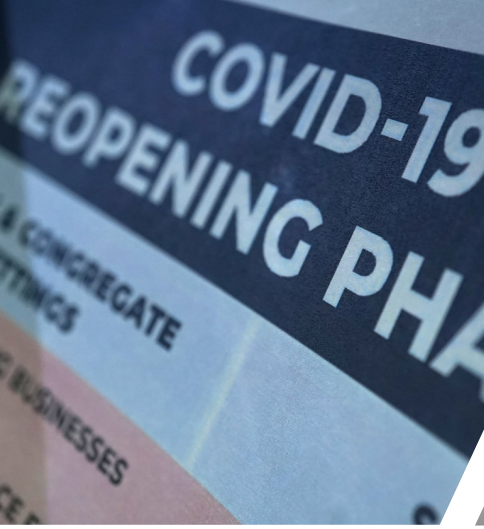

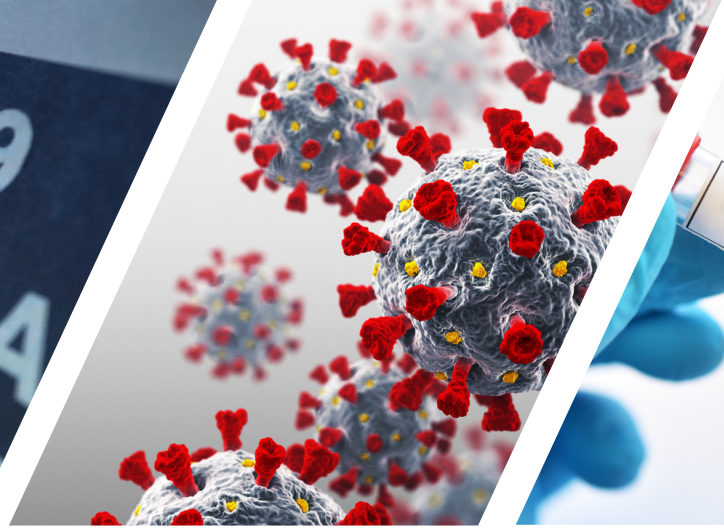

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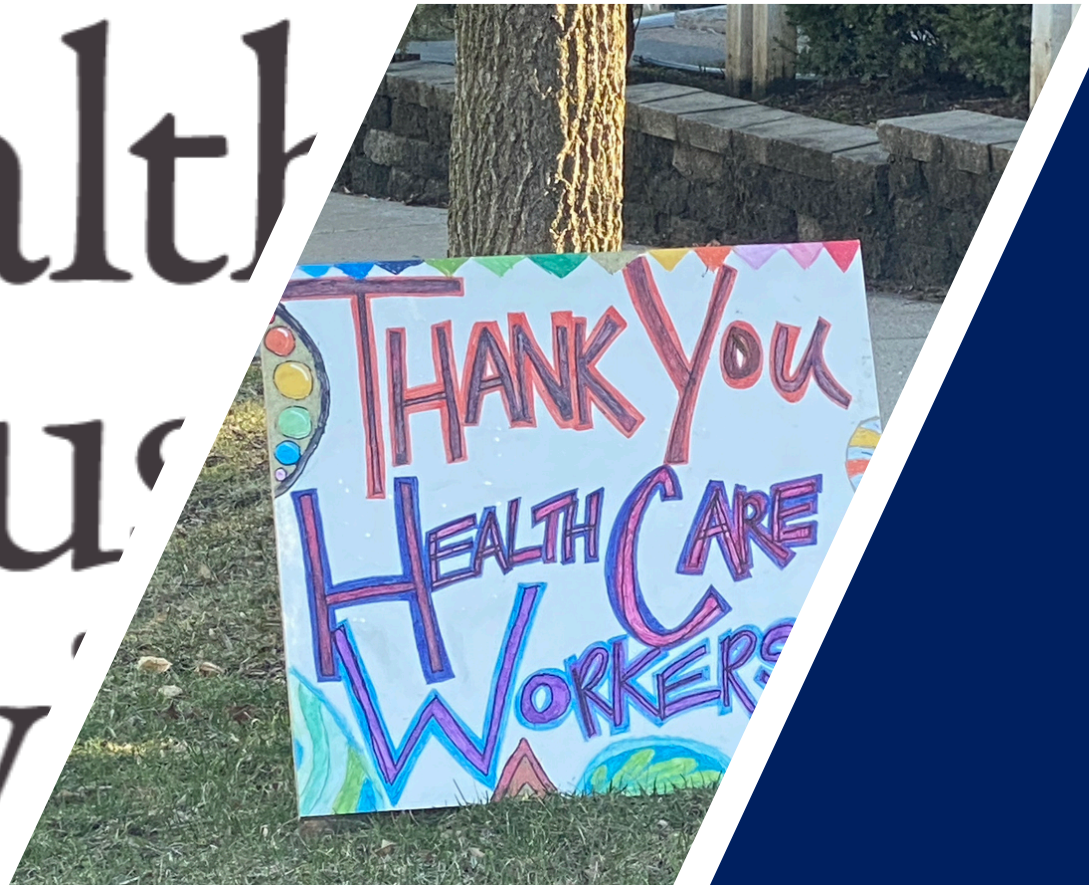

Issue # 218

Saturday, November 21, 2020

COVID-19 Report

Highlights

- Worldwide, there were 4.2 million new cases detected in the seven-day period ending yesterday. This is up slightly from the prior week's 4.1 million new cases
- **In the United States, there were 1.2 million new cases detected, the second consecutive week that more than 1 million new cases were detected**
- One of the challenges with reported detected cases is that it likely severely understates true infections (due to lack of testing, test avoidance, missing low or asymptomatic cases)
  - One of the leading Covid-19 data modelers, Youyang Gu re-engaged in the modeling process on Friday; Gu had been one of the most reliable (if not the most-reliable) forecasters of infection and infection-fatality rates, until he discontinued his modeling in early October
  - In his final forecast on October 5, Gu projected 230,669 deaths with the coronavirus by November 1; the actual number turned out to be 230,995 - Gu missed by a mere 0.14%, with a prediction cast 4 weeks earlier
  - Gu resumed modeling estimated infections this week; his model uses several factors to estimate infections, including fatalities. As such, his estimates are lagged two weeks
  - **As of November 6, Gu estimates that 13.7% of the U.S. population has been infected by the SARS-CoV-2 virus, with a range of 9.1%-20.5%**
  - Oliver Wyman is another source of infection prevalence estimates; **as of November 19, Oliver Wyman places the best estimate of infection prevalence at 12.3%, with a range of 7.1%-21.7%**
  - **By comparison, 3.7% of the U.S. population has a detected infection**
  - The actual infection rate has implications for the number of people that will need to be vaccinated in order achieve the 60-70% "herd immunity" level

- **Covid-19 patients are placing an ever-increasing strain on healthcare resources in the U.S.:**
  - **Last week, Covid-19 patients occupied 24% of the inpatient bed capacity in the U.S.**
  - **These Covid-19 patients were responsible for more than 100,000 days in the ICU last week**
  - **Further, these patients spent more than 30,000 days collectively on ventilators**
  - Fortunately, the hospitalization rate per new Covid-19 case, as well as the rate of Covid-19 patients being in the ICU or on ventilators are each at or near their lowest levels since the pandemic began
- Deaths with coronavirus continue to rise each week:
  - **Last week, more than 10,000 people died in the U.S. with the coronavirus**
  - **This weekly rate is likely to continue to increase for the next several weeks, until some time (2-4 weeks?) after new cases begin to decline**
  - **The case fatality rate, however, remains low compared to earlier in the pandemic**; if we assume a 2-week lag for the average time from case-detection to death, this rate is down significantly in the past six weeks. Alternatively, if we assume a 3-week or 4-week lag, the rate has been relatively consistent during this time period. Regardless of the lag assumption, however, this rate is markedly lower than it was during the June/July surge (and significantly lower than in March/April)

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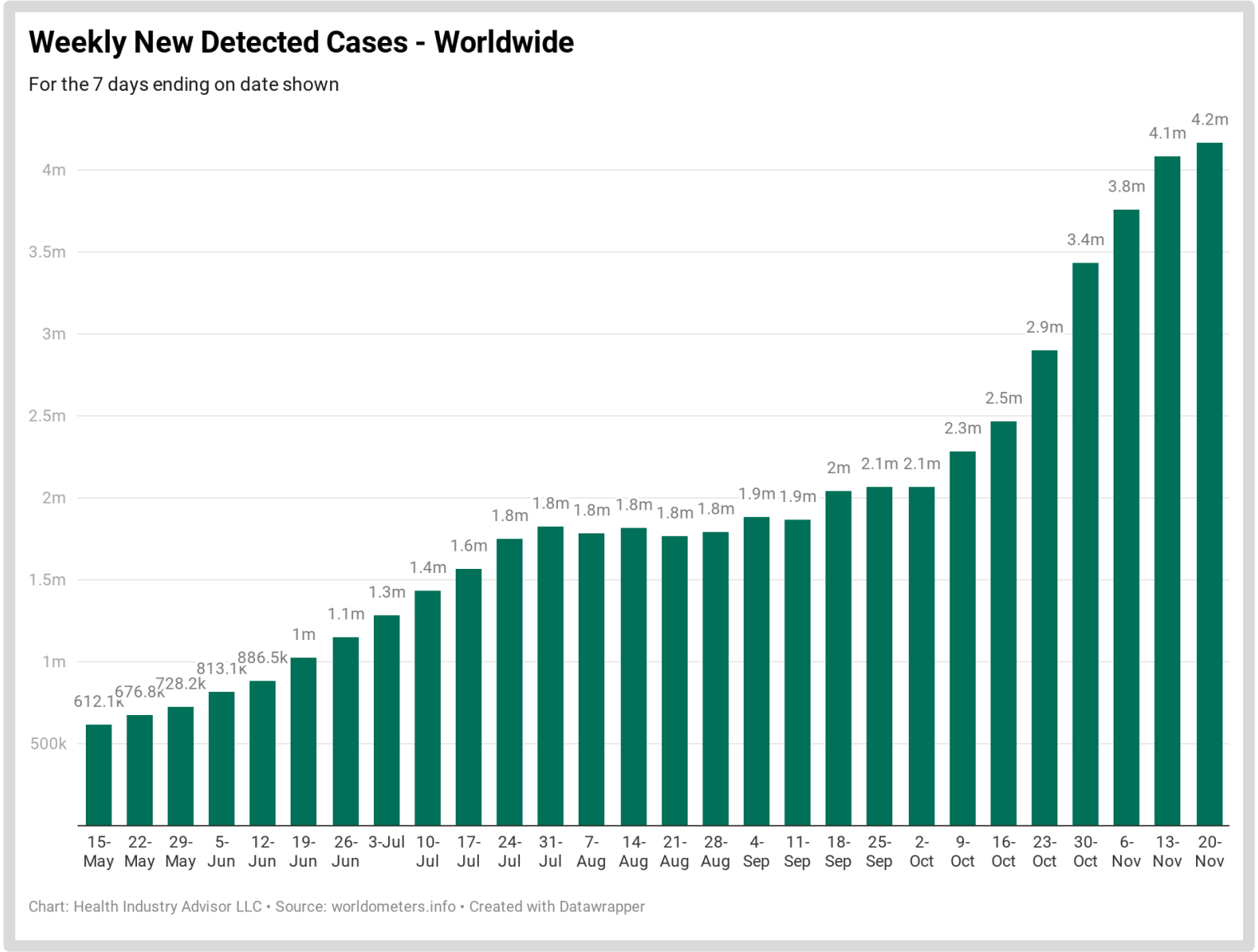
There were 4.2 million newly detected cases worldwide last week, up slightly from the prior week



