

Covid-19 "Vital Signs"

Issue # 279

February 5, 2021

- **Johnson & Johnson (JNJ) applied for Emergency Use Authorization (EUA) of its Covid-19 vaccine:**
 - **JNJ's vaccine was 66% effective in reducing Covid-19 symptoms during its Phase 3 clinical trial, with no significant adverse effects;**
 - In the US, the vaccine achieved 72% efficacy; in Latin America, 66%; and in South Africa, 57%. **The geographical difference is presumed to be the result of higher proportions of newer variants present in Latin America and South Africa;**
 - JNJ hopes to receive its EUA by the end of the month; it is prepared to deliver a billion doses worldwide in 2021, including 100 million in the US by mid-summer.
- **Novavax announced results from its vaccine Phase 3 trial in the UK:**
 - Overall, the vaccine delivered 89.3% efficacy; **The vaccine was 85.6% effective against the newer South African strain and 95.6% effective against older strains;**
 - **These results indicate that the vaccines remain highly effective against newer strains but, with some loss in efficacy;**
 - Novavax is nearing full enrollment for its Phase 3 trial in the US, placing the possibility of approval here this summer.
- In a [Lancet](#) article preprint, **AstraZeneca's vaccine** showed some interesting results:
 - The vaccine **has greater efficacy with longer delays between doses than with short delays;**
 - **It also showed evidence of reduced asymptomatic transmission after two doses;**
 - The potential for asymptomatic transmission had raised significant concerns about the vaccination effort - could persons already vaccinated still infect others? These encouraging results parallel earlier findings with the Moderna vaccine.
- The US vaccinated 1.4 million Americans yesterday, bringing the total doses administered to date to 36.4 million;
 - **The 7-day average is 1.3 million administered doses; in our current projection model, we presumed that 1.2 million doses need to be administered daily until March 1; at that point, this increases to 1.8 million doses daily based on the availability of the JNJ vaccine;**
 - 7.2 million Americans have received two doses of a vaccine.
- New cases continue to fall, although [Gu's model](#) raises caution:
 - **The 7-day average new case rate has declined twenty-four straight days, falling by nearly 50% during that time;**
 - **Gu's estimate of the Reproduction Rate (Rt) has been below 1.0 for twenty-five straight days; nonetheless, this rate has increased each of last nine days;**
 - Similarly, Gu's estimate of actual daily infections has declined twenty-eight consecutive days; the most recent estimate was lower than it had been since October 26. This estimate, however, is declining at a slower rate each day.
- Covid-19 hospitalizations continue to plummet in the US:
 - **Covid-19 daily census fell by 44,000 patients over the past four weeks (33%);** Yesterday's census was lower than on any day since November 24;
 - ICU and ventilator census has declined by about 25% over the past four weeks;
 - **Covid-19 ER visits have declined sharply since early-January, following a steep increase in November and December.**
- Deaths reported with coronavirus have eased from earlier levels:
 - **The 7-day average deaths are lower than for each of the past three weeks, declining by nearly 10% from the rate three weeks ago.**

Vaccine Update

- Submitted its Emergency Use Authorization (EUA) application
- 66% overall efficacy: 72% in US; 66% in Latin America; 57% in South America
- No significant adverse concerns

Johnson & Johnson

AstraZeneca 

- Completed Phase 3 trials in UK and South America
- 76% efficacy after 1 dose; 82% after 2 doses
- Greater efficacy with longer delays between doses
- Stored and transported at normal refrigeration temperatures
- Data supports reduced asymptomatic transmission

- FDA filing shows reduced asymptomatic transmission after two doses

moderna

NOVAVAX
Creating Tomorrow's Vaccines Today

- Completed UK trial of its vaccine
- 89.3% overall efficacy; 85.6% against South African variant; 5.6% against older variants
- Stored and transported at normal refrigeration temperatures
- Completing enrollment in US Phase 3 study

Vaccines in the US

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Two vaccines – Pfizer/BioNtech and Moderna – have received Emergency Use Authorization (EUA) in three US. Johnson & Johnson submitted its EUA application this week. Novavax and AstraZeneca are working towards approval in the US

Manufacturer	Vaccine	US Status	Contracts With USA	Efficacy	Comments
	BNT 162b2	EUA in US	300 million doses	95%	
	mRNA-1273	EUA in US	300 million doses	94.1%	Phase 3 study showed evidence of reduced risk of asymptomatic transmission
	Ad26.COV2.S	EUA Application Submitted	100 million doses	66%	72% in US; 66% in Latin American; 57% in South Africa
	AZD1272		300 million doses	76%	Phase 3 study showed evidence of reduced risk of asymptomatic transmission
	NVX-CoV2373	Nearing full enrollment in Phase 3 trial	100 million doses	89.3%	85.6% for South African variant; 95.6% for older variants

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Vaccine Tracking

1.4 million doses were administered in the US yesterday. To date, the US has administered 36.4 million doses, with 7.2 million people having received two doses.

