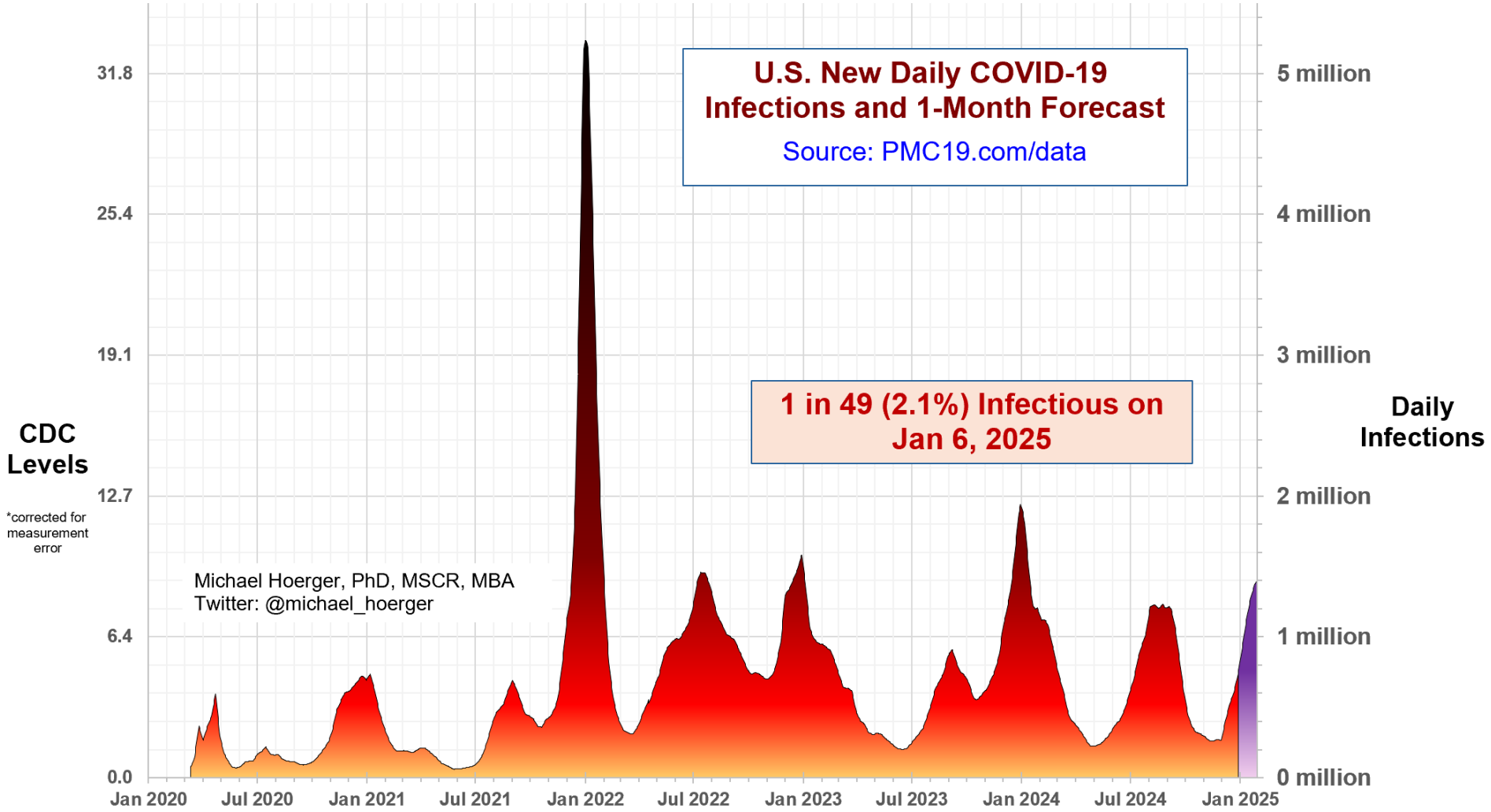
PMC U.S. COVID-19 Case Estimation and Forecasting Model: Report for January 6, 2025, pmc19.com/data

Michael Hoerger, PhD, MSCR, MBA, Pandemic Mitigation Collaborative (PMC)



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Announcements

PMC Dashboard Survey: Thank you to those who have completed the survey about how you use the PMC Dashboard. If you have not already done so, we appreciate you taking the time to respond. In some preliminary analyses, we were pleased to see that such a high percentage of people with Long COVID and family members of people with Long COVID use the dashboard and had the spoons to complete the survey. Likely in March, we will do some virtual community outreach activities to describe and gain feedback in interpreting the findings. The data will be very helpful for people who are submitting grant proposals on COVID mitigation as well as for getting patient-powered and medical organizations to take COVID precautions more seriously.

