



Health
Industry
Adv



Issue # 220
Tuesday, November 24, 2020

COVID-19 Report

Highlights

- Where we stand as of the Monday before the holiday - improving but, not yet at a good level:
 - Testing has continued to ramp across the U.S. Test volume has now set new highs on eleven consecutive days; testing is up 45% since the beginning of November
 - The test-positive rate has now declined five consecutive days; it remains, however, above the CDC-target level for re-openings and the World Health organization-recommended level
 - Our ability to keep-up with the infection spread via adequate testing also has improved: for the fifth consecutive day the number of tests required to detect each new case has increased
 - 7-day new cases per capita seem to be nearing a plateau, after increasing sharply since early-October
 - The week-over-week change in new cases has now declined on thirteen consecutive days
- Where we stand on healthcare resource use:
 - Inpatient Covid-19 census continues to rise: on the same-day, prior-week basis, this census has increased every day since September 23
 - Overall, Covid-19 patients occupy 27% of all inpatient beds in the U.S.
 - In seven states - Connecticut, Illinois, Indiana, Michigan, New Mexico, Nevada, and Wisconsin - Covid-19 patients occupy more than 40% of inpatient beds; Of these, only Wisconsin experienced a decline in this occupancy rate in the past week
 - The average Covid-19 census per 100 new cases has increased on five consecutive days; This rate, nonetheless, remains only about 1/2 what it was in mid-September
- The likelihood of a Covid-19 patient would be in the ICU has been stable for about a week; This rate had dropped sharply since early-September
- The likelihood of a Covid-19 patient would be on ventilator has increased over the past week; This rate had dropped sharply since April
- The % of ER visits for Covid-19-like illnesses has declined lately; This rate had risen since early-October
- Where we stand relative to the rest of the world:
 - Among all countries with > 50 M population, the U.S. ranks:
 - 1st on total cases per capita, 7-day tests per capita and the increase in new infections per capita over the past two weeks
 - High in deaths per capita
 - Relatively low on deaths per detected case
 - Among the countries with the highest 7-day new infection rate, the U.S. ranks:
 - 16th in new infections per capita
 - Relatively high on tests/capita
 - Moderately high on tests, total cases and deaths per capita
 - Among all countries, U.S. ranks:
 - 10th in deaths per capita
 - 78th in deaths per detected case

Worldwide, we are experiencing ~598k new cases each day – note that newly-detected cases appear to be plateauing worldwide

The United States is averaging ~176.4k new cases each day

In both instances, new case growth is slowing

* - 7-day moving average basis

Newly Detected Daily Cases - U.S. & Worldwide

7-Day Moving Average, As of November 23

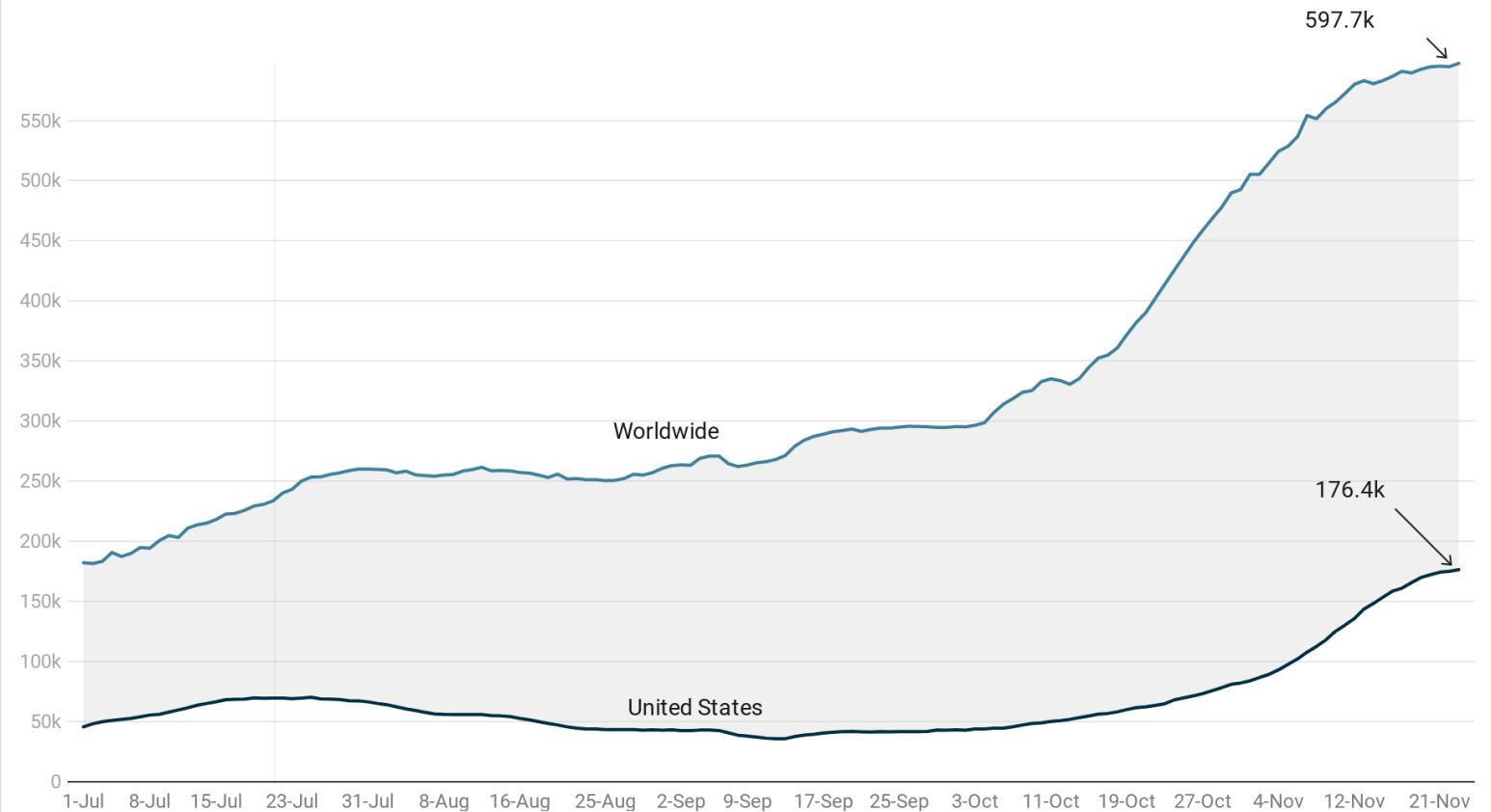


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Although new cases continue to increase in the U.S. and worldwide, the rate of increase has been easing:

Worldwide, the rate of increase has been declining for more than three weeks, and approaching zero

