Health Industry Advisor, llc

"Strategic Advice in an Era of Unprecedented Change"

Covid-19 "Vital Signs"

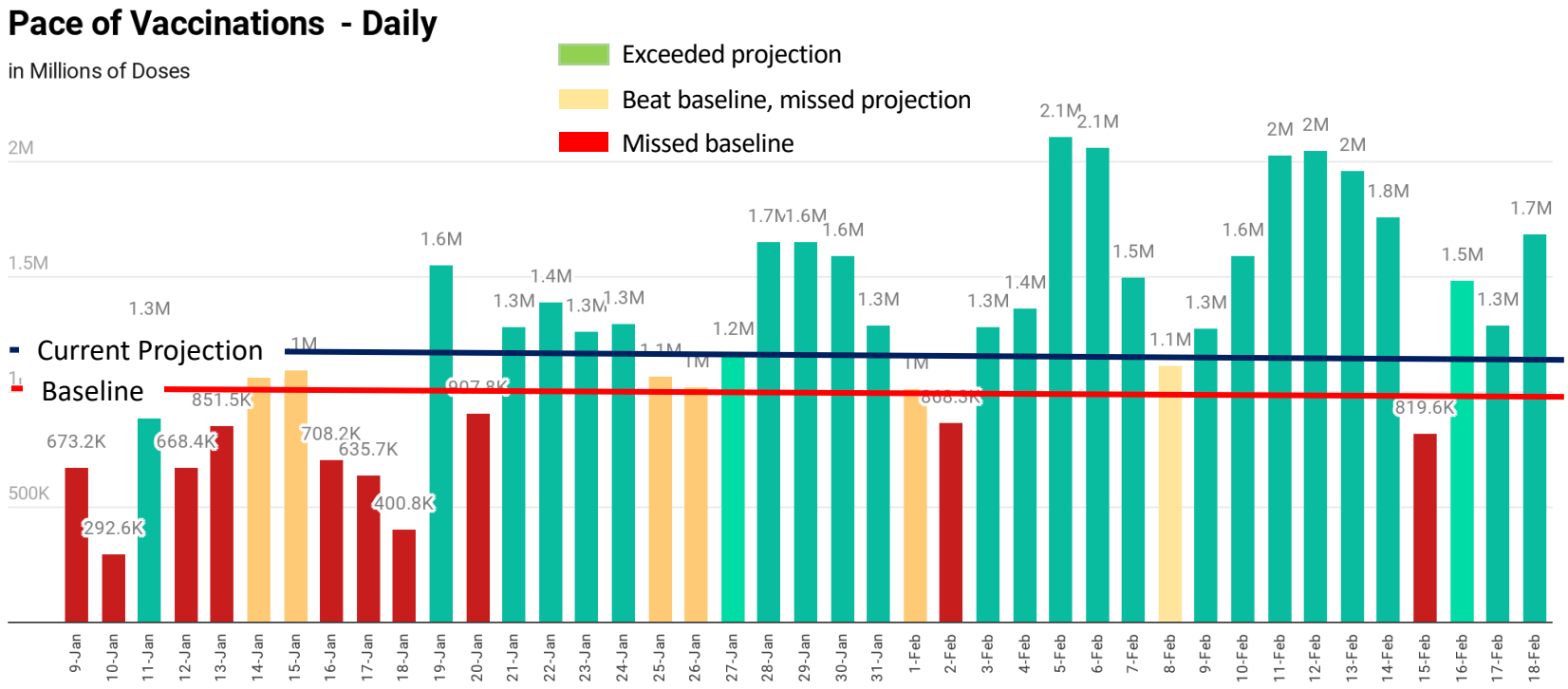
Issue # 287

February 19, 2021

Covid-19
"Vital Signs"

Pace of Vaccinations

The US jabbed 1.7 million citizens yesterday and more than 1.3 million fourteen of the past sixteen days. Vaccinations surpassed our Current Projection on twenty-four of the past thirty-one days.



Baseline: 100 Million Doses in 100 Days Current Projection: Ramped-Up Vaccinations; Additional 100M Pfizer and Moderna doses; and JNJ vaccine available on 3/1

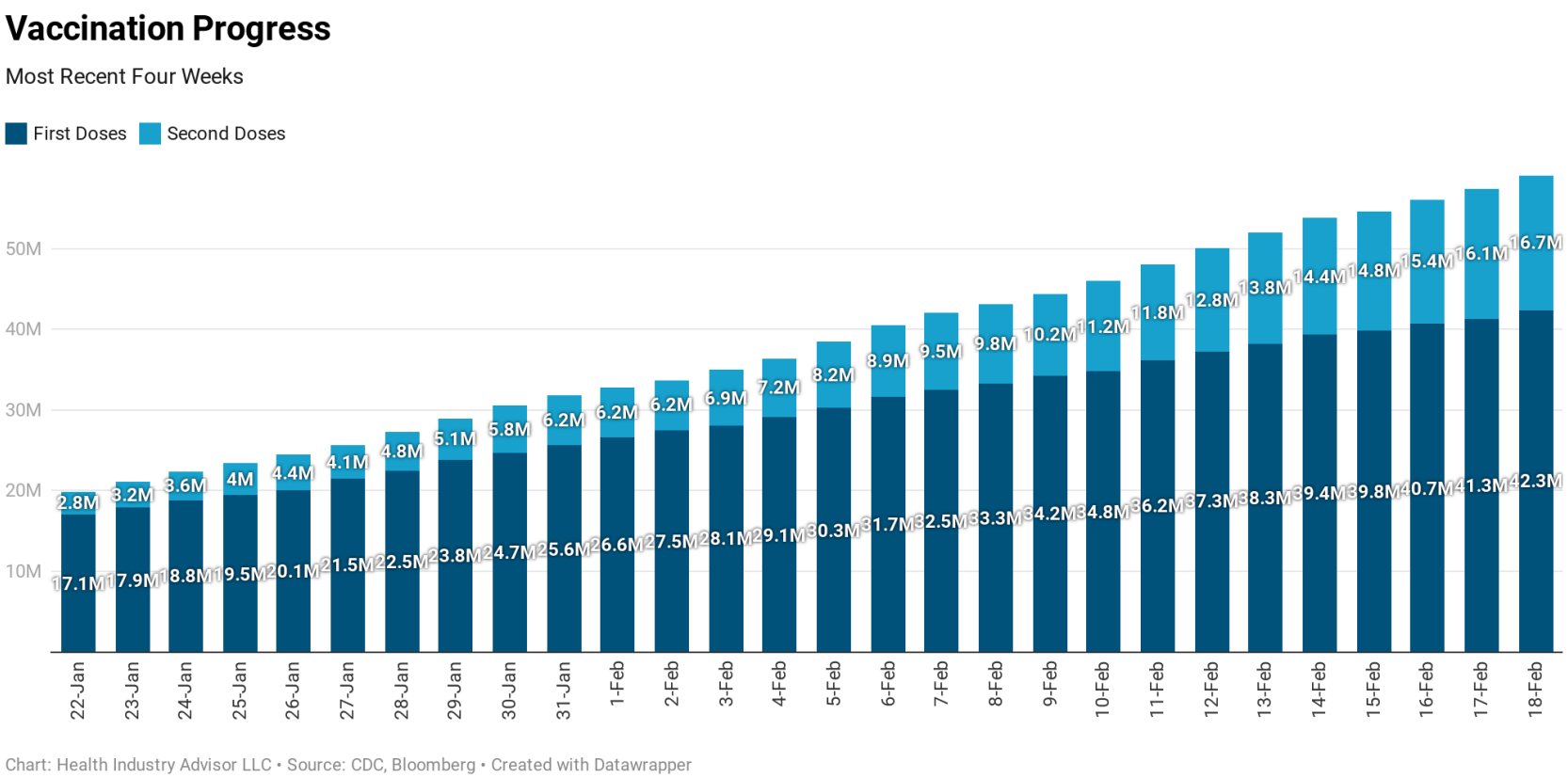
Chart: Health Industry Advisor LLC • Source: Bloomberg • Created with Datawrapper

"Current projection" is from Health Industry Advisor's vaccination model, reflecting recent developments: increase pace of vaccinations; increase in Pfizer and Moderna doses to 300 million each; and anticipated availability of JNJ vaccine

Covid-19
"Vital Signs"

Vaccine Tracking

To date, the US has administered 59 million doses, with 16.7 million people jabbed twice. On average, 1.6 million shots were administered each day during the past week



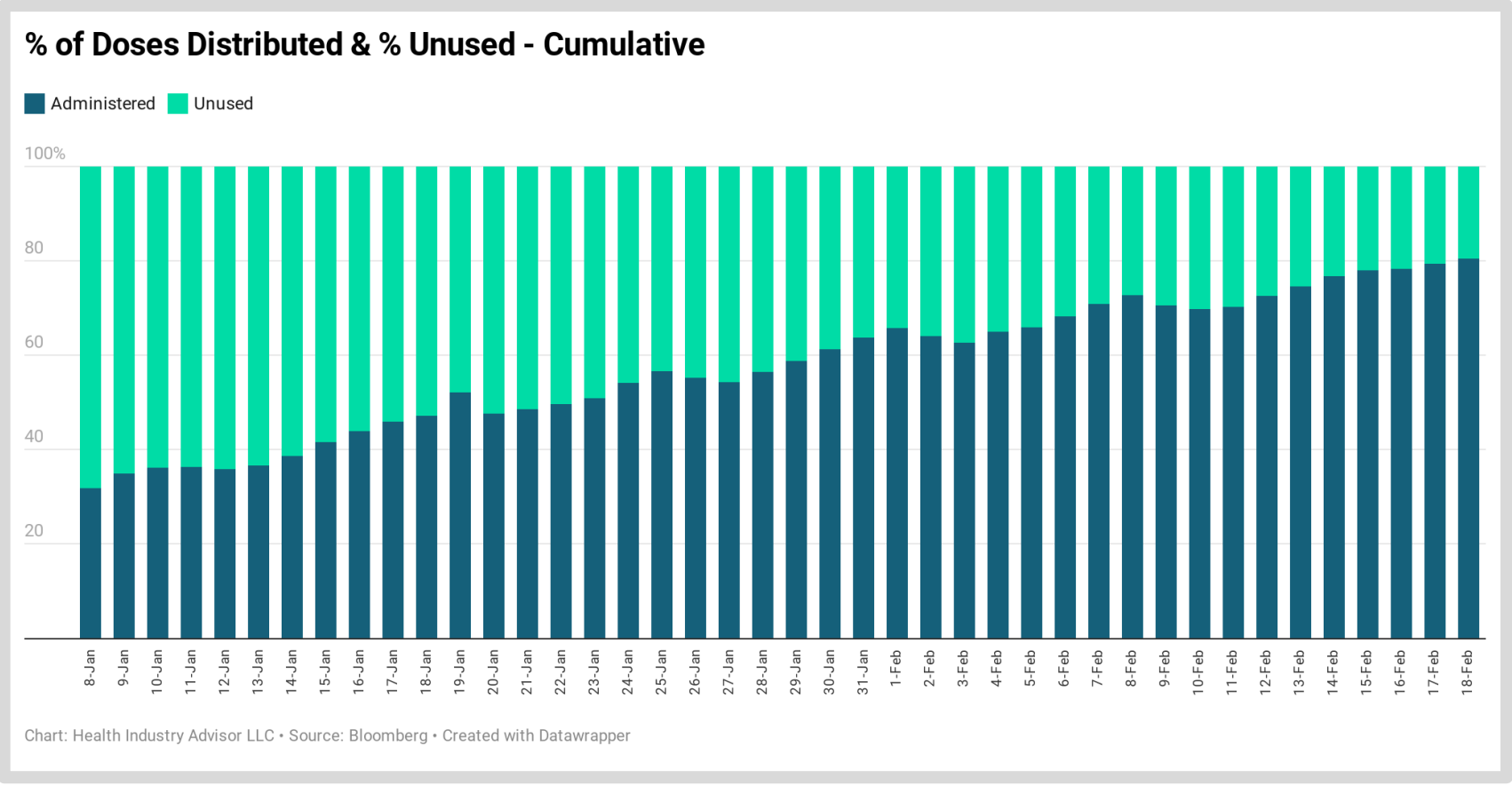
Vaccine data from: Centers for Disease Control and Prevention and Bloomberg Vaccine Tracker

Health Industry Advisor, llc

Covid-19
"Vital Signs"

Vaccines Distributed v. Unused

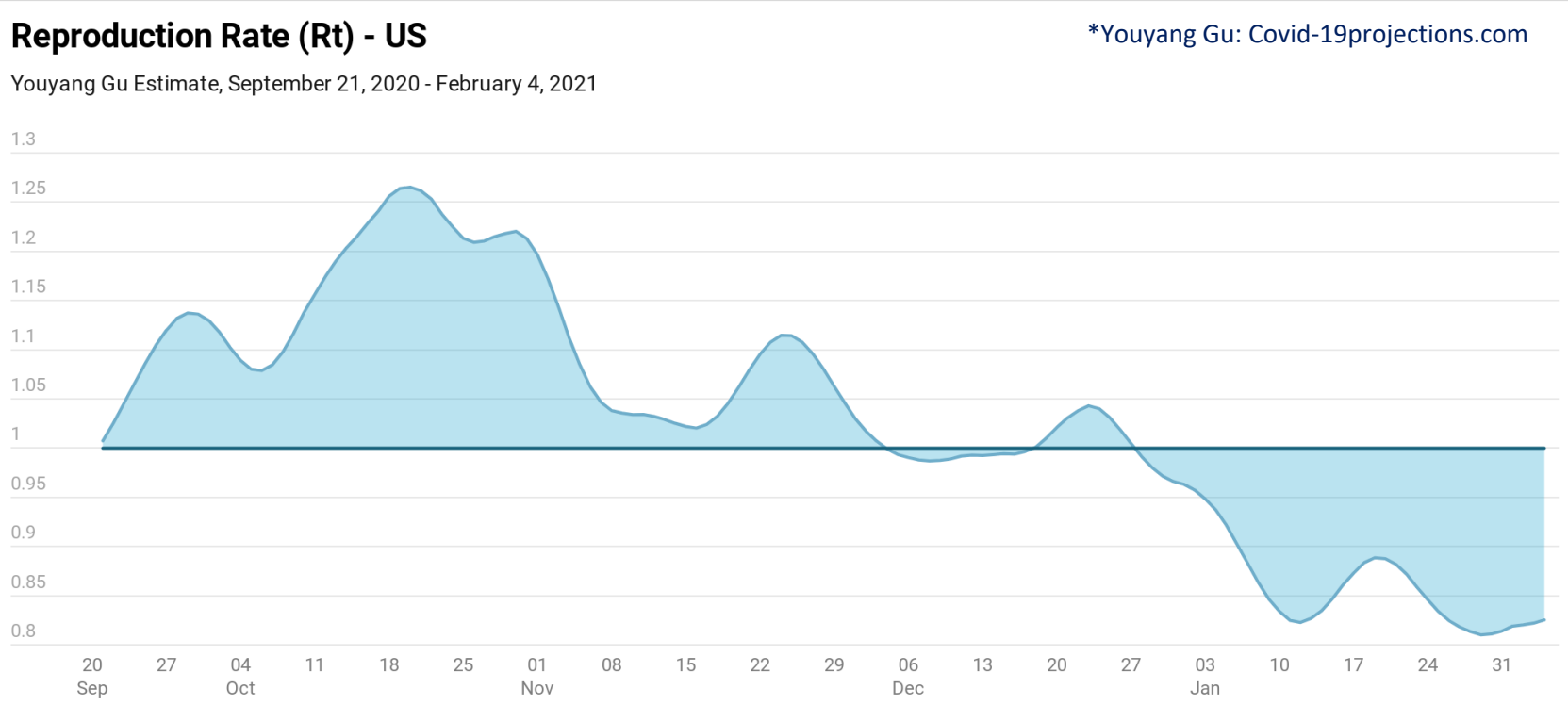
The US is delivering more shots to arms now than any point since launching the effort.