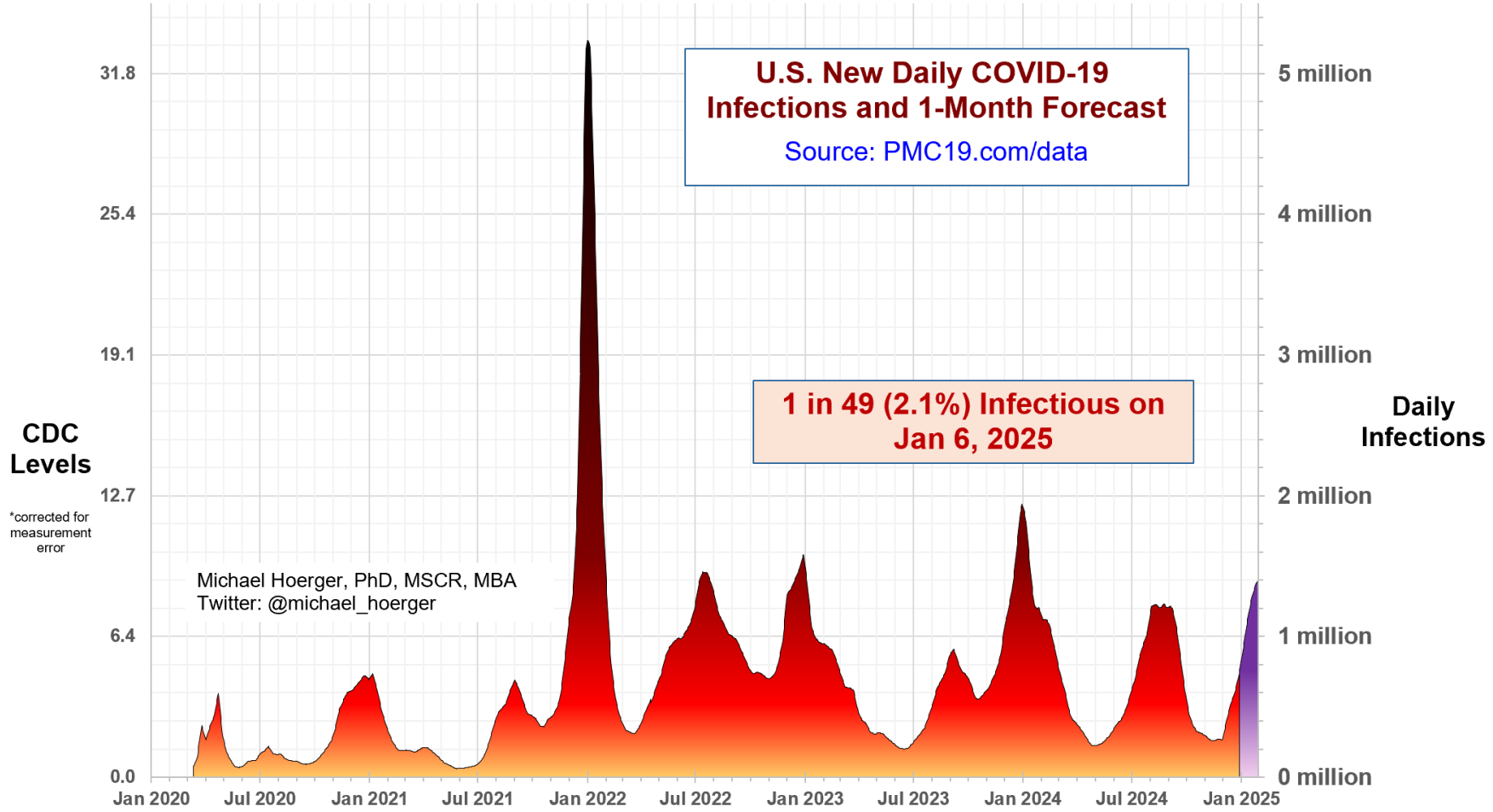
Survey Link: https://tulane.co1.qualtrics.com/jfe/form/SV_0okopCSxA26Mgxo