Vaccination Progress

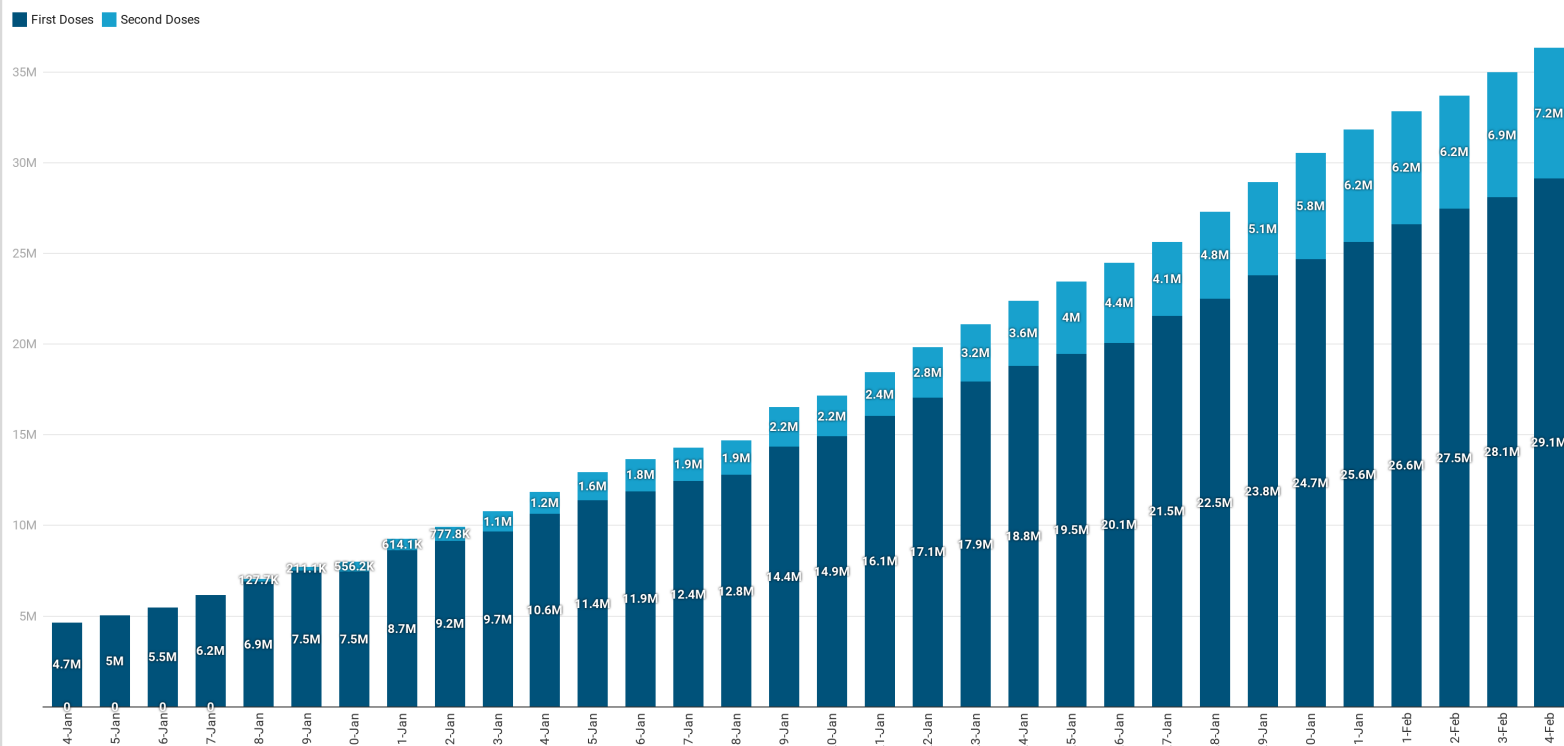


Chart: Health Industry Advisor LLC • Source: CDC, Bloomberg • Created with Datawrapper

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

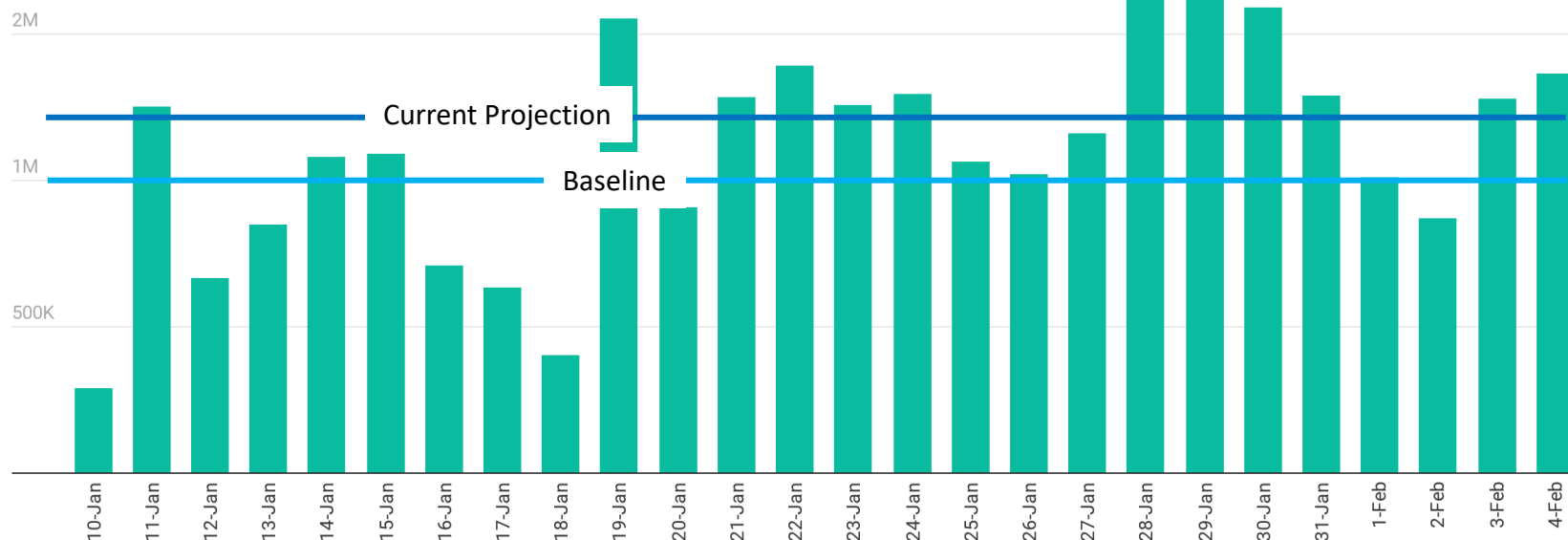
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Pace of Vaccinations

Earlier this week, the widespread snowstorm inhibited vaccine efforts. The 7-day average exceeds the pace included in HIA's current projection model (1.3 v. 1.2 million per day)

