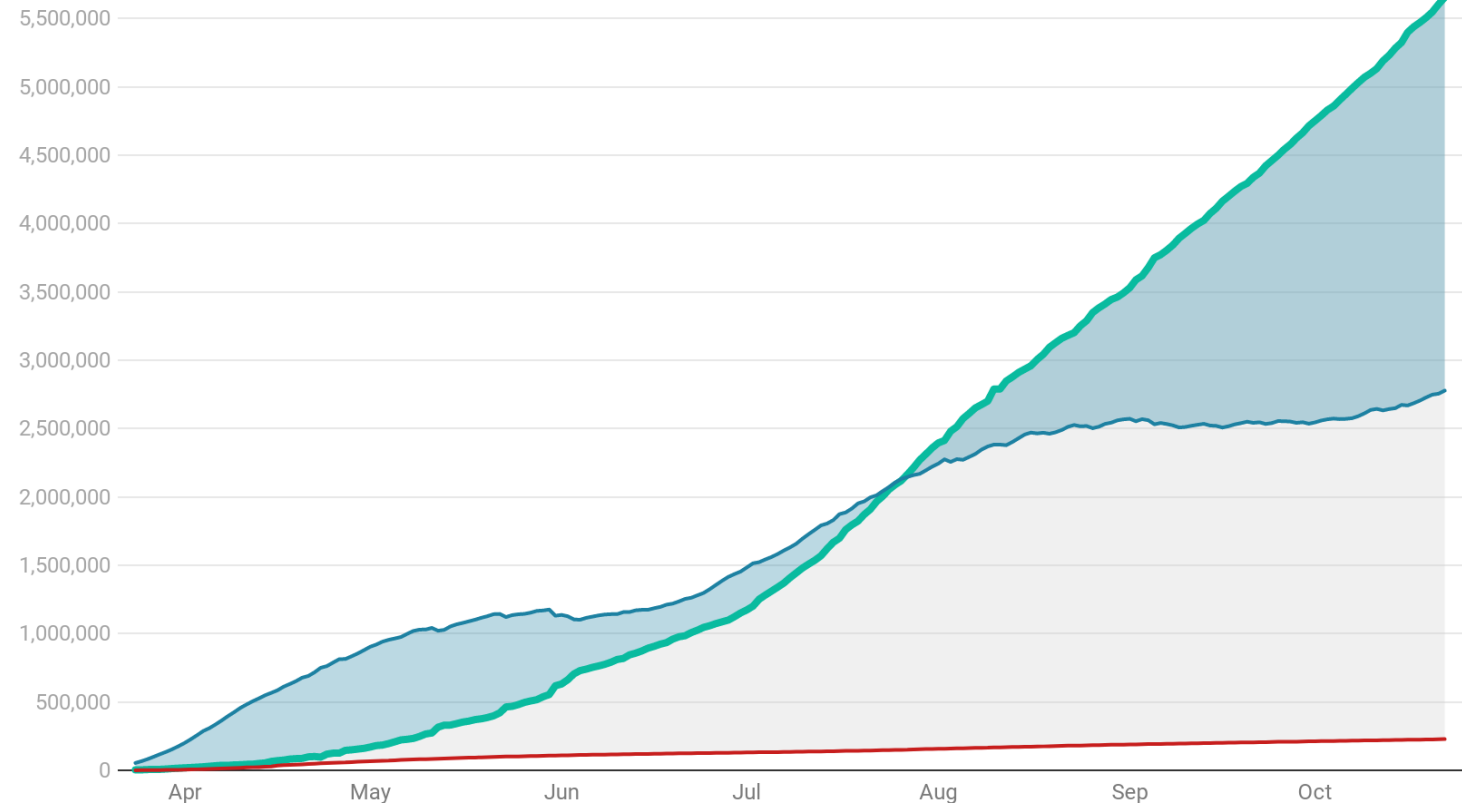
Recoveries from the virus continue to increase