Covid-19
"Vital Signs"

Reproduction Rate (R_t) – Gu* Model

Gu's R_t estimate signals a prolonged slowdown in infection spread.

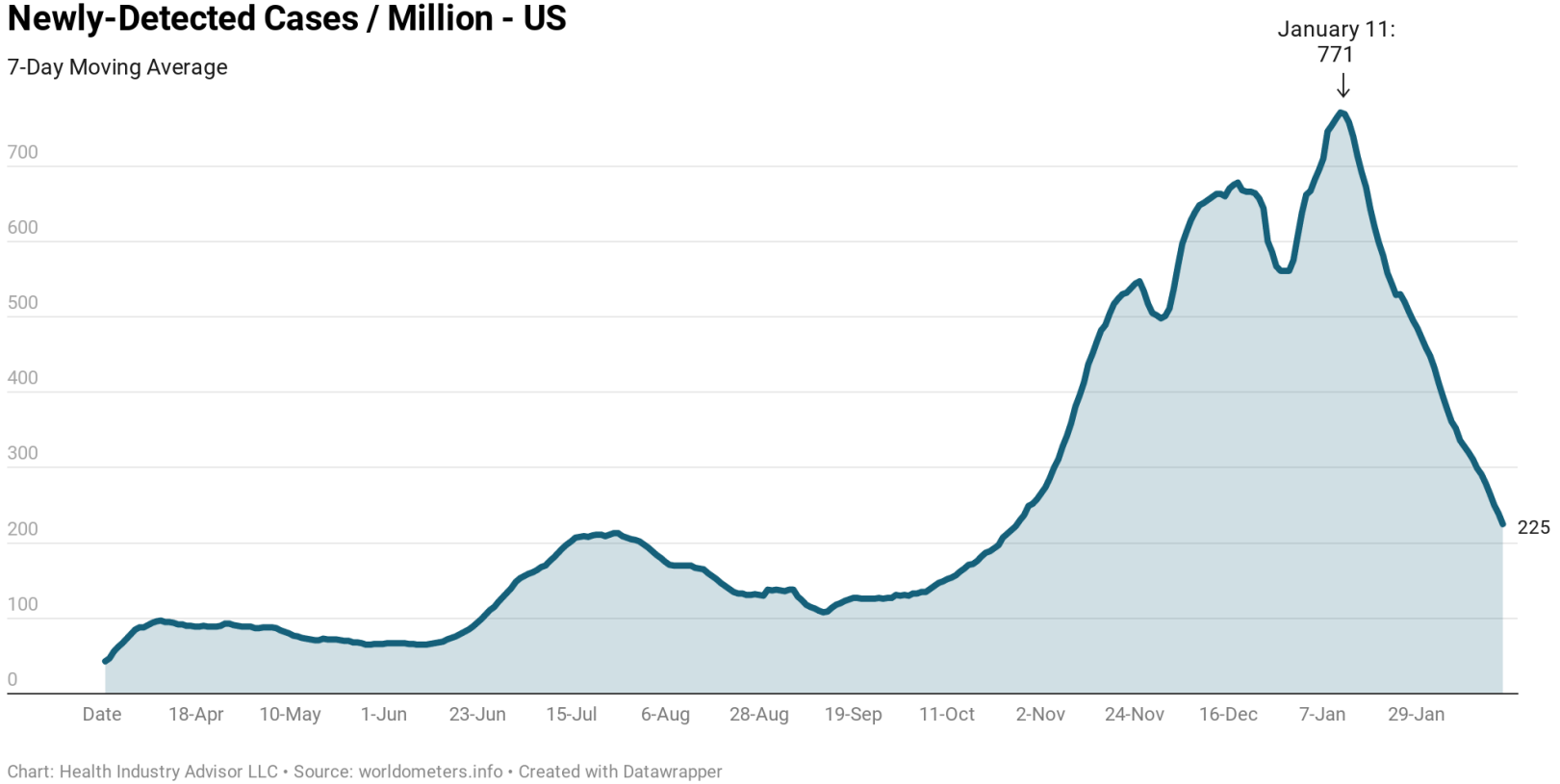


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Newly Detected Cases / Million - US

Newly detected cases (7-day average) are freefalling from a January 11th peak. Cases plunged an astonishing 70% in less than six weeks.

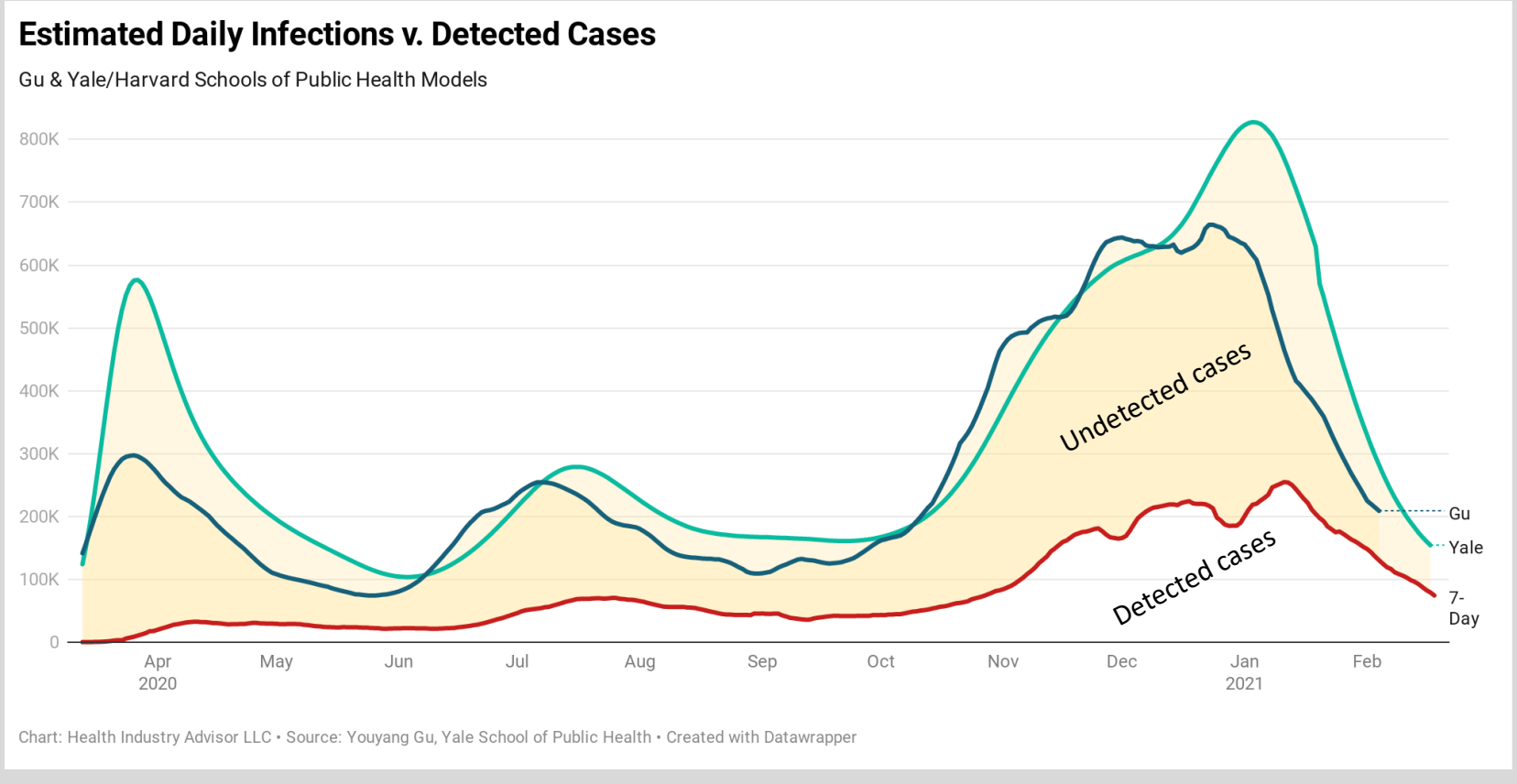


Health Industry Advisor, llc

Estimated Daily Infections & New Case Rates

Covid-19 "Vital Signs"

Estimated new infections and reported cases are plunging in the US. The Yale/Harvard model suggests that the infection prevalence in the US is now 34.1%; Gu estimates it to be 27.8%.



Two models:

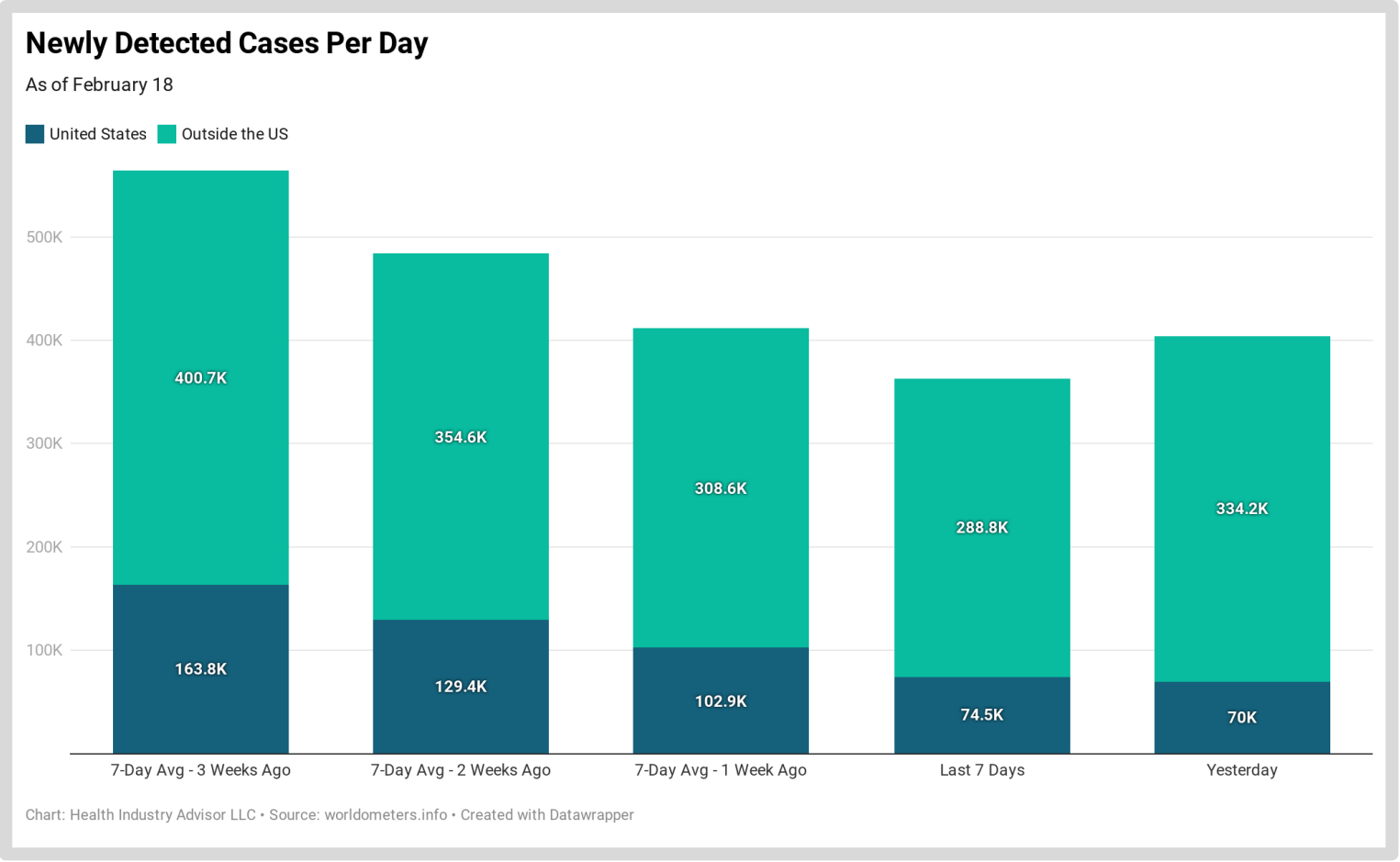
- Youyang Gu: https://covid19-projections.com, lags by two weeks
- Yale School of Public Health: https://covidestim.org

Health Industry Advisor, llc

Covid-19
"Vital Signs"

Newly Detected Cases Per Day

Worldwide and in the US, 7-day new case rates dropped during each of the past three weeks, plunging 55% during that time. Outside the US, rates fell 28% in three weeks.