Pace of Vaccinations - Daily

in Millions of Doses



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

Vaccines Distributed v. Administered

Dose administration is keeping pace with dose distribution efforts

Doses Distributed v. Administered

■ Distributed - 7-Day Average ■ Administered

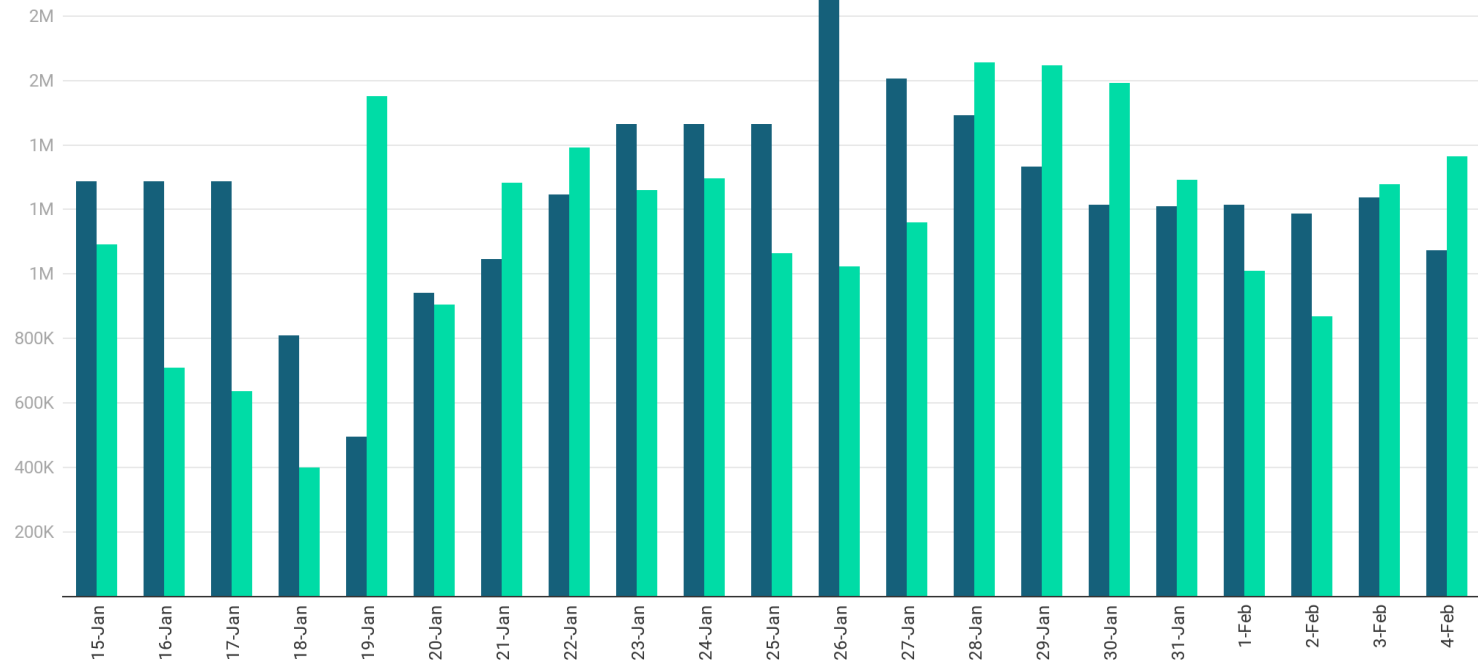


Chart: Health Industry Advisor LLC • Source: Bloomberg • Created with Datawrapper

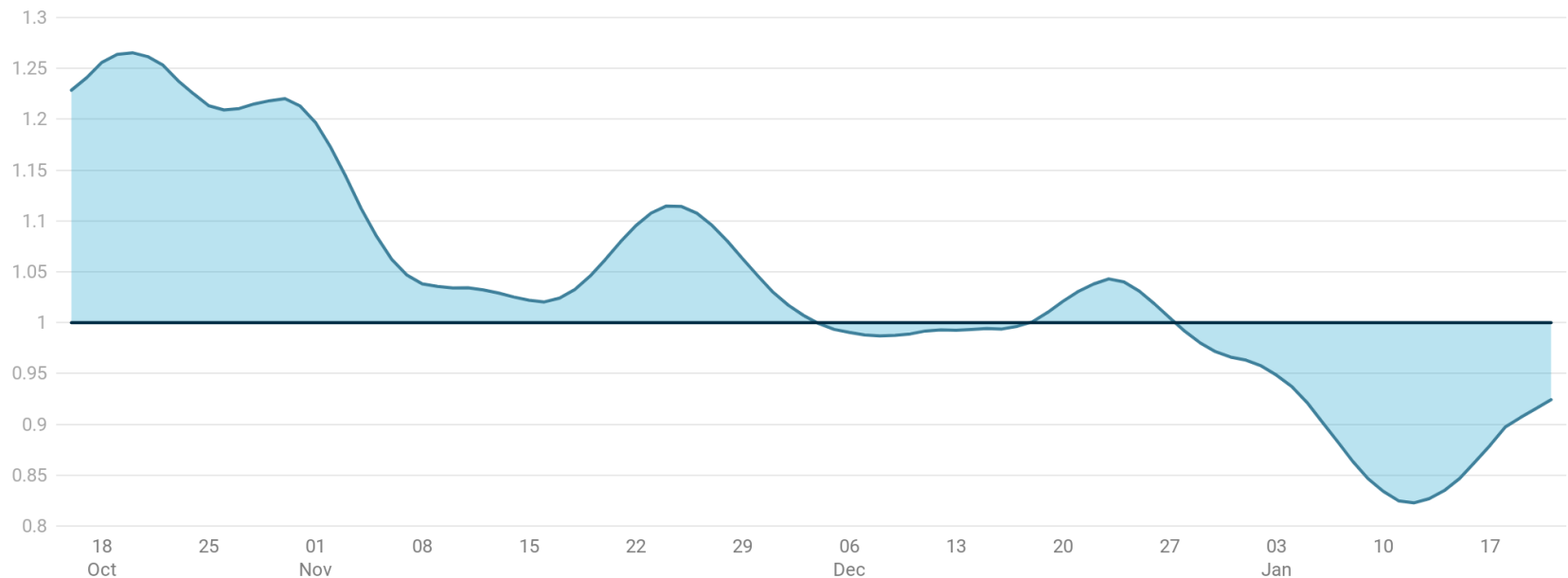
Reproduction Rate (R_t) – Gu* Model

Gu's estimate of R_t remained below 1.0 for the twenty-fifth straight day. This rate, however, has increased each of the past nine days

Reproduction Rate (R_t) - US

*Youyang Gu: Covid-19projections.com

Youyang Gu Estimate, October 16, 2020 - January 21, 2021



R_t is an estimate of how many additional people a single person will infect

Chart: Health Industry Advisor LLC • Source: Youyang Gu • Created with Datawrapper

