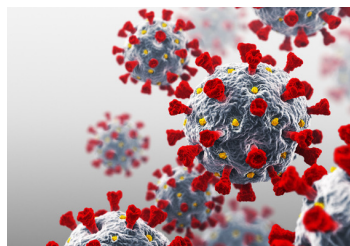


Covid-19 "Vital Signs"

Issue # 323

April 23, 2021



Covid-19 "Vital Signs"

Newly Detected Cases Per Day

In the US, 7-day new case rates is lower than any of the past three weeks. Outside the U.S., cases continue increasing at an alarming rate. India continues to be the global epicenter, with 37% (332,000) of all new cases yesterday.

Newly Detected Cases

As of April 22

■ United States ■ Outside the US

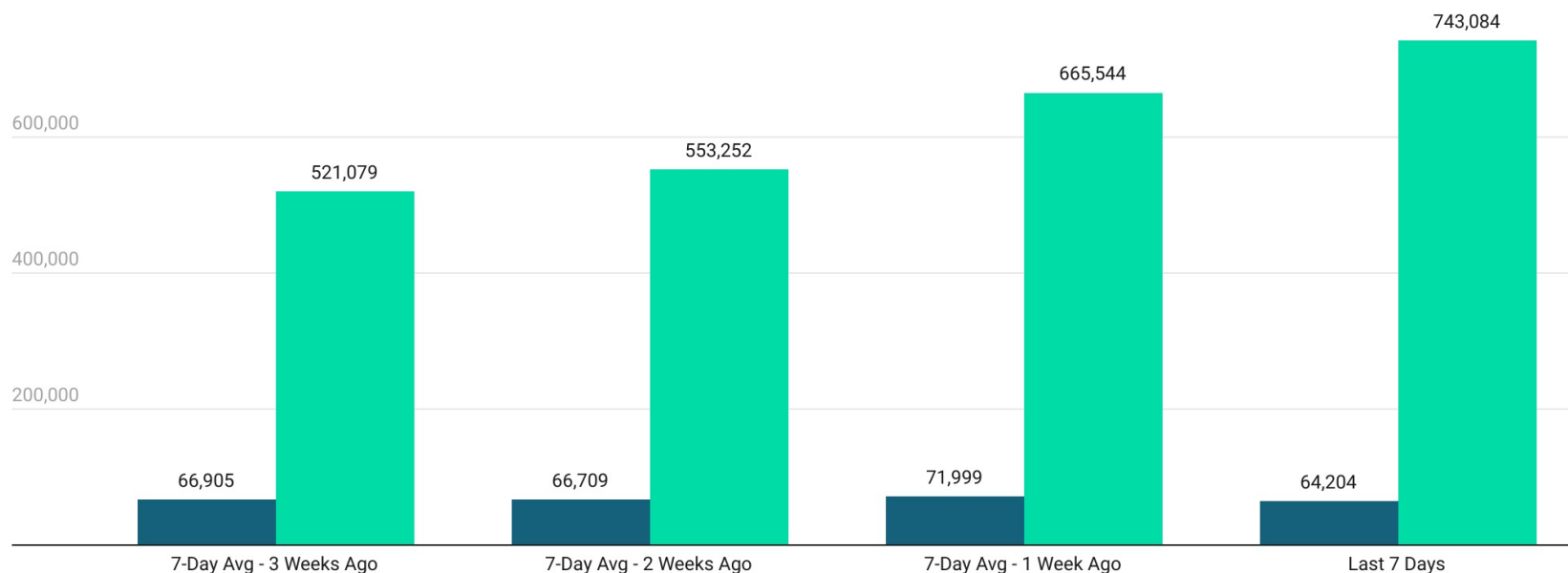


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 "Vital Signs"

Week-Over-Week Changes in New Cases

The rate of change in new cases has slowed recently. In the U.S., this rate declined for the ninth straight day and turned negative four days ago. Worldwide, this rate increases slightly yesterday, following seven straight declines.

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

7-Day Moving Average, As of April 22

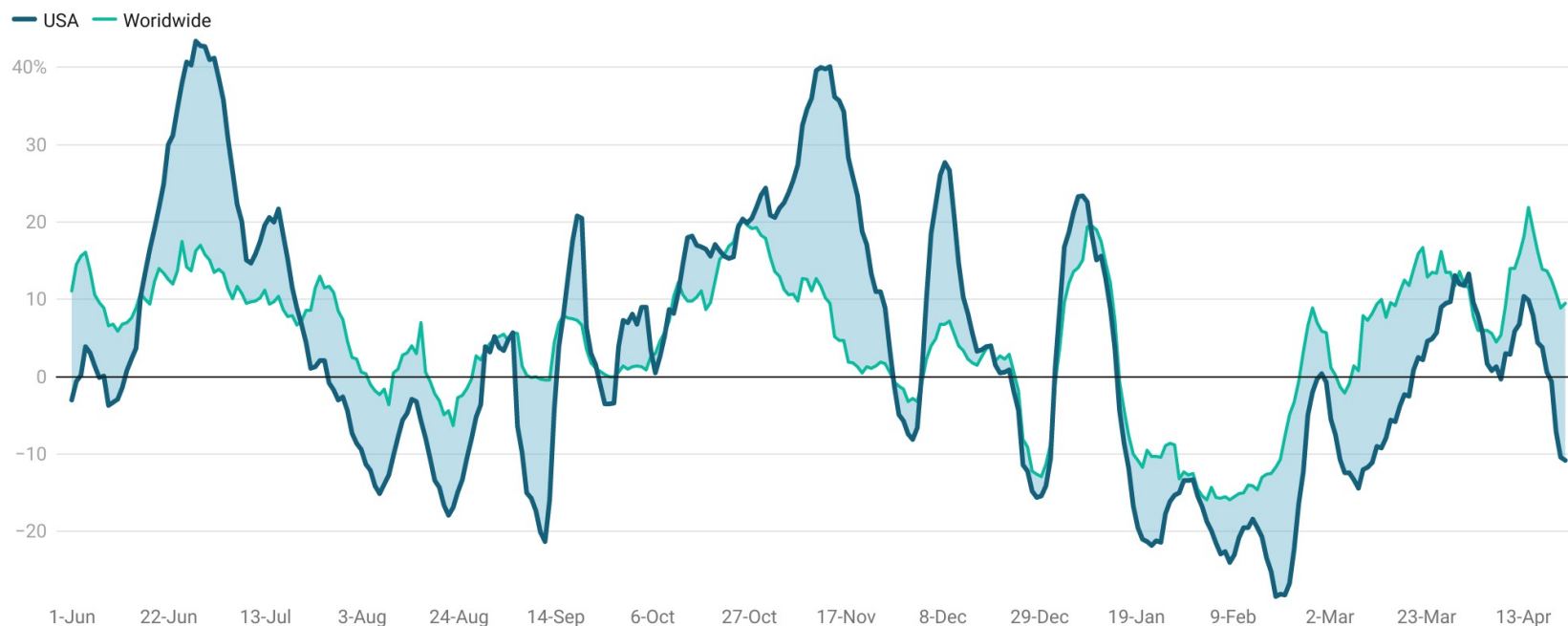


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19 "Vital Signs"

Newly Detected Cases / Million - US

The U.S. 7-day new case rate declined for the eighth straight day, dropping 12% during that time. This rate is lower than it has been in twenty-five days.