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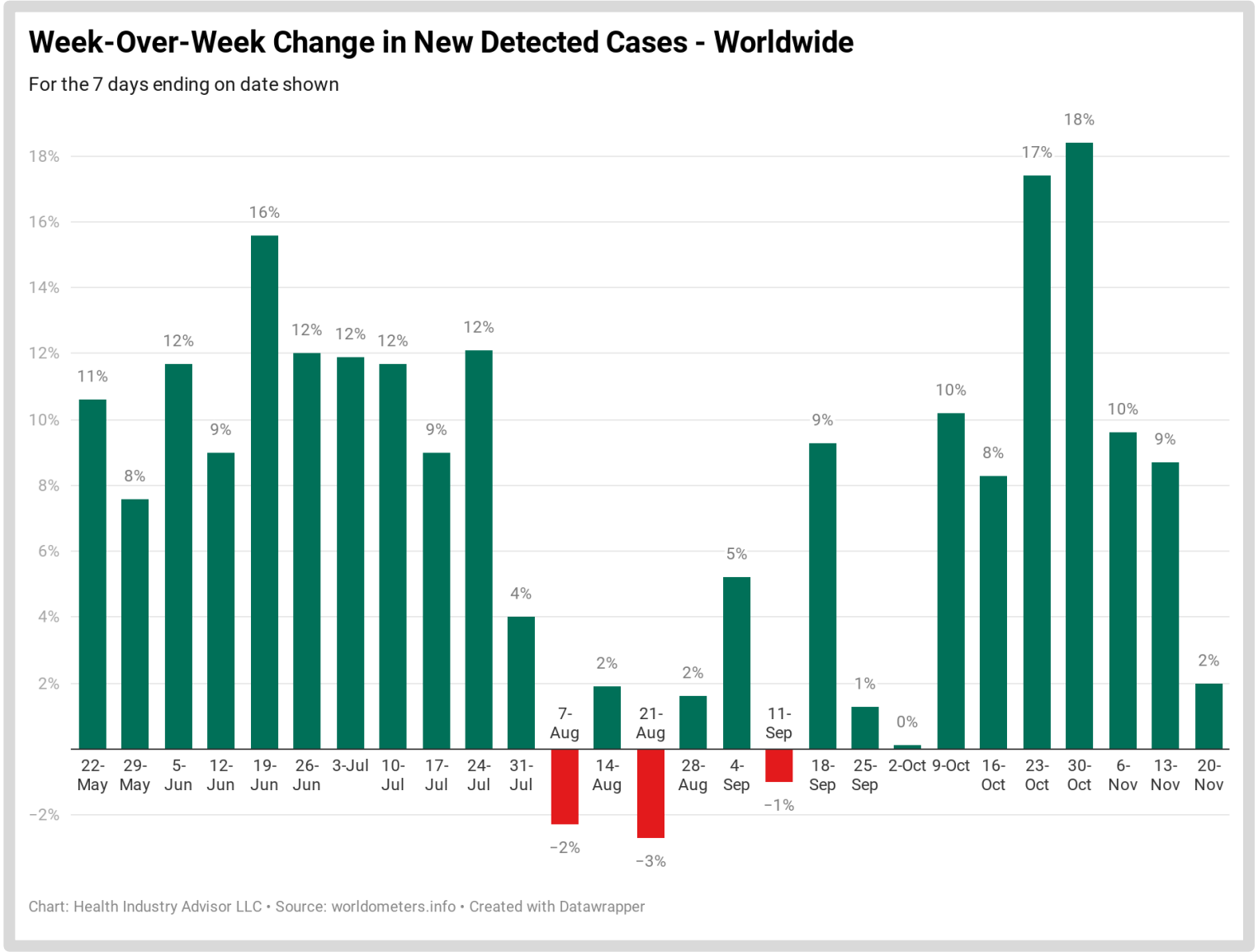
The growth rate in new cases week-over-week has been slowing worldwide for the past three weeks - and nearing zero



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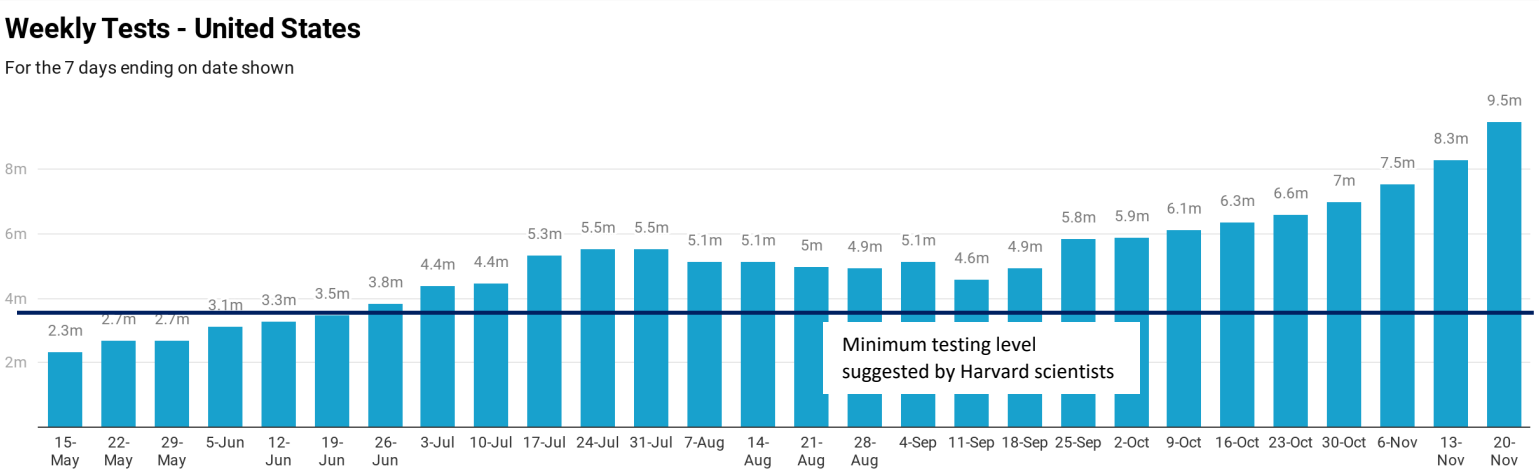
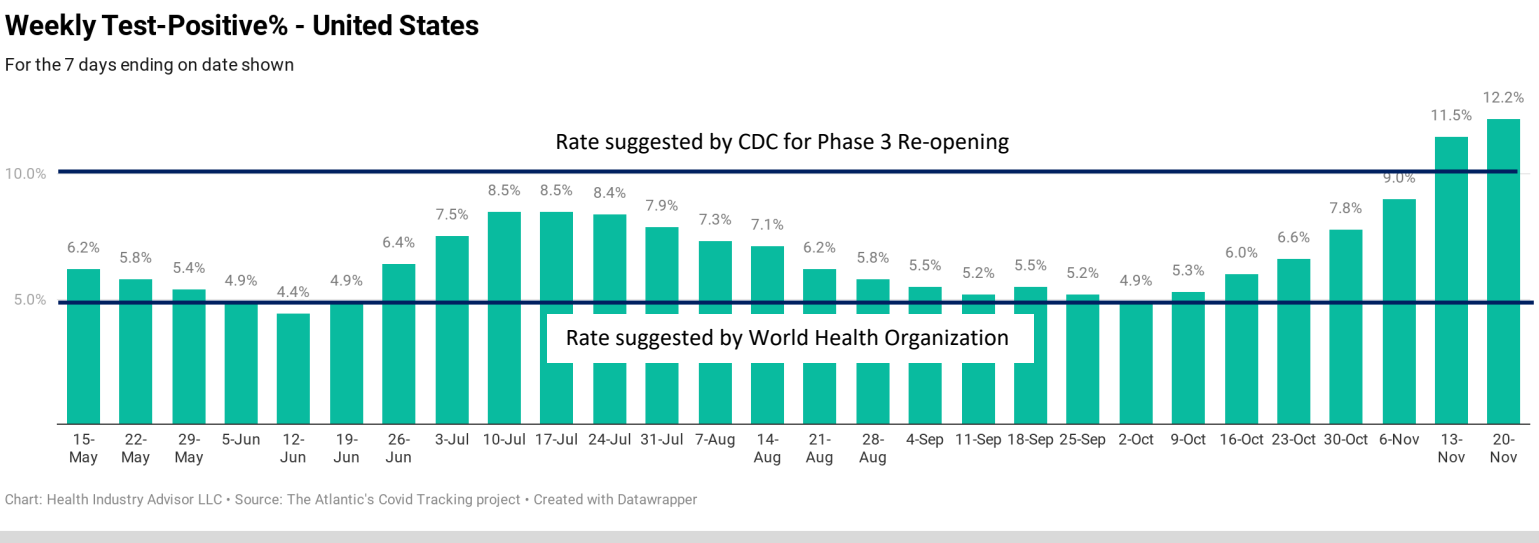
9.5 million tests were conducted last week - setting a record high for the ninth consecutive week

Test-positive rate has increased seven consecutive weeks . . . and exceeds the target set by the CDC for Phase 3 re-openings





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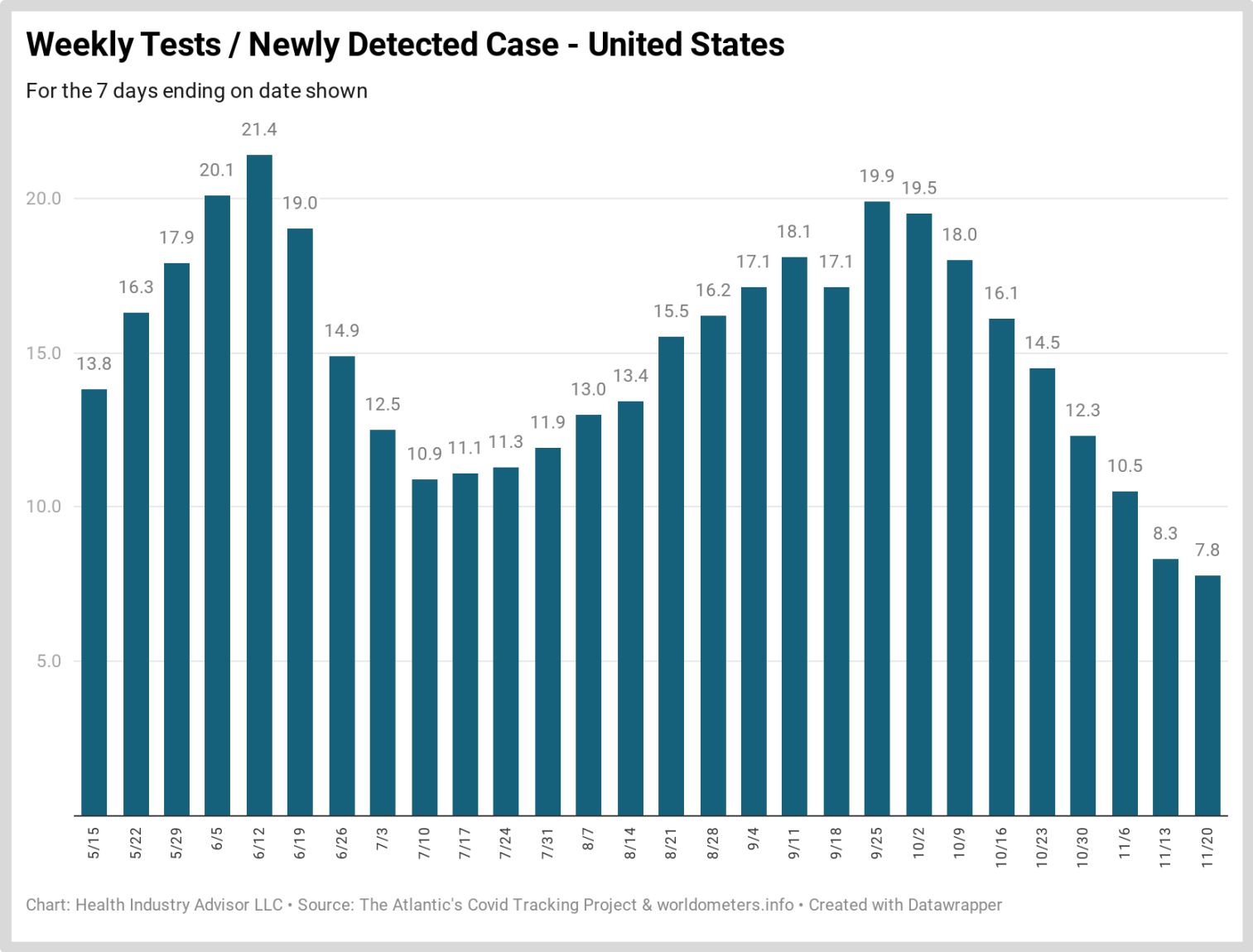
The ratio of tests performed to new cases detected has dropped eight consecutive weeks - despite the increasing test volume

The higher this ratio, the more adequate testing is at identifying spread; a low measure suggests that testing isn't keeping pace