In the U.S., the rate of increase has now declined on thirteen consecutive days

Week-Over-Week Changes in Newly-Detected Cases: USA v. Worldwide

7-Day Moving Average

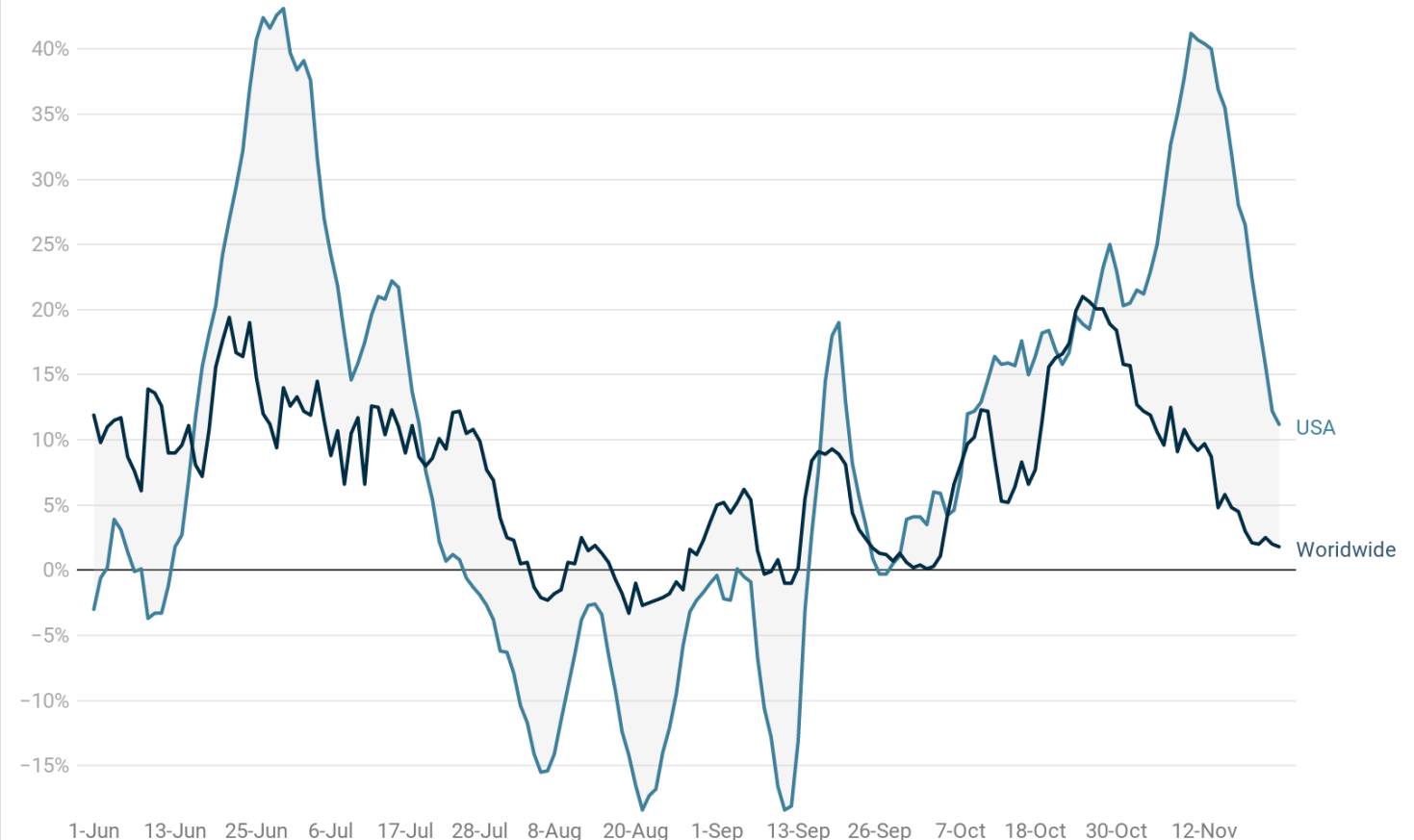


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Momentum Charts – New Cases in the U.S.:

The pattern we are experiencing now parallels what we experienced in June/July. Note that the week-over-week change in new cases peaked above 40% in both periods, before declining precipitously

If we continue this pattern, the June/July experience suggests that actual new cases could finally begin to decline in about two-three weeks (subject to the effect of holiday gatherings, state lockdowns, etc.)

New cases in the U.S. have followed definitive patterns throughout the pandemic – rising cases beget further rises (perhaps, reflective of the high transmissibility of the virus). This is evidenced by ever-increasing week-over-week changes in new cases. Yet, once this measure begins to decline, it tends to continue to decline for a period

Seeds of this change in momentum can be seen early, by observing the *rate of change* in week-over-week change in new cases: This rate-of-change-measure turns downward several days ahead of the turn observed in the week-over-week change measure

Week-Over-Week Change in New Cases

7-Day Moving Average, Current Period v. June/July

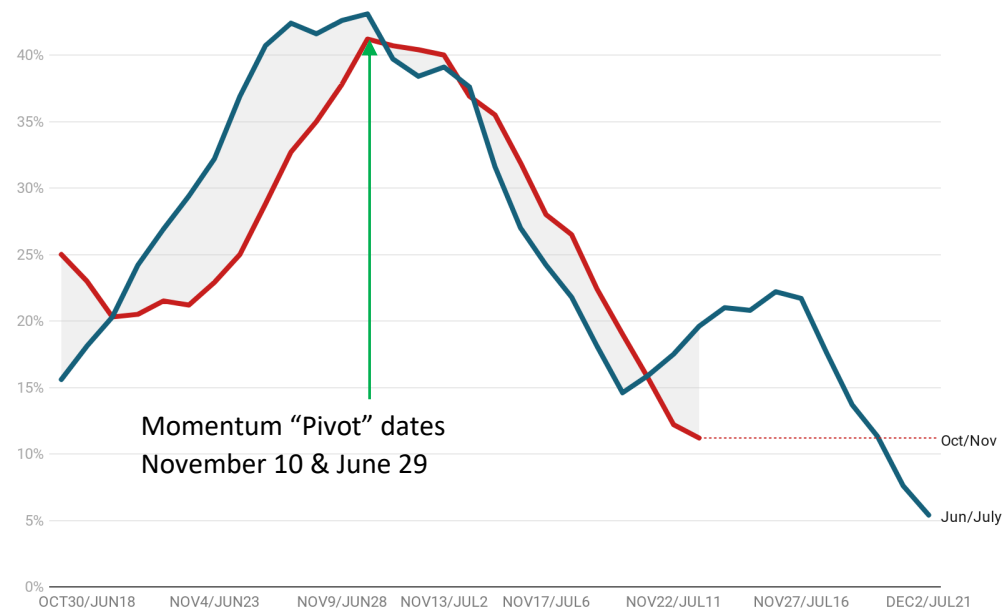


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Change in Rate of Week-Over-Week Change in New Cases

7-Day Moving Average, Current Period v. June/July

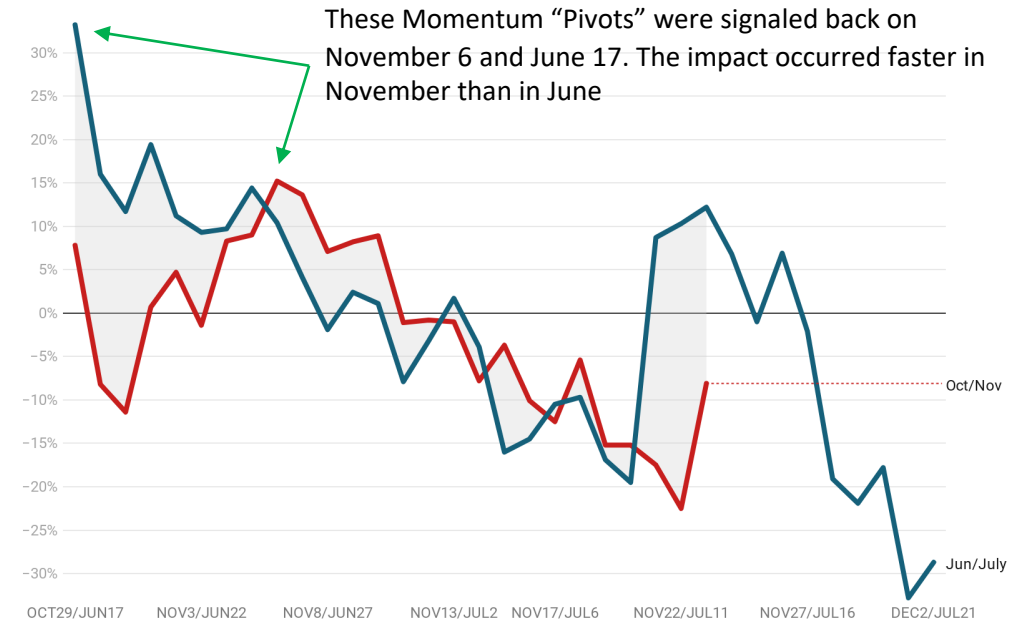


Chart: Health Industry Advisor LLC • Source: worlometer.info • Created with Datawrapper

A view of the countries with
> 50 million in population:

United States has the
highest:

- Cases per capita
- 7-day tests per capita
- Increase in new infections/capita

Also, ranks high in deaths
per capita

The death rate per detected
case, however, is relatively
low

Countries With > 50M Population

As of November 23

Country	Cases per 1M Population	Death Rate	Deaths per 1 Million	Tests per 1M - Past 7 Days	New Daily Infections Per 1M (7-Day M.A.)	Test / New Inf	Change in New Inf rate 2 weeks
USA	38,512	2.1%	795	5,371	534	10	179
Bangladesh	2,720	1.4%	39	93	13	7	4
Brazil	28,561	2.8%	795	-2	142	0	60
China	60	5.4%	3	0	0	0	0
Colombia	24,560	2.8%	694	879	139	6	-17
DRC	135	2.7%	4	0	1	0	0
Egypt	1,100	5.8%	64	-1	3	0	1
Ethiopia	915	1.6%	14	41	4	11	0
France	32,828	2.3%	754	1,820	335	5	-410
Germany	11,284	1.5%	174	2,461	220	11	1
India	6,625	1.5%	97	707	31	23	-2
Indonesia	1,828	3.2%	58	150	16	9	3
Iran	10,268	5.2%	536	476	155	3	47
Italy	23,695	3.5%	835	3,563	534	7	-7
Japan	1,048	1.5%	16	259	16	16	9
Kenya	1,434	1.8%	26	131	18	7	1
Mexico	8,047	9.8%	785	100	39	3	-3
Myanmar	1,476	2.2%	32	329	27	12	8
Nigeria	319	1.8%	6	25	1	33	0
Pakistan	1,693	2.0%	35	170	11	15	5
Philippines	3,818	1.9%	74	302	14	21	-3
Russia	14,487	1.7%	250	3,756	162	23	24
S. Korea	605	1.6%	10	346	6	56	4
South Africa	12,914	2.7%	352	386	42	9	16
Tanzania	8	4.1%	0	0	0		0
Thailand	56	1.5%	1	0	0	-2	0
Turkey	5,355	2.8%	148	1,848	61	30	32
UK	22,454	3.6%	812	4,998	287	17	-48
Vietnam	13	2.7%	0	0	0	-7	0

Table: Health Industry Advisor LLC • Created with Datawrapper

A view of the countries with the highest 7-day new infection rates:

United States is:

- tied for 16th in this measure
- moderately high:
 - tests/capita
 - total cases/capita
 - deaths/capita

Countries With Highest Current New Infection Rate

As of November 23

Country	Cases per 1M Population	Death Rate	Deaths per 1 Million Population	Tests per 1M Population - Past 7 Days	New Daily Infections Per 1M Population (7-Day M.A.)	Test / New Inf	Change in N. I. 2 weeks
USA	38,512	2.1%	795	5,371	534	10	179
Georgia	27,267	0.9%	254	3,389	927	4	278
Montenegro	50,339	1.4%	707	2,422	875	3	-126
Luxembourg	49,383	0.9%	433	16,422	874	19	-61
Andorra	81,538	1.2%	983	12,332	721	17	-294
Croatia	25,809	1.3%	341	2,051	704	3	141
Slovenia	31,638	1.7%	528	2,499	703	4	56
Austria	27,732	1.0%	272	3,283	660	5	-48
Lithuania	17,815	0.8%	145	4,240	650	7	164
Serbia	14,466	1.0%	142	1,957	636	3	392
Liechtenstein	30,284	1.0%	314	-2	625	0	-135
Poland	23,762	1.5%	364	1,233	624	2	-28
French Polynesia	47,188	0.5%	242	-2	591	0	-441
San Marino	42,051	3.1%	1,296	7,693	581	13	-202
Portugal	26,000	1.5%	390	4,005	549	7	36
Jordan	18,394	1.2%	225	2,408	542	4	78
Italy	23,695	3.5%	835	3,563	534	7	-7
North Macedonia	26,461	2.8%	742	1,347	514	3	15
Switzerland	34,604	1.4%	486	2,643	500	5	-373
Bulgaria	18,039	2.5%	443	1,187	478	2	15
Hungary	18,440	2.2%	403	2,330	451	5	-22
Sweden	20,574	3.1%	633	3,584	437	8	125
Romania	22,040	2.4%	530	1,540	429	4	10
Armenia	42,728	1.6%	666	1,100	425	3	-250
Czechia	46,341	1.5%	687	1,911	415	5	-469
Curaçao	10,787	0.2%	18	1,968	347	6	254
Bosnia and Herzegovina	24,614	2.9%	716	1,018	343	3	-143
France	32,828	2.3%	754	1,820	335	5	-410
Netherlands	28,561	1.8%	522	1,516	309	5	-79
Moldova	24,420	2.2%	538	786	304	3	95
Ukraine	14,571	1.7%	254	1,202	295	4	76
UK	22,454	3.6%	812	4,998	287	17	-48
Belgium	48,130	2.8%	1,345	2,446	281	9	-454
Malta	20,370	1.3%	256	6,781	280	24	8

Table: Health Industry Advisor LLC • Created with Datawrapper

Among all countries:

U.S. ranks 10th in deaths
per capita

78th in deaths per
detected case

Deaths With Coronavirus / 1M

As of November 23

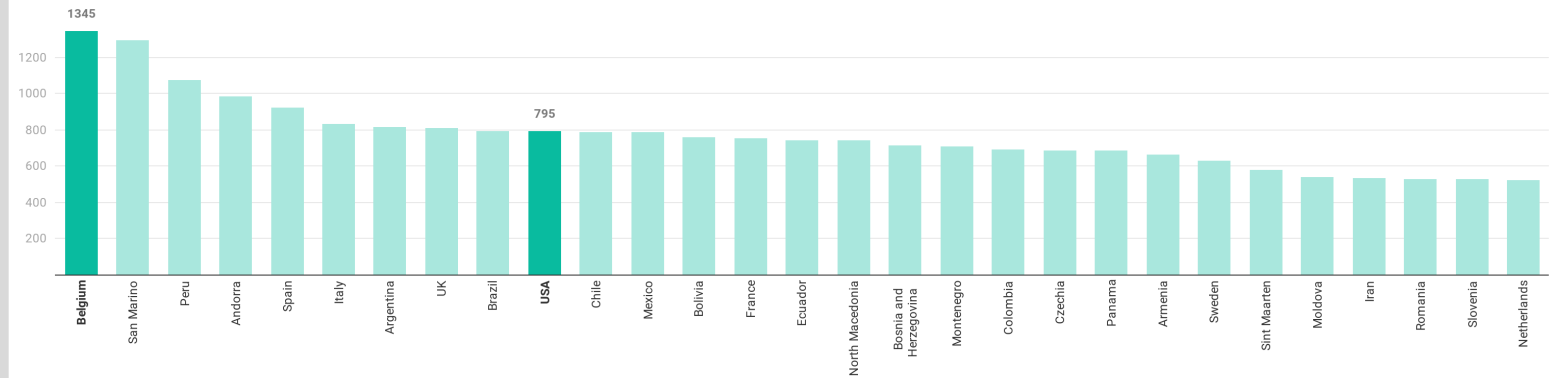


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Deaths With Coronavirus / Detected Case