Newly-Detected Cases / Million

7-Day Average

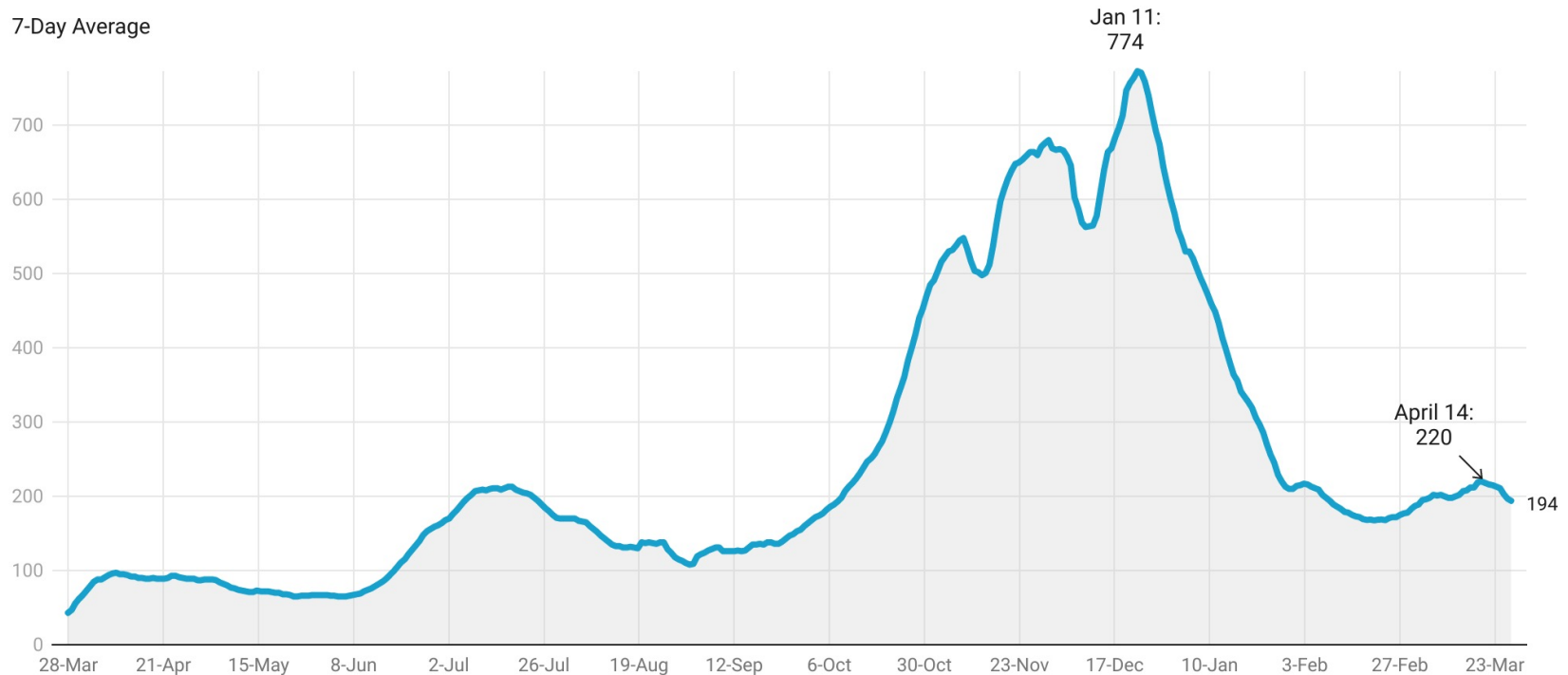


Chart: Health Industry Advisor LLC • Created with Datawrapper

Covid-19 "Vital Signs"

Estimated Daily Infections & New Case Rates

Detected cases have fallen recently, while estimated infections have stabilized. These remain lower than between mid-October and late-February

Estimated Daily Infections v. Detected Cases

Yale/Harvard Schools of Public Health Model

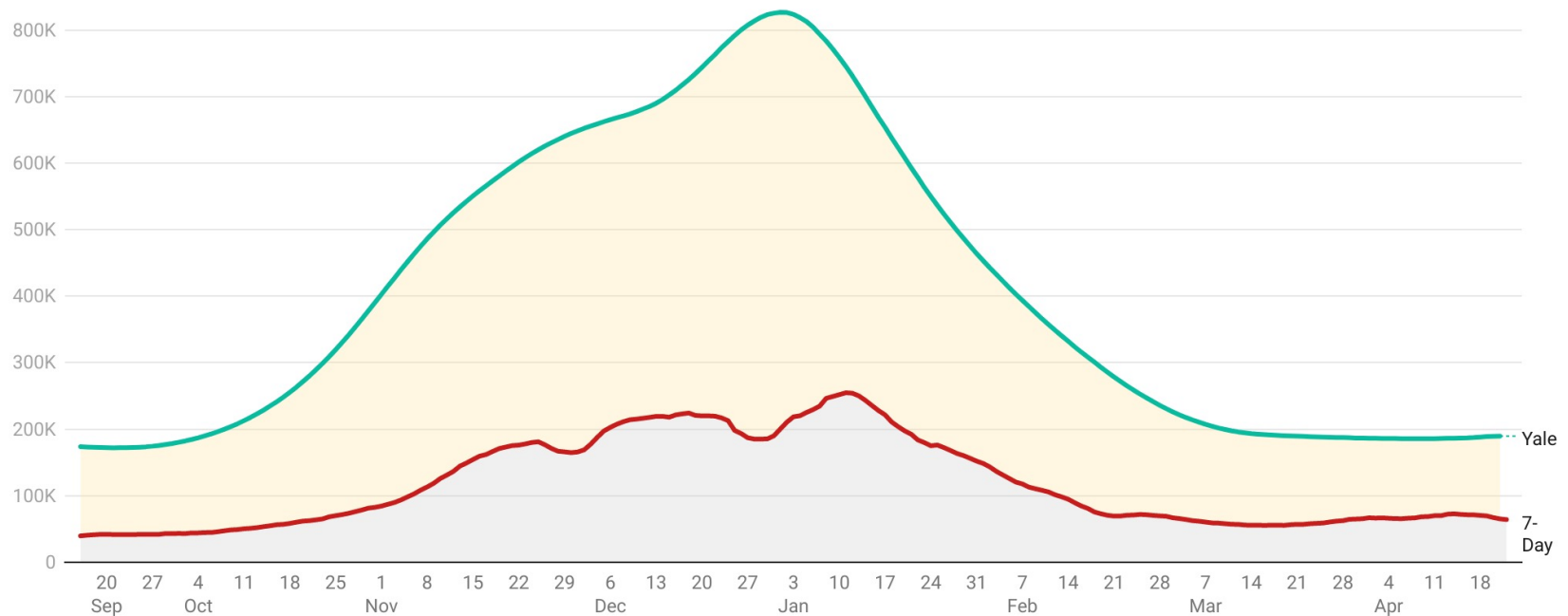
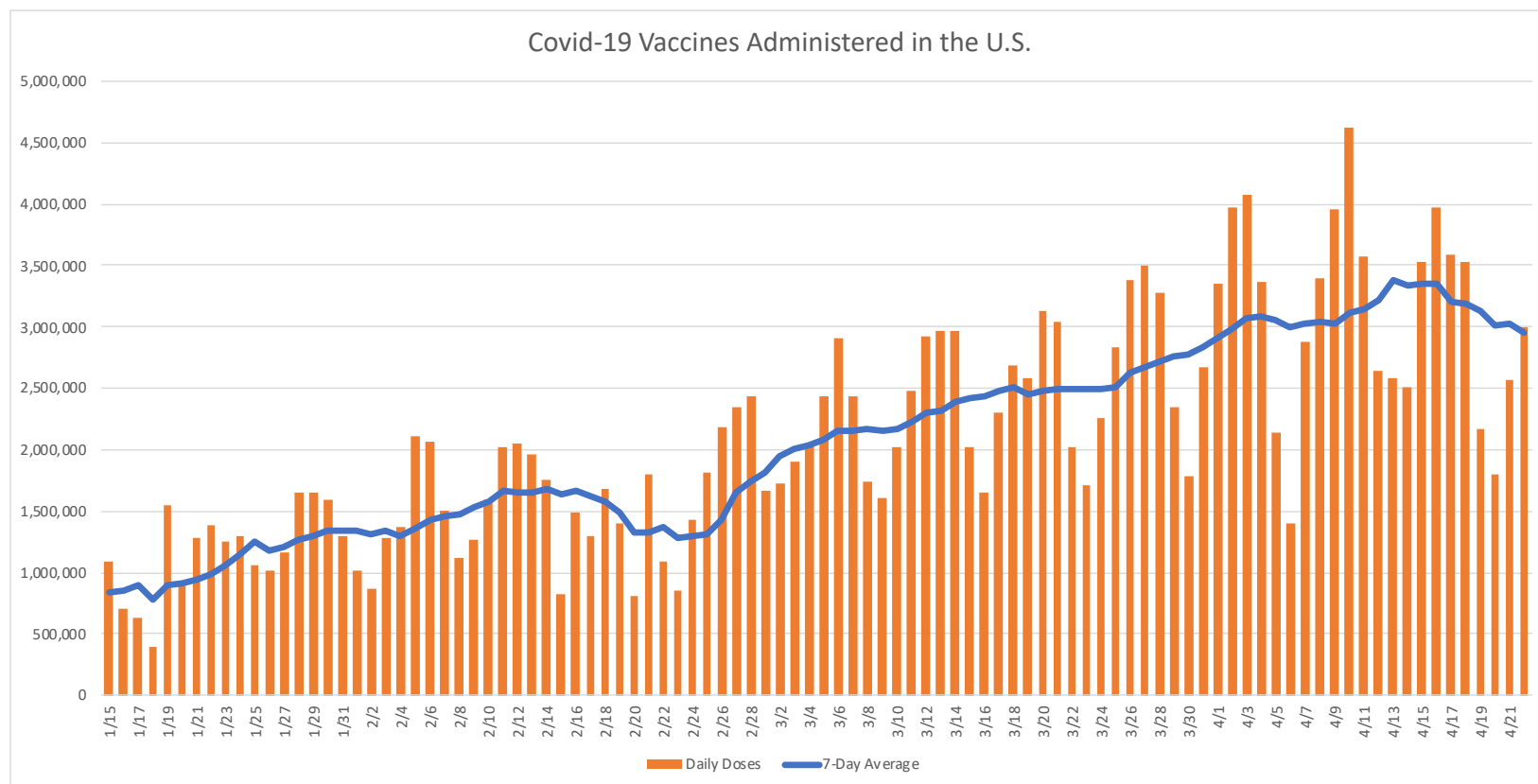