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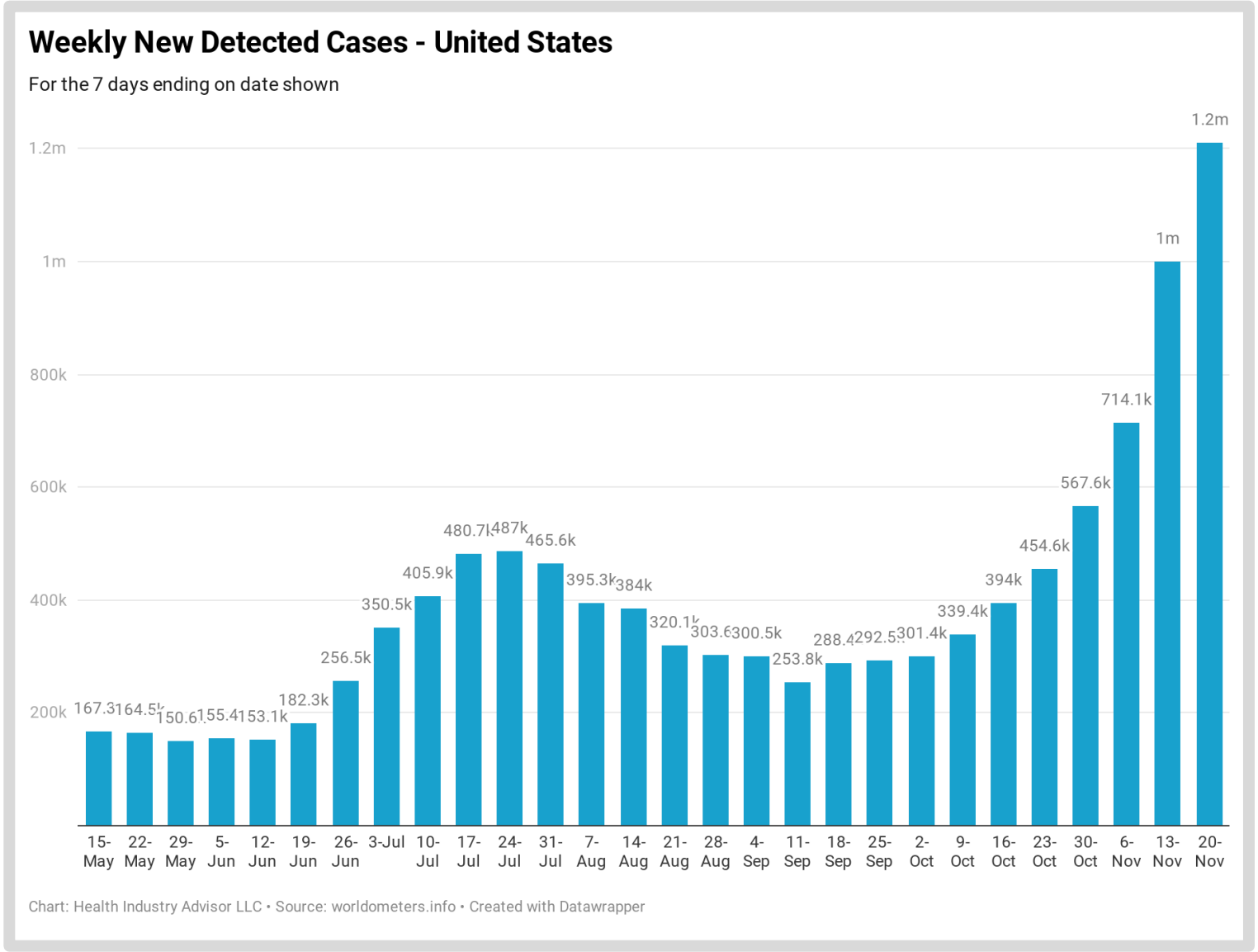
Newly detected cases increased for the tenth consecutive week

1.2M new cases were detected in the past seven days



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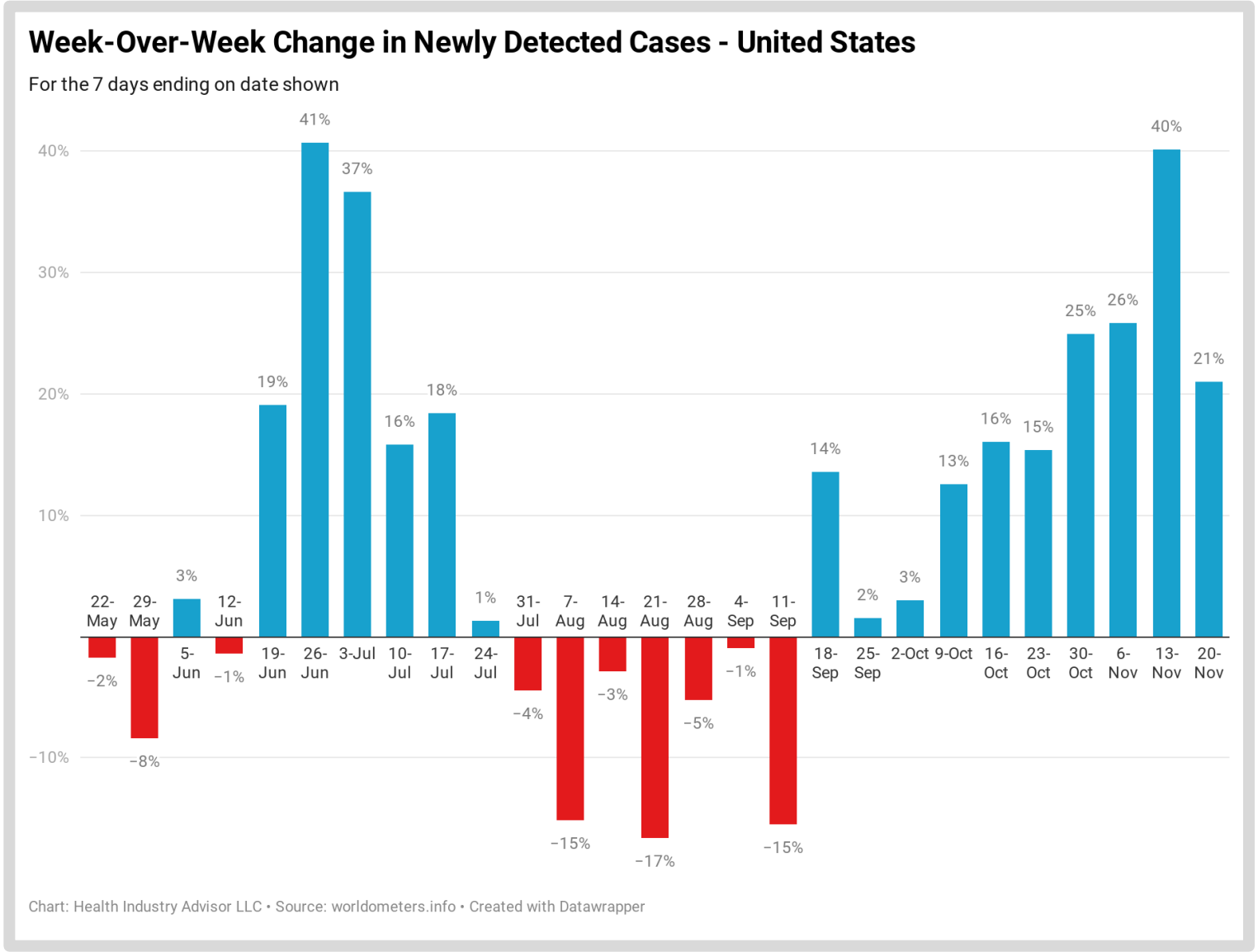
New cases increased week-over-week at ~½ the rate of the prior week . . . And at the lowest rate in four weeks



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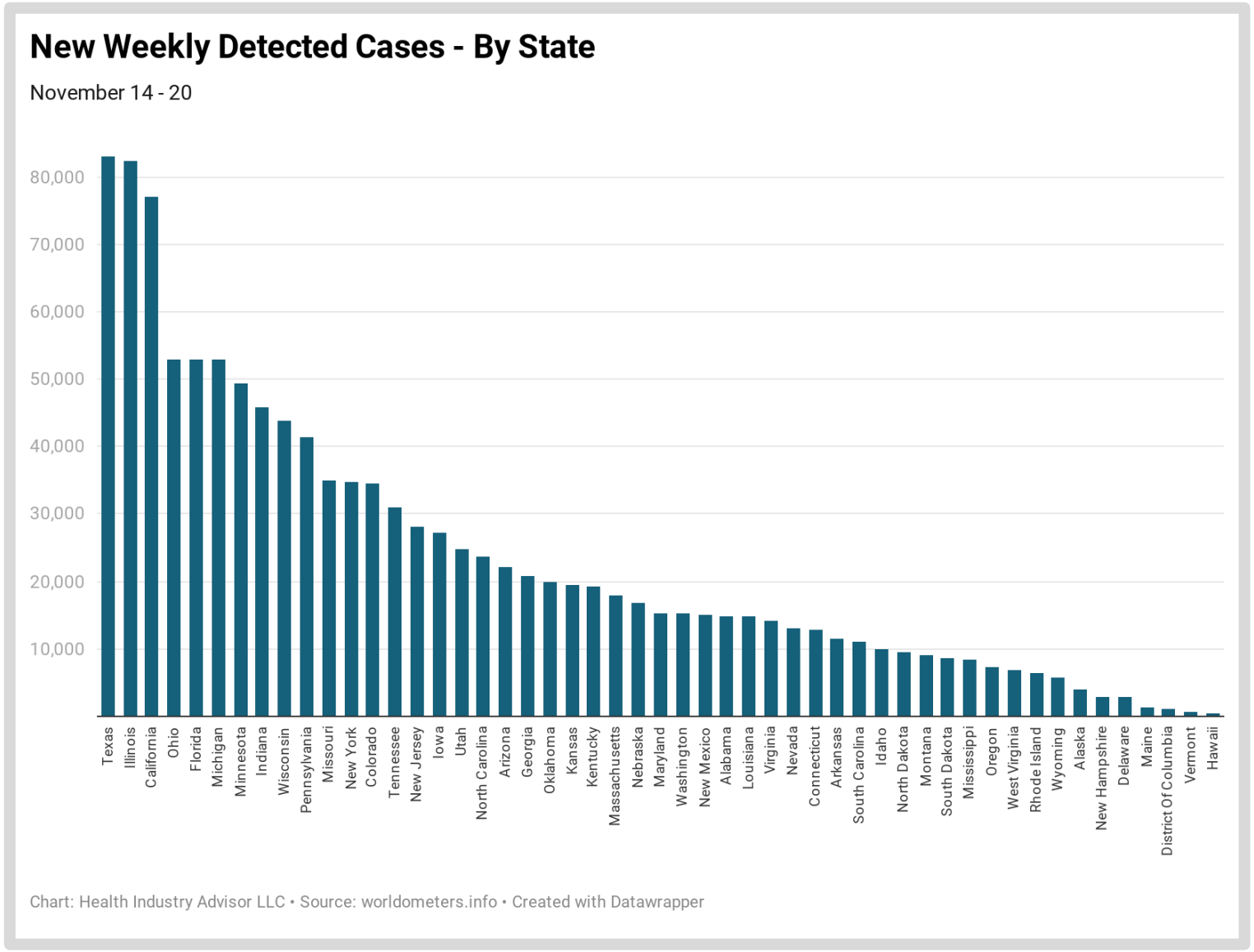
California, Illinois and Texas recorded the highest number of newly detected cases over the past seven days – by a significant margin



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California experienced the largest increase in new cases relative to the prior week

Florida, Indiana, Minnesota, Ohio, Pennsylvania and Texas also experienced at least 10,000 more new cases than the prior week

Six states – Hawaii, Illinois, Iowa, Louisiana, South Dakota and Wisconsin – experienced fewer newly detected cases this past week than the prior week