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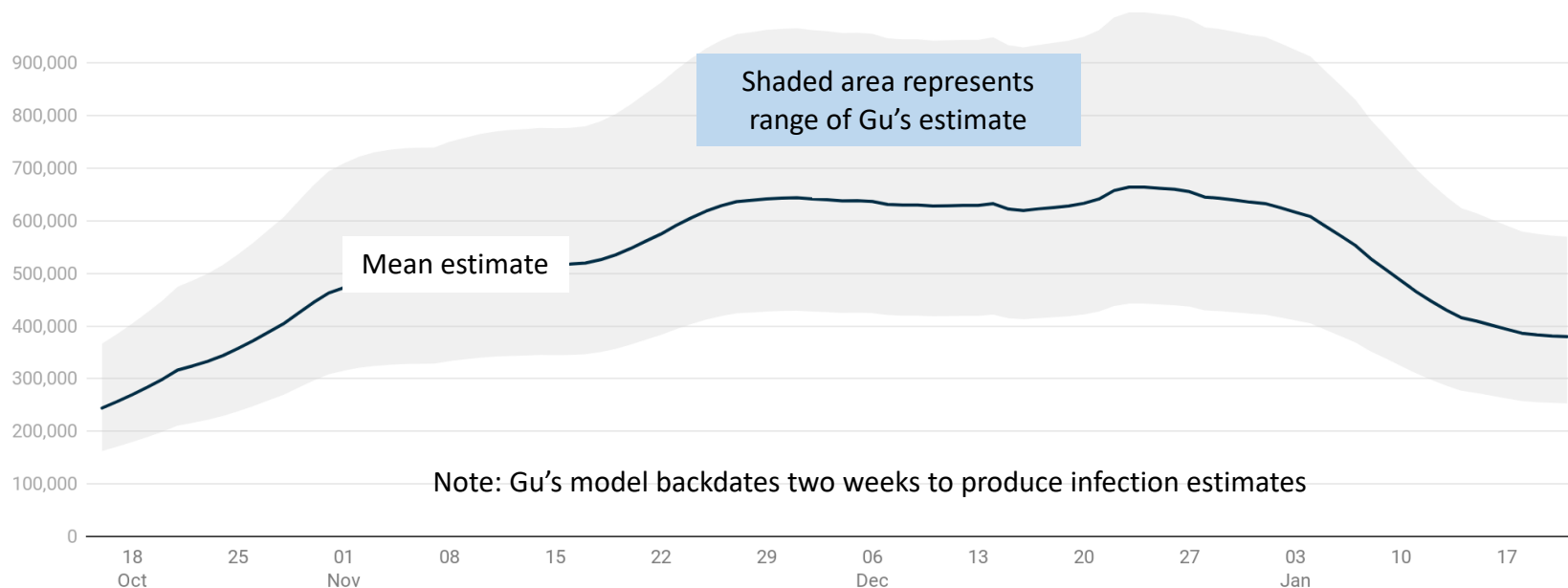
Estimated New Daily Infections – Gu* Model

Estimated new infections fell for the twenty-eighth straight day on January 21; however, the rate of decline eased recently. There were fewer new infections on January 18 than any day since October 26

Estimated New Daily U.S. Infections

*Youyang Gu: Covid-19projections.com

Youyang Gu Model, Through January 21



Note: Gu's model backdates two weeks to produce infection estimates

Using Youyang Gu's COVID-19 Projection Model

Chart: Health Industry Advisor LLC • Source: Youyang Gu • Created with Datawrapper

Week-Over-Week Changes in New Cases

New cases are declining week-over-week, both in the US and worldwide

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

7-Day Moving Average, As of February 4

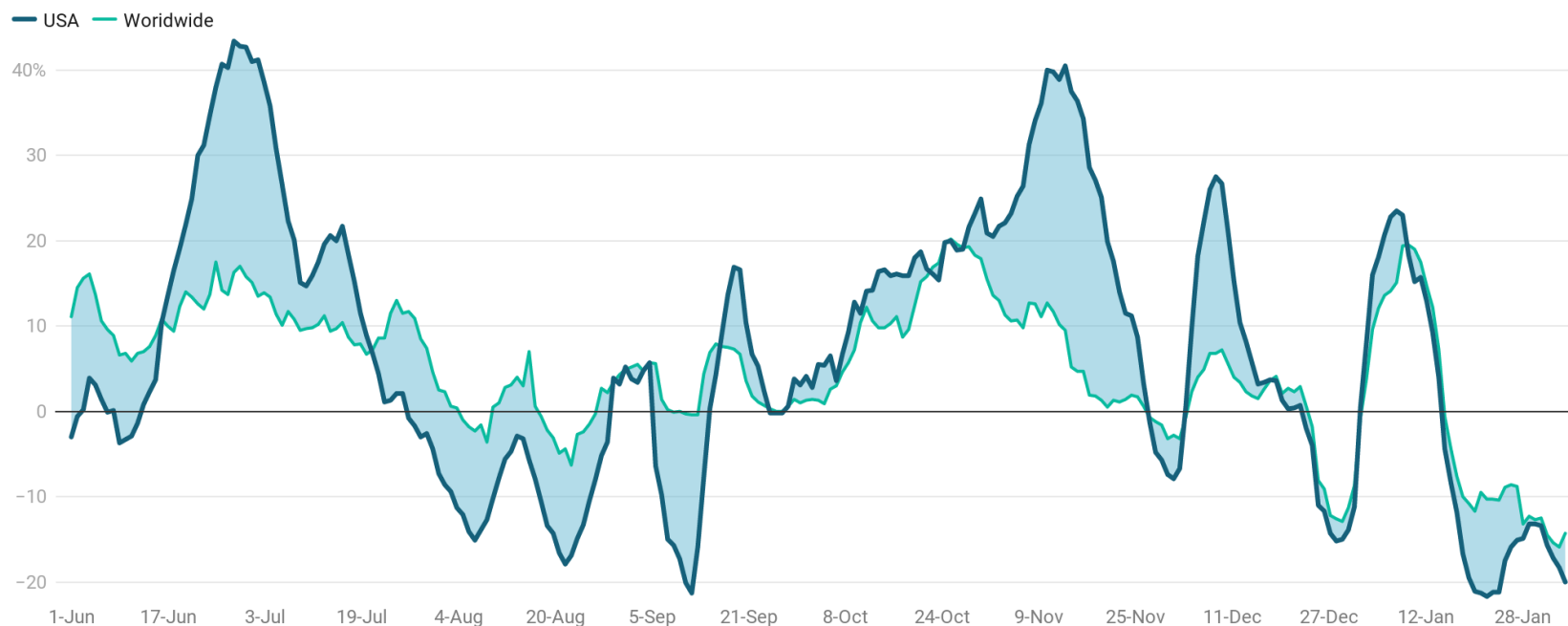


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Covid-19 "Vital Signs"

Newly Detected Cases / Million - US

Newly detected cases (7-day average) in the US have now declined on twenty-four straight days – dropping a remarkable 49% in that time. This rate is as low as it has been since November 10

Newly-Detected Cases / Million - US

7-Day Moving Average



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

Newly Detected Cases Per Day

The US 7-day new case rate plunged by 47% over the past three weeks. Outside the US, this rate dropped 25% during this three-week period