Chart: Health Industry Advisor LLC • Source: Youyang Gu, Yale School of Public Health • Created with Datawrapper

Pace of Vaccinations

The 7-day average rate declined five of the past six days. Is this a reflection of the JNJ/Janssen vaccine pause or, vaccine hesitancy?

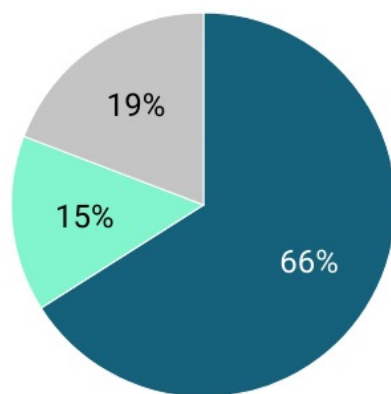


Vaccination Status By Age

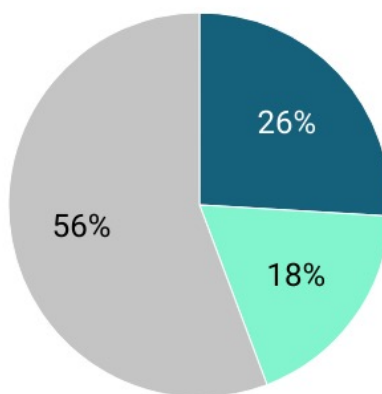
Seniors are participating in the process at strong levels. Fewer than one-in-five have yet to be jabbed. Younger adults have participated at good rates since becoming eligible.

Vaccination Status By Age

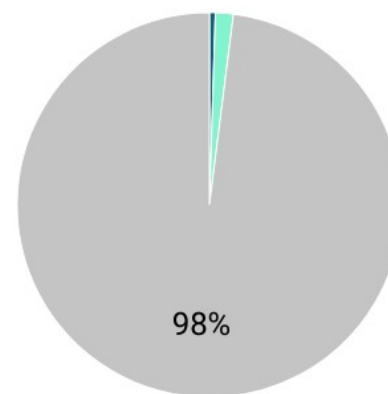
As of April 18



65+



18-64



0-17

■ Fully Vaccinated ■ Partially Vaccinated ■ Unvaccinated

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

Covid-19 "Vital Signs"

Vaccine Tracking

To date, the US has distributed 282 million doses and administered 219 million. 88.3 million people are fully inoculated – 34.6% of the adult population. Another 42 million people have received the first of two required doses.

Vaccination Progress

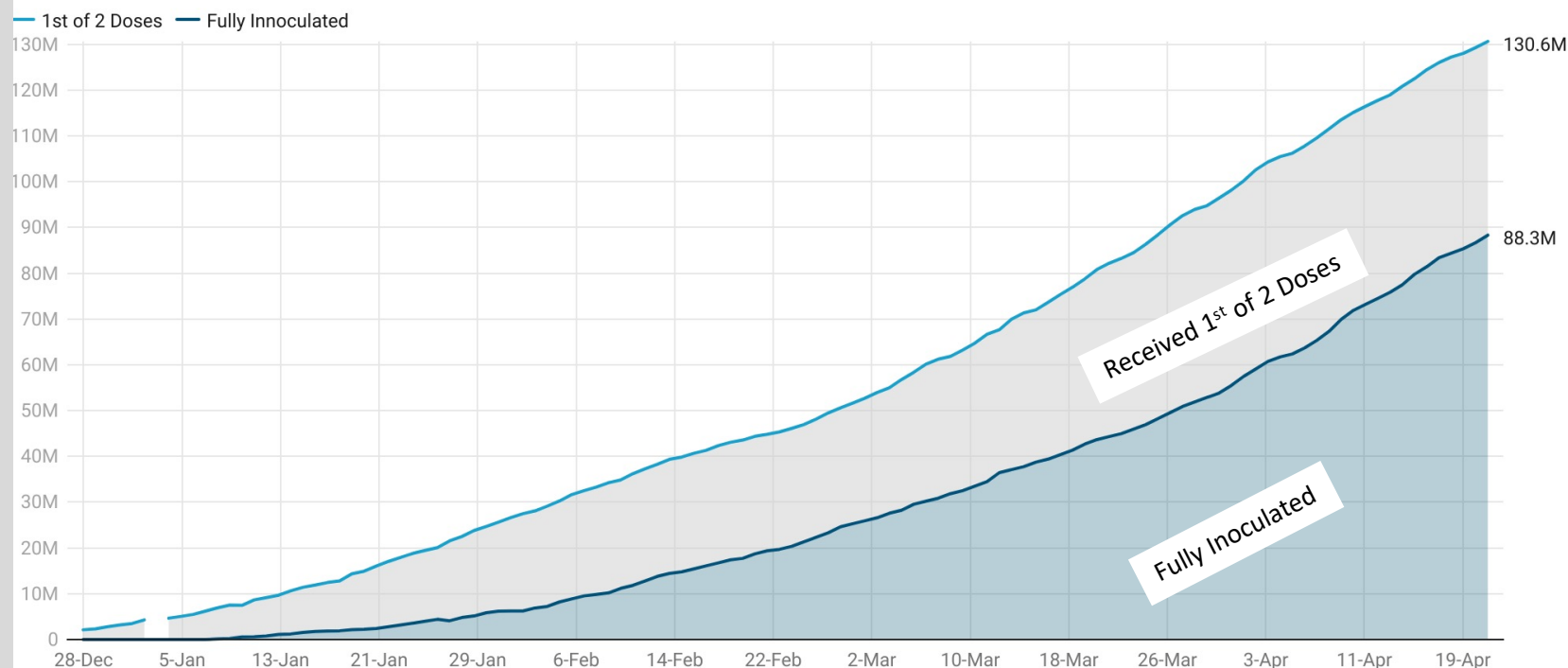


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

Vaccine data from: [Centers for Disease Control and Prevention](#) and [Bloomberg Vaccine Tracker](#)

Covid-19 "Vital Signs"

Vaccine Tracking - % of Adult Population Vaccinated

Alaska, Connecticut, Hawaii, Maine, Maryland, New Mexico, New Jersey, Rhode Island, and Vermont has fully inoculated 2-in-5 of their residents. Connecticut, New Hampshire, and have administered at least one dose to 6-in-10 of its residents.