Recent News Coverage:

- **CNN:** **https://www.cnn.com/2024/12/31/health/covid-holiday-surge-us/index.html**
- **The Atlantic:** **https://www.theatlantic.com/health/archive/2024/12/covid-christmas-winter-wave/681133/**
- **TODAY:** **https://www.today.com/health/coronavirus/us-silent-covid-surge-holidays-2024-rcna184828**
- **USA Today:** **https://www.usatoday.com/story/news/health/2024/12/24/covid-winter-2024-cdc-data/77199841007/**

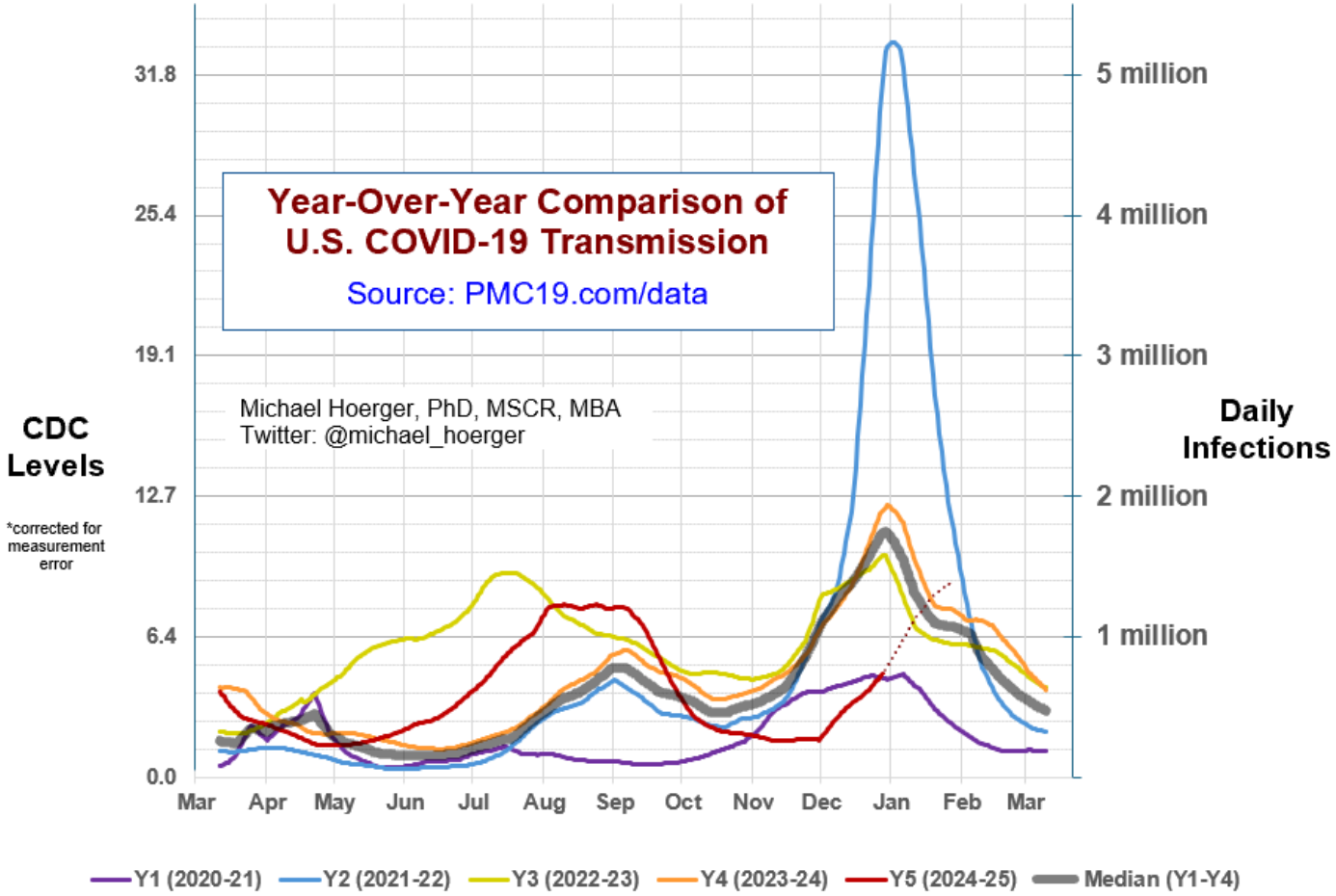
The Big-Picture View of the Pandemic

Many will be caught off guard by Covid infections this winter. Approximately 2.1% of the population is actively infectious with Covid. We have had large increases in transmission for each of the past 4 weeks in CDC (80% model weight), Biobot (20% weight), and WastewaterSCAN data. The wave began much later than “typical” this year, leading many to a false sense of security.