Newly Detected Cases Per Day

As of February 4

United States Outside the US

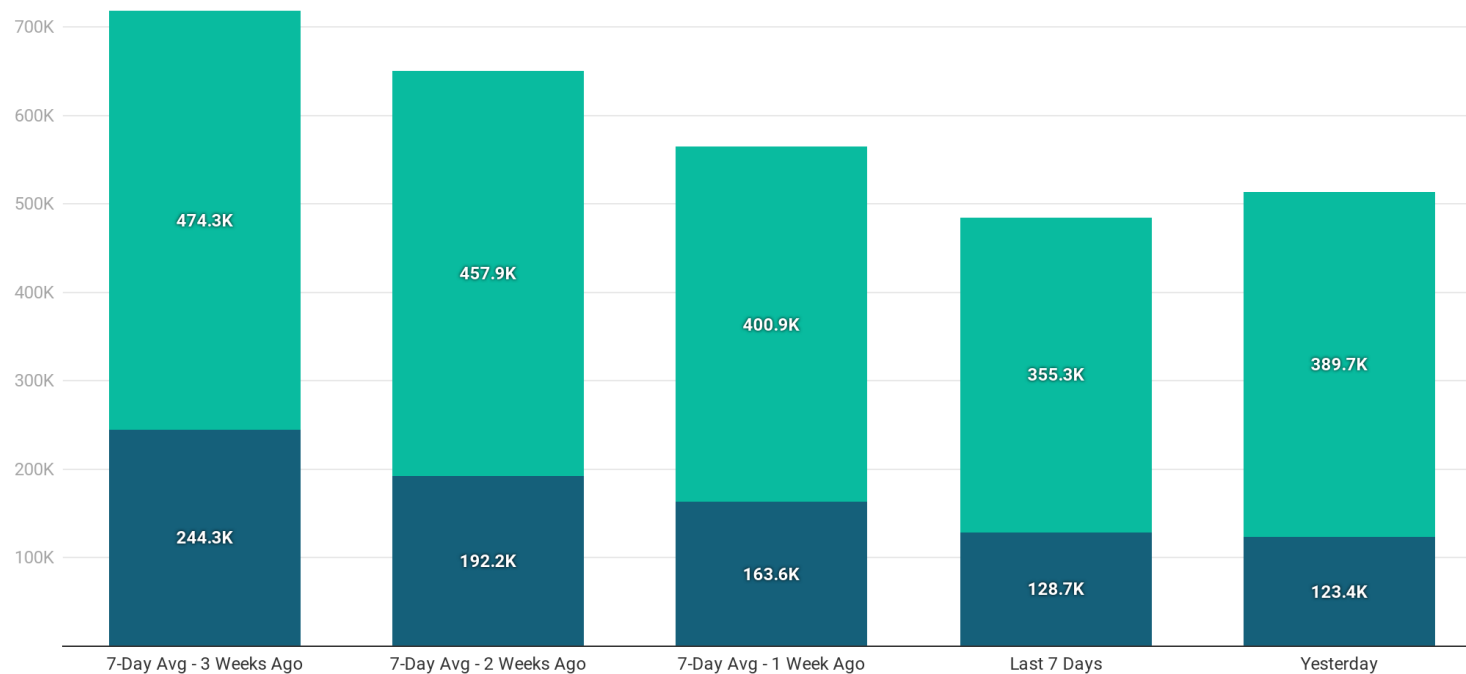


Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

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Covid-19 Hospitalizations

Covid-19 hospitalizations are plunging, with nearly 44k fewer patients yesterday than on January 6 (33%). Yesterday's Covid-19 census was lower than any day since November 24. ICU and ventilator days have dropped ~25% each in the past three weeks

Hospitalized Covid-19 Patients

Compared to Same Day, Prior Weeks, As of February 3

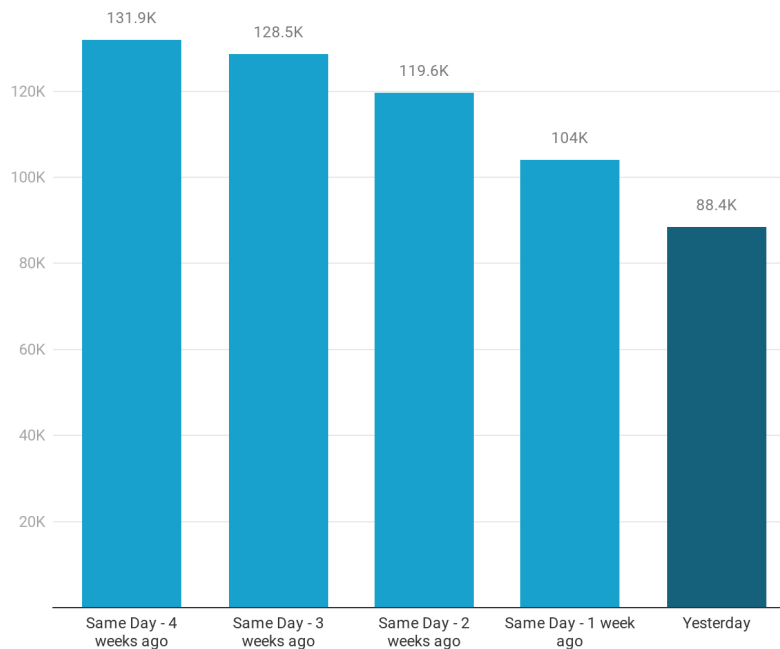


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 Patients in the ICU

Compared to Same Day, Prior Weeks, As of February 3

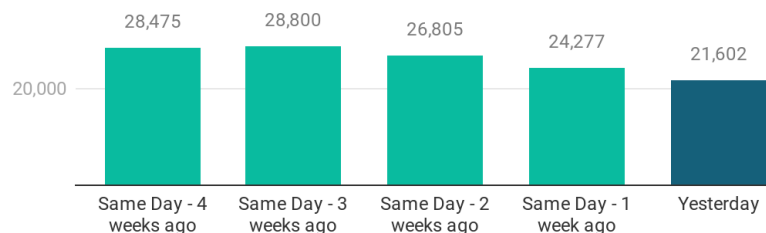


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Covid-19 Patients on Ventilators

Compared to Same Day, Prior Weeks, As of February 4

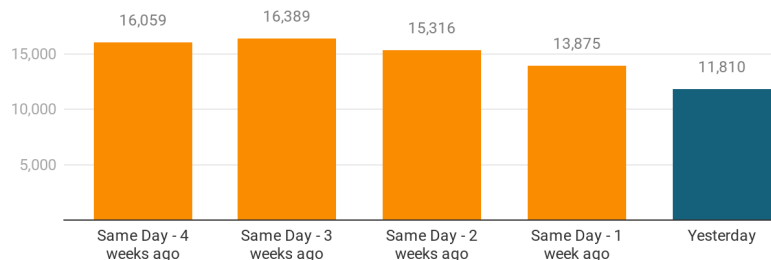


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

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% of ER Visits For Respiratory Illnesses

Visits for Covid-19 like illnesses have plummeted in January; these increased throughout November and December.. Visits for influenza remain low, particularly for this point 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 February 2