Vaccinations of Adult Population

% Receiving 1 or 2 doses, as of April 21

■ % 2 Doses ■ % 1 dose

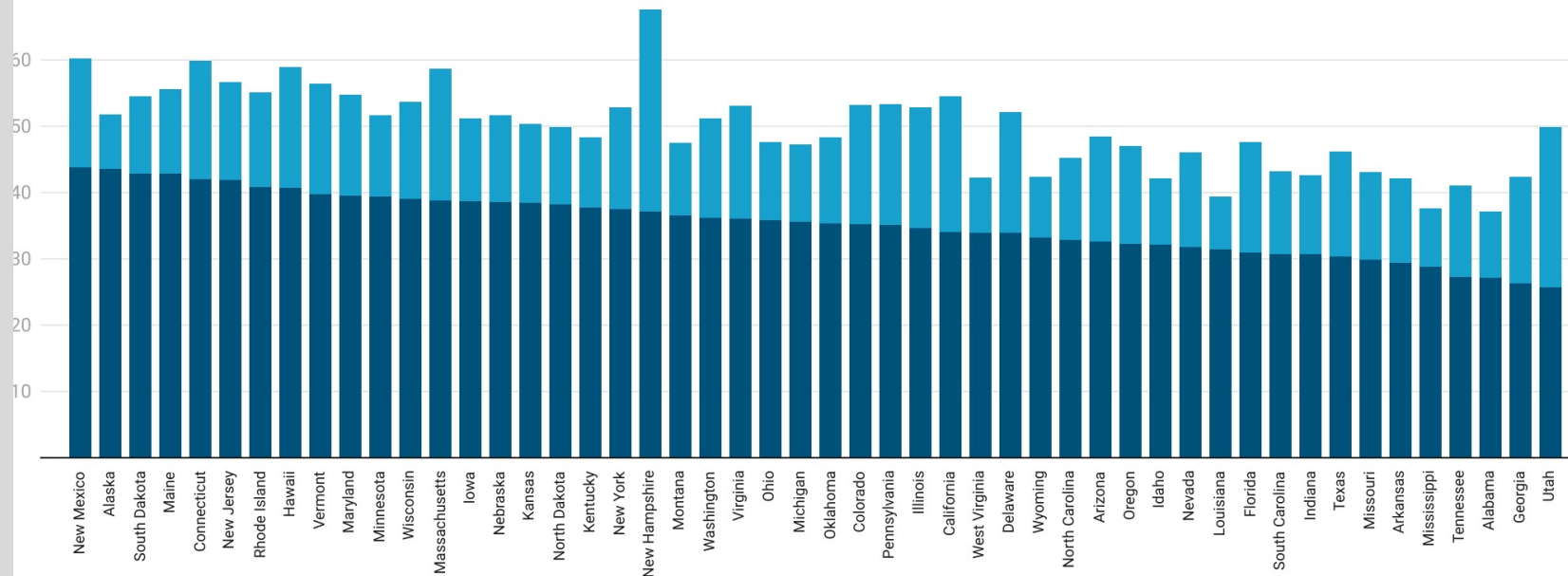


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

Estimated Immunity By State

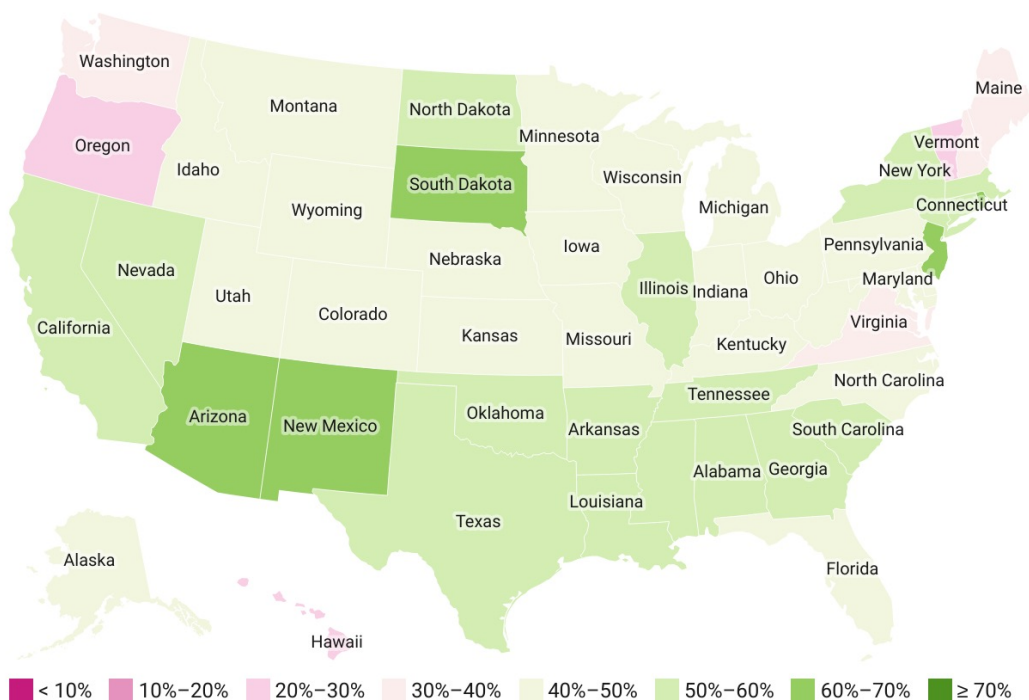
Estimated immunity is highest in Arizona, New Jersey, New Mexico, and South Dakota. It is lowest in Oregon, Vermont, Virginia and Washington.

- Public health experts have suggested that 60-80% of the population would need immunity, for herd immunity to be reached
- Immunity could result from an infection or via vaccination
- It is not established how long immunity, from either infection of vaccination, will last
- For purposes of this illustration, we use both reported vaccination rates and the Yale/Harvard* mean estimates of true infections

* <https://covidestim.org>

Estimated Immunity Prevalence, As of April 21

Based on Vaccinations To-Date & Harvard/Yale Estimated Infection Model



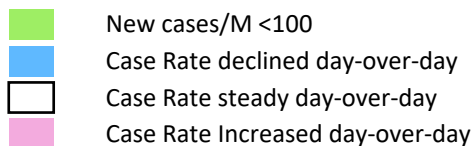
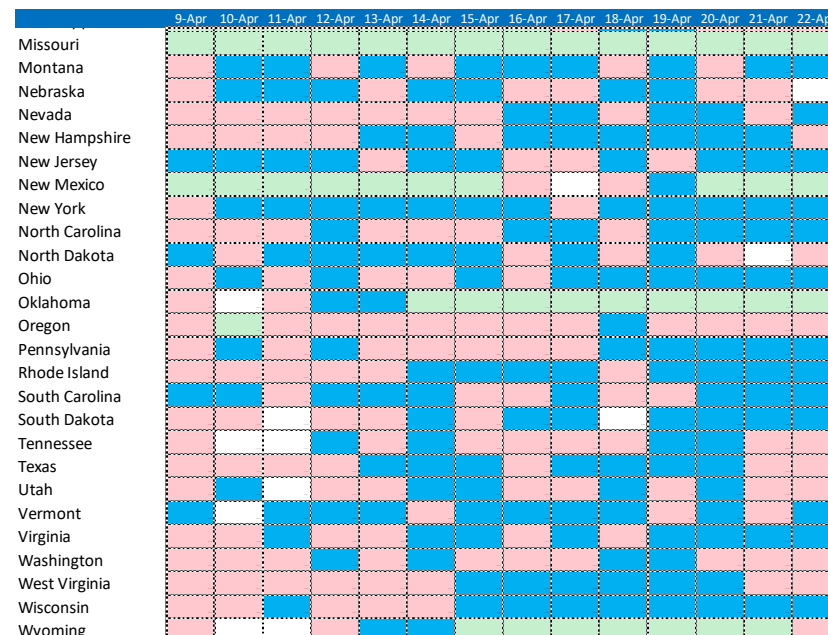
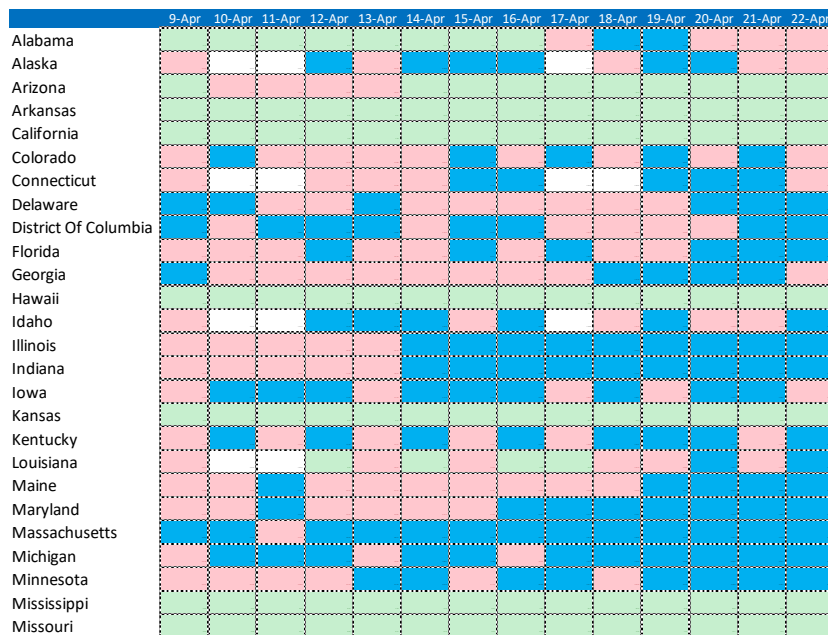
Presumed 14-day lag for immunity.