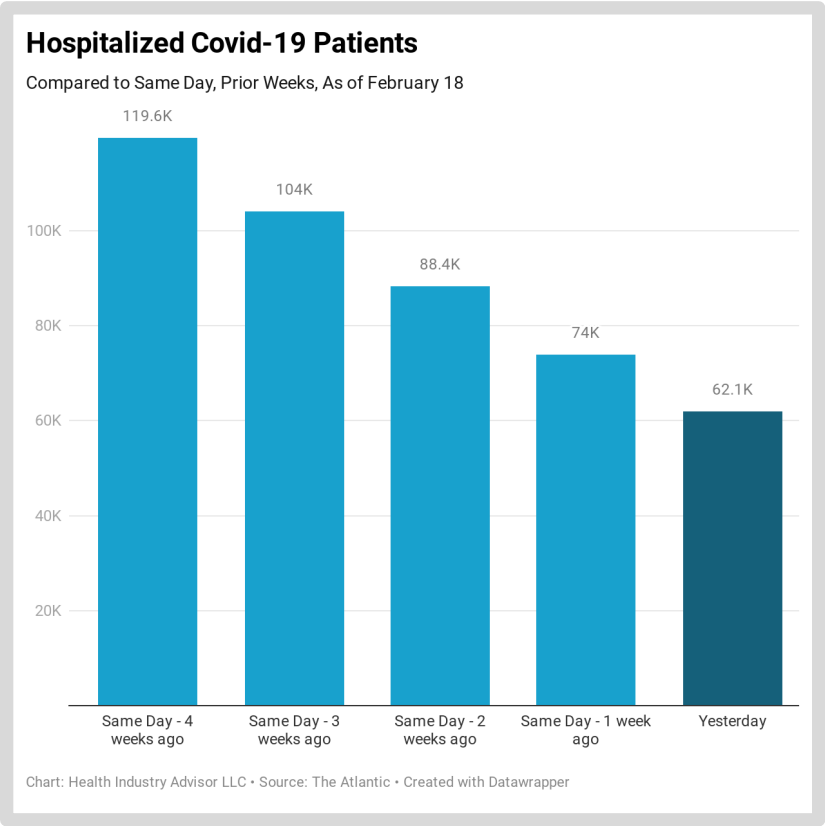


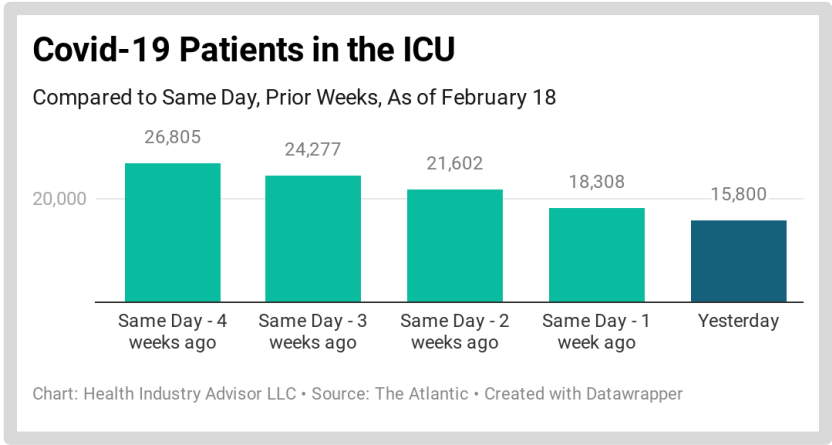
Health Industry Advisor, llc

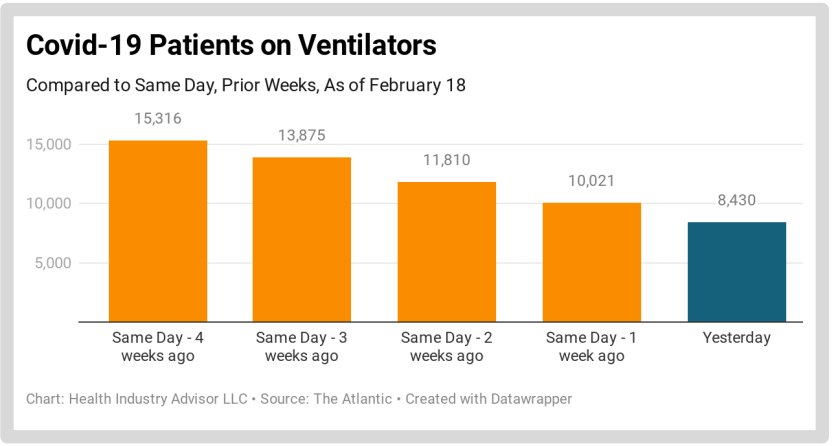
Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospitalizations plunged over the past month, with 70,000 fewer patients yesterday than on January 6 (53% decline). ICU and ventilator days declined each of the past three weeks.





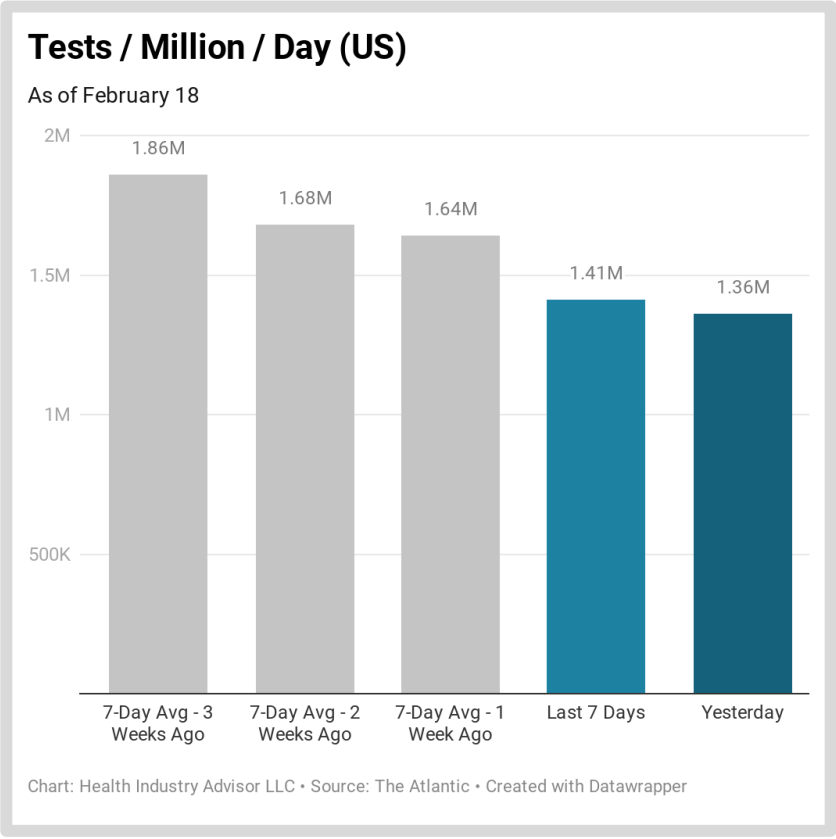


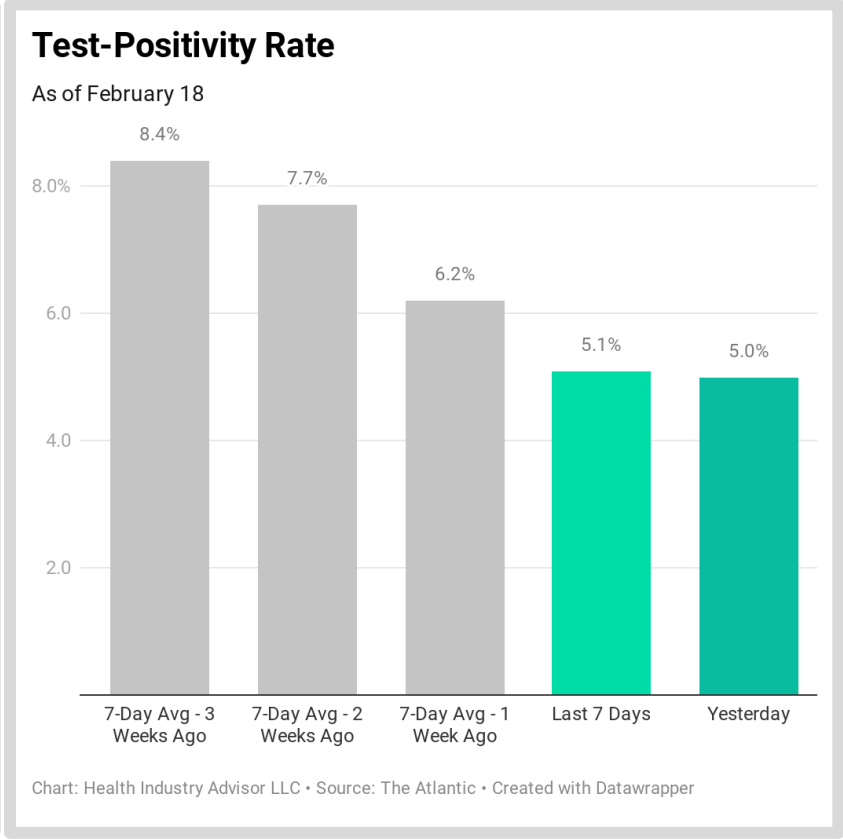
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Testing (US)

Test volume continues sliding, as fewer people seem to be concerned about recent exposure. The test-positive rate improved over the three preceding weeks, reinforcing the belief that actual infections are waning. Not since October 20 has the 7-day positivity rate fallen this low.



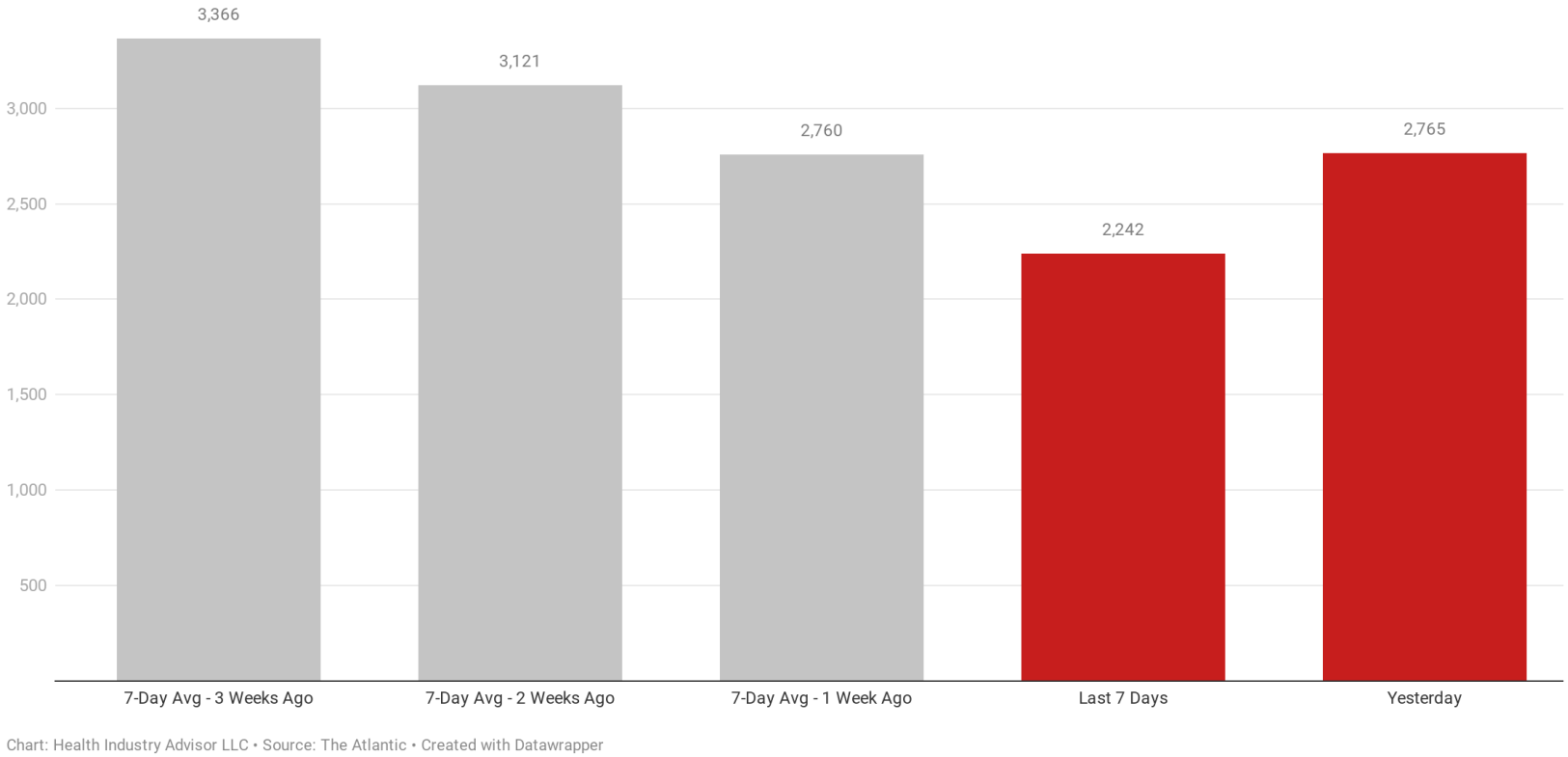


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Deaths Reported With Coronavirus

The 7-day average death rate fell each of the past three weeks. One-third fewer people succumbed to Covid-19 last week than three weeks earlier.



Health Industry Advisor, llc

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

Worse ← → Better

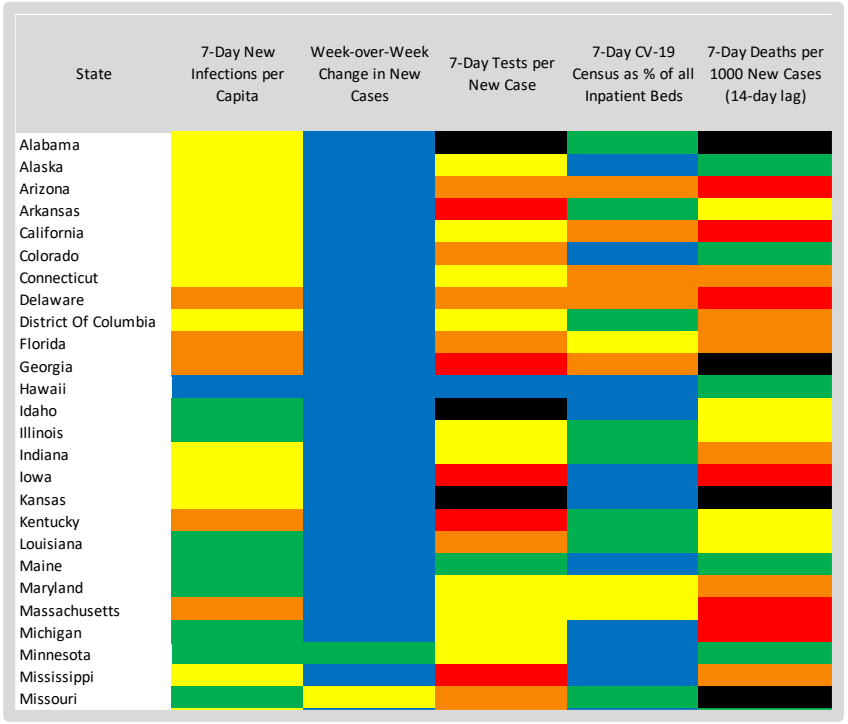
Metric		Black	Red	Orange	Yellow	Green	Blue
7-Day Average New Daily Reported Infections per Capita	Greater than	450	350	250	150	50	0
Week-over-Week Change in Newly Reported Cases	Greater than	30%	20%	10%	0%	-10%	N/A
7-Day Average Viral Tests per 7-Day Average Newly Reported Cases	Less than	5	10	25	50	75	N/A
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

Health Industry Advisor, llc

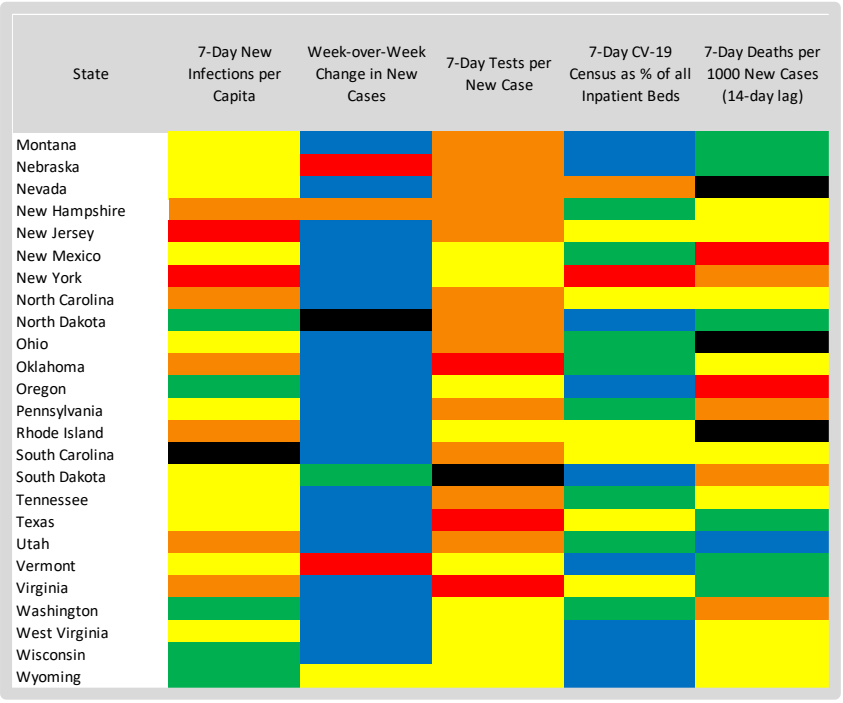
Covid-19 "Vital Signs"

State-By-State Scorecard:

New case rates urge caution across many parts of the country; however, the week-over-week changes in new cases are encouraging. The hospital crisis eased for most of the country.