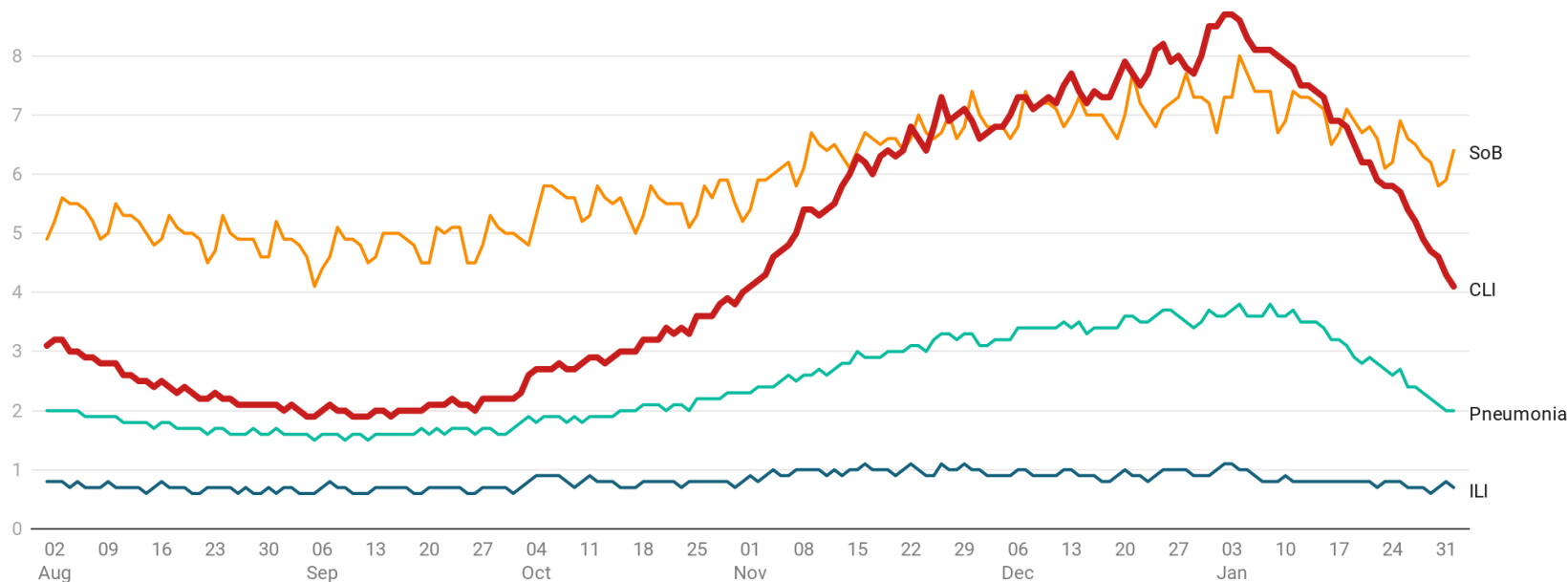


Chart: Health Industry Advisor LLC • Source: CDC • Created with Datawrapper

Covid-19 "Vital Signs"

Testing (US)

Test volume for the past seven days dropped from each of the prior three weeks – are fewer people fearing a recent exposure? The test-positive rate improved over the three preceding weeks

Tests / Million / Day (US)