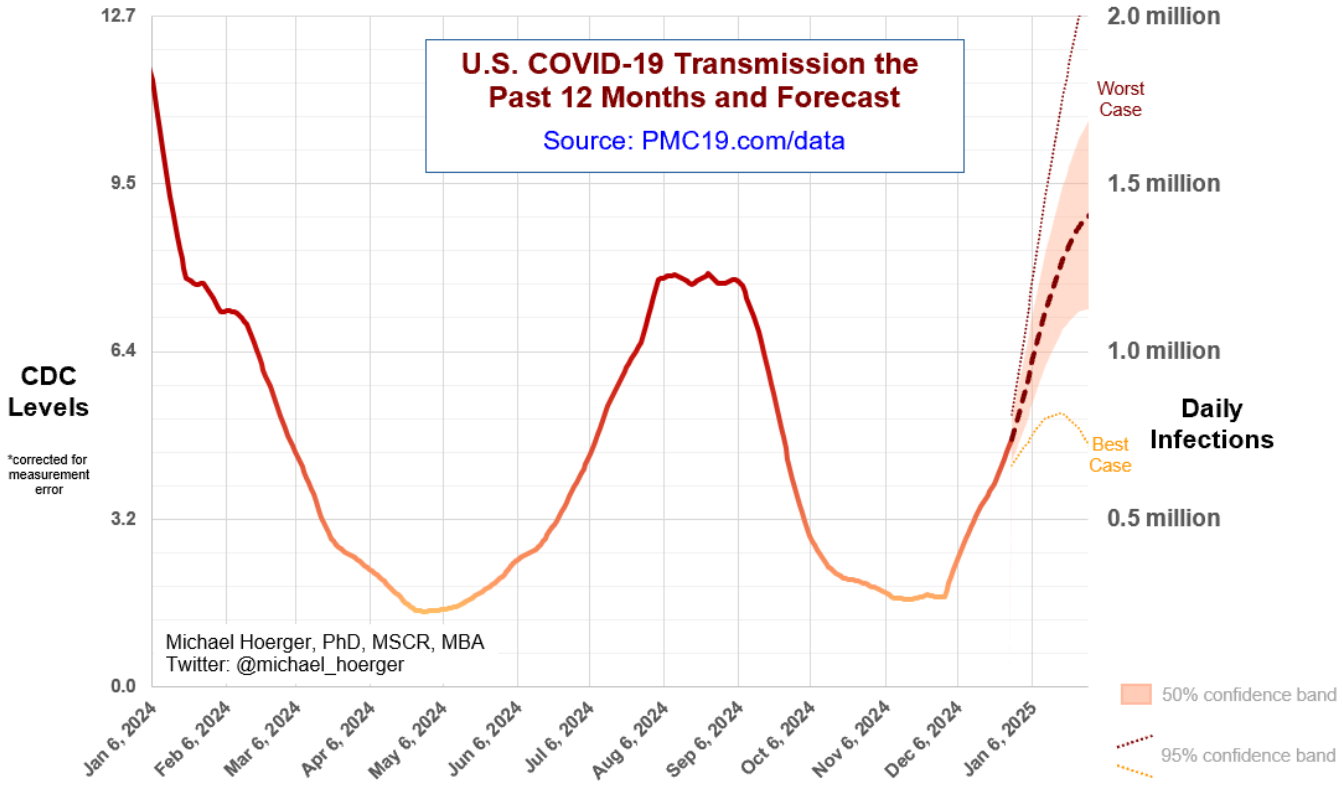
Year-Over-Year Comparisons

The year-over-year graph shows how the current winter wave departs from the pattern of prior years, with a high, flat, long summer wave, a steep post-summer-wave decline, an extended “lull,” and a later winter wave than usual. We are currently near the Year 1 peak and expect transmission to continue to rise. Note that the estimates for “today” (Jan 6) are a 9-10 day forecast from the most recent data, so there is considerable uncertainty.



Close-up on the Current Forecast

This graph shows the best- and worst- case anticipated scenarios. At this point, a key question is whether the winter wave will have a higher or lower peak than the summer wave. The point estimate for the peak is about 1.4 million daily infections, just higher than the summer. However, values of 1.1-1.6 million are highly plausible. In the best-case scenario, the most recent wastewater data would get retroactively corrected downward, transmission would flatten, and the peak would be about 900,000, slightly lower than the current estimate of today. A worst-case scenario with retroactive upward adjustments, LP.8.1. taking off, and the west coast increasing more rapidly than expected would place the potential peak closer to 2 million daily infections, like last winter. Likely, this is a medium-sized wave, currently looking like the 5th highest of 10, but there is still much uncertainty. Biobot (20% model weight) did not report this week, so estimates of changes in transmission are solely from the CDC wastewater surveillance.