Week-Over-Week Change In Newly Detected Cases - By State

November 14-20 v. November 7-13

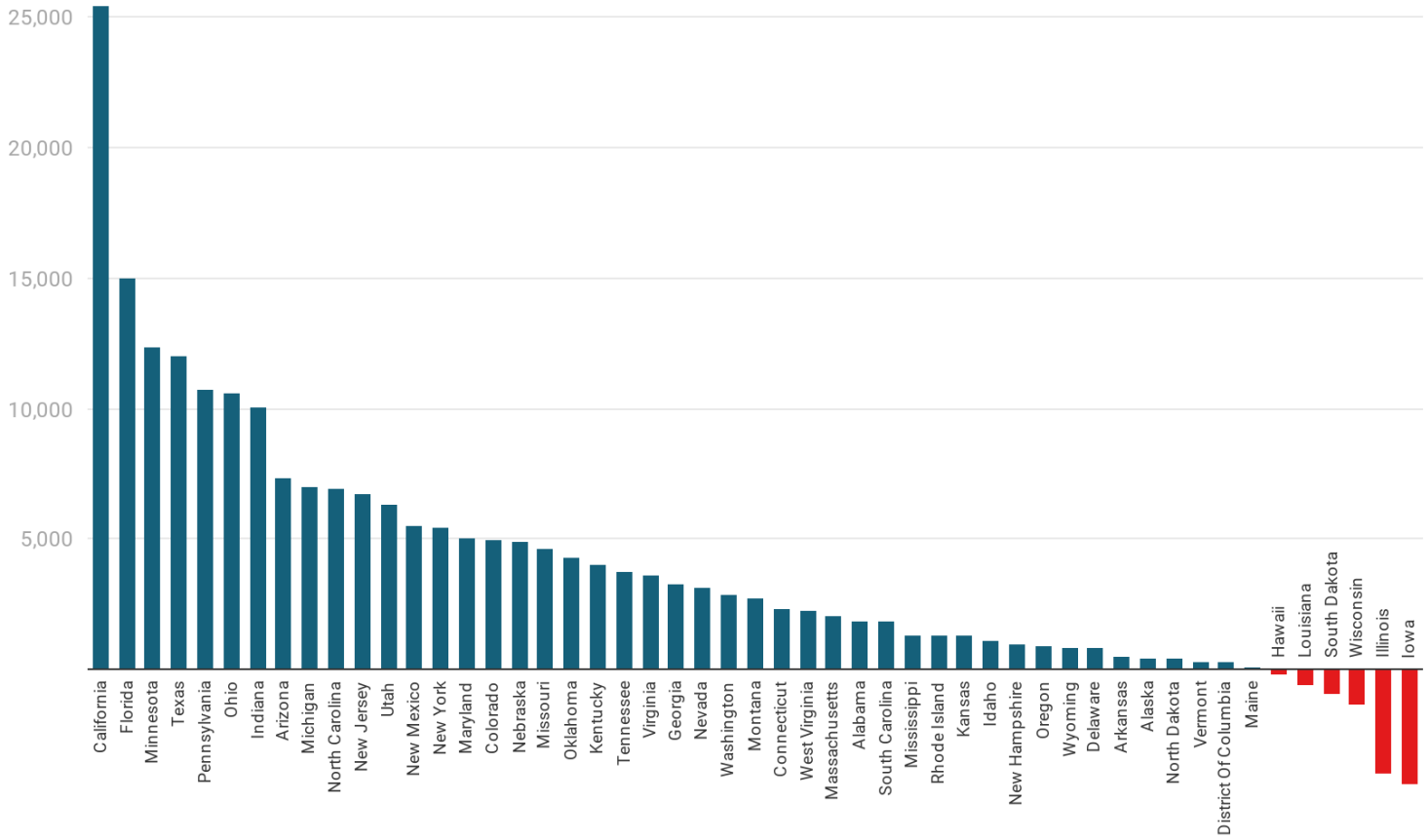

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

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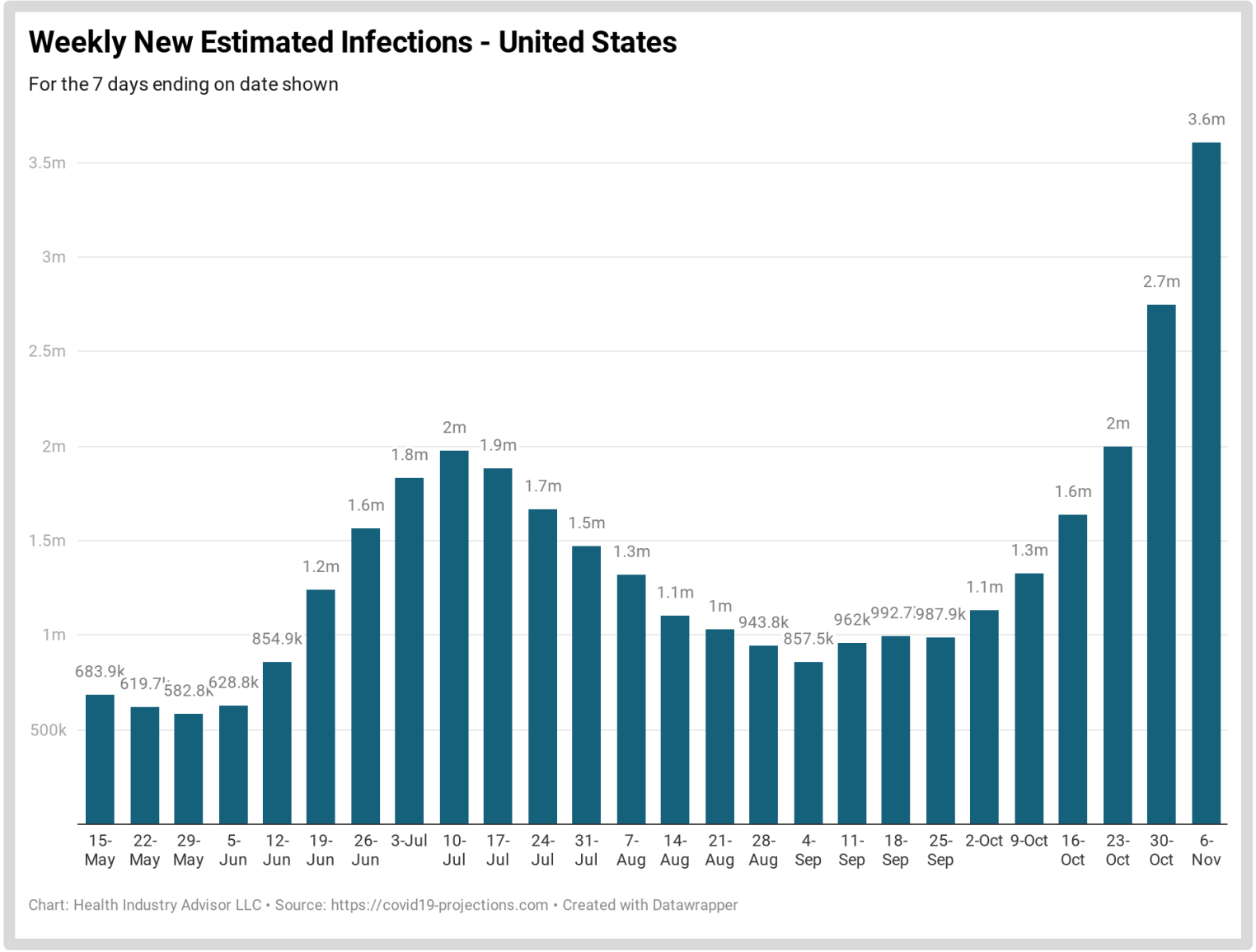
Gu* estimates there were 3.6 M new infections (detected + undetected) during the week of October 31-November 7

These estimated new infections have been rising each week since the end of August

Based on Youyang Gu's Covid Projection Mode
Last update: October 20



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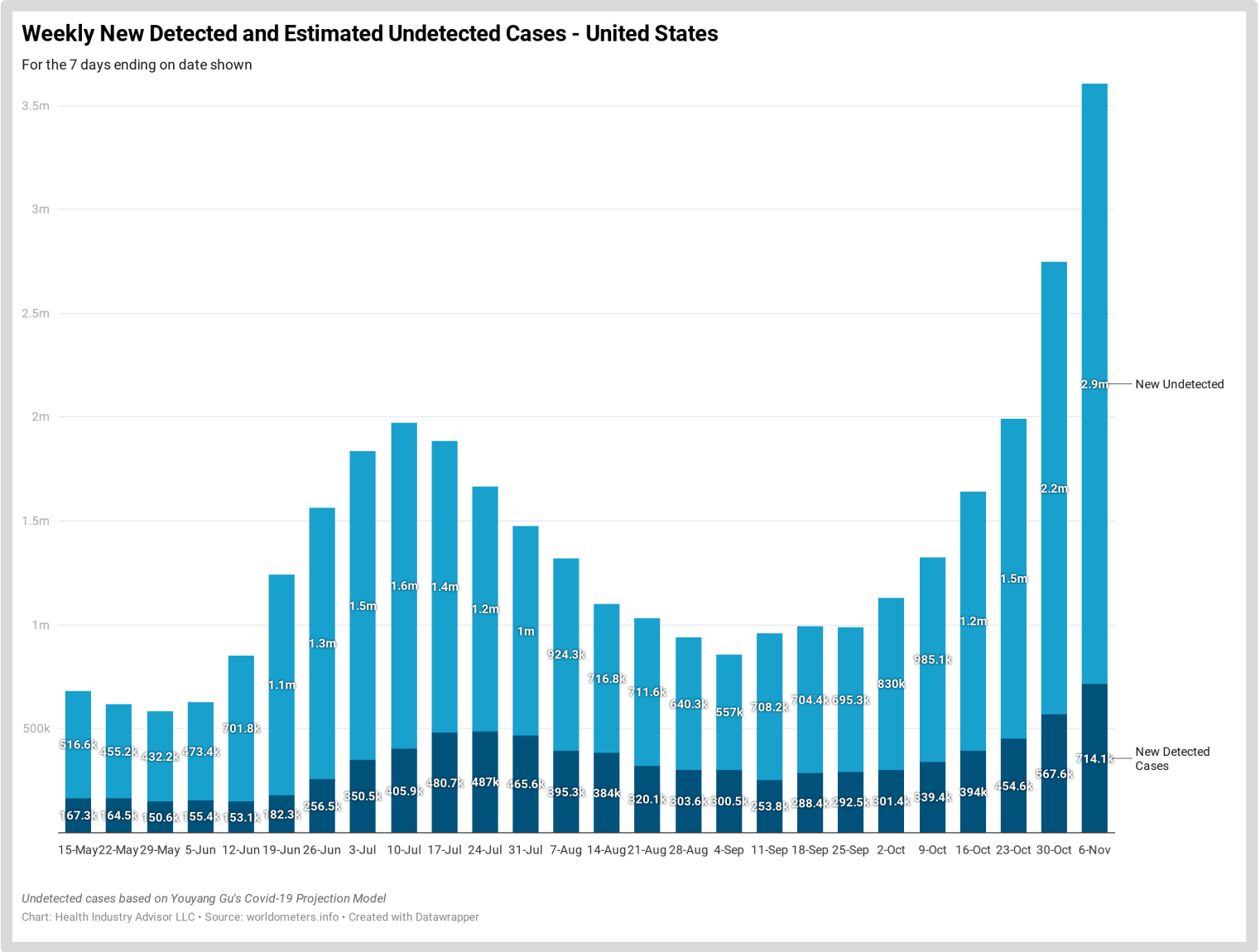
Undetected cases are significantly greater than cases detected via testing

Note: this graphic uses Youyang Gu's estimates of true infections

Alternate estimates are produced by Oliver Wyman – Gu estimates a current rate of 4 undetected cases per detected case; Oliver Wyman pegs this at 2.5:1



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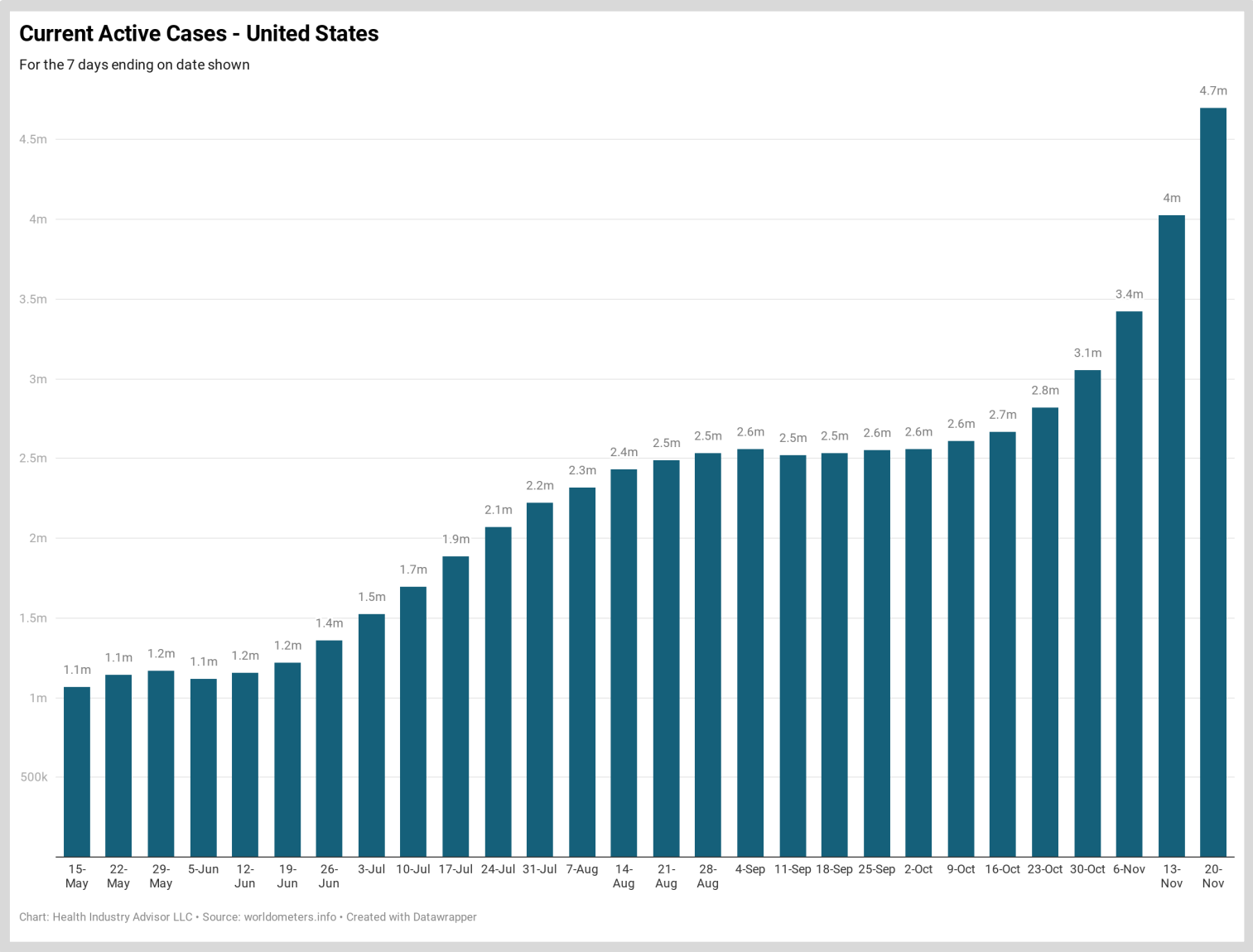
There are 4.7 million people in the U.S. currently recovering from detected Covid-19 infections