As of November 23

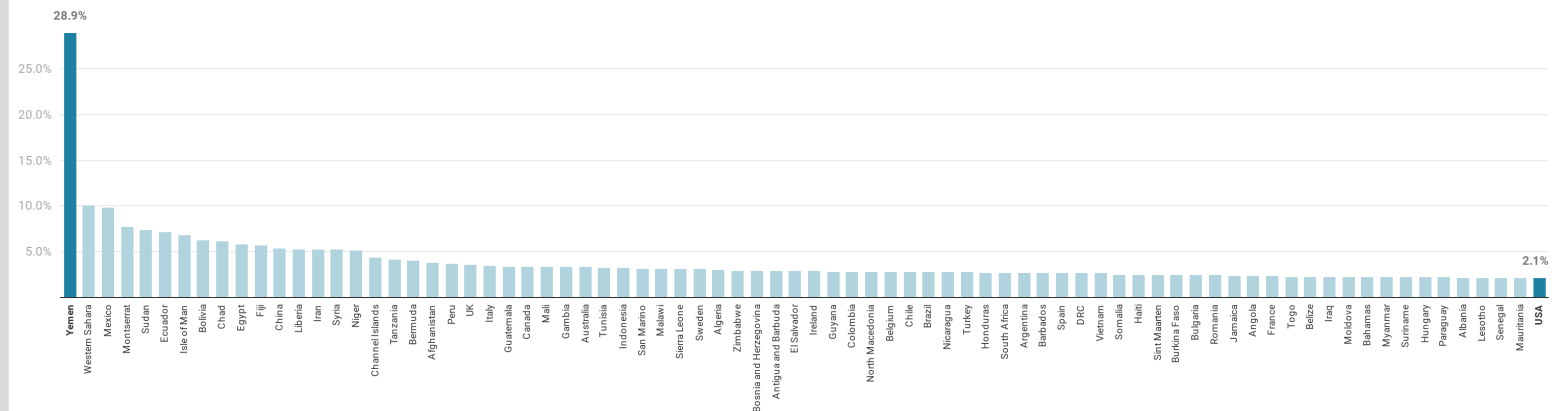


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

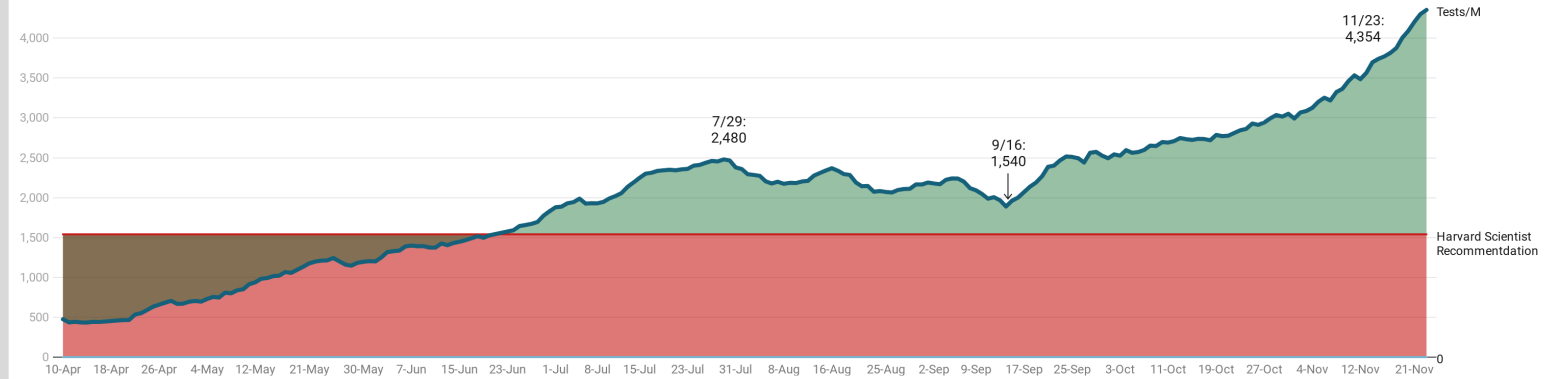
The 7-day test volume has increased eleven consecutive days

This rate exceeded 4,000 per million per day for the first-time last Thursday; it had surpassed 3,000 just three weeks ago; it was 2,000 as recently as September 12

The 7-day test-positive rate has now declined five consecutive days

Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of November 23

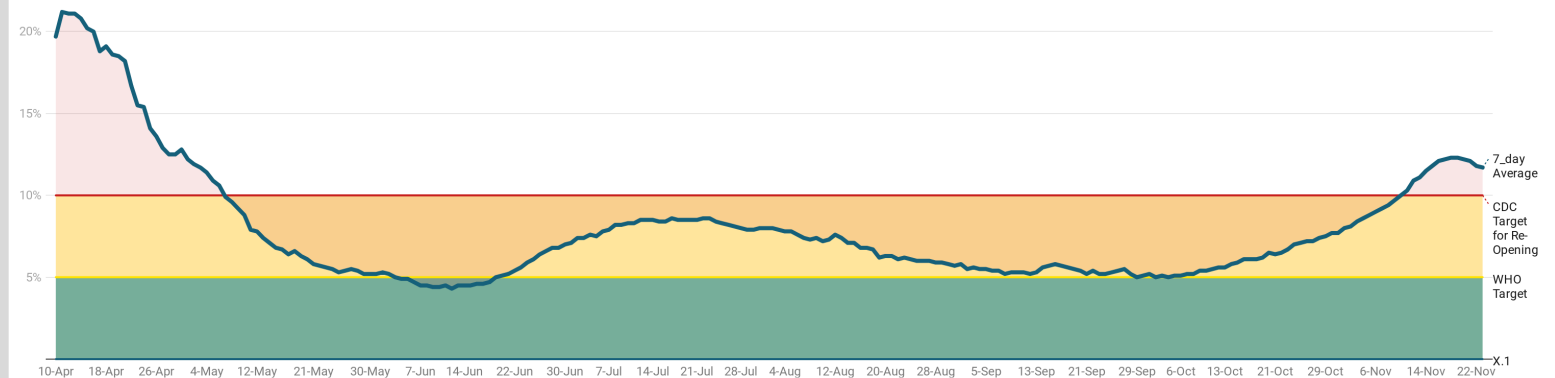


Health Industry Advisor LLC analysis

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 November 23



Health Industry Advisor LLC analysis

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

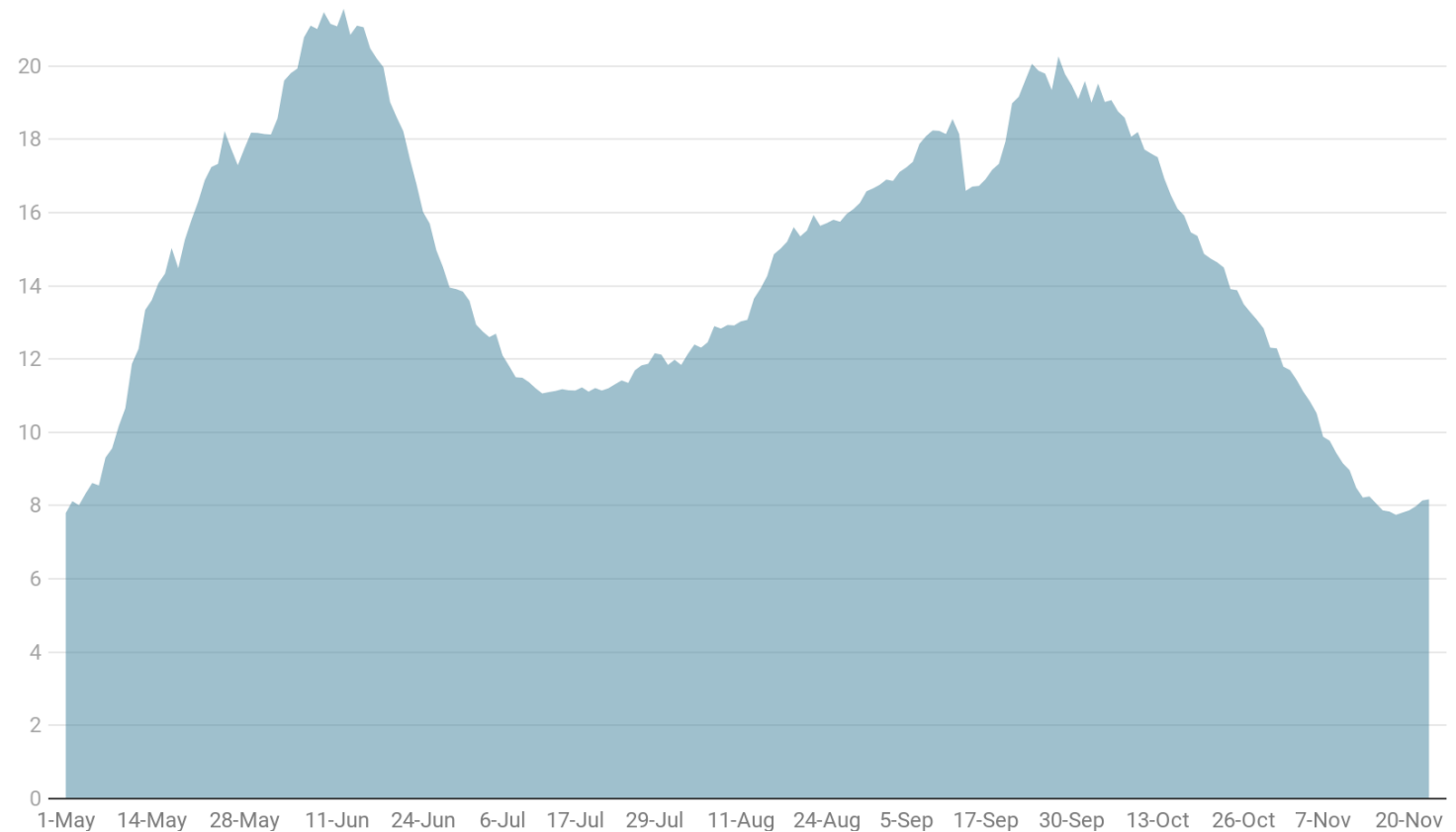
A measure of the effectiveness of testing is the ratio of tests performed to newly-detected cases