Supplemental Statistics

These supplemental statistics may prove useful in conversations about transmission and mitigation. These numbers are only slightly worse than last week, but potentially underestimates due to the surging states of AZ and OR not reporting. We see that 1 in 19 are actively infectious, or 2.1% of the population. In a classroom of 35 people, it should be assumed that someone (about a 50% chance) has infectious COVID. On a flight of 100-300 people, that's an 87-99% chance someone is infectious. Transmission is higher than 83% of the pandemic and lower than 17% of the pandemic. We may see 38 million infections over the next month, if the middle estimate of the model holds.

Current Levels for Jan 6, 2025
% of the Population Infectious
2.1% (1 in 49)
New Daily Infections
980,000
New Weekly Infections
6,860,000
Resulting Weekly Long COVID Cases
343,000 to 1,372,000

Monthly Forecast
Average % of the Population Infectious
2.7% (1 in 38)
Average New Daily Infections
1,272,833
New Infections During the Next Month
38,185,000
Resulting Monthly Long COVID Cases
1,909,000 to 7,637,000

Running Totals
Infections Nationwide in 2025
5,468,000
Average Number of Infections Per Person All-Time, U.S.
3.55

How Does Risk Increase with More Social Contacts?			
Number of People	Chances Anyone Is Infectious	Number of People	Chances Anyone Is Infectious
1	2.1%	15	26.7%
2	4.1%	20	33.9%
3	6.0%	25	40.4%
4	8.0%	30	46.3%
5	9.8%	35	51.6%
6	11.7%	40	56.3%
7	13.5%	50	64.5%
8	15.3%	75	78.9%
9	17.0%	100	87.4%
10	18.7%	300	99.8%