The estimated number of active, detected cases in the U.S. increased for the 7th consecutive week, following six weeks of relative stability



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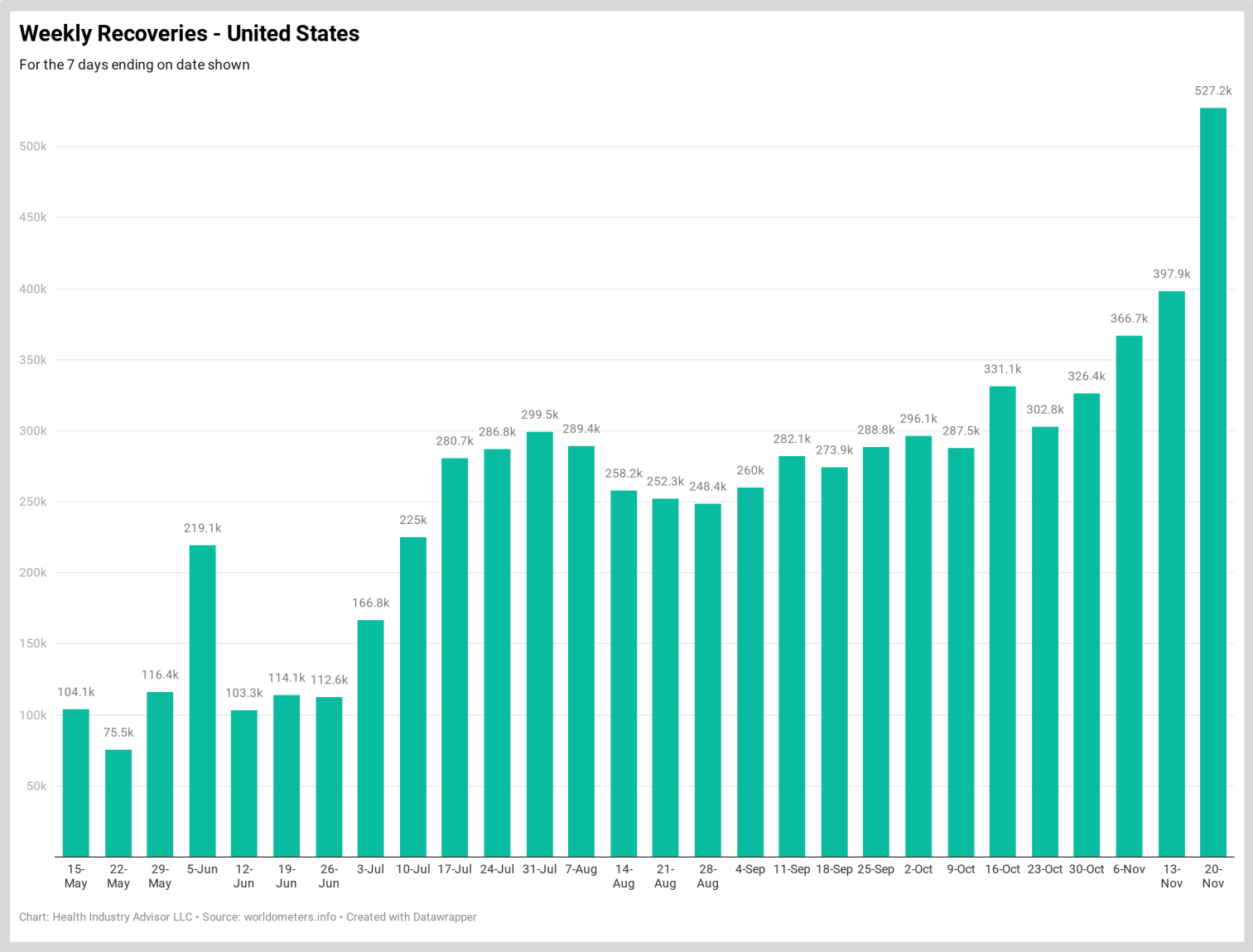
There were more than 0.5 million people that recovered from a detected SARS-CoV-2 infection in the U.S. last week

Recoveries from detected infections in the U.S. increased each of the past four weeks

7.3M people in the U.S. have now recovered from a detected SARS-CoV-2 infection



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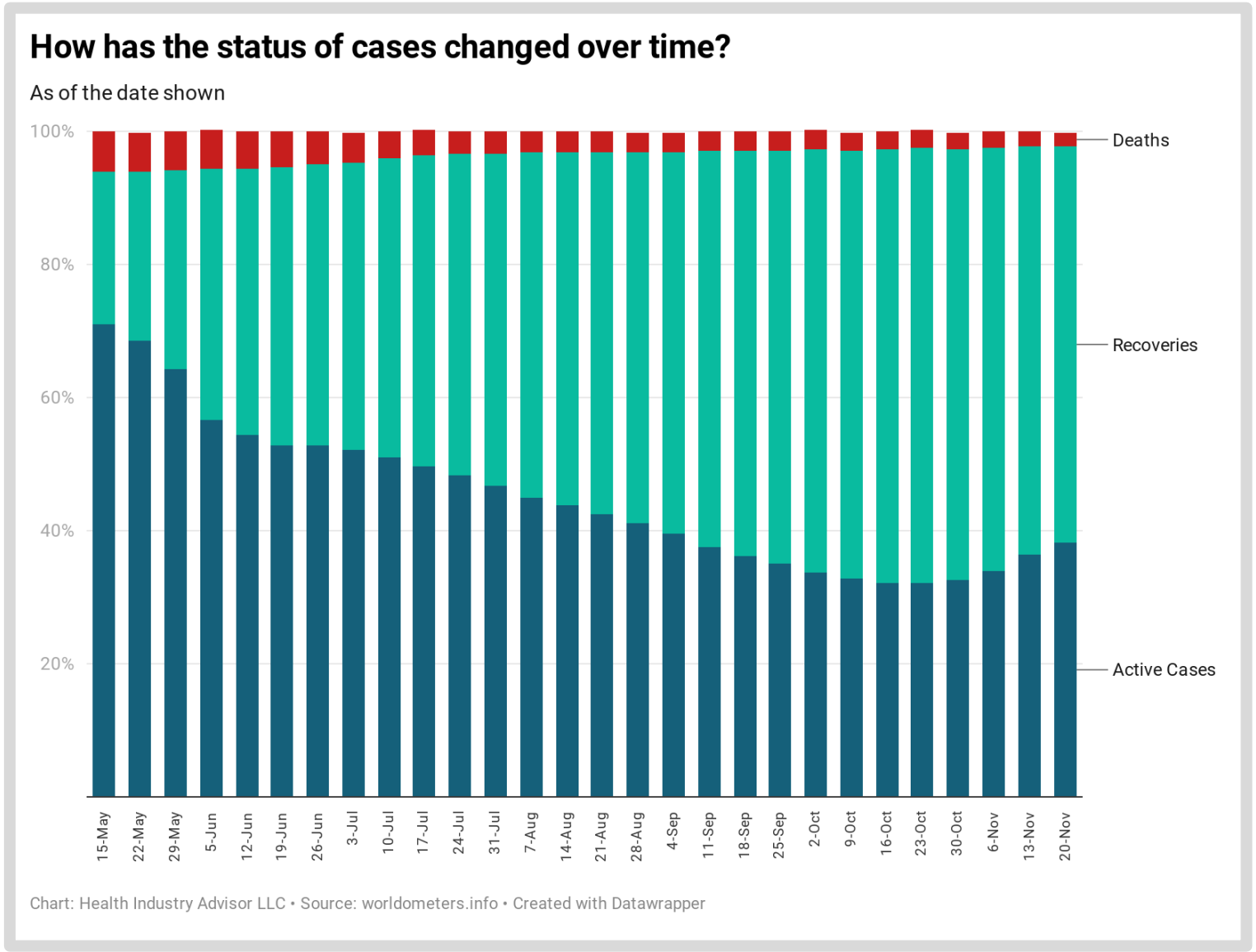
Over time, more –and- more persons infected by the SARS-CoV-2 virus have successfully recovered

The number of active cases, as a % of all detected cases, have recently increased



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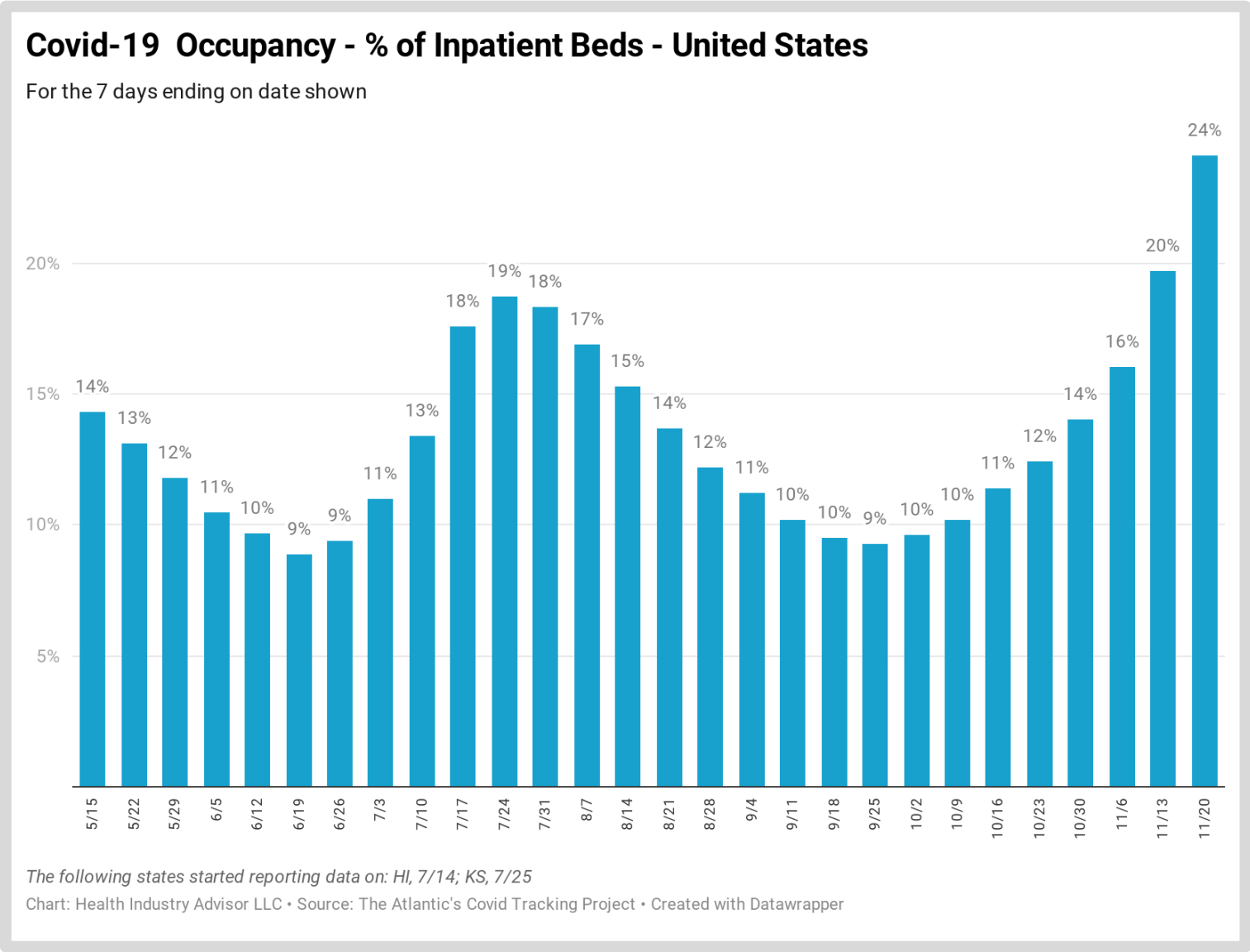
In the United States, Covid-19 patients occupied 24% of available inpatient beds last week