Active cases have increased modestly during the recent surge in new infections

Active Cases v. Recoveries & Deaths

Through October 22

— Active Cases — Recoveries — Deaths



Health Industry Advisor LLC analysis

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

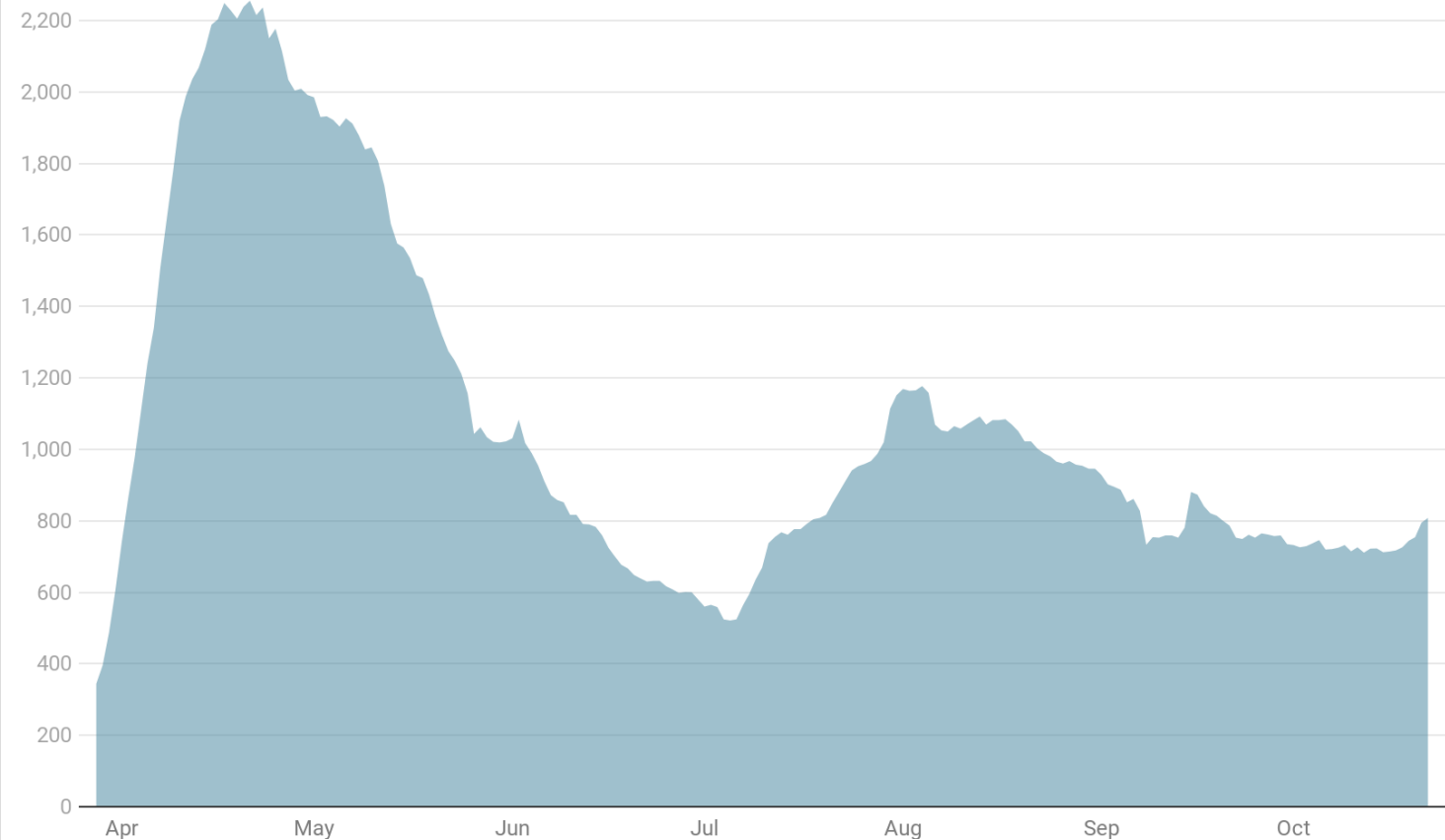
The recent uptick in newly-detected cases is beginning to effect deaths:

The 7-day average deaths per day has increased on seven consecutive days, and is the highest recorded since September 19

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

Deaths Reported With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of October 22



Health Industry Advisor LLC analysis

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

There were more deaths reported yesterday than on any of the last five Thursdays, though the difference was within 2-10%