Map: Health Industry Advisor LLC • Source: Harvard/Yale Schools of Public Health • Created with Datawrapper

Trends in New Case Rates

Covid-19 "Vital Signs"

Colorado, Georgia, Oregon, Tennessee, Utah and Washington are riding streaks increasing new case rates. Michigan is recovering, with declining rates on six straight days and eleven of the past thirteen days.



Covid-19 Inpatient Census

Covid-19 inpatient census increased each of the past four Tuesdays on a week-over-week basis.

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks

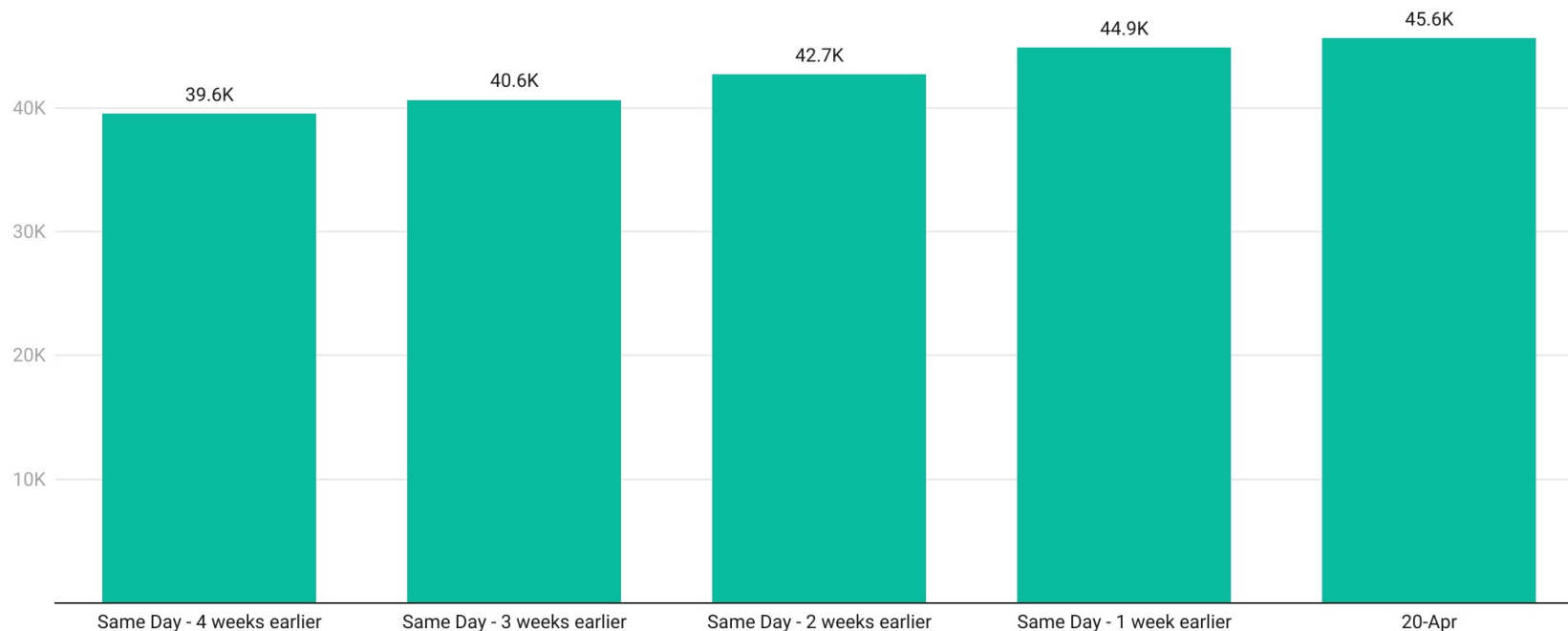


Chart: Health Industry Advisor LLC • Source: U.S. Department of Health & Human Services • Created with Datawrapper

Covid-19 "Vital Signs"

Projected Covid-19 Admission Trends

For the U.S. overall, projected Covid-19 admissions drop 3% in the next three weeks. Projected declines are steepest in New Jersey and New York.

Projected increases are most significant in Maine and Oregon.

% Change in Hospital Admissions

Week Ending May 17 v. Week Ending April 26

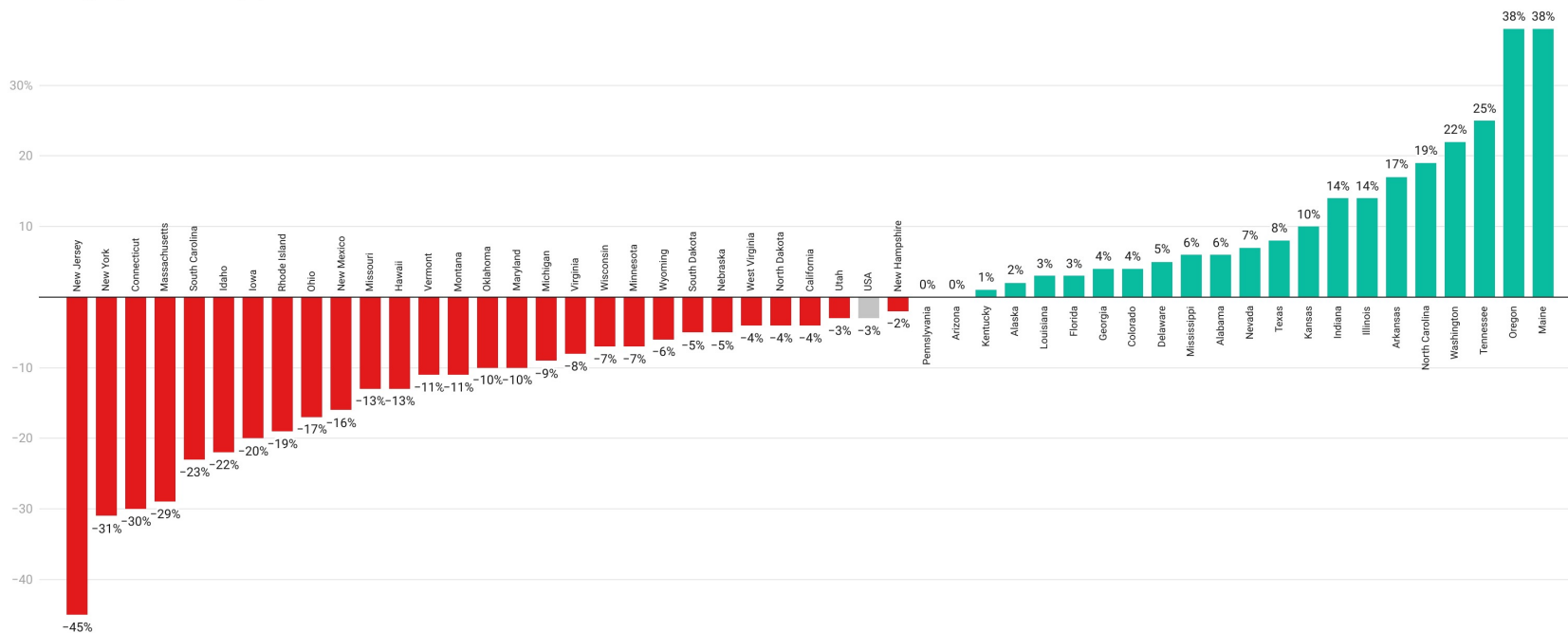


Chart: Health Industry Advisor LLC • Source: Centers for Disease Control and Prevention • Created with Datawrapper

Deaths Reported With Coronavirus

Deaths increased slightly week-over-week, after falling 16% and 5% the prior two weeks.