This occupancy rate has increased each week since the end of September

This rate is the highest since the pandemic began



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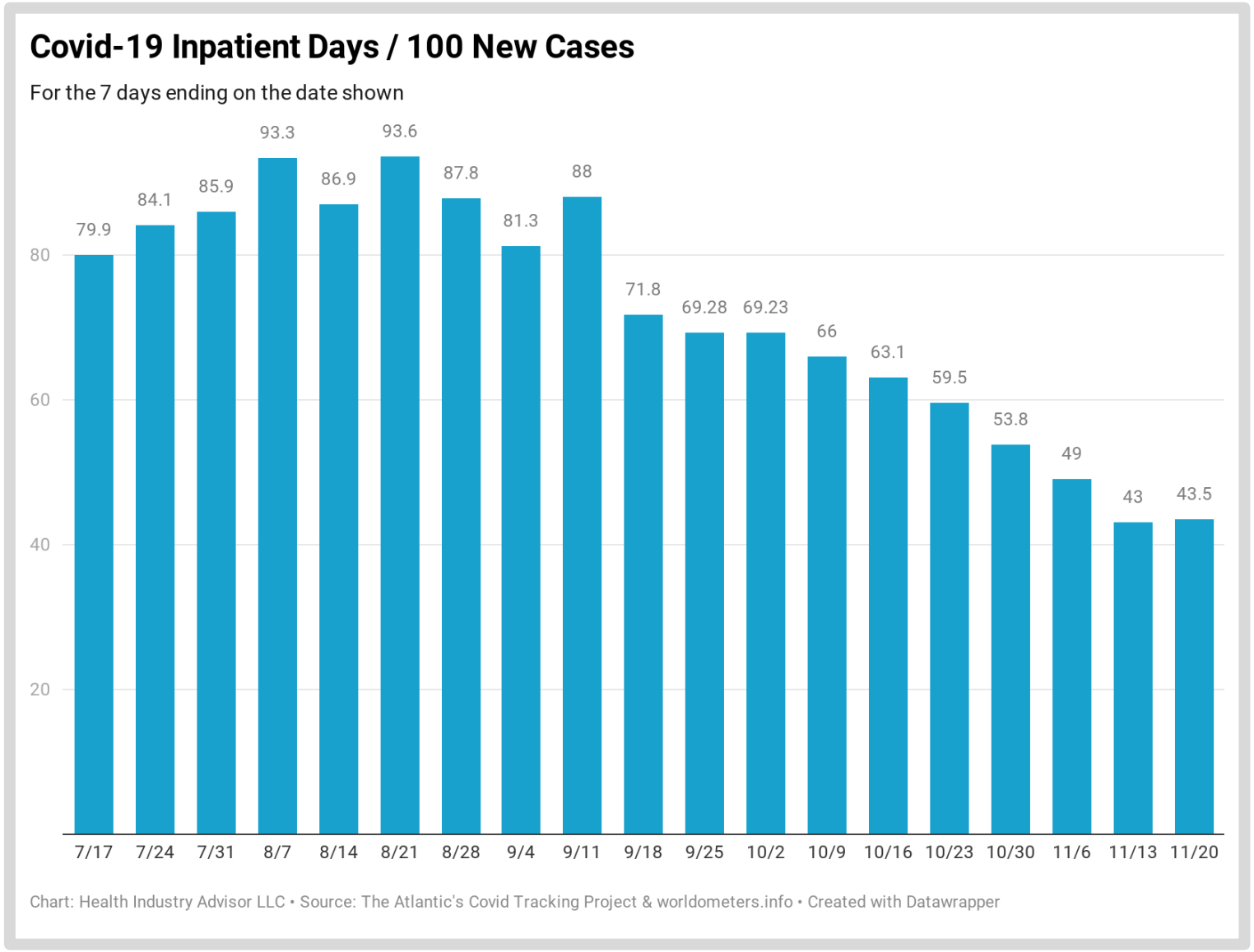
Covid-19 inpatient days per 100 new cases increased slightly last week, following nine consecutive weeks of decline

This rate has been halved in the past two months



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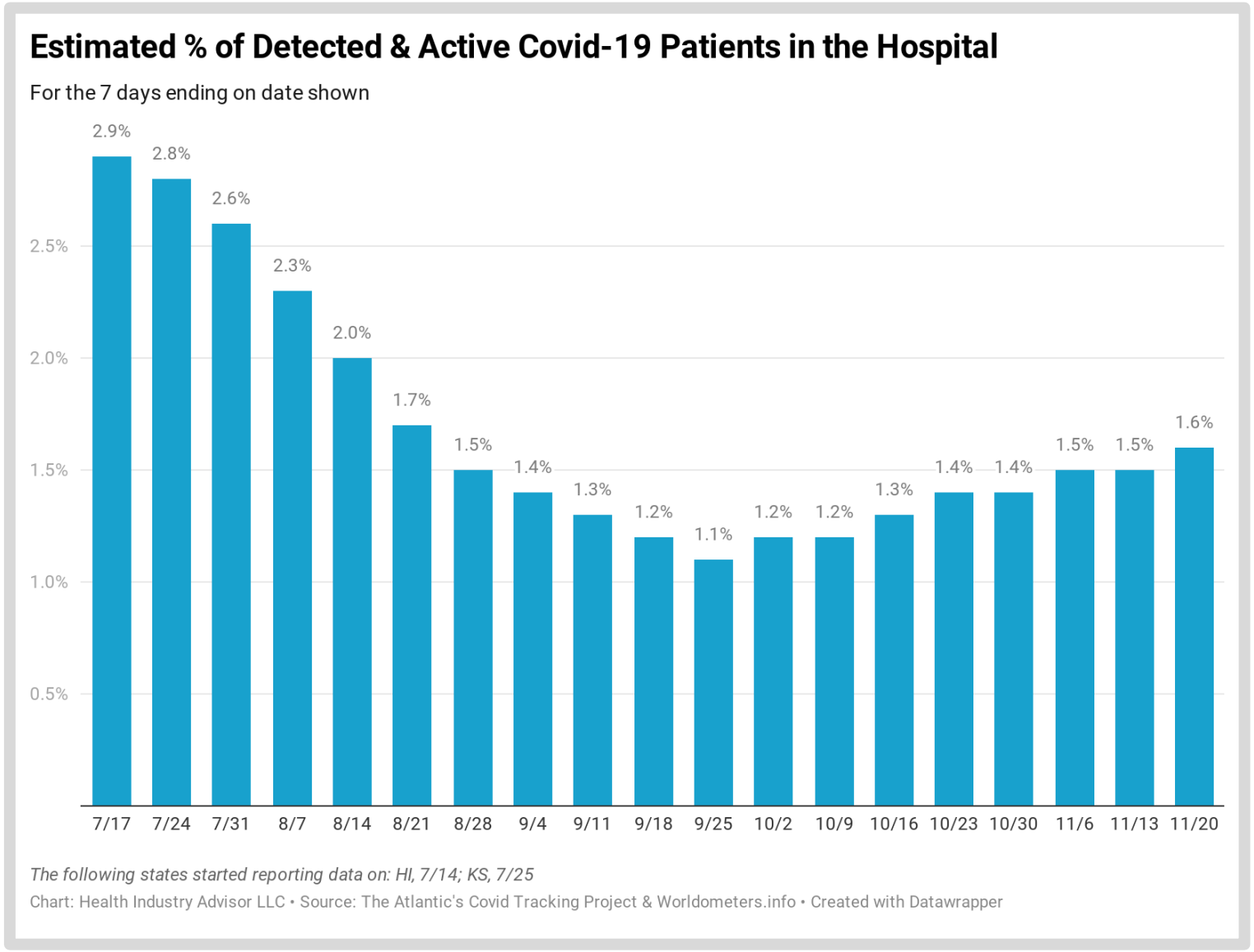
Only about 1.6% of actively-infected persons are in the hospital – slightly higher than the past several weeks

Despite the recent increase in Covid-19 inpatients, the likelihood of a detected & actively-infected person being in the hospital is ~1/2 what it was in mid-July



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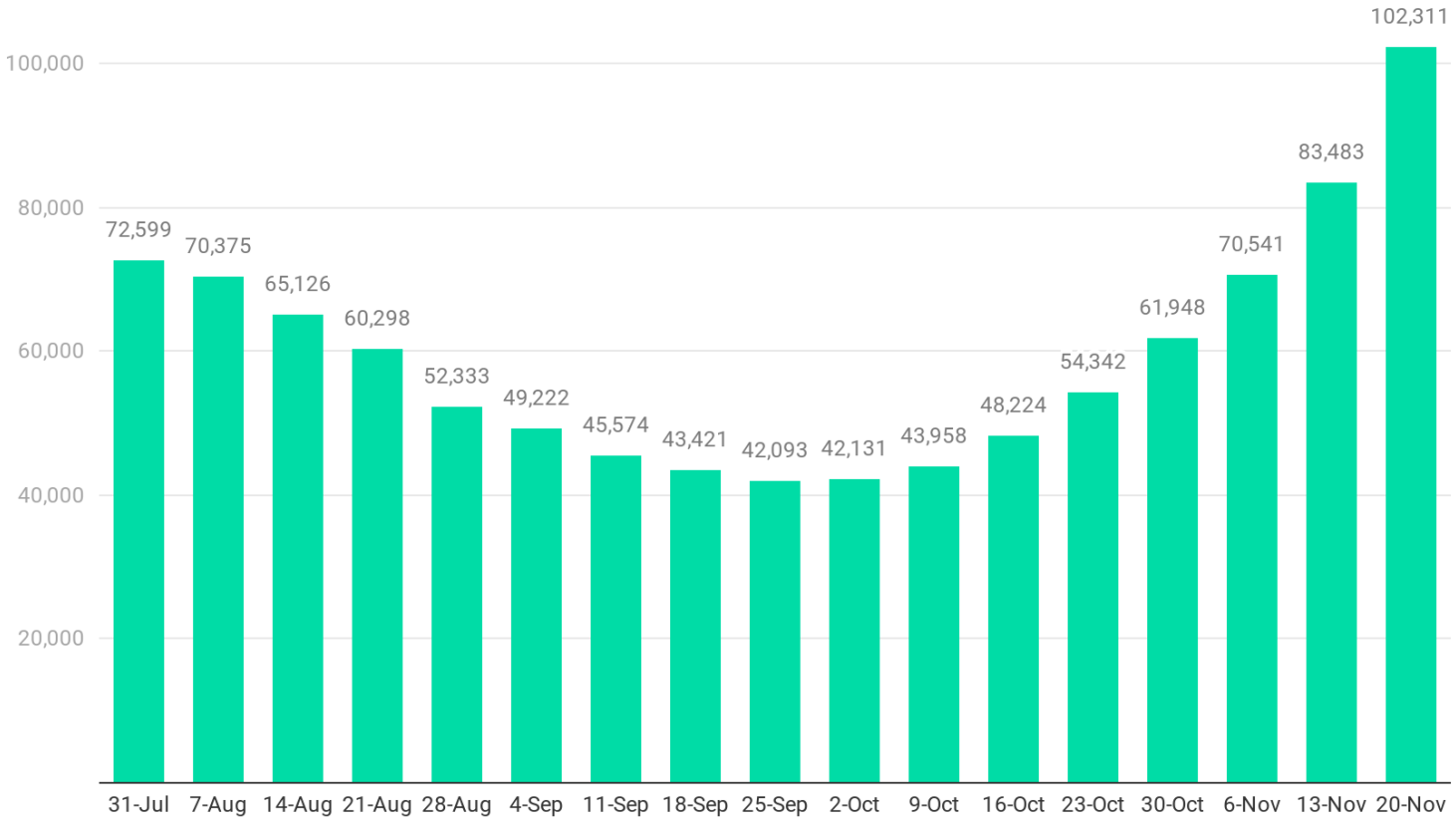
Covid-19 patients collectively spent more than 100,000 days in the ICU last week

Covid-19 ICU census has now increased eight consecutive weeks

Weekly ICU Covid-19 Census - United States

For the 7 days ending on date shown



The following states started reporting data on: HI, 7/30; ND, 8/19; SC, 7/28; TN, 8/12. The following states do not report: AL, AK, AR, CO, CT, FL, GA, LA, MO, MT, NE, NH, NM, PA, SD, VT, WA

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

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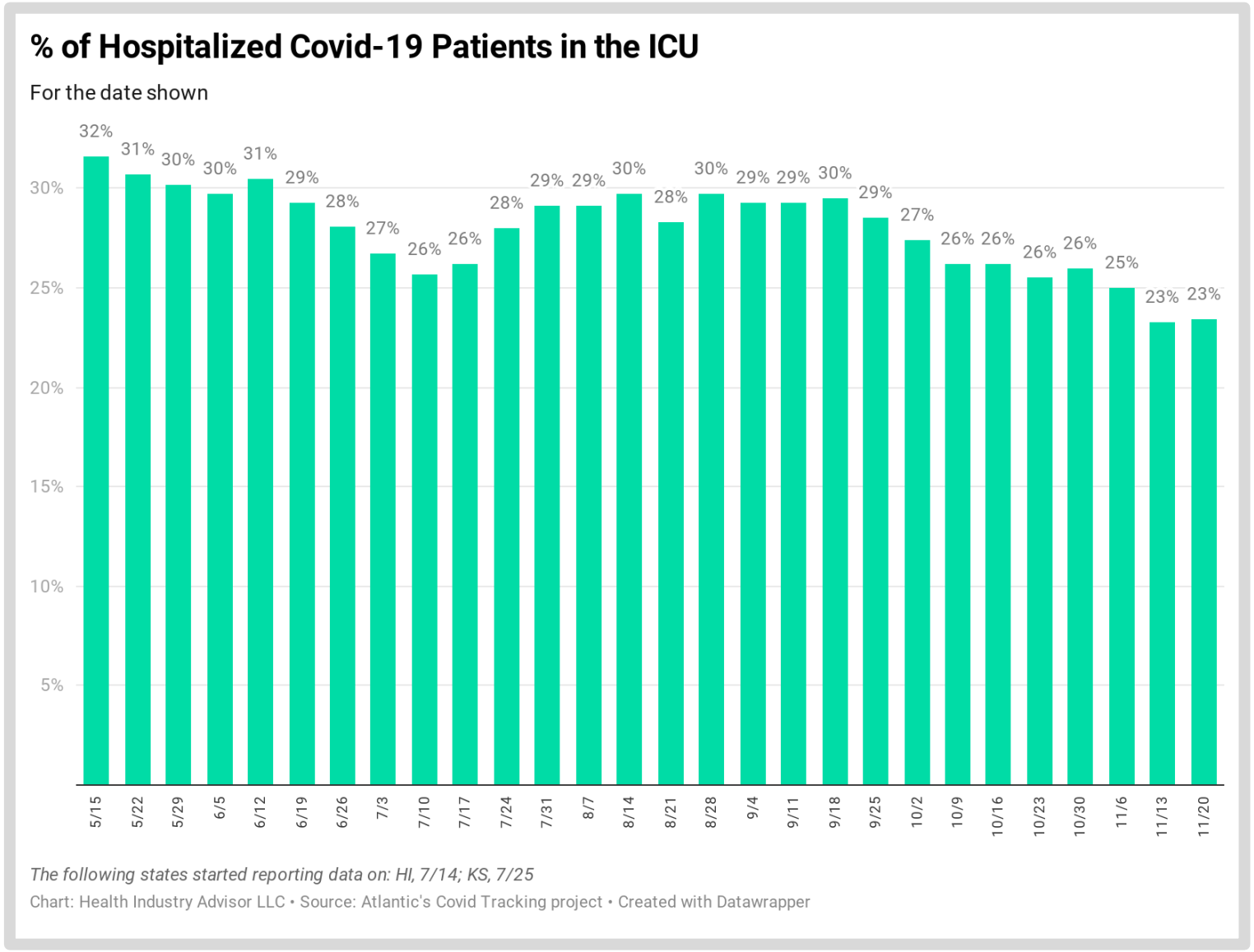
Fewer than a ¼ of Covid-19 inpatients were in the ICU last week