Newly Reported Deaths

Through October 22

Thursdays Highlighted

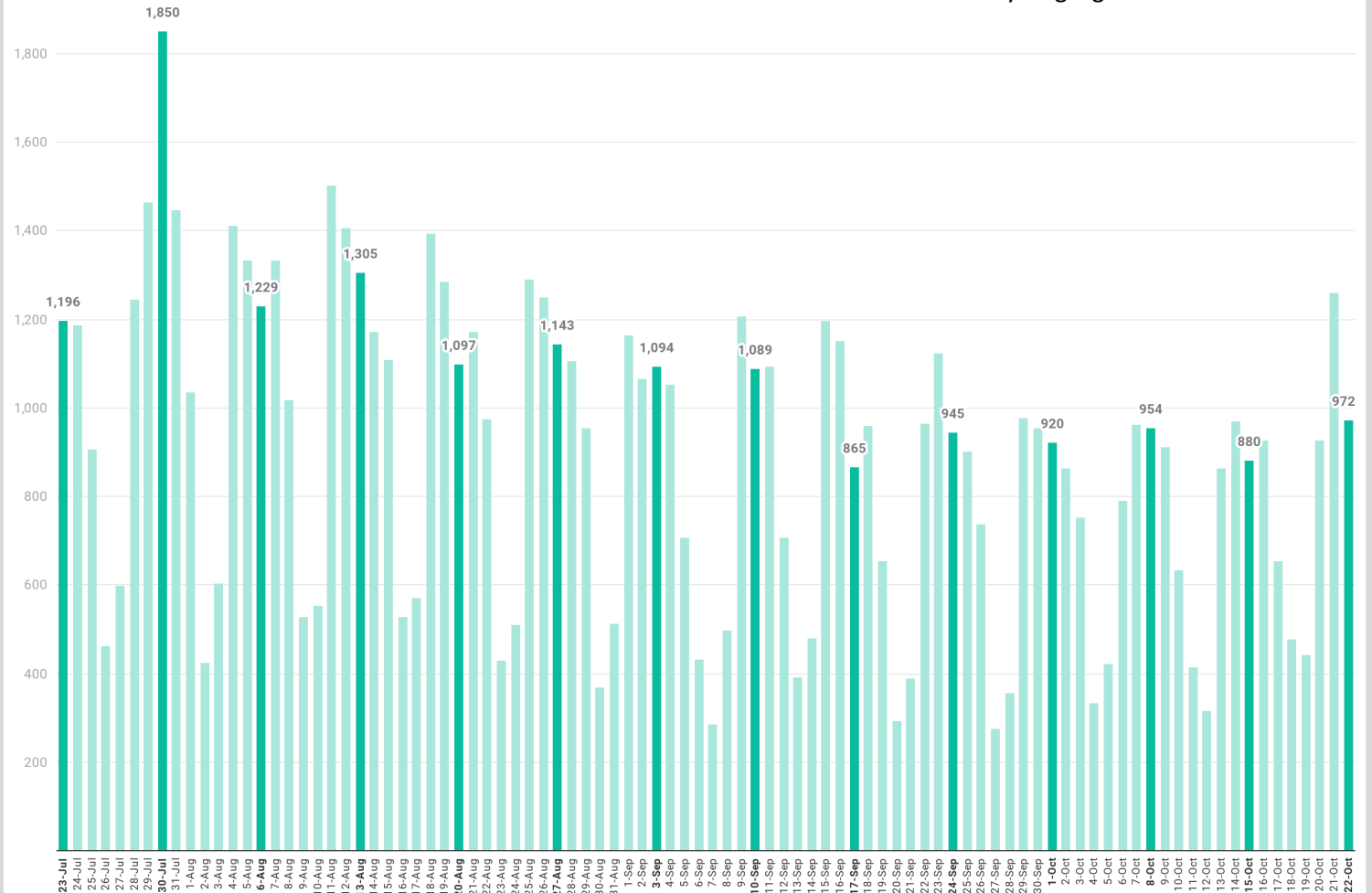


Chart: Health Industry Advisor LLC • Source: eorlometers.info • Created with Datawrapper

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>