Daily Deaths Reported With Coronavirus

As of April 22

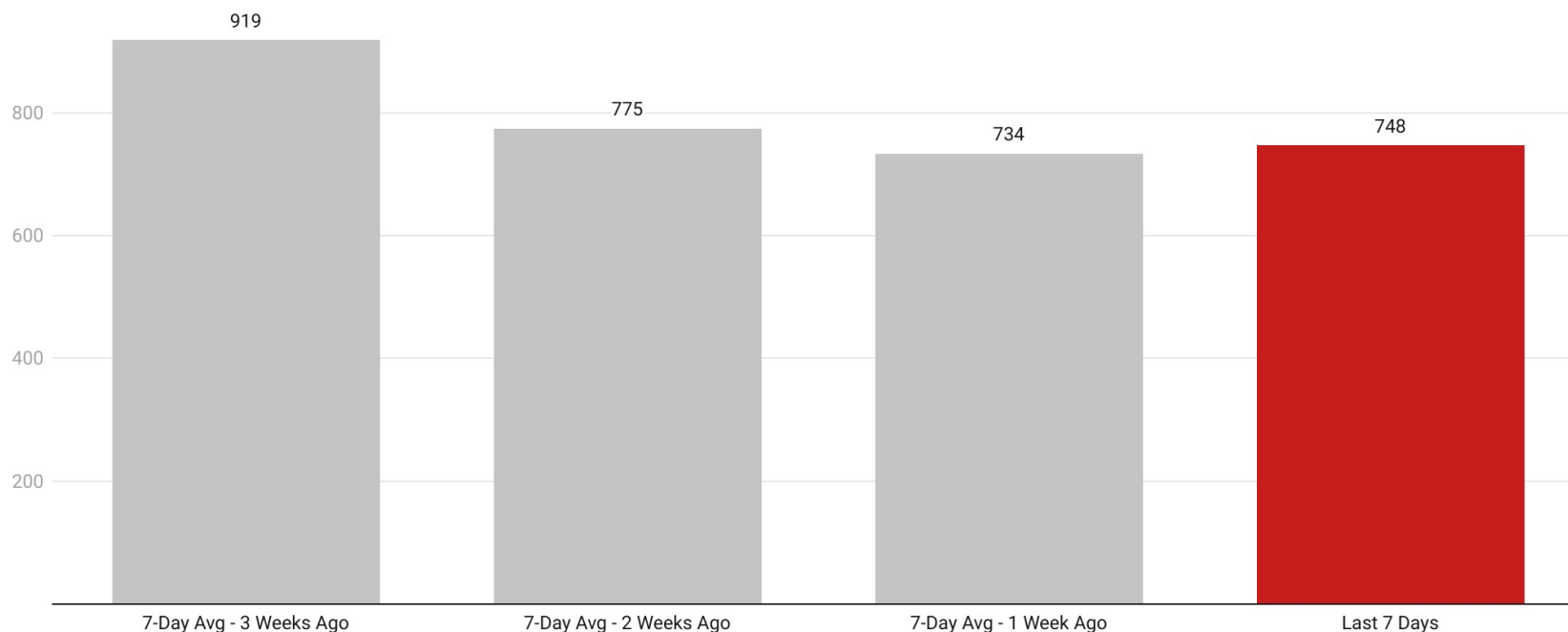


Chart: Health Industry Advisor LLC • Source: worldometer.info • Created with Datawrapper

Covid-19 "Vital Signs"

State-By-State Scorecard: Scoring Grid

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



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
Covid-19 Inpatient Census as % of All Inpatient Beds	Greater than	50%	40%	30%	20%	10%	0%
7-Day Deaths per 1000 New Cases (14-day lag)	Greater than	25	20	15	10	5	0

Covid-19 "Vital Signs"

State-By-State Scorecard:

New case rates are of concern in Colorado, Delaware, Florida, Maine, Michigan, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island. Hospital use is of concern in Connecticut, Maryland, Michigan, and New York.

State	7-Day New Infections per Capita	Week-over-Week Change in New Cases	7-Day Tests per New Case	7-Day CV-19 Census as % of all Inpatient Beds	7-Day Deaths per 1000 New Cases (14-day lag)
Alabama					
Alaska					
Arizona					
Arkansas					
California					
Colorado					
Connecticut					
Delaware					
District Of Columbia					
Florida					
Georgia					
Hawaii					
Idaho					
Illinois					
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland					
Massachusetts					
Michigan					
Minnesota					
Mississippi					
Missouri					

State	7-Day New Infections per Capita	Week-over-Week Change in New Cases	7-Day Tests per New Case	7-Day CV-19 Census as % of all Inpatient Beds	7-Day Deaths per 1000 New Cases (14-day lag)
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey					
New Mexico					
New York					
North Carolina					
North Dakota					
Ohio					
Oklahoma					
Oregon					
Pennsylvania					
Rhode Island					
South Carolina					
South Dakota					
Tennessee					
Texas					
Utah					
Vermont					
Virginia					
Washington					
West Virginia					
Wisconsin					
Wyoming					

Covid-19 "Vital Signs"

Metro Areas in the US

New case rates are high across the states of Florida, Michigan, Minnesota and in the Northeast over the past two weeks.