Assumes no testing/isolation protocols (U.S. only)
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Michael Hoerger, PhD, MSCR, MBA
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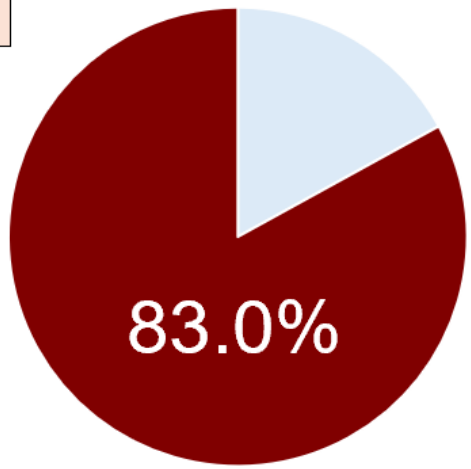
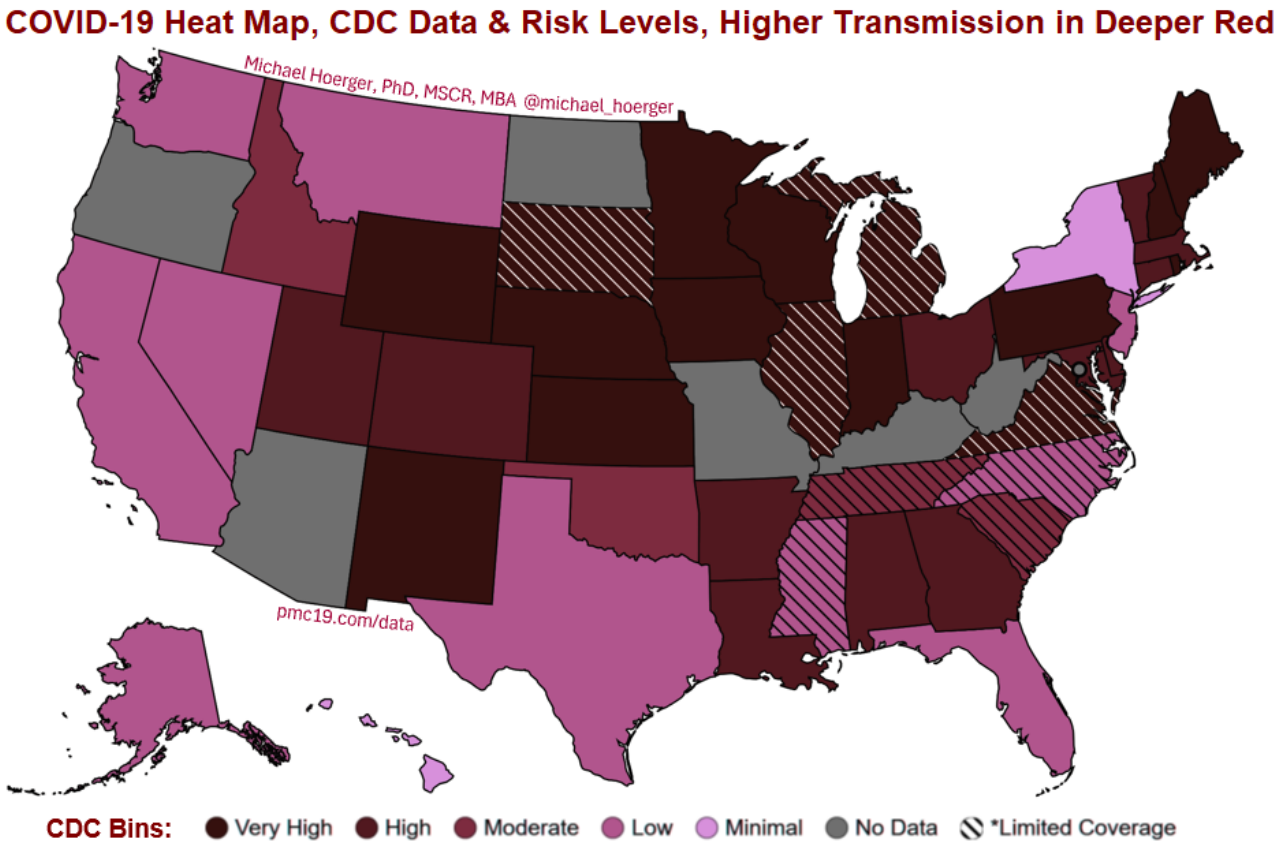


There is more COVID-19 transmission today than during 83% of the pandemic.