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					



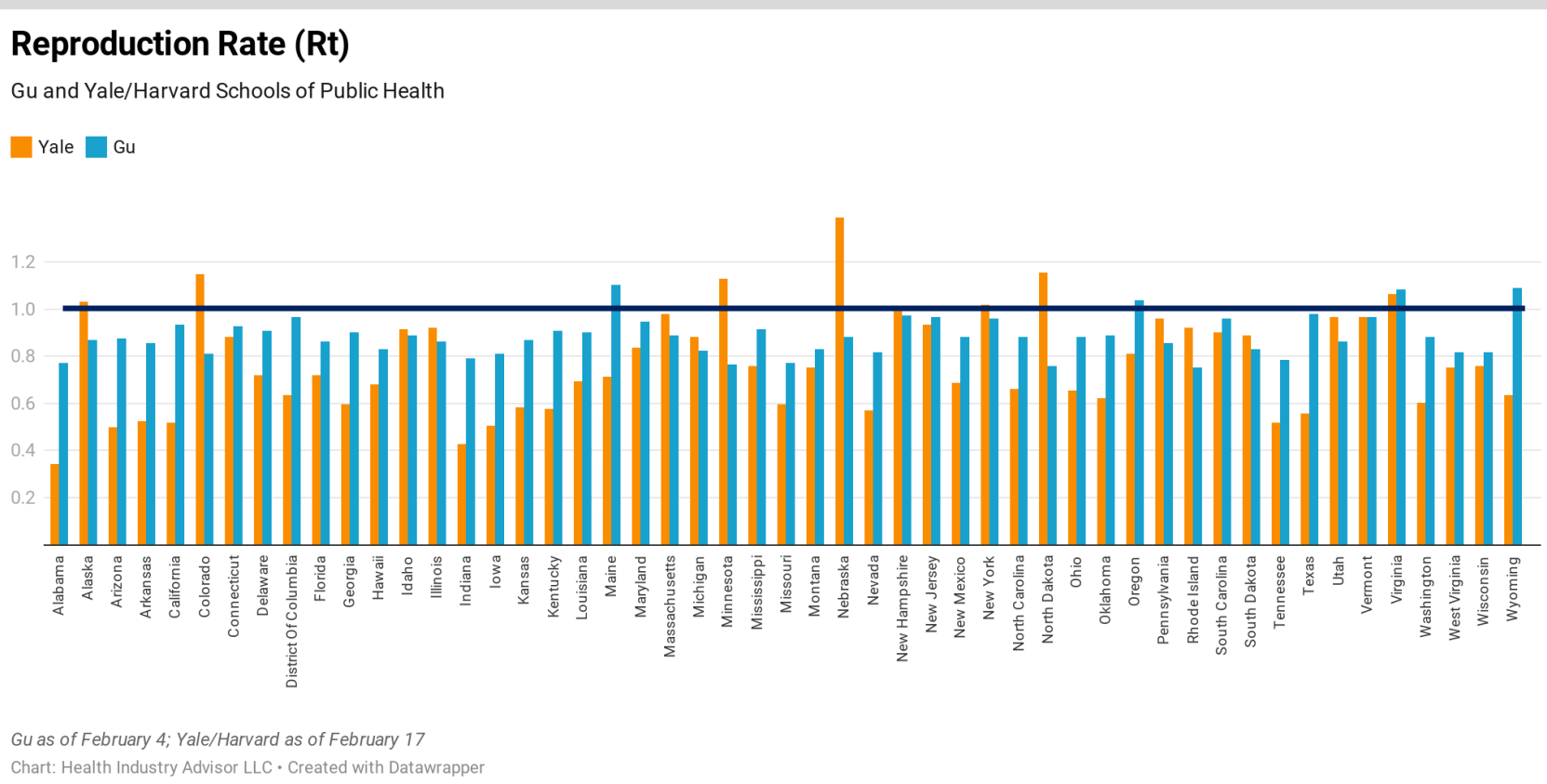
State	7-Day New Infections per Capita	Week-over-Week Change in New Cases	7-Day Tests per New Case	7-Day CV-19 Census as % of all Inpatient Beds	7-Day Deaths per 1000 New Cases (14-day lag)
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey					
New Mexico					
New York					
North Carolina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

Health Industry Advisor, llc

Covid-19
"Vital Signs"

Reproduction Rate (R_t) Estimates By State

Estimated Reproduction Rates (Rt) suggest that infection spread is slowing across the US. Yale's estimate shows only Connecticut, Massachusetts, Oregon, and Virginia with increasing spread. Gu's estimate points only to only Alaska and South Dakota for increasing spread.

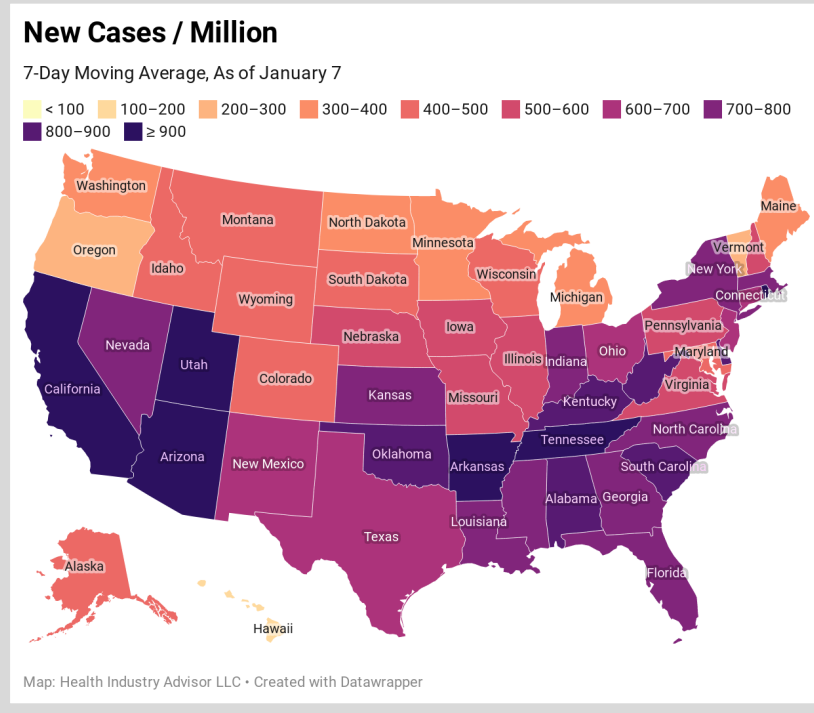


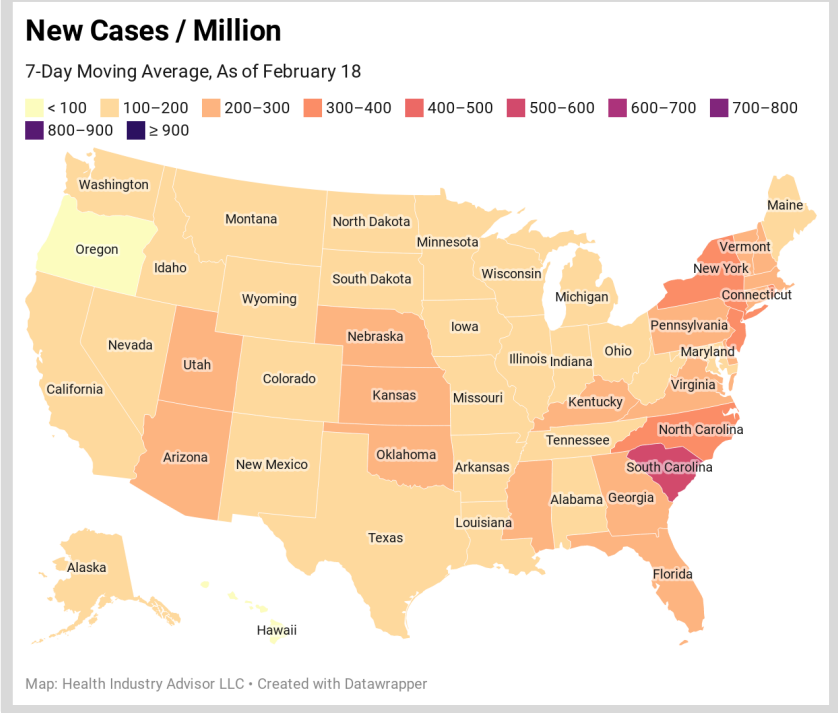
Covid-19
"Vital Signs"

New Cases / Million

Much of the US rebounded from the high infection rates seen in early-January.

January 7	February 18





Health Industry Advisor, llc

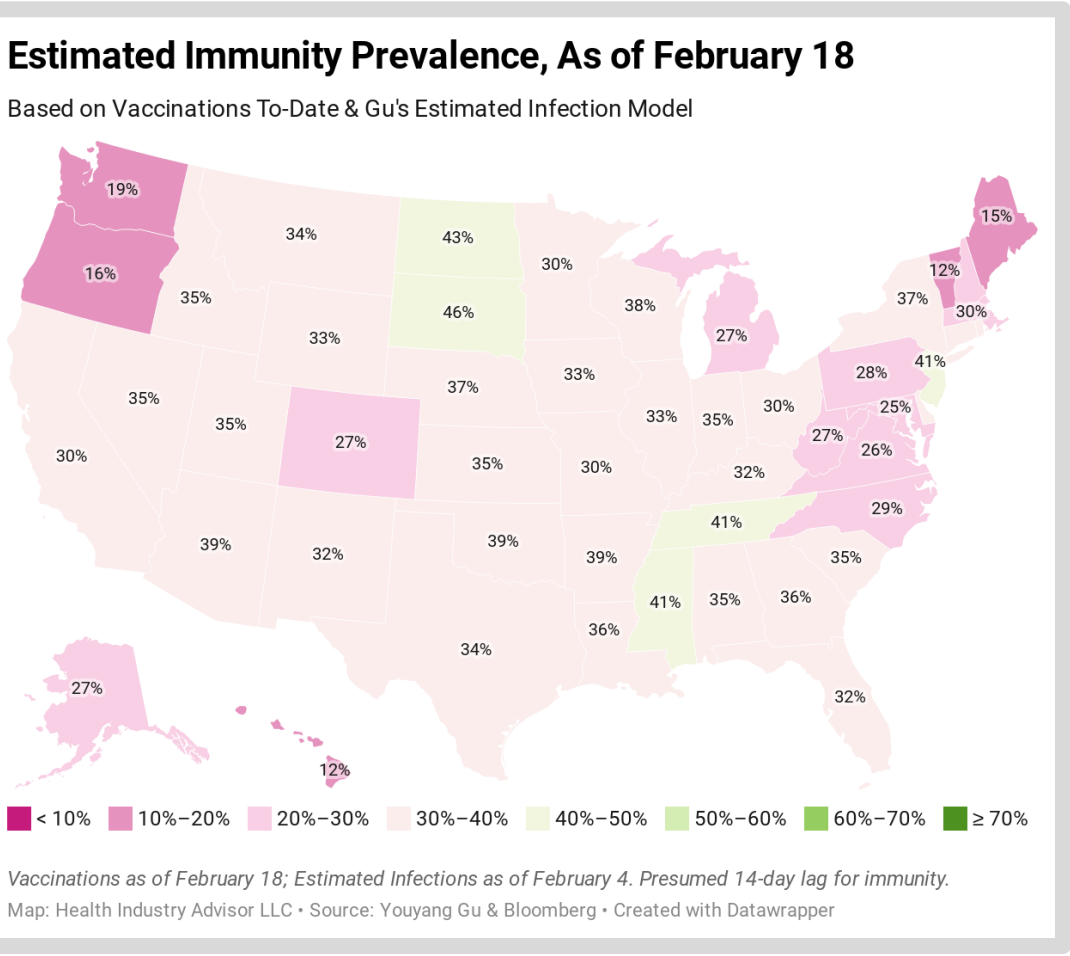
Covid-19
"Vital Signs"

Estimated Immunity By State

Mississippi, North Dakota, South Dakota, and Tennessee lead the country in the race to herd immunity, with estimated immunity above 40%.