This % is as low as it has been since at least mid-May



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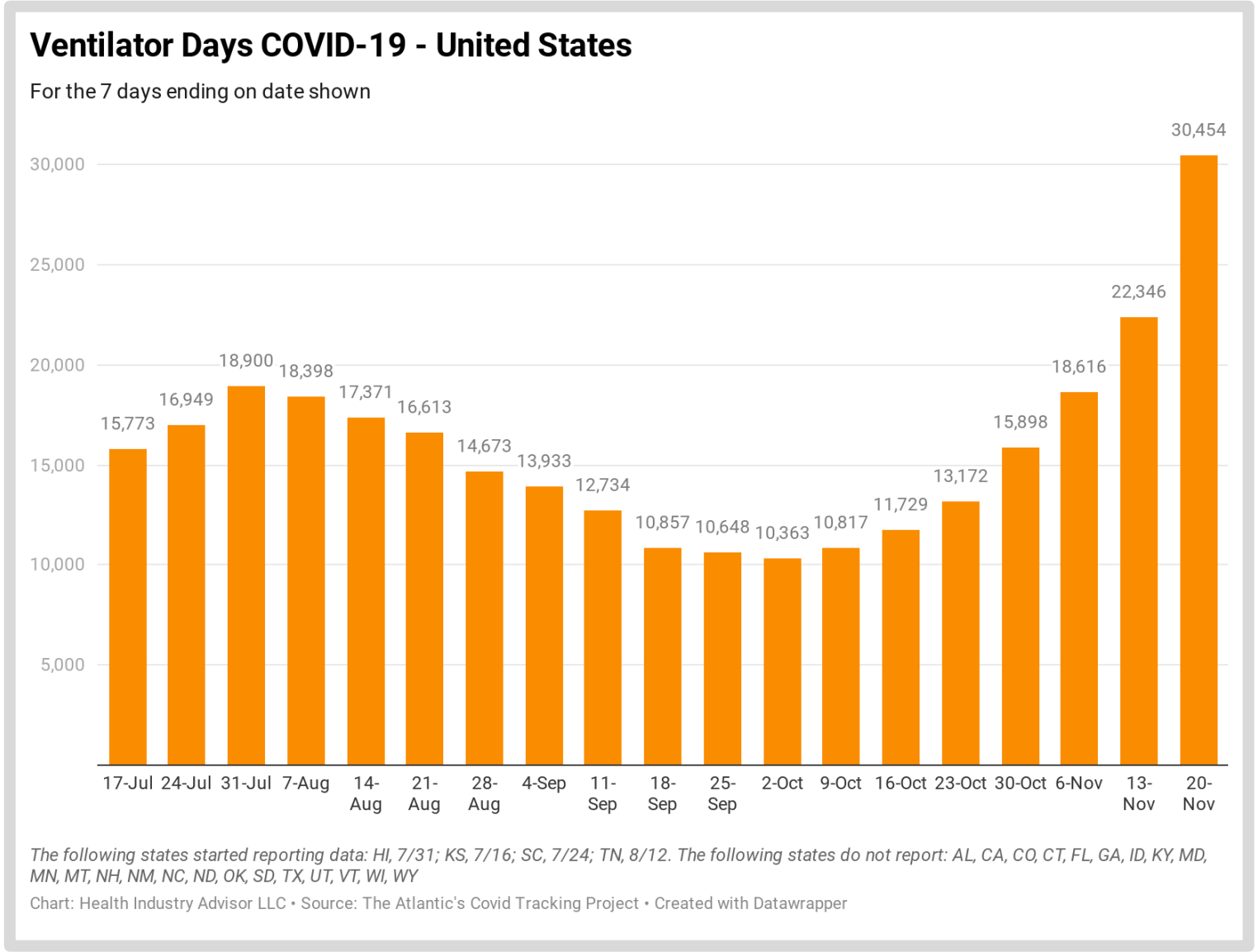
Covid-19 patients collectively spent more than 30,000 days on ventilators last week

This census of COVID-19 patients on ventilators increased for the seventh consecutive week



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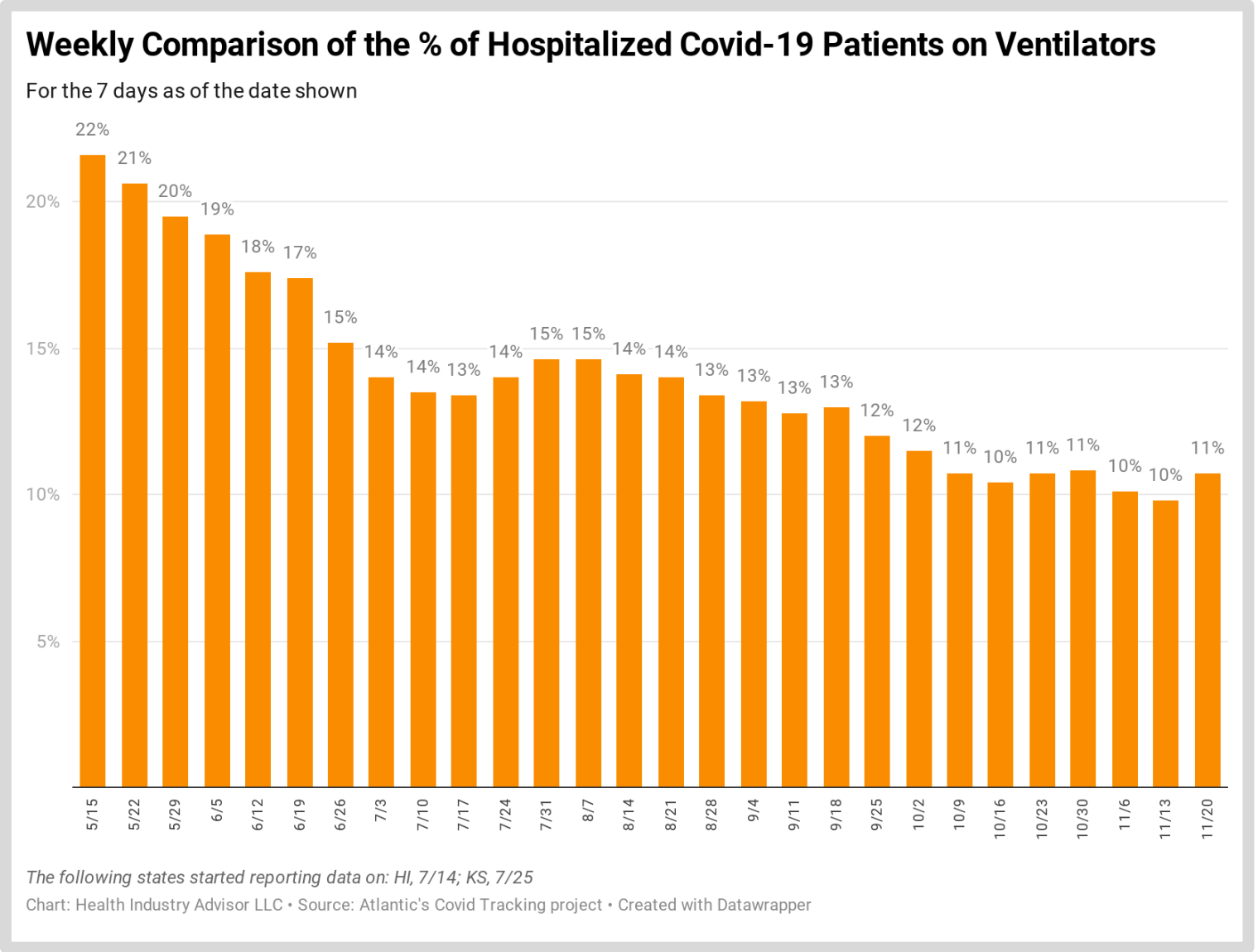
The likelihood of a hospitalized Covid-19 patient would be on a ventilator increased slightly last week

11% of Covid-19 inpatients were on a ventilator last week

A reflection of changing treatment protocols, the likelihood of a person hospitalized with a SARS-CoV-2 infection has been cut by an ½ since mid-May



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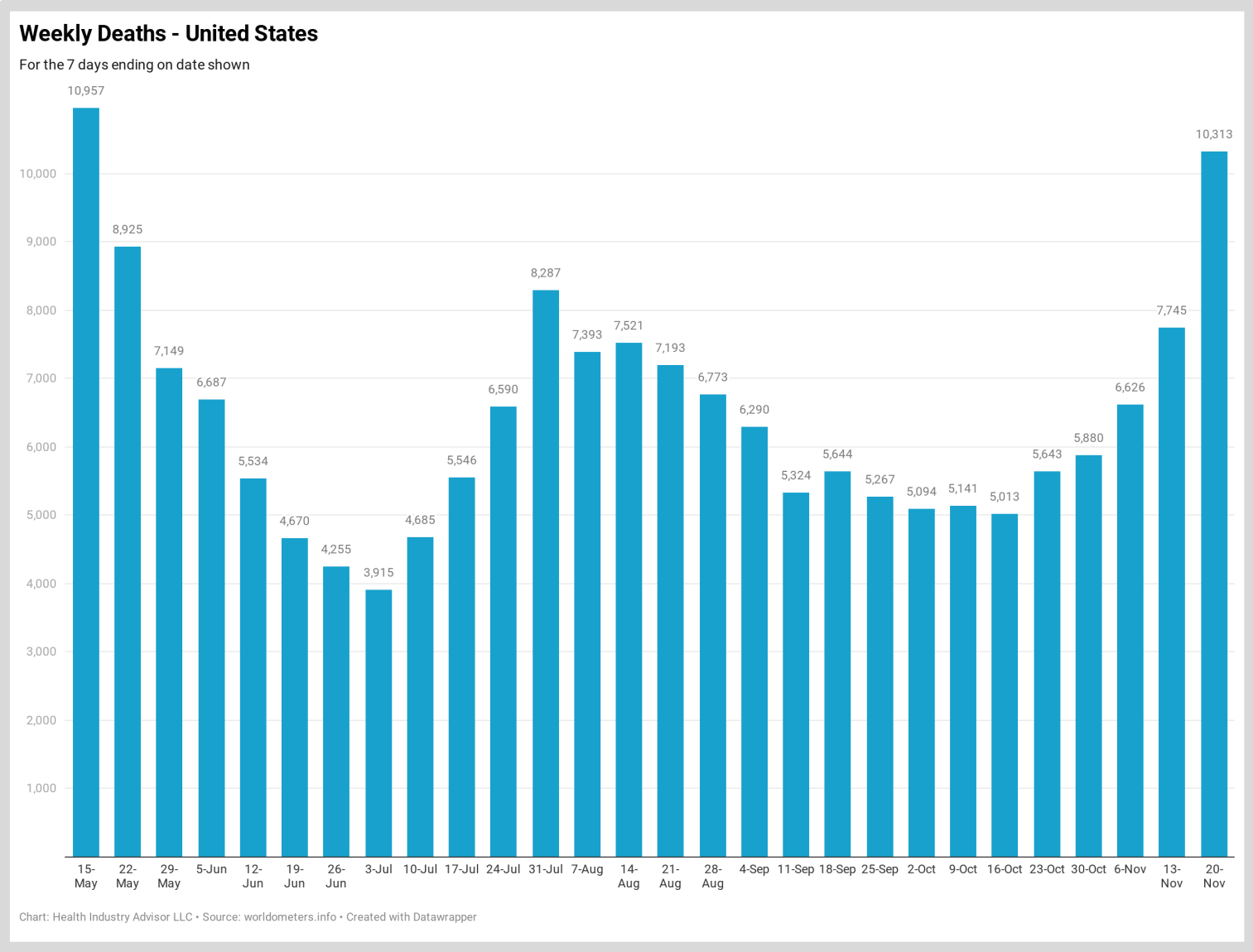
Tragically, more than 10,000 people died with the coronavirus in the U.S. last week