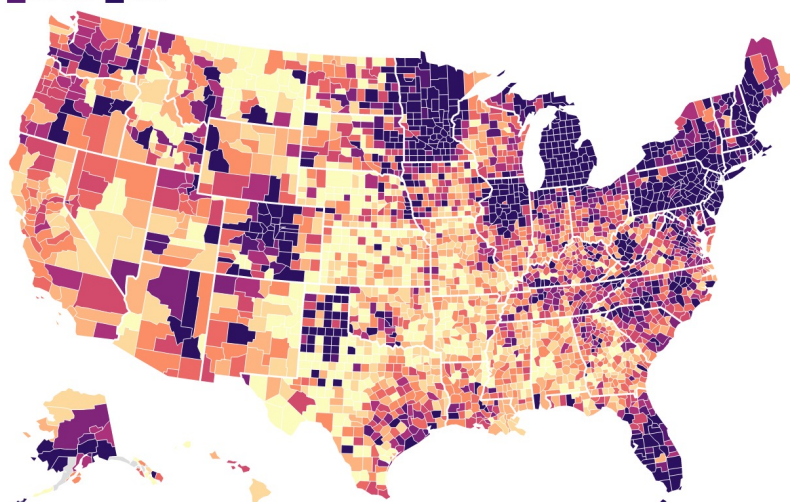
As of April 15

As of April 22

New Daily Infections / Million

7-Day Moving Average, As of April 15

< 25 25-50 50-75 75-100 100-125 125-150 150-175 175-200
200-225 ≥ 225

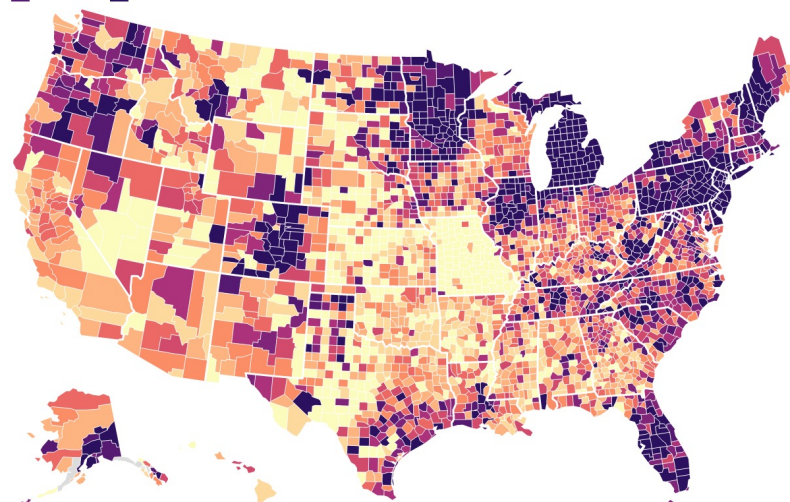


Map: Health Industry Advisor LLC • Created with Datawrapper

New Daily Infections / Million

7-Day Moving Average, As of April 22

< 25 25-50 50-75 75-100 100-125 125-150 150-175 175-200
200-225 ≥ 225



Map: Health Industry Advisor LLC • Created with Datawrapper

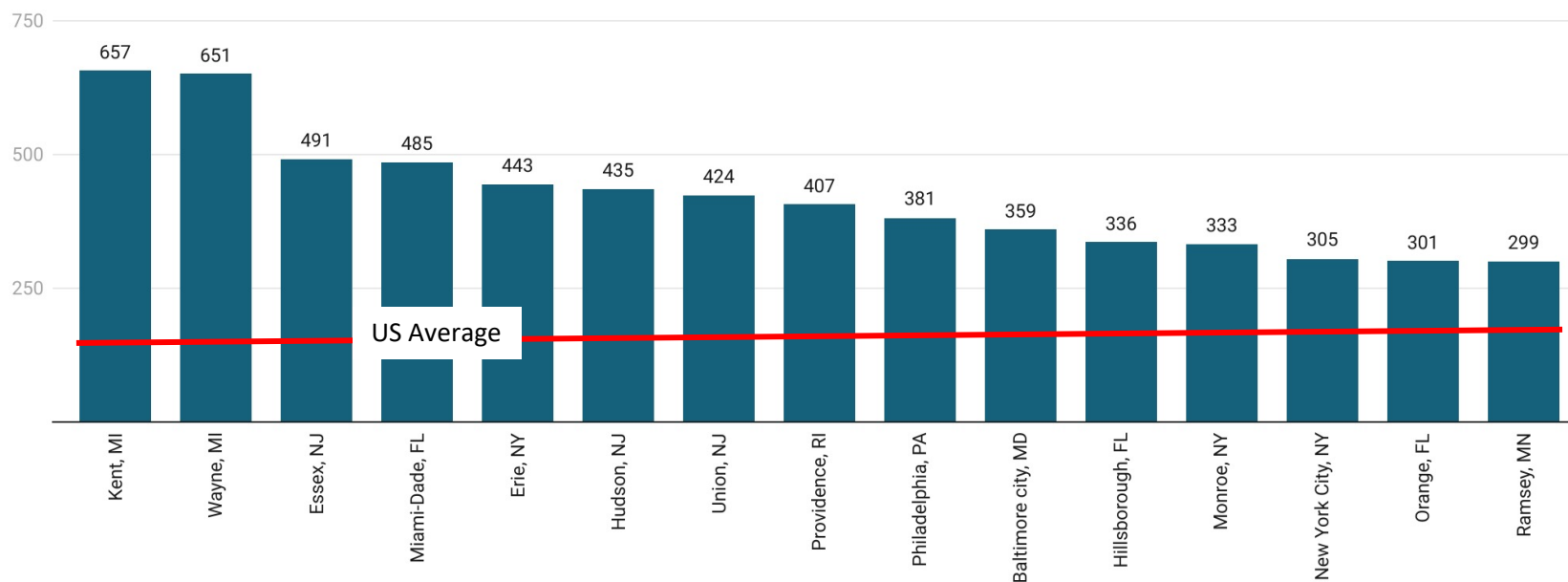
Covid-19 "Vital Signs"

Large Central Metro Areas

Large Central Metro Areas in Florida, Michigan, New Jersey and New York reported the highest new case rates over the past week.

Highest New Daily Cases / Million Population - Large Central Metro Areas

7-Day Moving Average, As of April 22



Health Industry Advisor LLC analysis

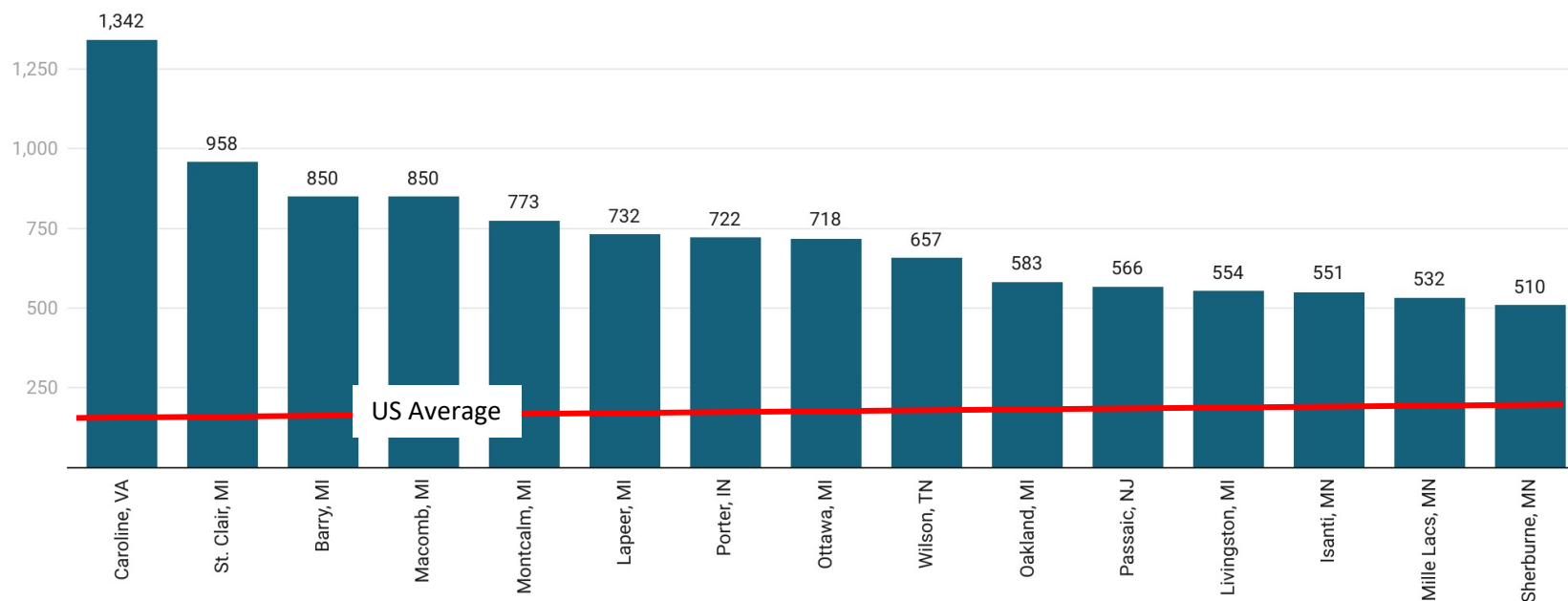
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Large Fringe Metro Areas

Large Fringe Metro Areas in Michigan and Minnesota reported the highest new case rates over the past week.