- 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 Youyang Gu's* mean estimates of true infections

* https://covid19-projections.com

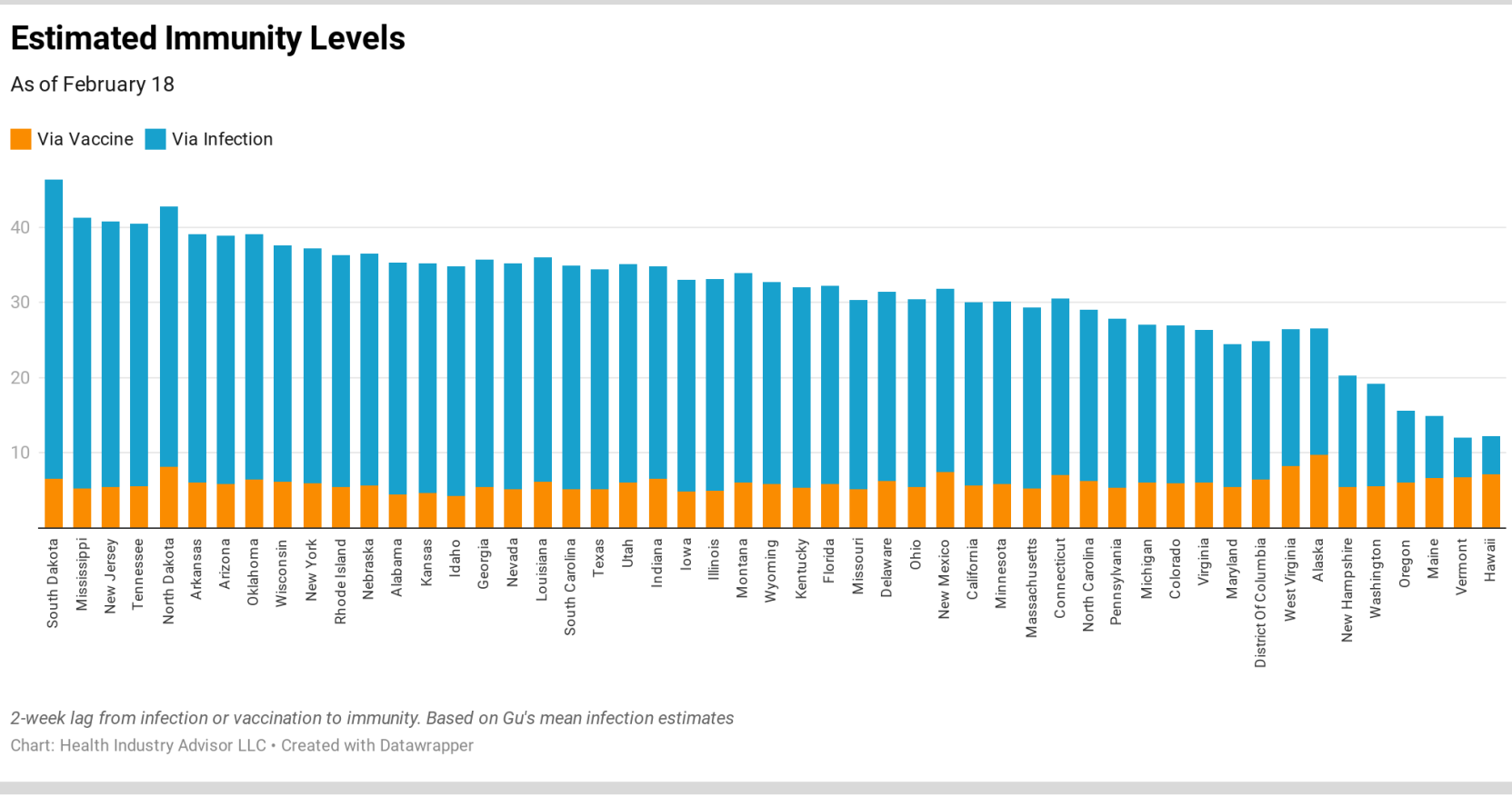


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Estimated Immunity Levels By State

North and South Dakota continue to set the pace toward herd immunity. To-date, immunity is largely driven by prior infection rather than vaccinations. Hawaii and Vermont are exceptions, with immunity via vaccinations exceeding that from infection.



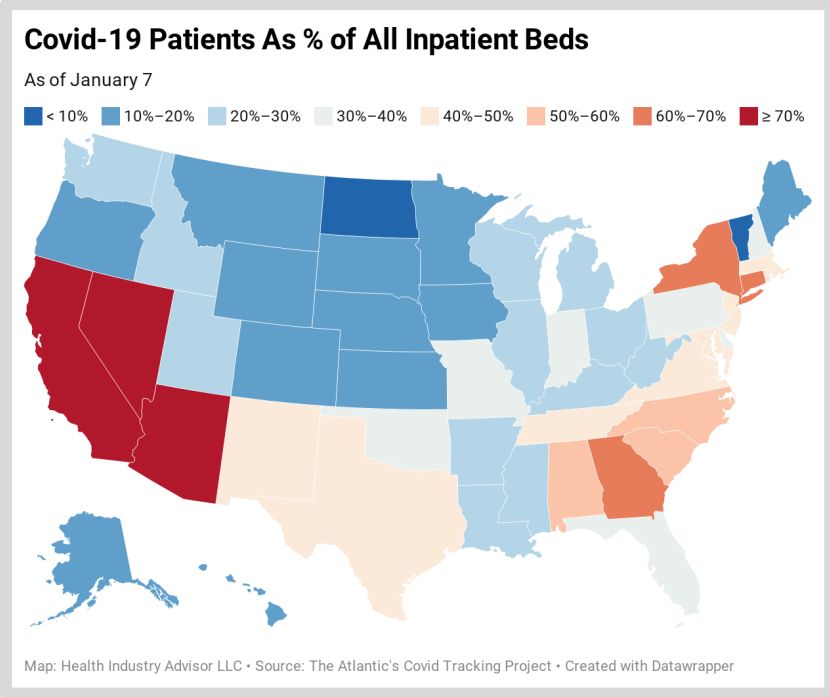
Health Industry Advisor, llc

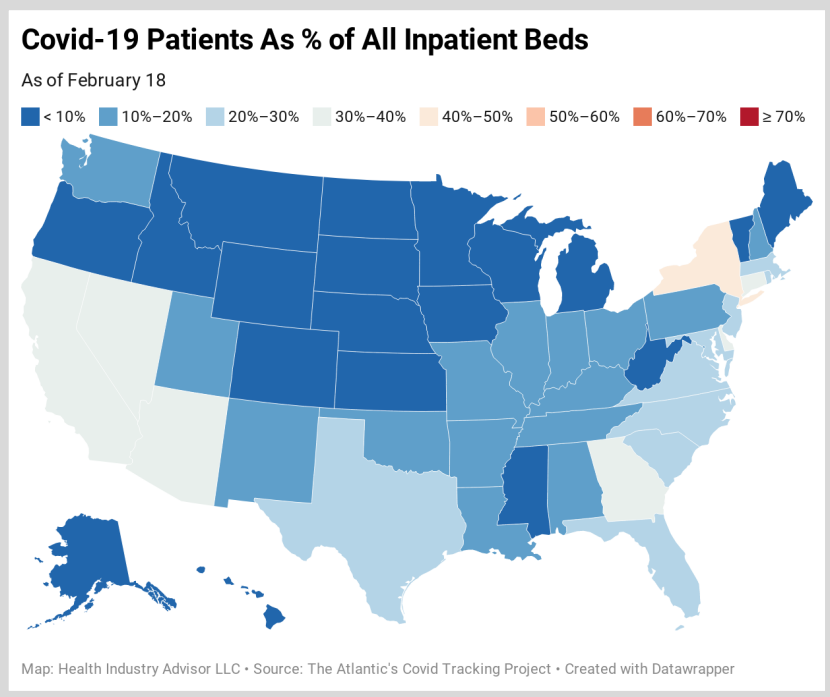
Covid-19 "Vital Signs"

Covid-19 Hospitalizations

Covid-19 hospital census plunged in the past six weeks. Covid-19 patients occupied less than 20% of US beds yesterday versus 42% six weeks ago.

January 7	February 18



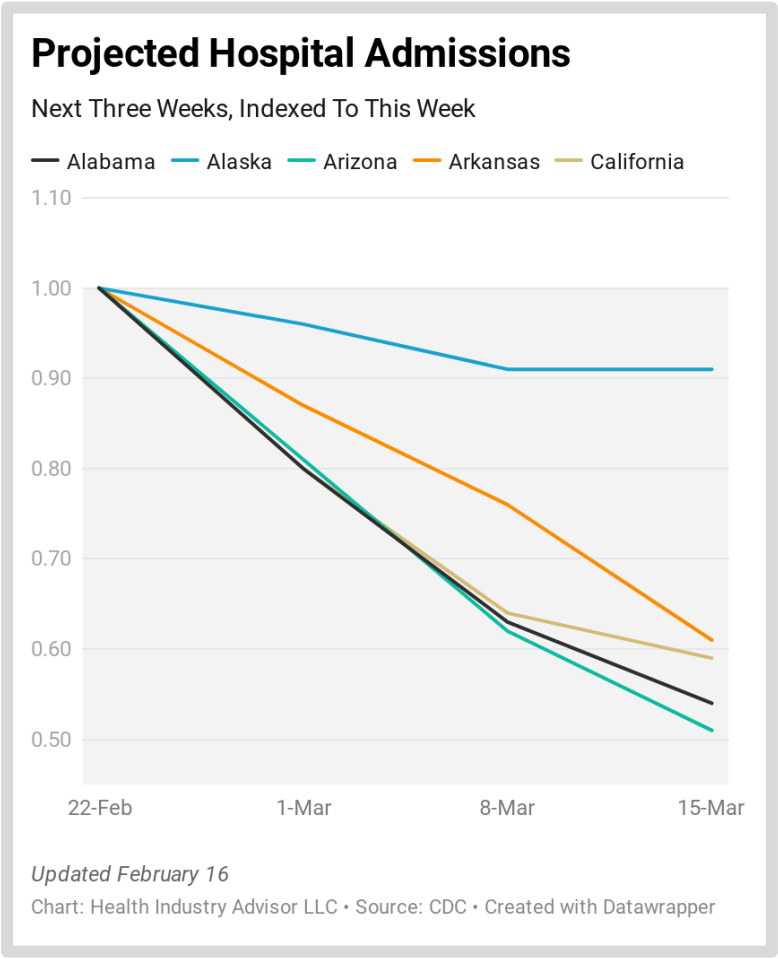


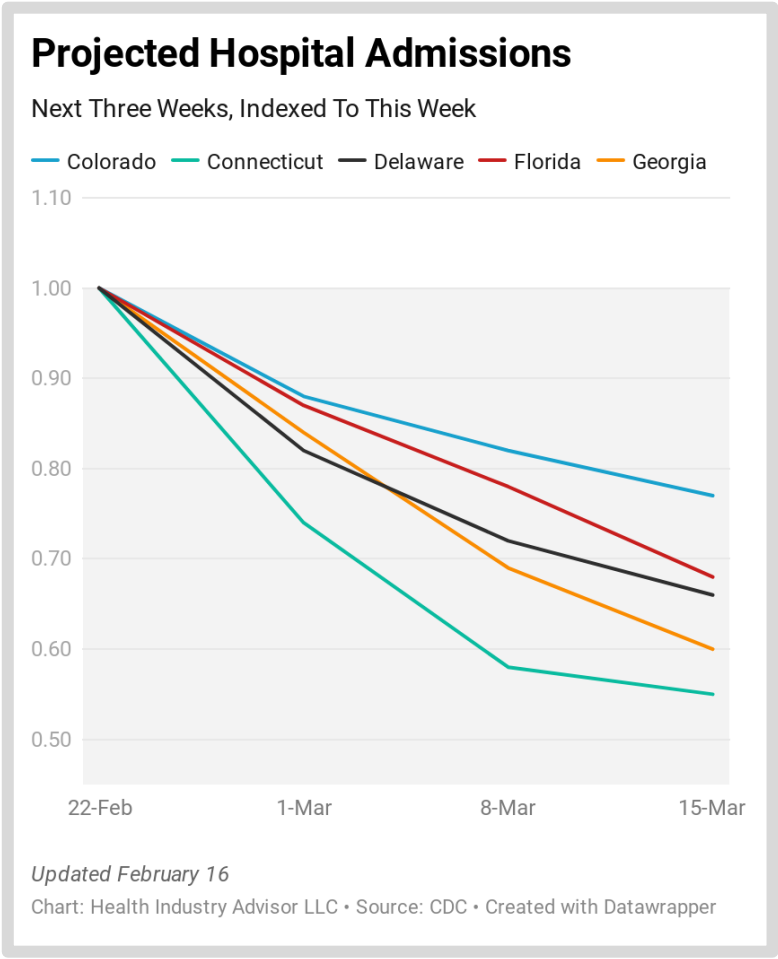
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Projections of Hospital Admissions (US) – 1 of 5

Projected hospital admissions decline over the next few weeks in every state, in many cases by 30-40%.