As of February 4

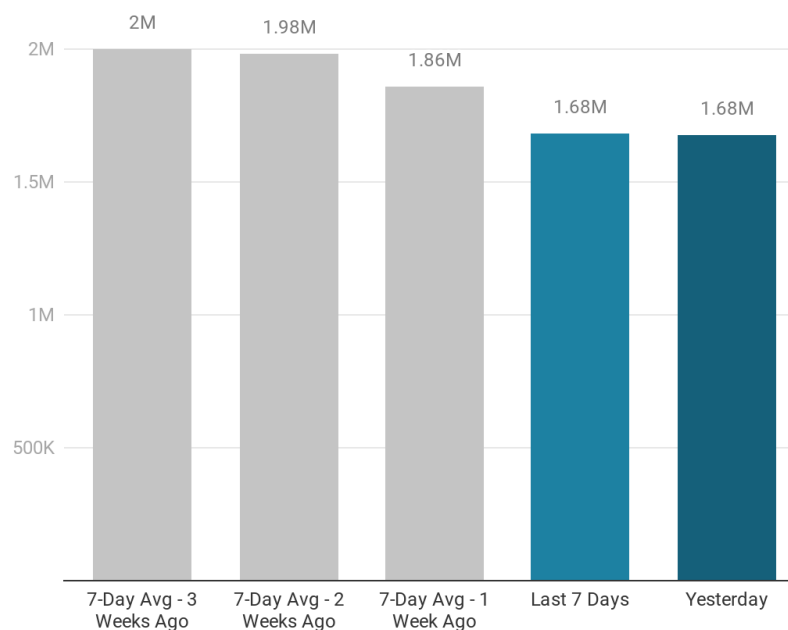


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Test-Positivity Rate

As of February 4

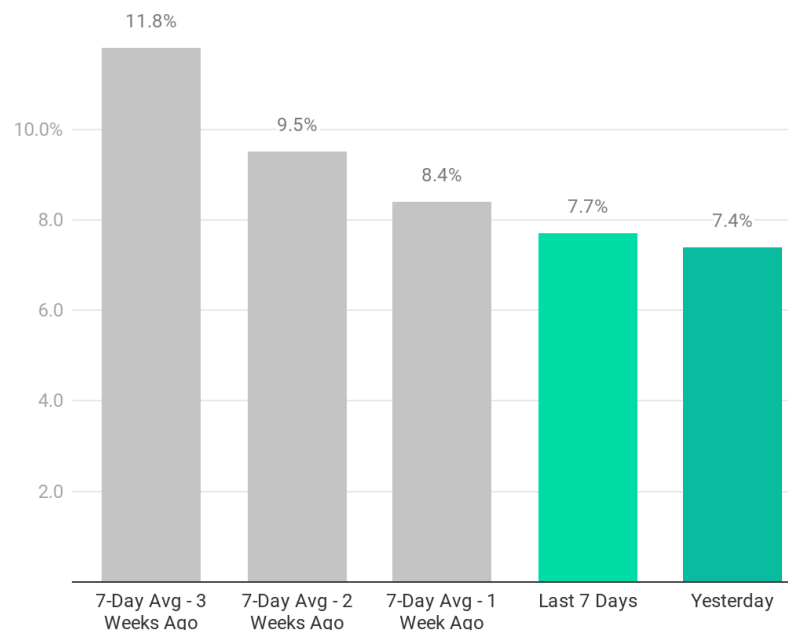
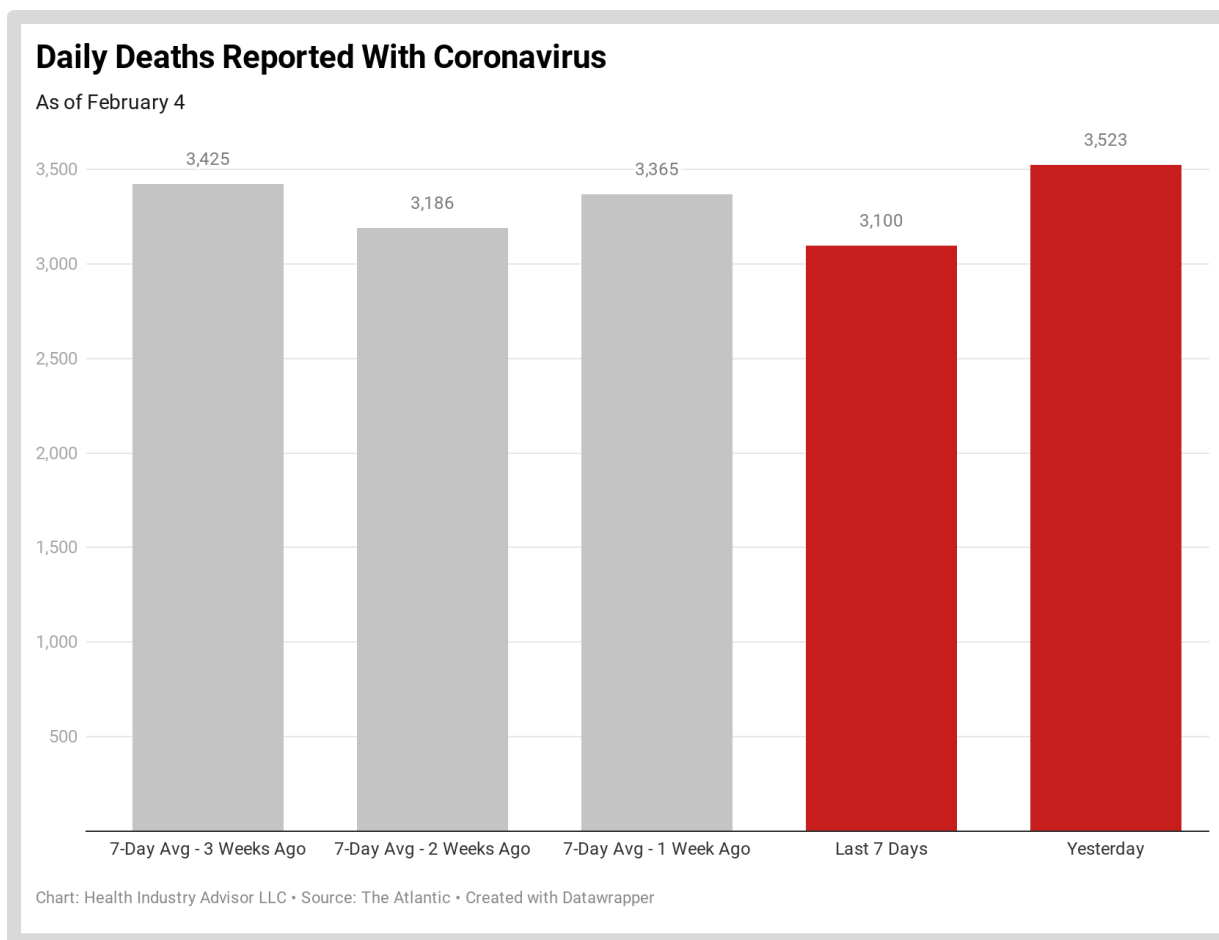


Chart: Health Industry Advisor LLC • Source: The Atlantic • Created with Datawrapper

Deaths Reported With Coronavirus

The 7-day average death rate moved lower than it has been for each of the prior three weeks



Covid-19
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Metro Areas in the US

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

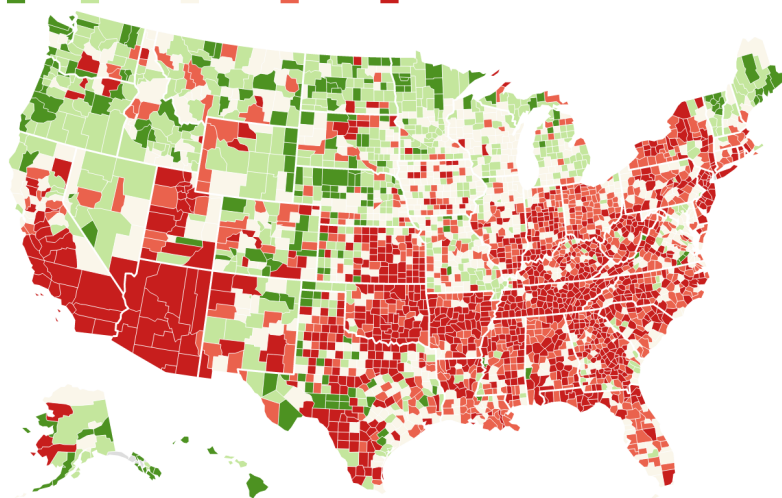
January 7

February 4

New Daily Infections / Million

7-Day Moving Average, As of January 7

< 200 200-400 400-600 600-800 ≥ 800

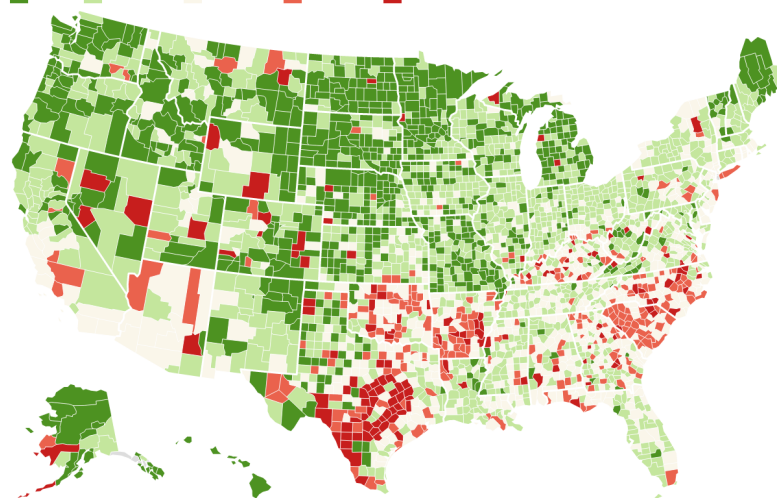


Map: Health Industry Advisor LLC • Created with Datawrapper

New Daily Infections / Million

7-Day Moving Average, As of February 4

< 200 200-400 400-600 600-800 ≥ 800



Map: Health Industry Advisor LLC • Created with Datawrapper

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Metro Areas With Major Universities

Wake County, home to North Carolina State University, reported the highest new case rate of the 33 such areas we track; Albemarle County (University of Virginia), the lowest.