This rate had been in a free-fall since mid-September, indicating that the increasing test volumes were insufficient to keep up with rising new infections

This rate has improved, however, on five consecutive days and six of the past seven days

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

The rate of new infections per capita* in the U.S. may have begun to plateau

* - 7-day moving average basis

Newly Detected Infections Per 1 Million Population - United States

7-Day Moving Average, Through November 23



Health Industry Advisor LLC analysis

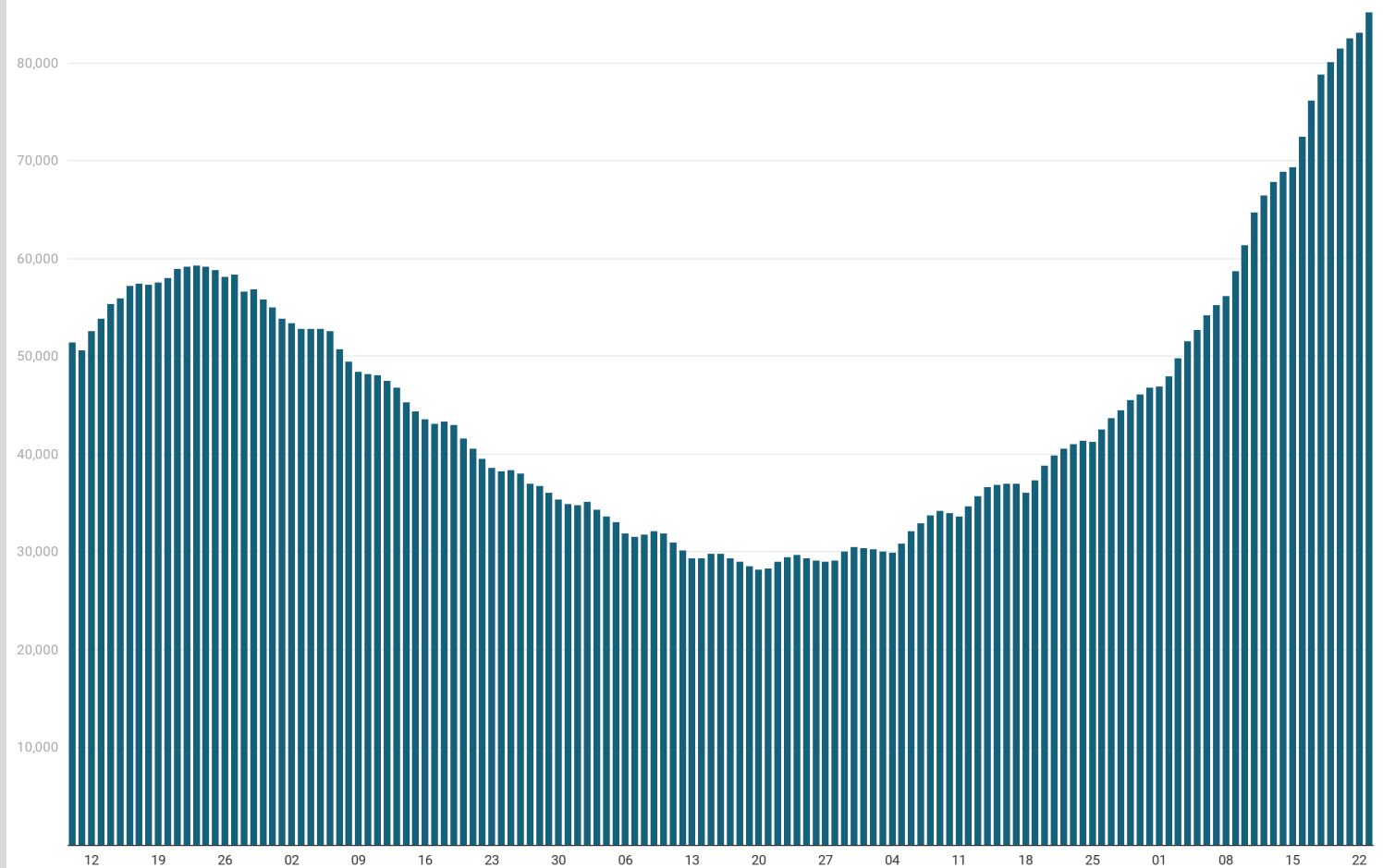
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

On a same-day, prior-week basis, inpatient Covid-19 census increased every day since September 23

Given new case trends, inpatient Covid-19 census could continue increasing, at least for the short term

Hospital Census: COVID-19 Patients

As of November 23



Florida data first available on July 10

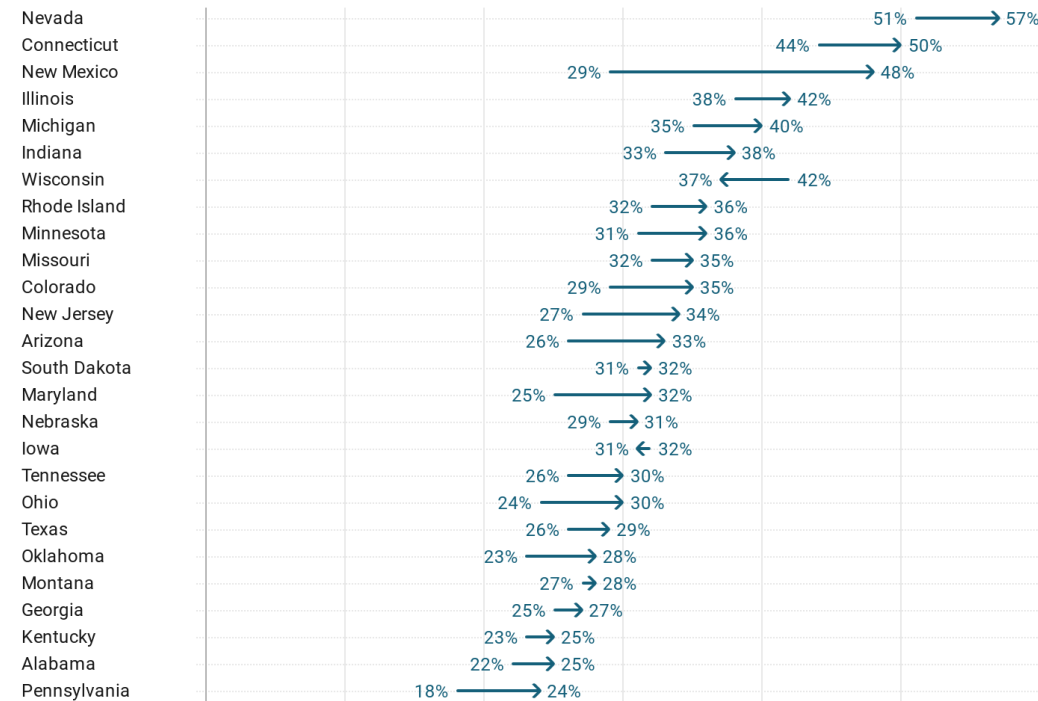
Chart: Health Industry Advisor LLC • Source: the Atlantic's Covid Tracking Project • Created with Datawrapper

Covid-19 inpatients could strain healthcare resources, by stretching available staff and personal protective equipment (PPE), as well as force cancellation of elective cases

The six states with the highest occupancy of Covid-19 patients (Nevada, Connecticut, New Mexico, Illinois, Michigan and Indiana) each experienced increasing occupancy in the past week; Wisconsin, however, saw some relief in the past week