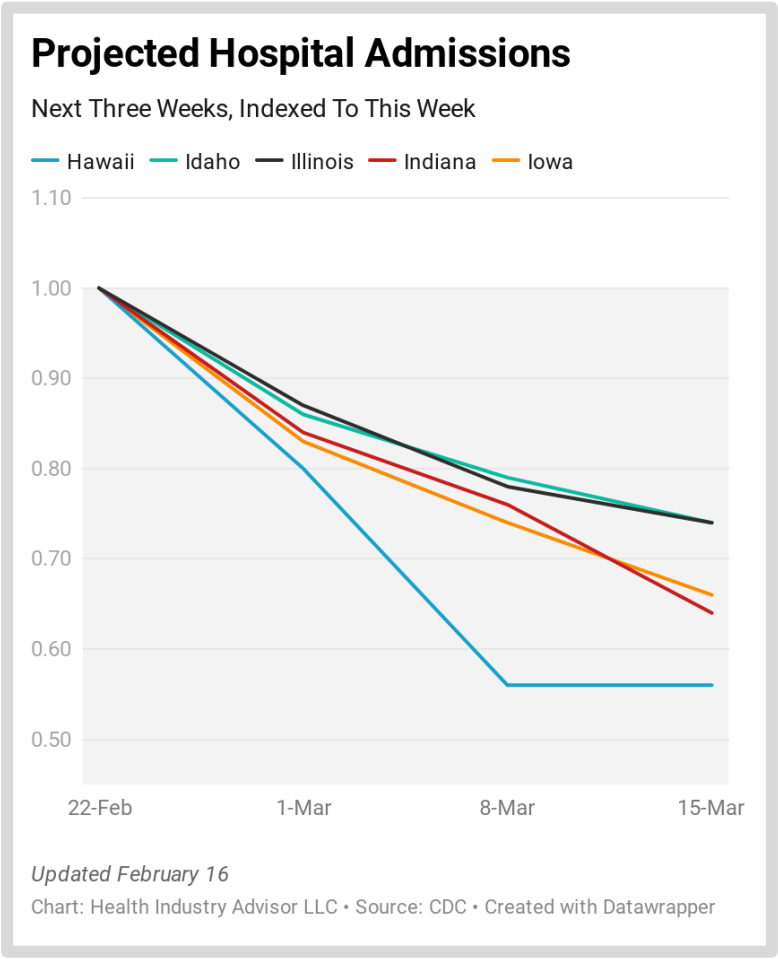


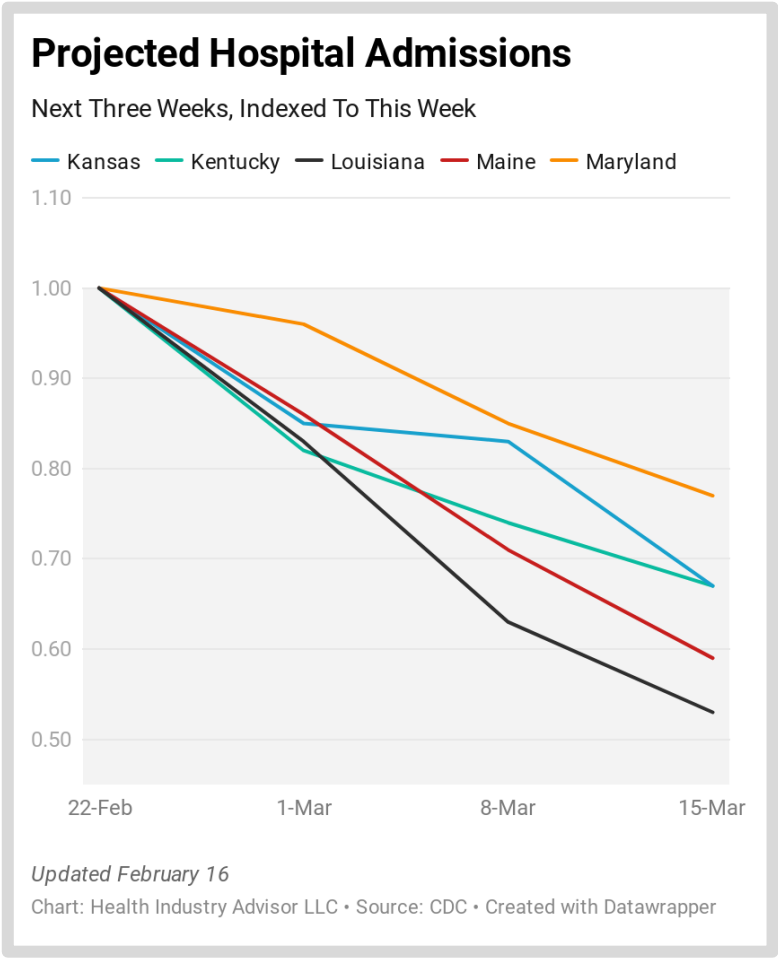
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Projections of Hospital Admissions (US) – 2 of 5

Projected hospital admissions decline over the next few weeks in every state, in many cases by 30-40%.



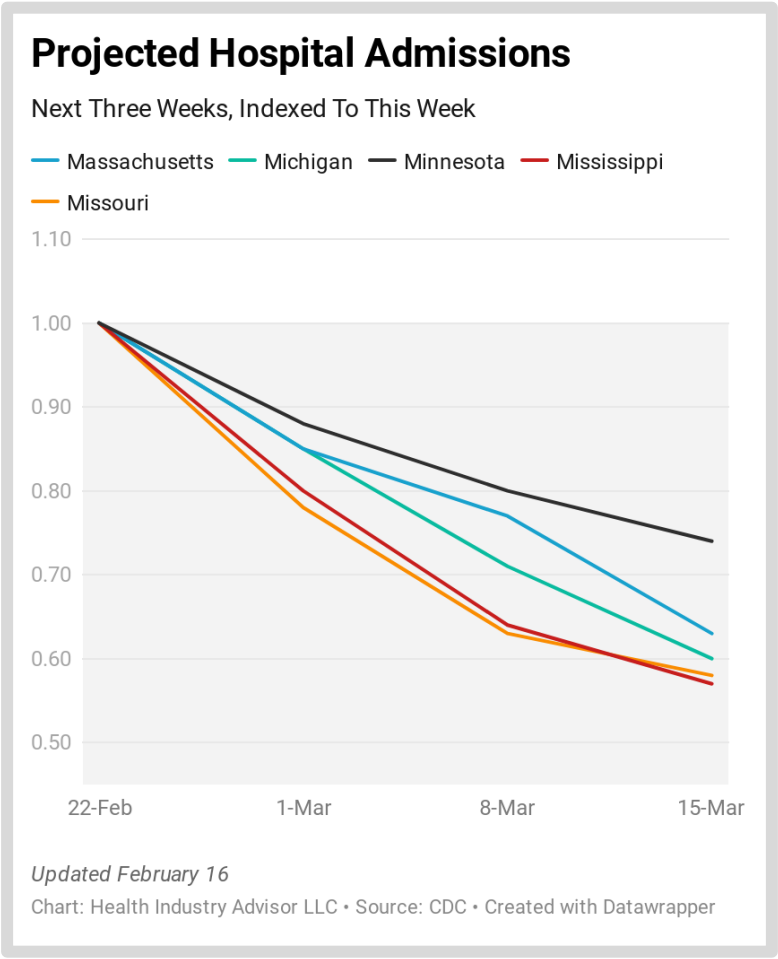


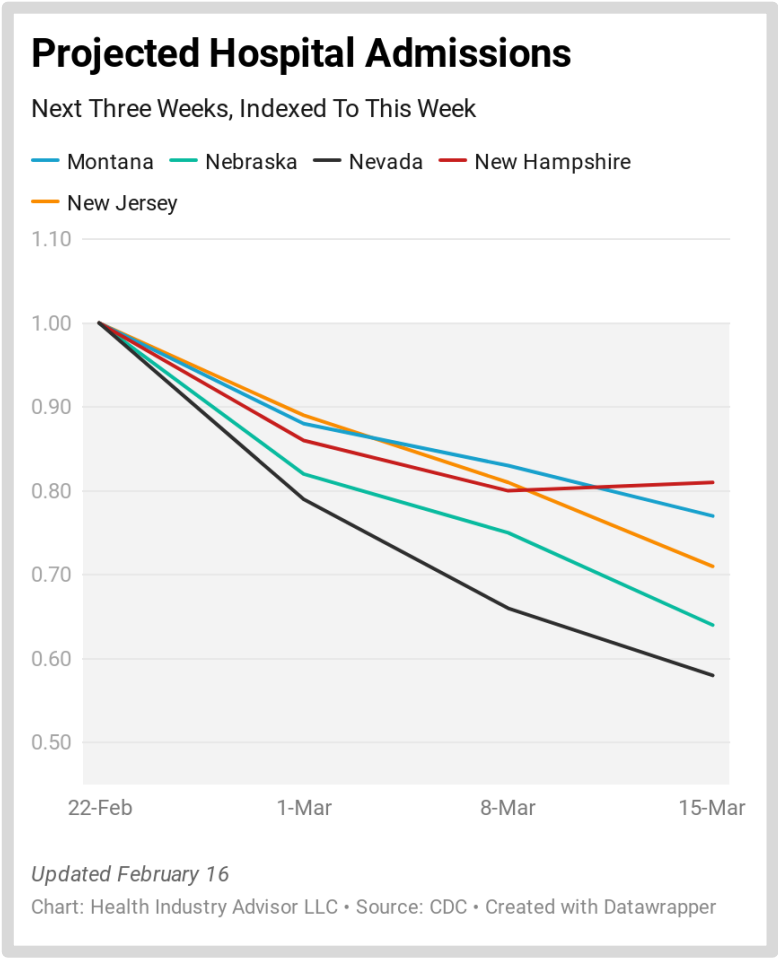
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Projections of Hospital Admissions (US) – 3 of 5

Projected hospital admissions decline over the next few weeks in every state, in many cases by 30-40%.



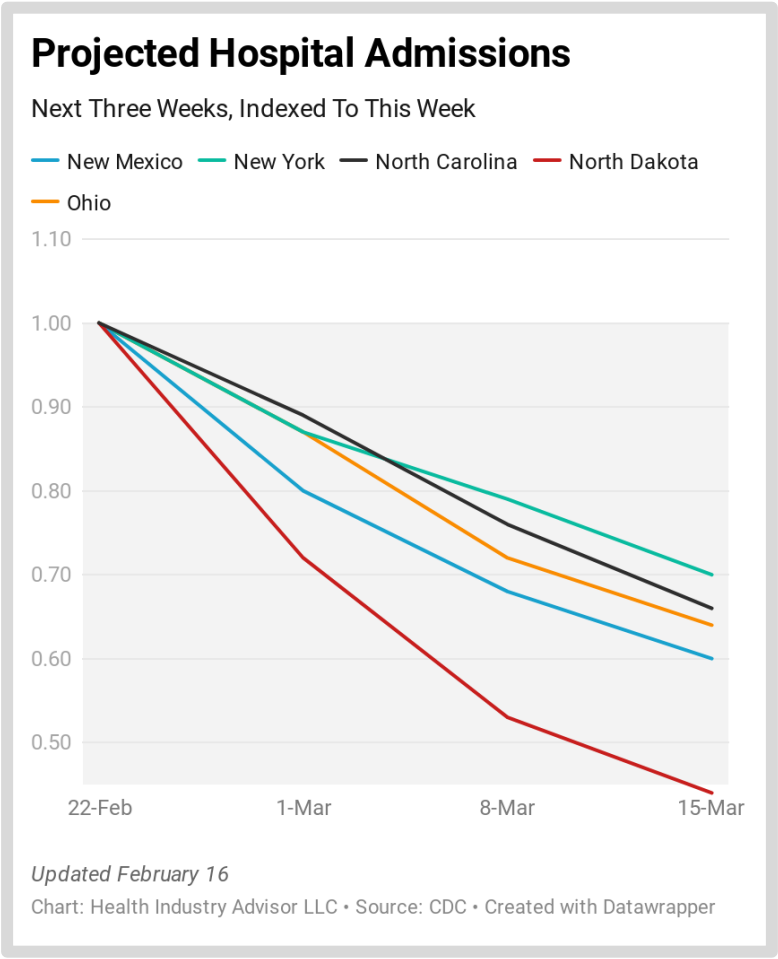


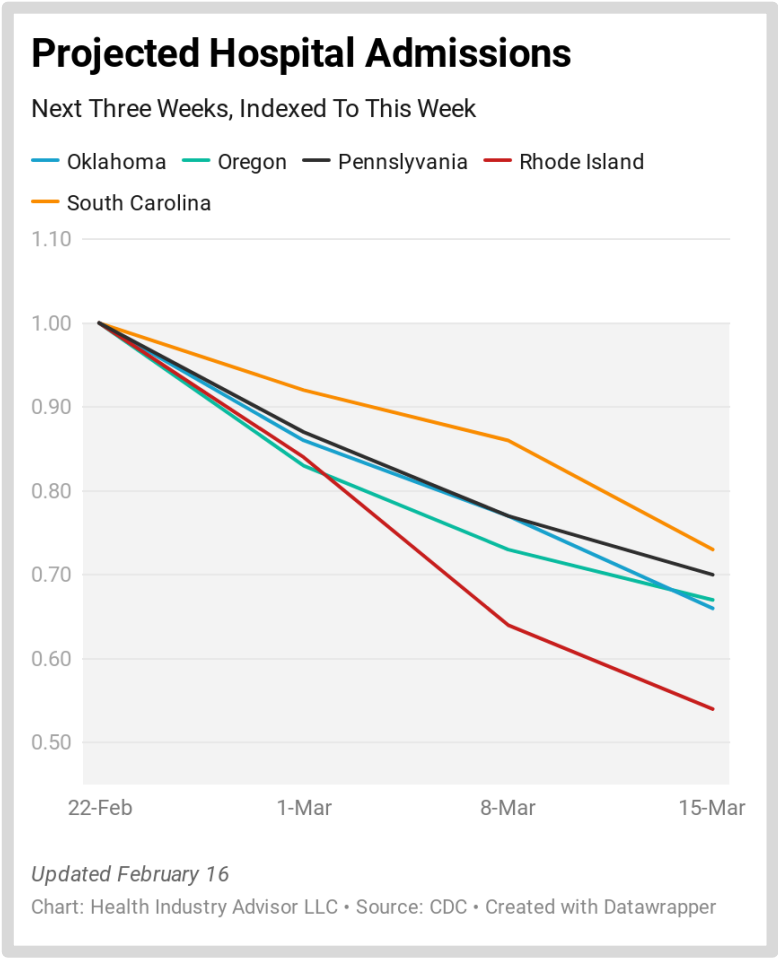
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Projections of Hospital Admissions (US) - 4 of 5

Projected hospital admissions decline over the next few weeks in every state, in many cases by 30-40%.