Deaths reported with the coronavirus in the U.S. increased for the fifth consecutive week– likely a result of the recent case surge

There were more deaths last week than any week since May 9-15



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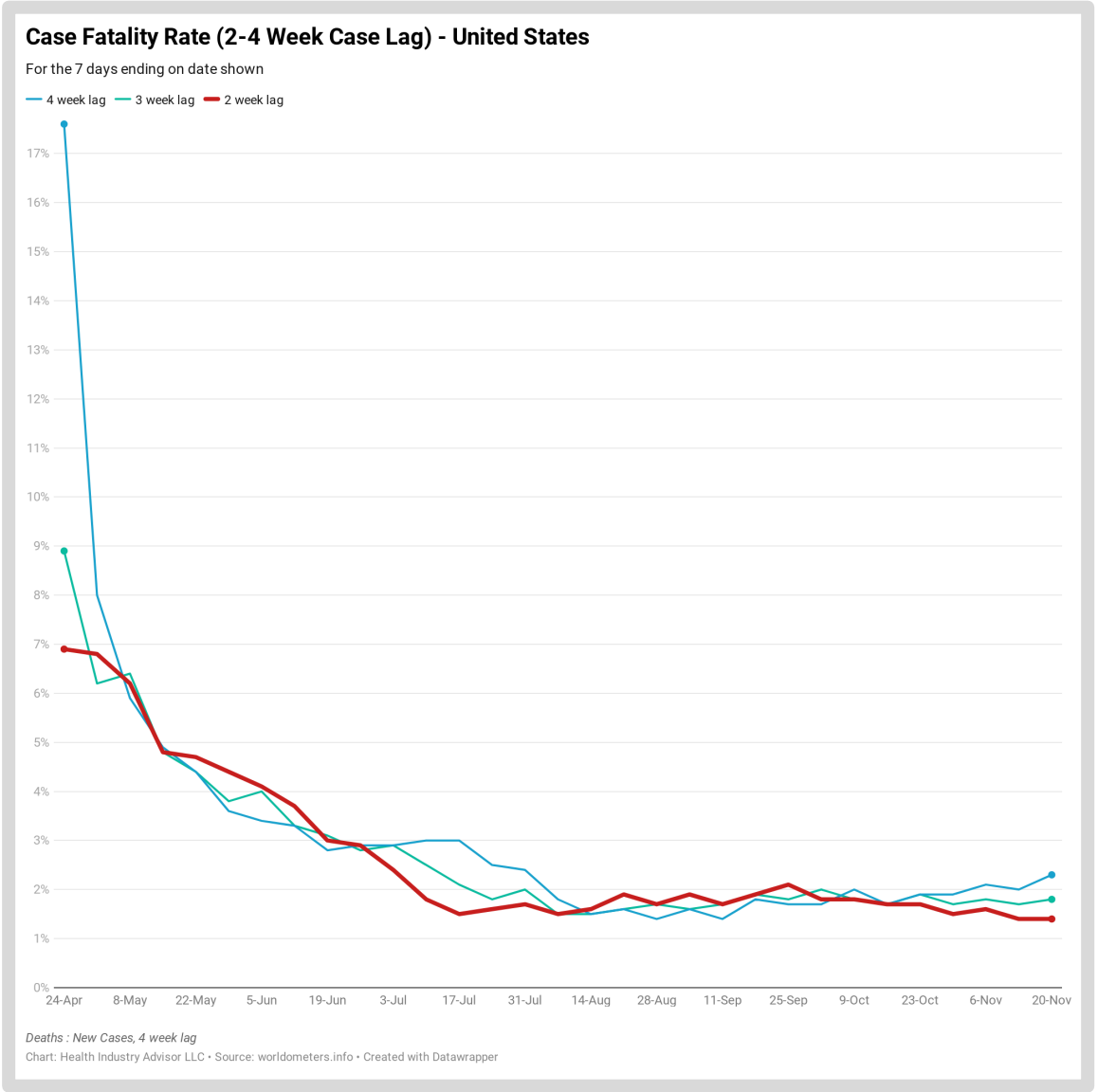
We had been using an assumed 4-week lag between case detection and death – which may be too long: Given the recent decline in hospitalization rate per case, it is counter-intuitive that the case fatality rate would increase- which is what a 4-week lag would suggest

We show here a 4-week, 3-week and 2-week lag to demonstrate the effect

The 2-week lag produces results more in-line with the hospitalization rate trend



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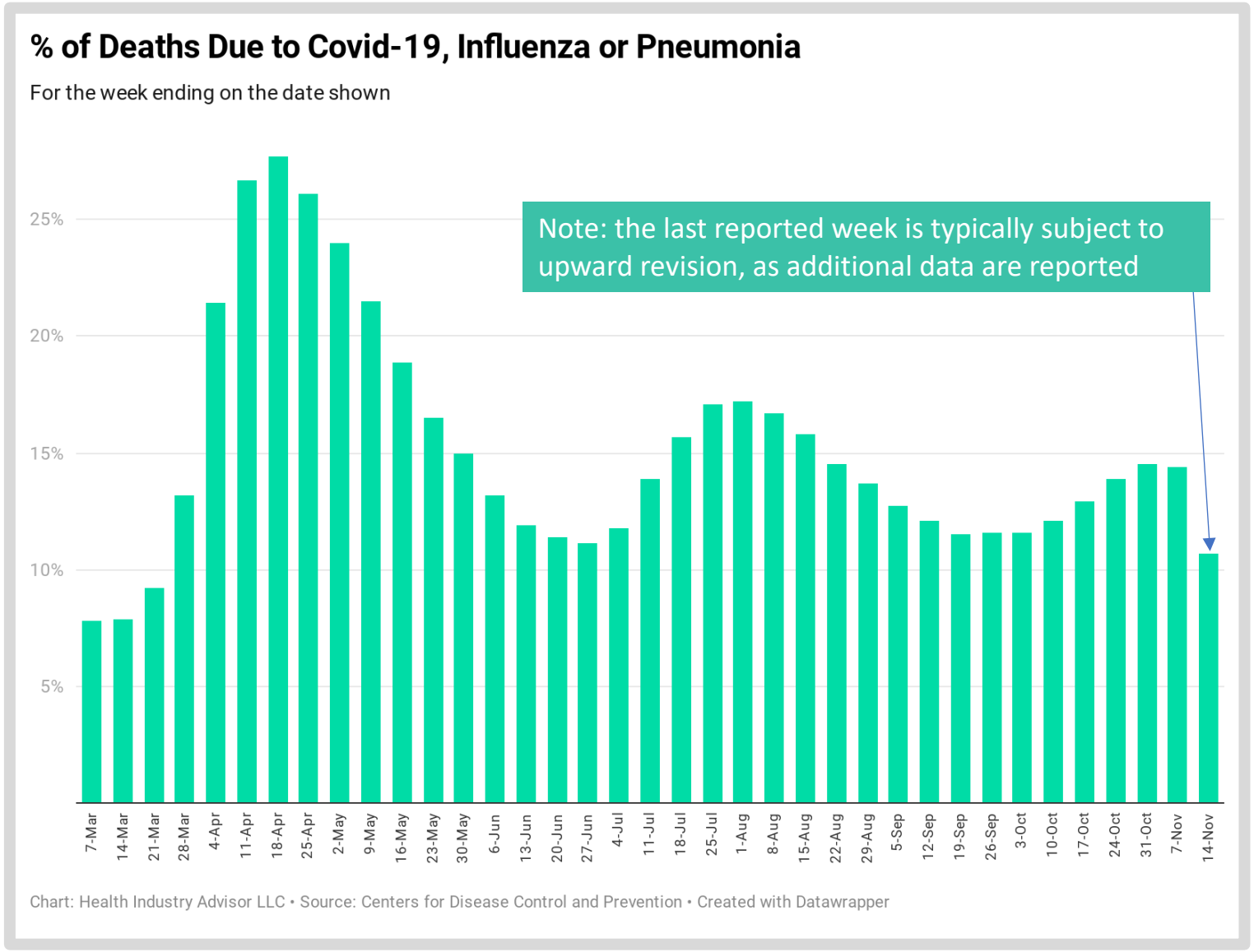
The % of deaths due to Covi-19, influenza and pneumonia remain lower than they have been for most weeks since the Spring . . . and markedly lower than the periods following March/April and June/July case surges



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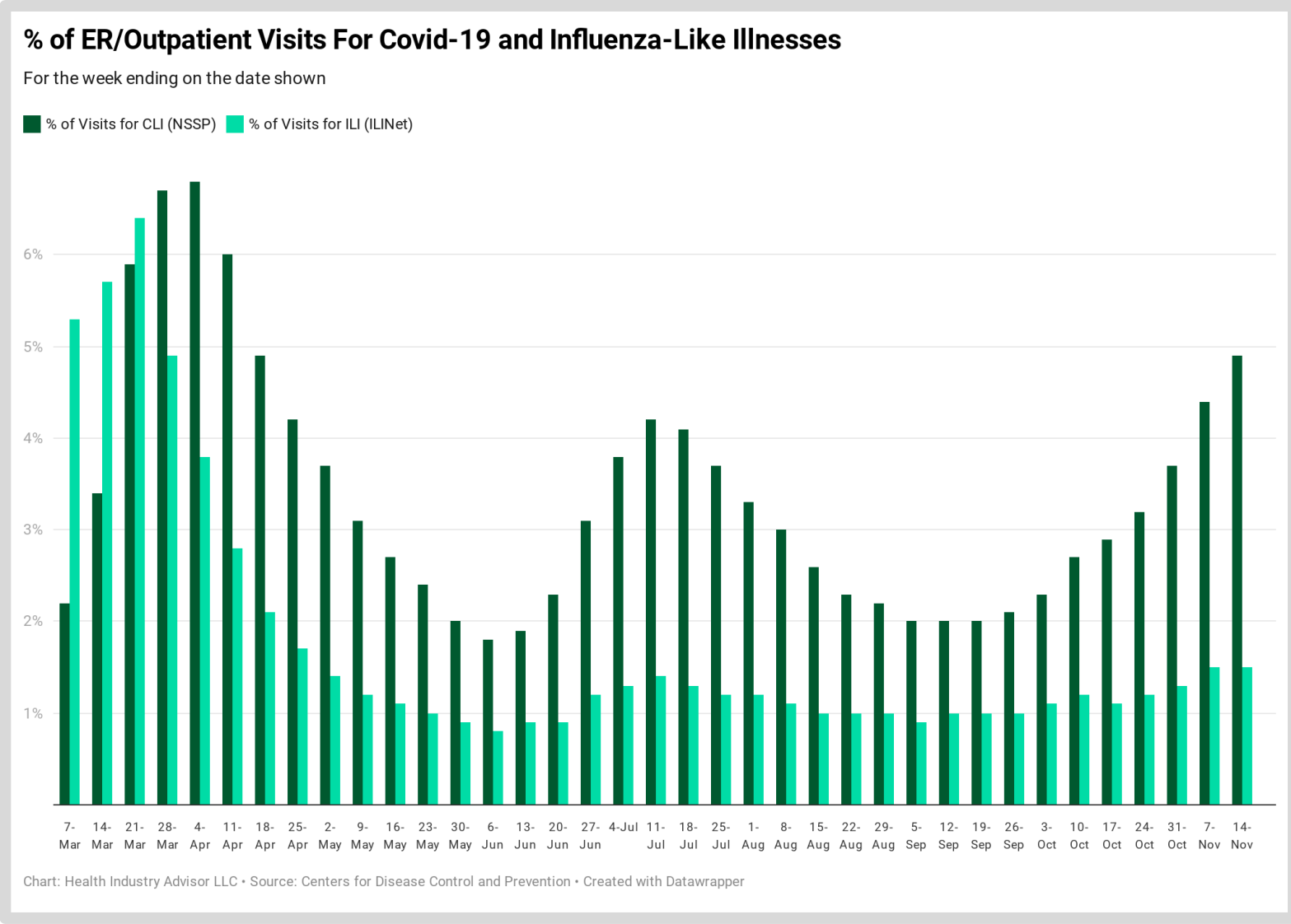
Covid-19 visits have increased in recent weeks, following a similar pattern as cases and hospitalizations – these remain sharply lower than in during the March/April, however, higher than during the July surge in cases

Six weeks into the 2020-21 flu season, flu visits are trending lower than each of the past eight years (but its still early)



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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
- Oliver Wyman Pandemic Navigator, https://pandemicnavigator.oliverwyman.com/forecast?mode=country&region=United%20States&panel=mortality

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