Covid-19 Patients / Total Inpatient Beds

7-Day Moving Average, As of November 23 & November 16



Covid-19 Patients / Total Inpatient Beds

7-Day Moving Average, As of November 23 & November 16

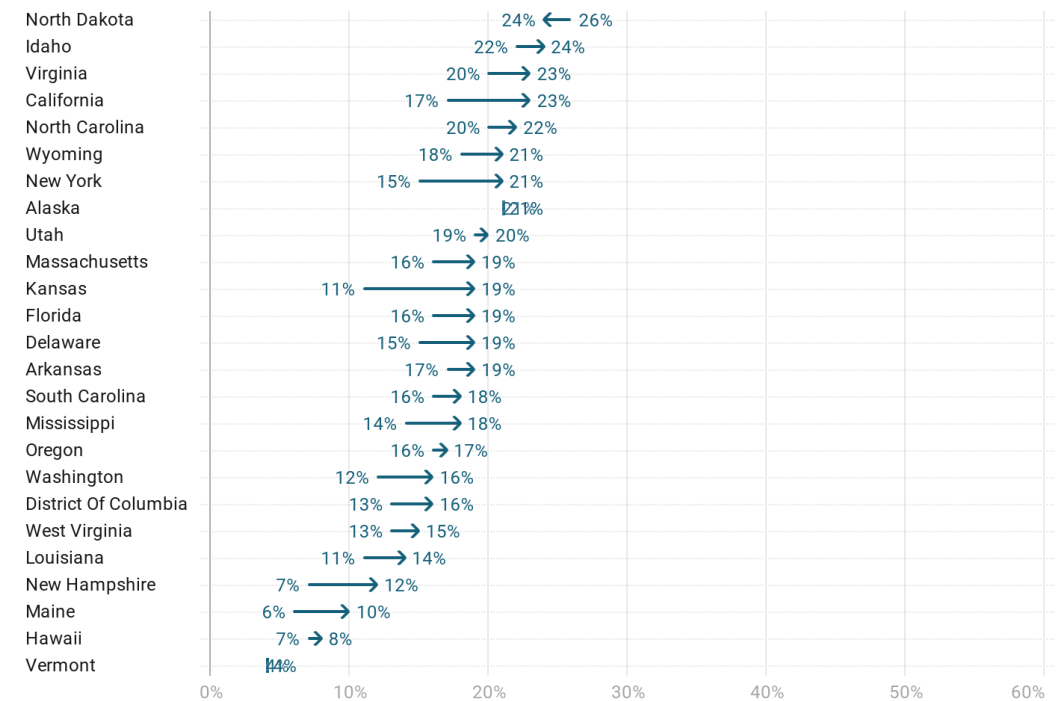


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking project & worldometers.info • Created with Datawrapper

The average Covid-19 census per 100 new cases increased slightly each of the past six days

Nevertheless, this rate has been reduced by nearly 1/2 since mid-September and by $\frac{3}{4}$ since mid-May

Covid-19 Hospital Census / 100 Daily New Detected Cases

7-Day Moving Average, As of November 23

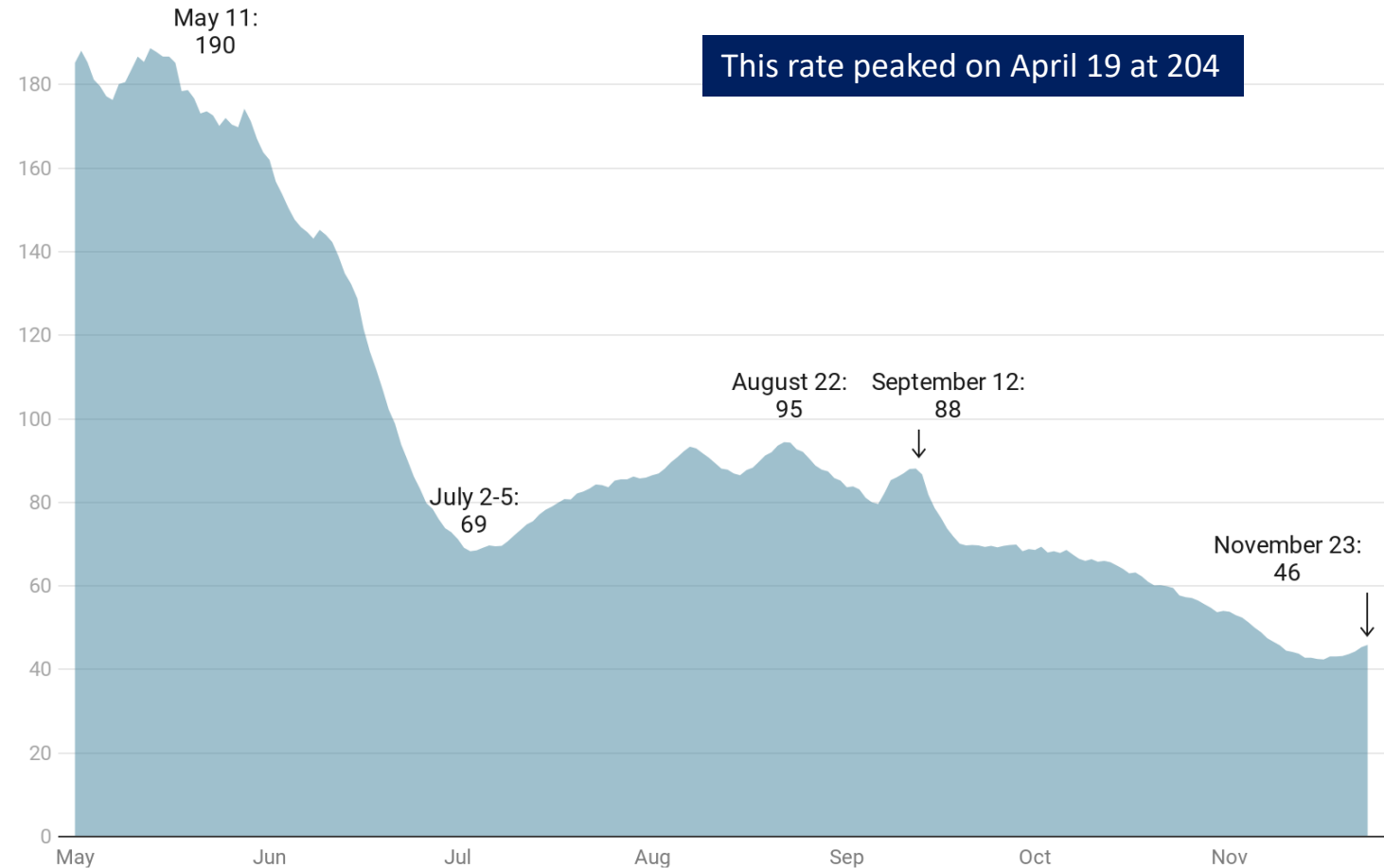


Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking project & worldometers.info • Created with Datawrapper

The highest average census per new case is currently experienced in the District of Columbia, Mississippi, Hawaii, Texas and Virginia

The lowest rates are found in Utah, Vermont, New Hampshire, Wyoming and Alaska

Contrast these rates to those experienced in selected hard-hit states during earlier surges:

- Arizona: 305 (4/20)
- California: 416 (4/17)
- Connecticut: 293 (4/29)
- Massachusetts: 475 (6/21)
- Michigan: 422 (4/21)
- New York: 330 (5/22)