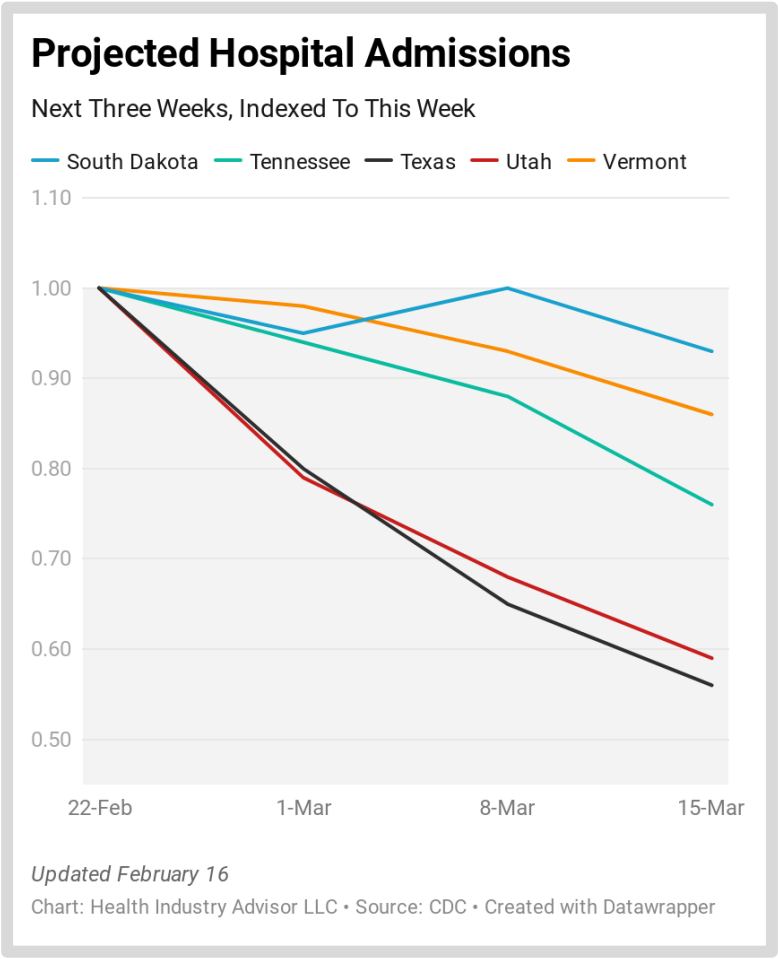


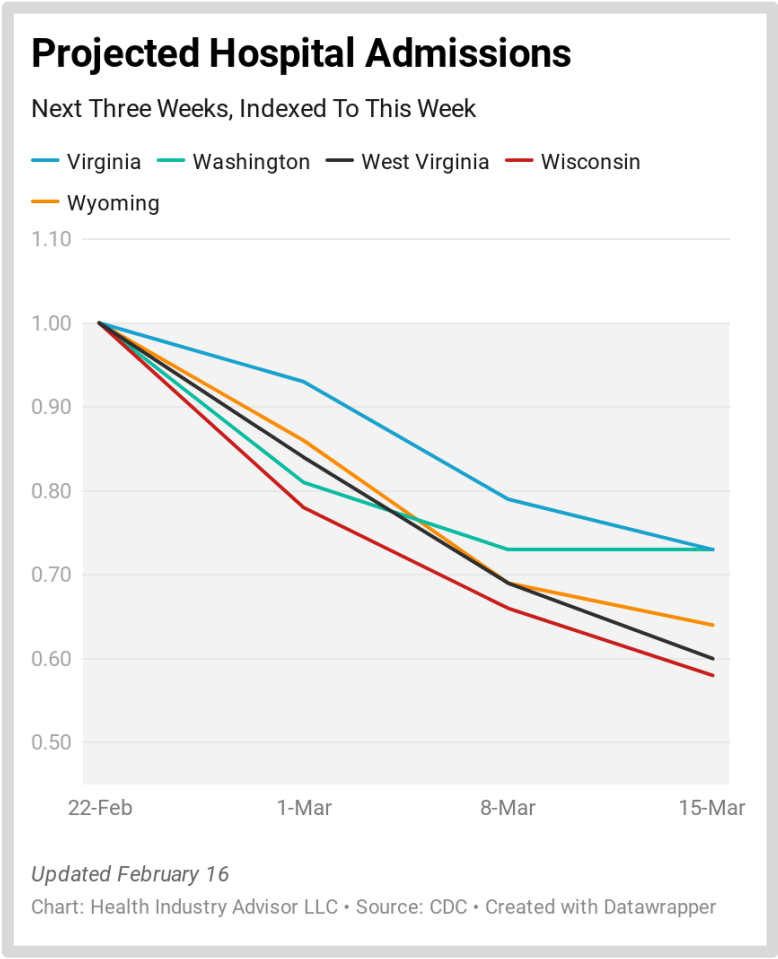
Health Industry Advisor, llc

Covid-19
"Vital Signs"

Projections of Hospital Admissions (US) – 5 of 5

Projected hospital admissions decline over the next few weeks in every state, in many cases by 30-40%.





Health Industry Advisor, llc

Covid-19
"Vital Signs"

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	Week-Over-Week Change in New Cases	7-Day Deaths /1000 New Cases , 14-Day Lag
Alabama	9.9%	1,922	933	21.2%	198	5	18%	-30%	27
Alaska	7.5%	391	8,222	2.1%	171	48	5%	-14%	8
Arizona	11.0%	2,099	3,944	5.5%	218	18	30%	-43%	21
Arkansas	10.4%	1,764	1,502	10.7%	161	9	13%	-58%	10
California	8.9%	1,224	5,714	3.2%	187	31	32%	-36%	22
Colorado	7.2%	1,018	4,233	4.5%	192	22	10%	-13%	9
Connecticut	7.6%	2,102	8,702	2.5%	217	40	33%	-37%	15
Delaware	8.6%	1,362	6,217	4.7%	290	21	30%	-25%	23
District Of Columbia	5.6%	1,406	6,007	2.6%	155	39	18%	-34%	15
Florida	8.6%	1,372	4,053	6.9%	286	14	22%	-21%	17
Georgia	9.2%	1,545	2,662	10.9%	291	9	38%	-20%	25
Hawaii	1.9%	302	3,158	1.1%	33	96	4%	-33%	6
Idaho	9.4%	1,019	674	21.3%	141	5	9%	-24%	12
Illinois	9.2%	1,760	5,292	2.7%	145	37	11%	-30%	15
Indiana	9.7%	1,824	4,787	3.2%	153	31	11%	-36%	19
Iowa	10.5%	1,686	900	14.1%	173	5	6%	-19%	21
Kansas	10.0%	1,555	873	21.5%	221	4	6%	-23%	34
Kentucky	8.8%	979	1,953	12.8%	250	8	15%	-39%	10

Health Industry Advisor, llc

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
Louisiana	9.1%	2,023	3,107	4.4%	136	23	11%	-47%	12
Maine	3.2%	487	5,942	1.8%	110	54	8%	-32%	7
Maryland	6.2%	1,267	4,986	2.9%	144	35	27%	-31%	19
Massachusetts	8.1%	2,257	12,524	2.1%	259	48	21%	-28%	21
Michigan	6.3%	1,627	2,944	3.6%	107	27	9%	-14%	21
Minnesota	8.4%	1,148	4,167	3.3%	139	30	6%	-3%	9
Mississippi	9.7%	2,194	1,805	12.9%	234	8	10%	-21%	18
Missouri	8.4%	1,345	1,518	6.5%	148	10	16%	7%	37
Montana	9.2%	1,251	3,761	4.5%	168	22	7%	-27%	8
Nebraska	10.2%	1,047	5,593	4.0%	224	25	6%	24%	9
Nevada	9.4%	1,560	2,785	5.8%	162	17	31%	-27%	25
New Hampshire	5.3%	846	4,773	6.1%	293	16	12%	12%	12
New Jersey	8.5%	2,558	4,889	7.3%	356	14	30%	-19%	14
New Mexico	8.7%	1,707	6,069	2.7%	165	37	16%	-22%	22
New York	8.2%	2,399	10,486	3.6%	390	27	50%	-17%	15
North Carolina	7.9%	1,026	4,520	6.9%	313	14	27%	-20%	11
North Dakota	13.0%	1,883	2,749	4.6%	128	22	2%	114%	7

Health Industry Advisor, llc

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	13.0%	1,883	2,749	4.6%	128	22	2%	114%	7
Ohio	8.1%	1,421	2,711	7.2%	195	14	11%	-23%	149
Oklahoma	10.5%	1,039	2,165	11.8%	255	8	13%	-43%	10
Oregon	3.6%	510	2,287	3.2%	89	26	8%	-30%	20
Pennsylvania	7.1%	1,836	3,407	7.1%	234	15	15%	-23%	17
Rhode Island	11.6%	2,234	15,935	2.1%	334	48	23%	-20%	26
South Carolina	9.6%	1,584	5,424	9.6%	520	10	24%	-16%	14
South Dakota	12.5%	2,088	729	22.4%	163	4	5%	-3%	18
Tennessee	11.1%	1,618	2,101	9.2%	194	11	16%	-41%	13
Texas	8.9%	1,444	1,500	14.7%	183	8	28%	-54%	9
Utah	11.4%	566	2,670	9.7%	259	10	11%	-20%	4
Vermont	2.3%	309	8,977	2.3%	206	44	8%	21%	5
Virginia	6.5%	831	2,696	10.5%	282	10	28%	-31%	6
Washington	4.4%	639	3,435	3.3%	117	29	14%	-19%	17
West Virginia	7.2%	1,251	4,952	3.8%	187	26	10%	-31%	11
Wisconsin	9.6%	1,070	4,297	3.1%	113	38	7%	-25%	11
Wyoming	9.2%	1,144	4,039	3.4%	136	30	3%	8%	14

Table: Health Industry Advisor LLC • Created with Datawrapper

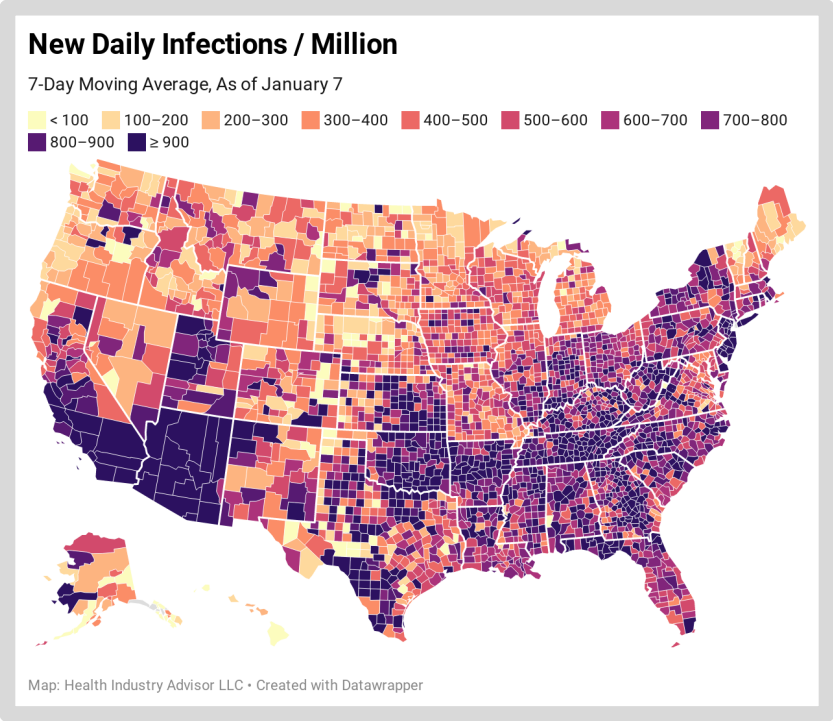
Health Industry Advisor, llc

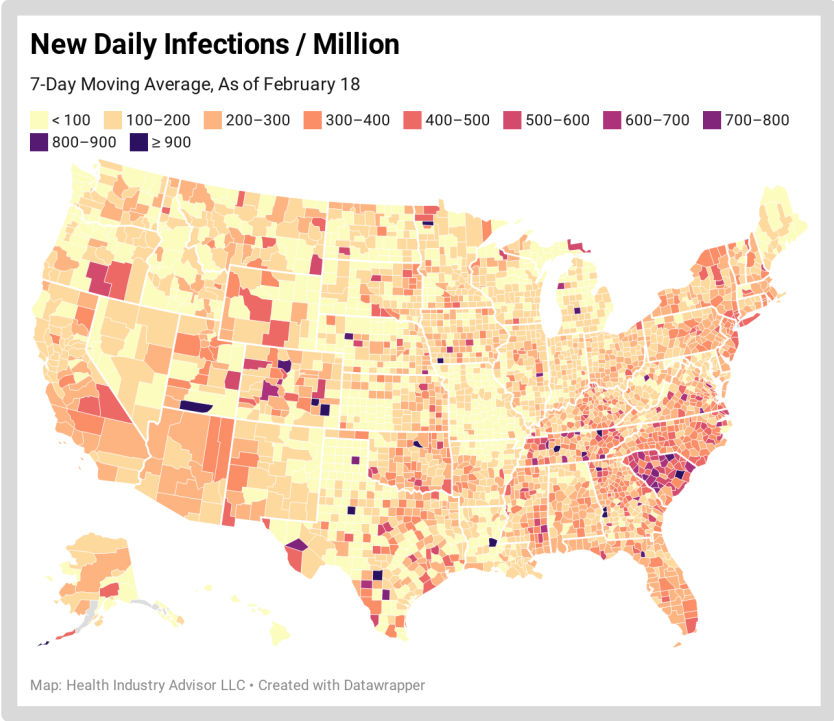
Covid-19
"Vital Signs"

Metro Areas in the US

The improved case rate over the past several weeks can be seen at the Metro Area-level

January 7	February 1



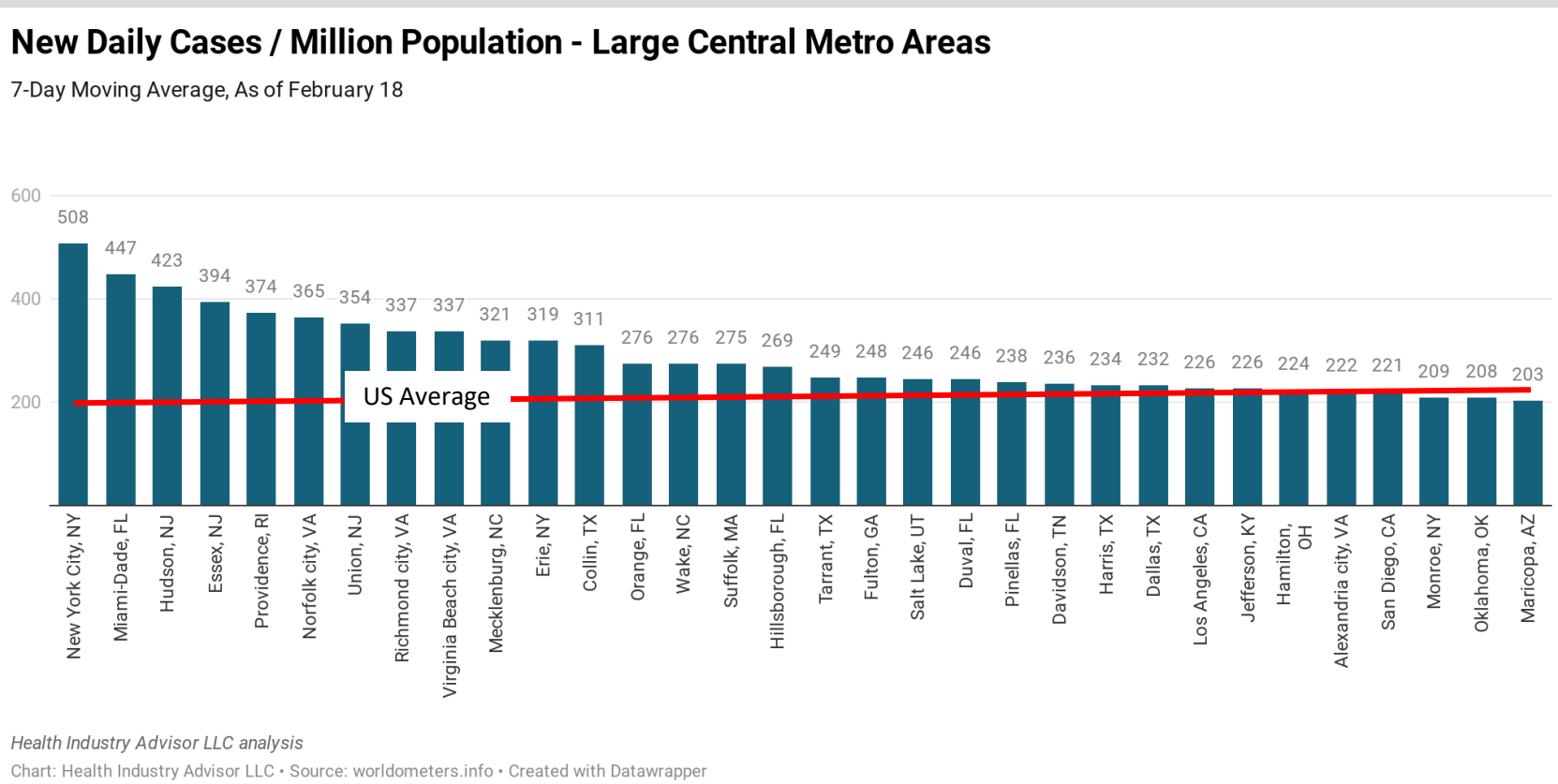


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Large Central Metro Areas

Virginia and Texas lead the country in the number of Large Central and Large Fringe Metro Areas with the highest case rates - thirteen and twelve, respectively, of the top forty-two.