Highest New Daily Cases / Million Population - Large Fringe Metro Areas

7-Day Moving Average, As of April 22



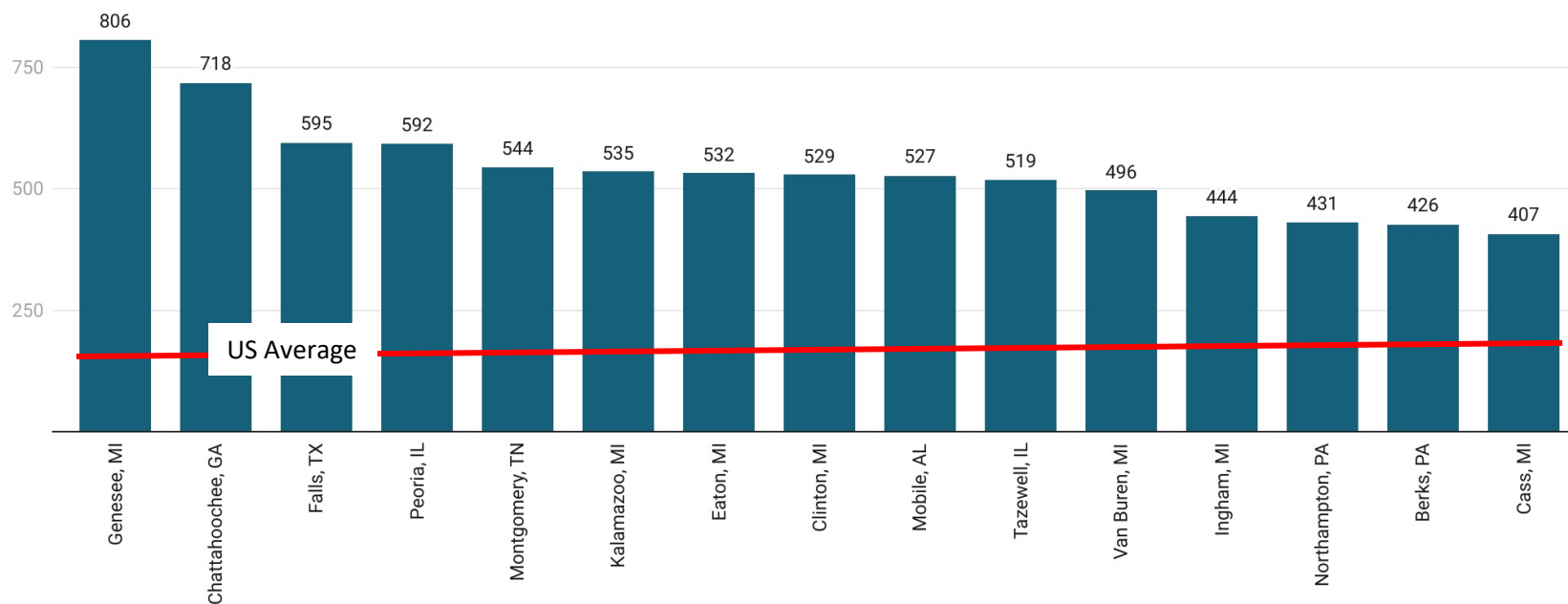
Health Industry Advisor LLC analysis

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

Medium Metro Areas in the US

Highest New Daily Cases / Million Population - Medium Metro Areas

7-Day Moving Average, As of April 22



Health Industry Advisor LLC analysis

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

State-By-State Data Table (1 of 3)

State-By-State Comparisons

State [▲]	Infection Prevalence	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	Covid-19 Census % of All Beds	7-Day Deaths /1000 New Cases , 14-Day Lag
Alabama	10.7%	2,208	1,115	6.0%	112	10	8%	43
Alaska	8.8%	450	7,940	3.1%	223	36	7%	-
Arizona	11.8%	2,366	2,245	4.3%	93	24	9%	21
Arkansas	11.1%	1,892	1,282	2.4%	60	21	4%	23
California	9.4%	1,552	4,075	1.4%	59	70	8%	27
Colorado	8.6%	1,106	4,152	5.7%	287	14	13%	5
Connecticut	9.4%	2,255	8,513	3.1%	230	37	33%	7
Delaware	10.5%	1,647	5,457	6.1%	345	16	29%	4
District Of Columbia	6.7%	1,556	7,259	2.9%	147	49	18%	10
Florida	10.2%	1,616	3,548	8.8%	283	13	21%	12
Georgia	10.3%	1,872	1,421	5.9%	128	11	18%	24
Hawaii	2.2%	336	3,763	1.8%	59	64	5%	4
Idaho	10.4%	1,132	1,776	4.8%	114	16	8%	7
Illinois	10.4%	1,898	5,012	4.4%	228	22	15%	8
Indiana	10.6%	1,968	3,161	5.5%	153	21	10%	8
Iowa	12.4%	1,871	2,029	6.2%	152	13	5%	9
Kansas	10.6%	1,712	1,956	3.5%	23	85	4%	15

Covid-19 "Vital Signs"

State-By-State Data Table (2 of 3)

State-By-State Comparisons

State	Infection Prevalence	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	Covid-19 Census % of All Beds	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 14-Day Lag
Kentucky	9.8%	1,428	2,367	4.0%	122	19	7%	22	
Louisiana	9.8%	2,221	2,193	3.0%	108	20	4%	19	
Maine	4.4%	572	6,879	3.3%	310	22	12%	5	
Maryland	7.3%	1,427	4,988	5.7%	194	26	37%	13	
Massachusetts	9.8%	2,520	9,933	2.3%	233	43	13%	6	
Michigan	9.0%	1,828	4,689	13.8%	618	8	43%	9	
Minnesota	10.0%	1,263	7,557	6.7%	319	24	16%	5	
Mississippi	10.4%	2,410	583	4.3%	78	8	4%	32	
Missouri	9.4%	1,520	1,537	4.9%	81	19	10%	9	
Montana	10.1%	1,457	2,298	4.5%	120	19	4%	28	
Nebraska	11.3%	1,154	1,980	8.2%	186	11	6%	8	
Nevada	10.1%	1,753	2,105	6.0%	120	18	14%	19	
New Hampshire	6.8%	937	5,083	4.0%	259	20	13%	3	
New Jersey	11.2%	2,849	4,855	8.1%	373	13	27%	9	
New Mexico	9.3%	1,919	2,077	2.7%	94	22	8%	20	
New York	10.6%	2,678	7,101	4.7%	291	24	35%	8	
North Carolina	9.1%	1,192	2,576	6.4%	185	14	17%	14	

Covid-19 "Vital Signs"

State-By-State Data Table (3 of 3)

State-By-State Comparisons

State	Infection Prevalence	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	Covid-19 Census % of All Beds	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 14-Day Lag
North Dakota	14.0%	1,947	2,645	3.6%	188		14	7%	8
Ohio	9.1%	1,628	2,611	4.2%	147		18	12%	9
Oklahoma	11.3%	1,697	805	6.3%	60		13	5%	5
Oregon	4.2%	585	3,290	4.9%	175		19	13%	4
Pennsylvania	8.8%	2,030	3,607	8.6%	329		11	23%	10
Rhode Island	13.8%	2,511	12,667	2.4%	309		41	24%	5
South Carolina	11.1%	1,823	2,445	5.7%	173		14	11%	12
South Dakota	13.8%	2,211	1,555	8.0%	168		9	6%	7
Tennessee	12.3%	1,775	1,652	6.8%	224		7	13%	12
Texas	9.9%	1,726	1,467	5.3%	107		14	12%	18
Utah	12.3%	679	2,505	3.9%	120		21	4%	6
Vermont	3.6%	389	12,891	1.8%	151		85	5%	3
Virginia	7.6%	1,248	2,215	6.0%	157		14	16%	12
Washington	5.2%	719	2,311	5.3%	181		13	16%	8
West Virginia	8.4%	1,571	3,359	7.2%	215		16	9%	14
Wisconsin	10.2%	1,155	3,741	3.8%	110		34	7%	5
Wyoming	10.0%	1,218	2,164	3.2%	101		21	2%	5

Table: Health Industry Advisor LLC • Created with Datawrapper

Sources

The following data sources are accessed on a daily or weekly basis

- U.S. Department of Health & Human Services: <https://healthdata.gov/dataset/covid-19-estimated-patient-impact-and-hospital-capacity-state>
- U.S. Department of Health & Human Services <https://beta.healthdata.gov/dataset/COVID-19-Diagnostic-Laboratory-Testing-PCR-Testing/j8mb-icvb>
- Worldometers.info: <https://www.worldometers.info/coronavirus/>
- Centers for Disease Control and Prevention, National, Regional, and State Level Outpatient Illness and Viral Surveillance <https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>
- Centers for Disease Control and Prevention, COVID-19 Laboratory-Confirmed Hospitalizations https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html
- Centers for Disease Control and Prevention, COVID Data Tracker <https://www.cdc.gov/covid-data-tracker/index.html#mobility>
- Centers for Disease Control and Prevention, Vaccines, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html>
- 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>
- Our World In Data, <https://ourworldindata.org/covid-vaccinations>
- Covid-19 Forecast Hub, <https://viz.covid19forecasthub.org>
- Yale School of Public Health & Harvard TH Chan School of Public Health, <https://covidestim.org>
- Bloomberg Vaccine Trackers, <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/?sref=Z0b6TmH>