Covid-19 Census / 100 New Cases

7-Day Moving Average, As of November 23

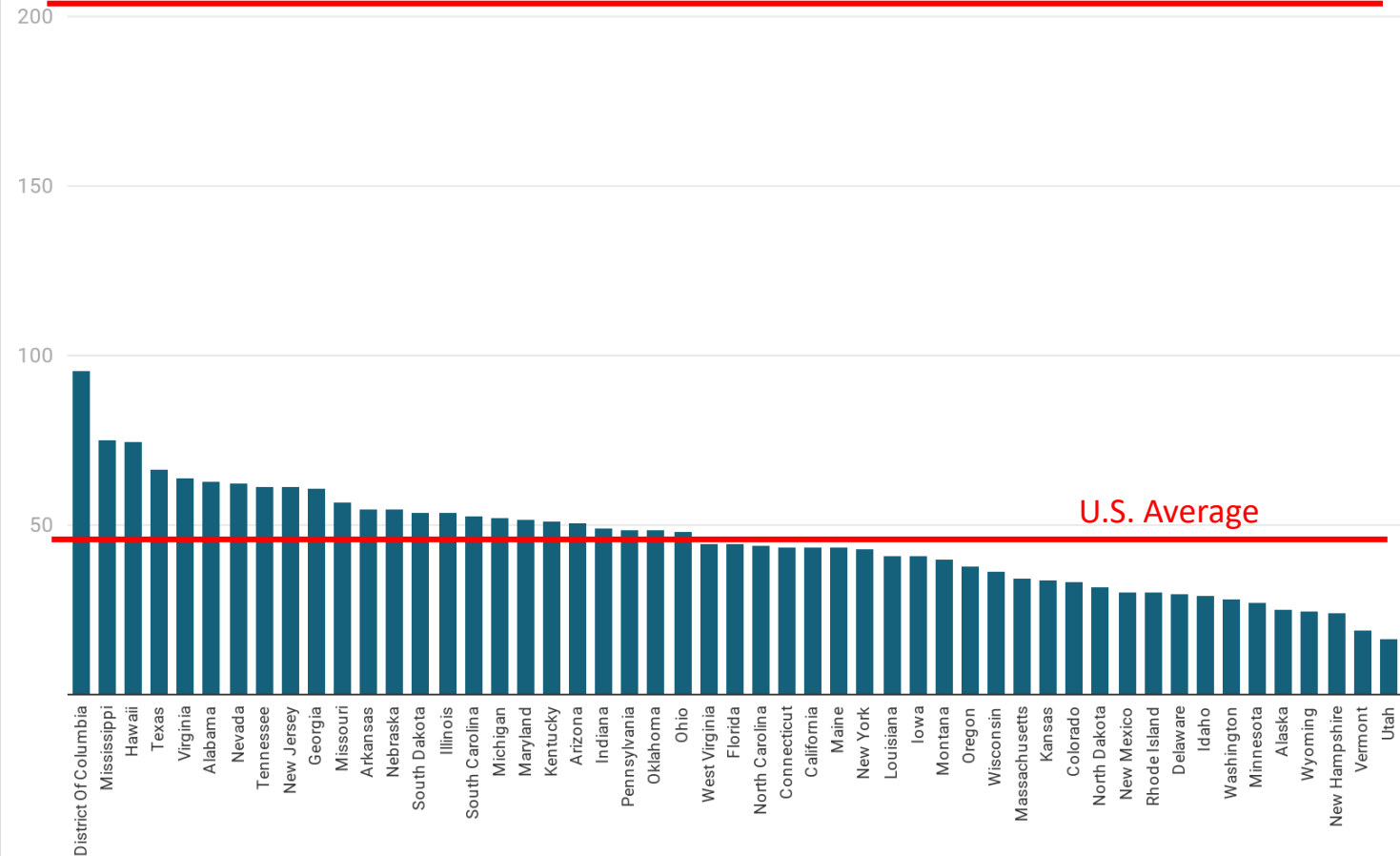


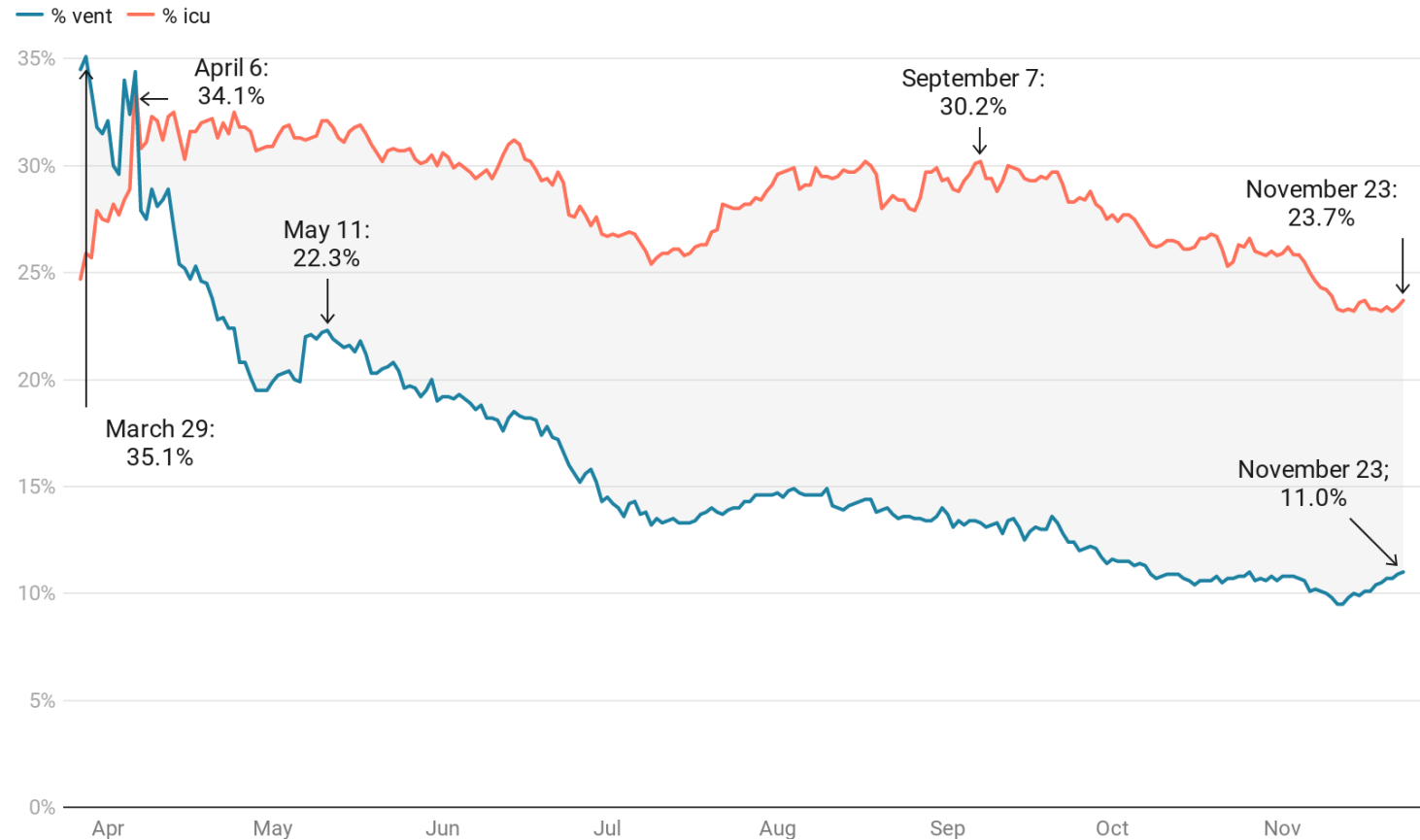
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project & worldometers.info • Created with Datawrapper

The likelihood of a hospitalized Covid-19 patient would require ICU care has been relatively stable for the past week, after declining markedly during the past three months

The likelihood of a hospitalized Covid-19 patients would be on a ventilator had declined significantly since the early days of the pandemic – however, it has picked up in the past week

Severity of Hospitalized Patients

% of patients on ventilators and in the ICU, As of November 23



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 generally been increasing since late-October, however, this rate has now eased in the past week

This rate remains than it was in in March/April

The rate of influenza visits remains low given where we are in the flu season

% of ER Visits For Covid-19-Like Illnesses (CLI); Influenza-Like Illnesses (ILI); Shortness-of-Breath (SoB) and Pneumonia