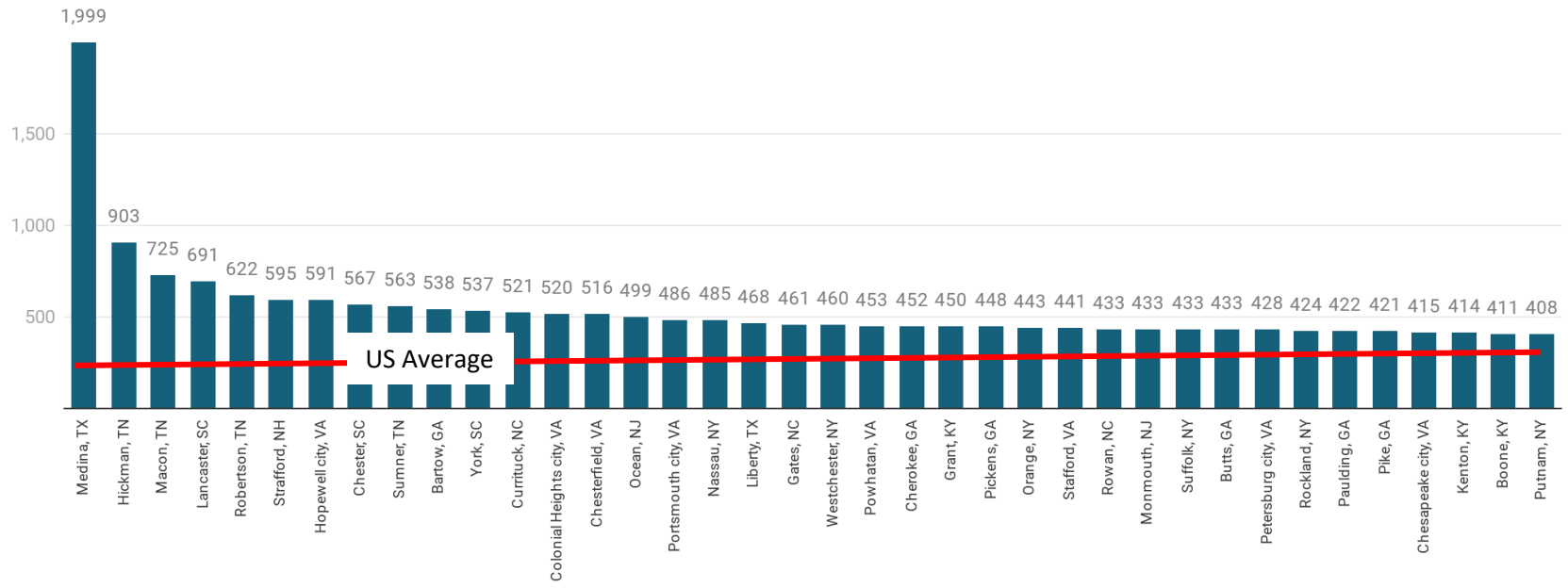


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Large Fringe Metro Areas

Virginia and Texas lead the country in the number of Large Central and Large Fringe Metro Areas with the highest case rates - thirteen and twelve, respectively, of the top forty-two.

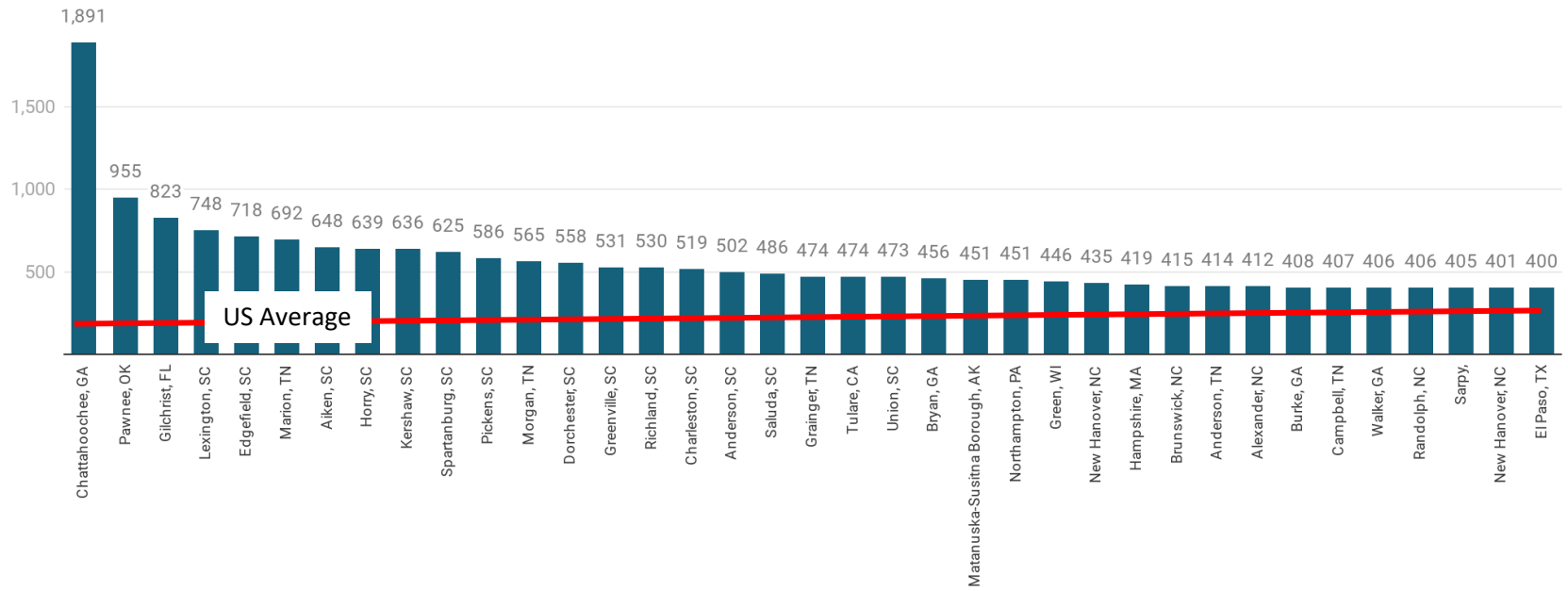


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Medium Metro Areas in the US

South Carolina and Texas outpace other states with twelve and seven, respectively, of the thirty-four Medium Metro counties with the highest case rates



Health Industry Advisor LLC analysis

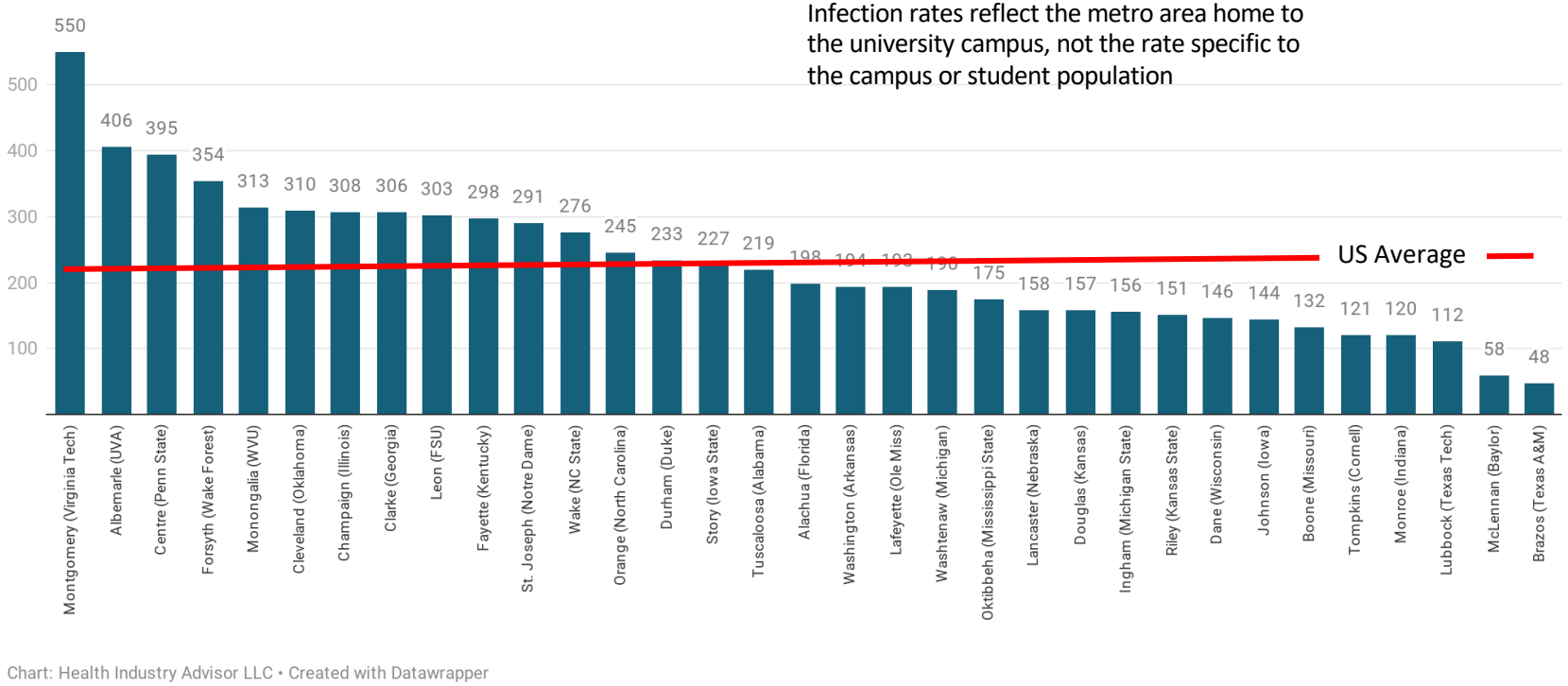
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Health Industry Advisor, llc

Covid-19 "Vital Signs"

Metro Areas With Major Universities

Montgomery County County, home to Virginia Tech, reported the highest new case rate of the 33 such areas we track; Riley County (Kansas State), the lowest.

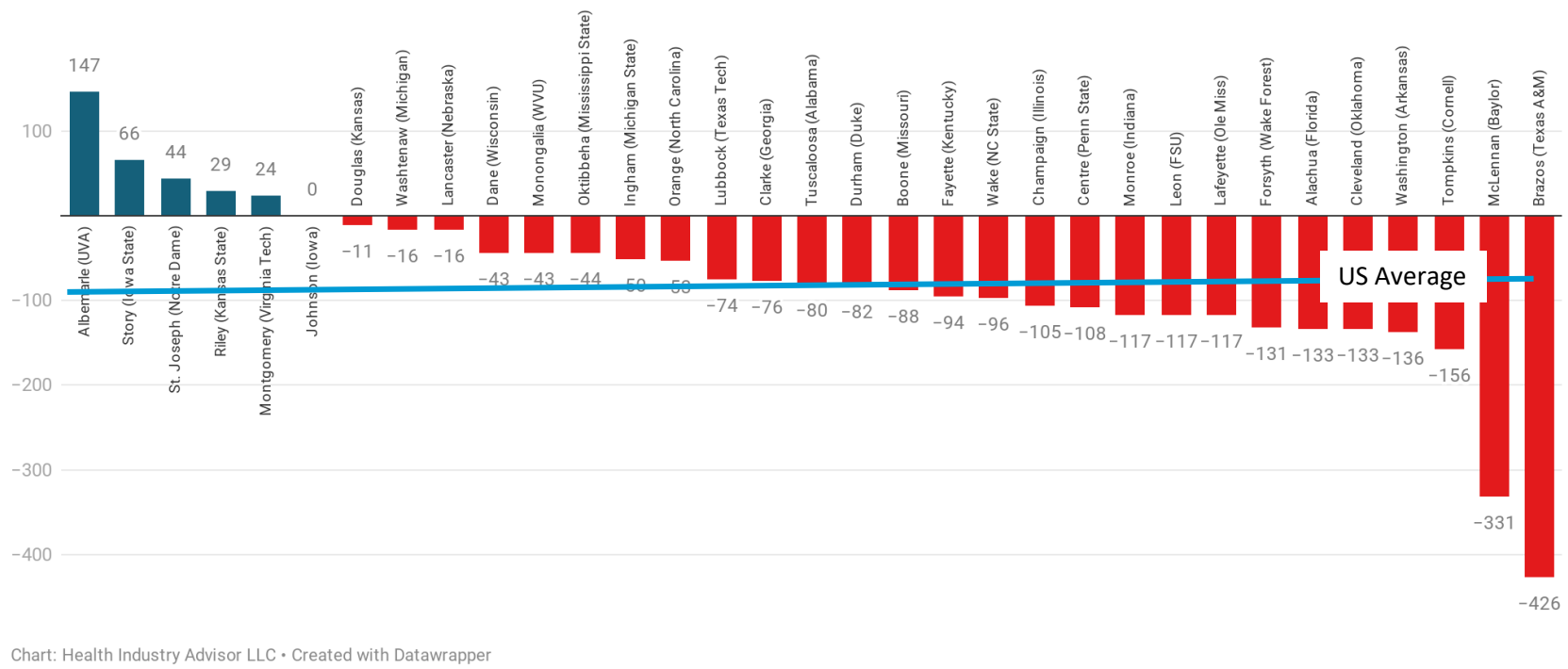


Health Industry Advisor, llc

Covid-19
"Vital Signs"

Metro Areas With Major Universities

Following the national pattern, new case rates declined week-over-week in twenty-eight of the thirty-three metro areas that we track. Wake County, home of the North Carolina State University, reported the sharpest decline – one week after posting the sharpest increase



Health Industry Advisor, llc

Covid-19
"Vital Signs"

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 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
- Covid-19 Forecast Hub, https://viz.covid19forecasthub.org
- Oliver Wyman Pandemic Navigator, https://pandemicnavigator.oliverwyman.com/forecast?mode=country&region=United%20States&panel=mortality
- Rt.live
- 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=Z0b6TmHW

Health Industry Advisor, llc