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

7-Day Average, As of February 4

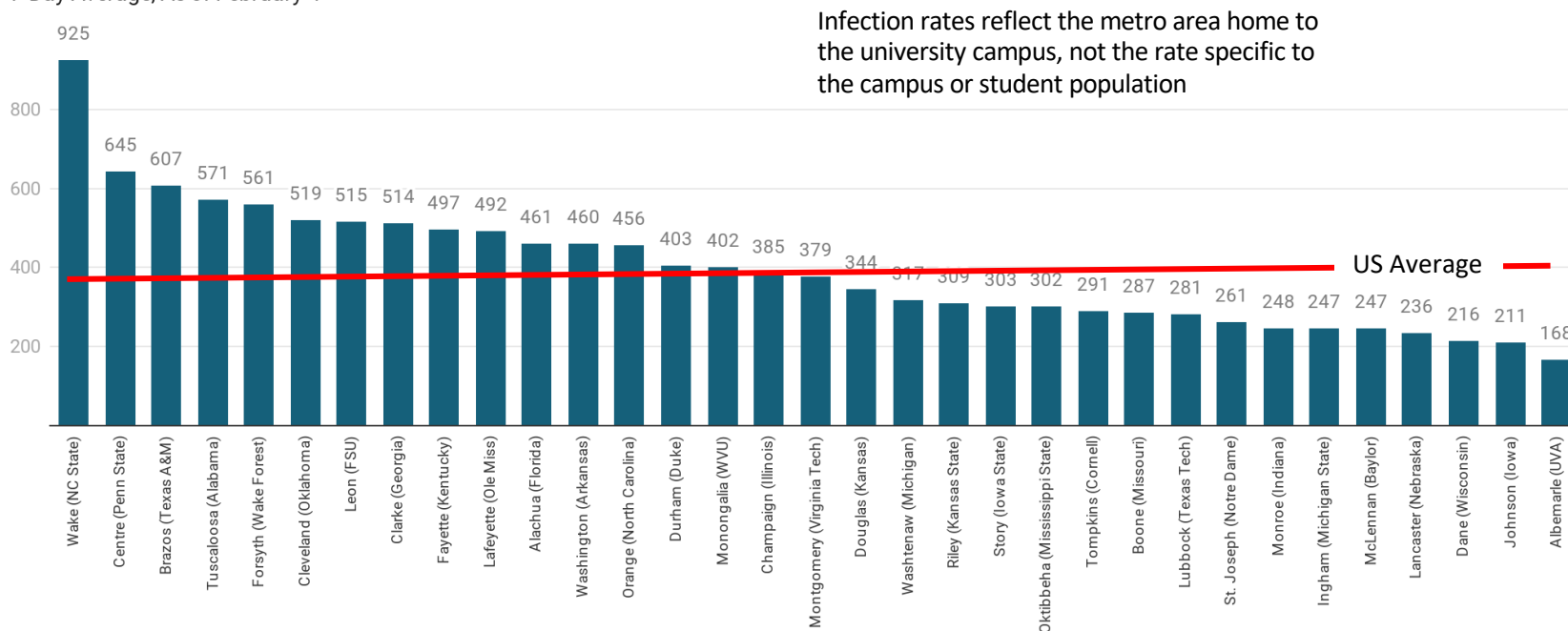


Chart: Health Industry Advisor LLC • Created with Datawrapper

Metro Areas With Major Universities

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

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

7-Day Average, February 4 v. January 28

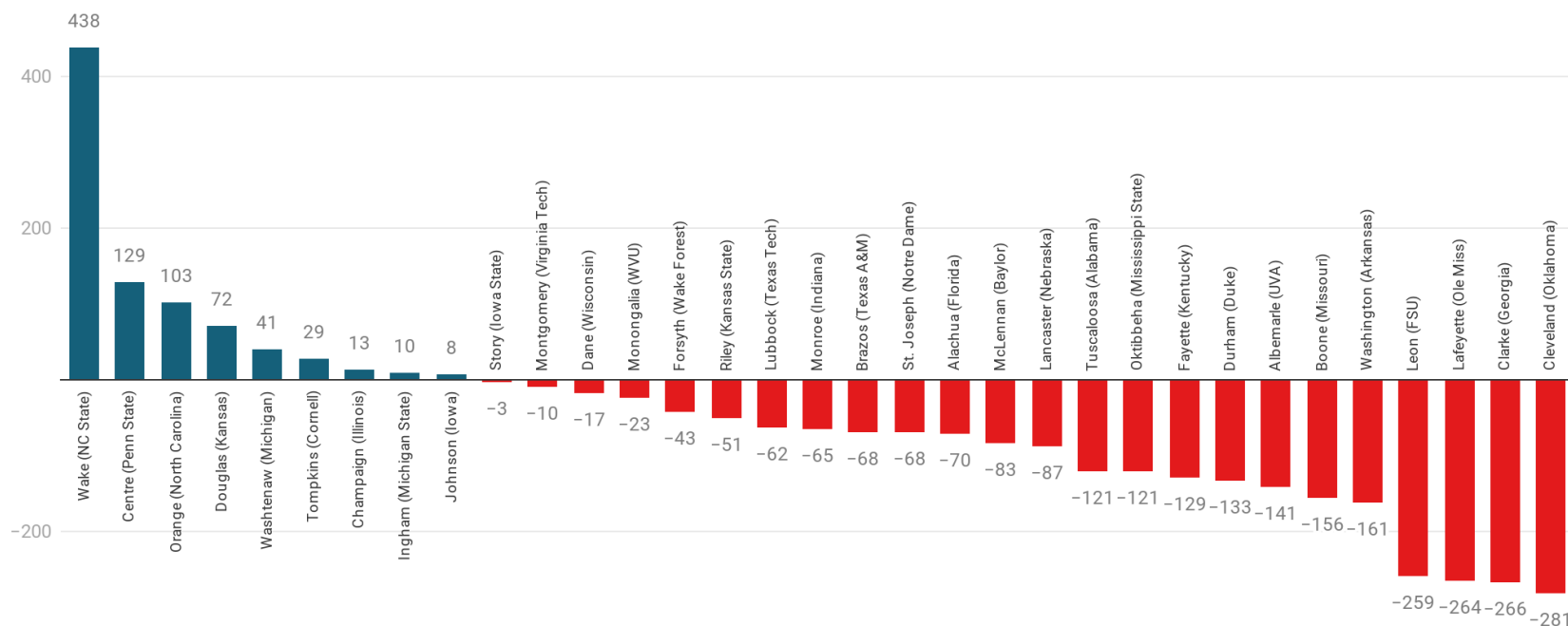


Chart: Health Industry Advisor LLC • Created with Datawrapper

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®ion=United%20States&panel=mortality>
- [Rt.live](https://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>