As of November 20

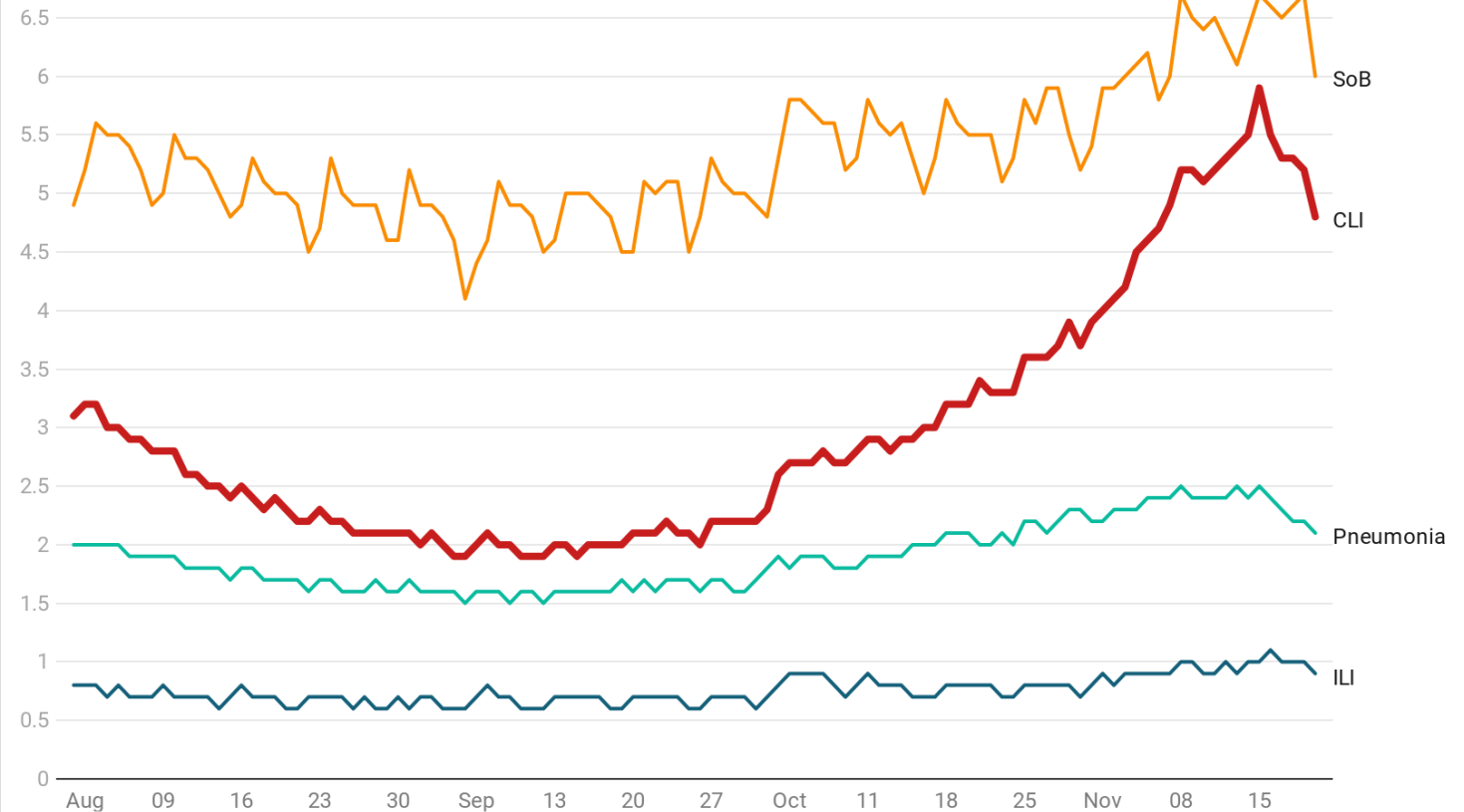


Chart: Health Industry Advisor LLC • Source: CDC • Created with Datawrapper

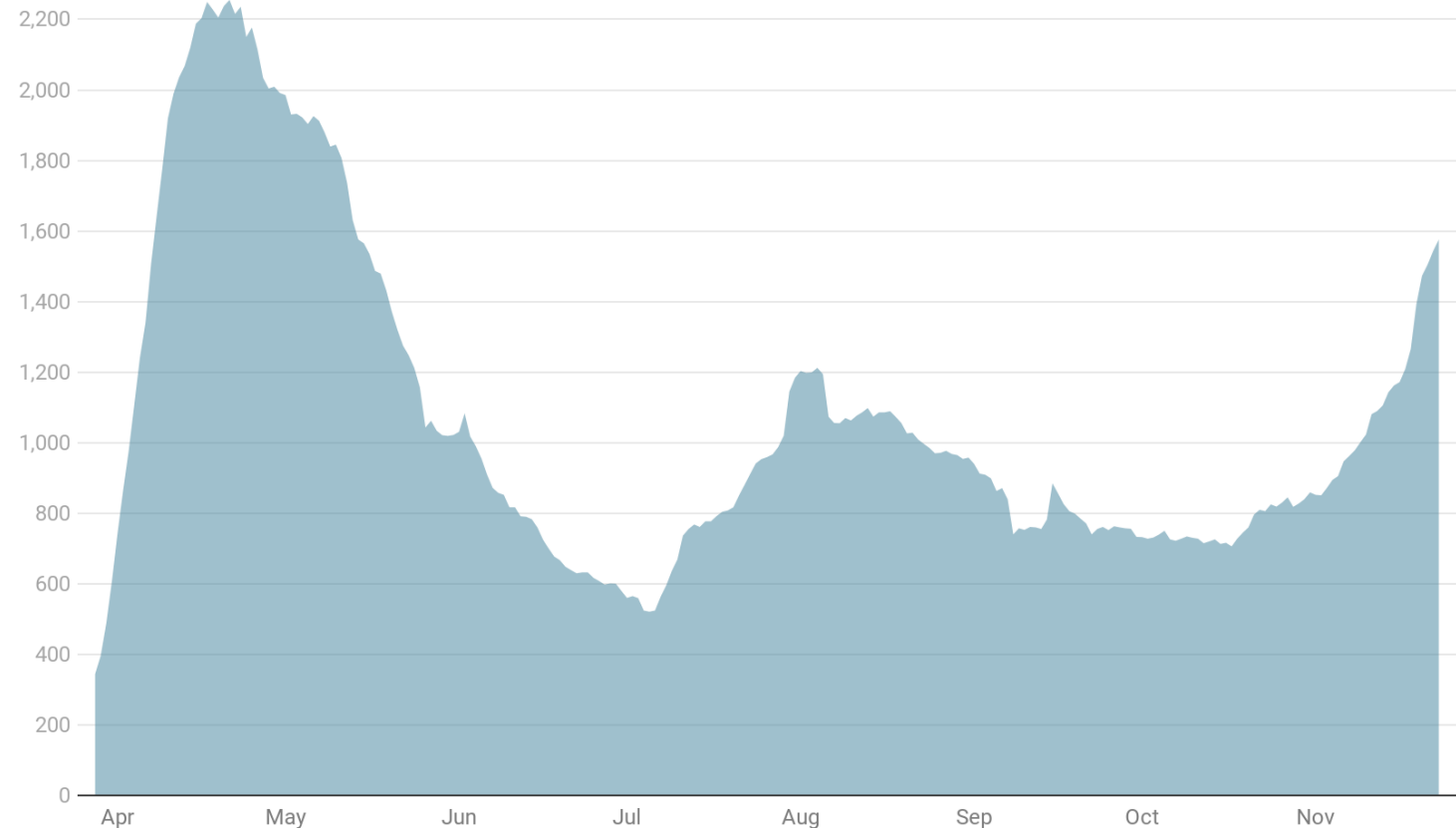
The recent uptick in newly-detected cases is resulting in increased deaths:

The 7-day average deaths per day has increased twenty-one consecutive days

This rate is now higher than where it peaked in early-August

Deaths Reported With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of November 23



Health Industry Advisor LLC analysis

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

Deaths with coronavirus, relative to new cases (lagged 2 weeks) have moved within a narrow range for the past ten days

This rate declined rapidly in July and August

The current rate is lower than it was throughout October

7-day Average Deaths / 7-Day Average New Cases (2-Week Lag)

As of November 23



Chart: Health Industry Advisor LLC • Source: worldometers.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>
- Oliver Wyman Pandemic Navigator, <https://pandemicnavigator.oliverwyman.com/forecast?mode=country®ion=United%20States&panel=mortality>