CDC COVID-19 Heat Map

This map uses the CDC state-by-state data to show areas with higher transmission in deeper red. Notice the considerable geographic variation. The CDC version of the map, colored in cool blue is available online. Blue tends confuse people into thinking transmission is “cool” or low, so we and various popular media outlets (e.g., Newsweek) tend to recolor. The dashed lines indicate atypically low representation from the wastewater sites within a state.
https://www.cdc.gov/nwss/rv/COVID19-currentlevels.html

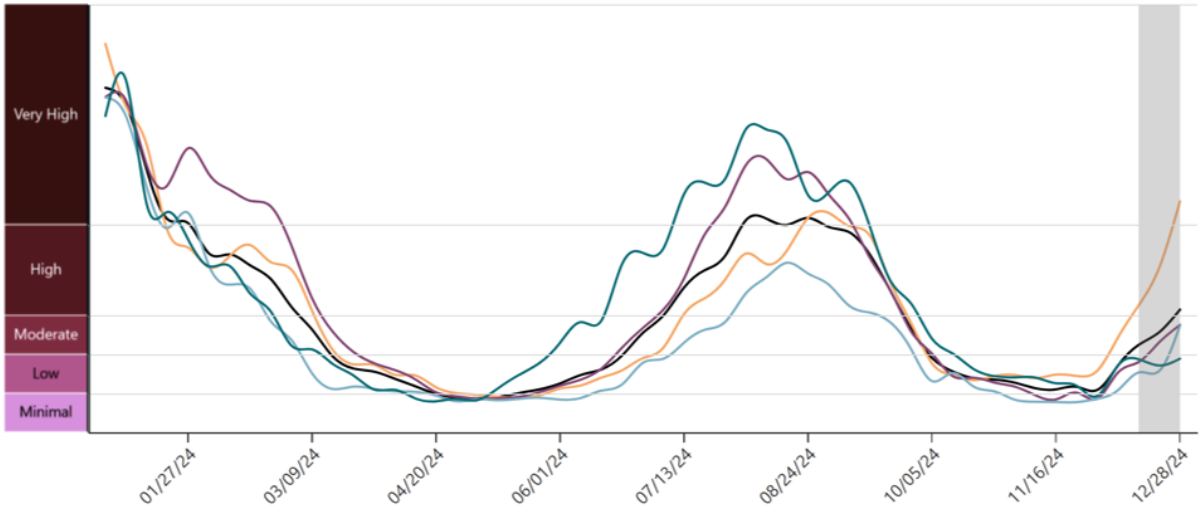


Regional Case Estimation

This graph from the CDC shows regional variation in transmission. You can use the “PMC Regional Multiplier” to get a ballpark estimate the proportion of a given region actively infectious with COVID-19 (see Technical Appendix document on the dashboard page).

The CDC regional data are available online:
https://www.cdc.gov/nwss/rv/COVID19-nationaltrend.html
State-level data are also available: https://www.cdc.gov/nwss/rv/COVID19-statetrend.html

CDC Regional Levels with PMC Estimates of the Percentage Actively Infectious



Estimated Percentage Actively Infectious*

	PMC Model	Raw CDC Data
National	2.1% (1 in 49)	1.6% (1 in 64)
Northeast	1.8% (1 in 56)	1.4% (1 in 74)
Midwest	3.8% (1 in 26)	2.9% (1 in 34)
South	1.8% (1 in 56)	1.4% (1 in 73)
West	1.2% (1 in 81)	0.9% (1 in 106)

* The "Raw CDC" values are simply the value in the CDC chart multiplied by the PMC Regional Multiplier. The "PMC Model" estimates adjust those data by accounting for reporting time lag

PMC Regional Multiplier*

0.329

* CDC level multiplied by the PMC Regional Multiplier provides an approximate estimate of the percentage actively infectious.

PMC COVID-19 Dashboard

Here is the complete PMC COVID-19 Dashboard. Please share the images across social media and other websites.
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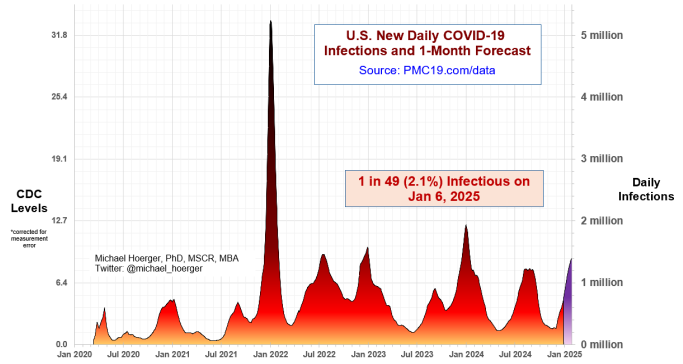

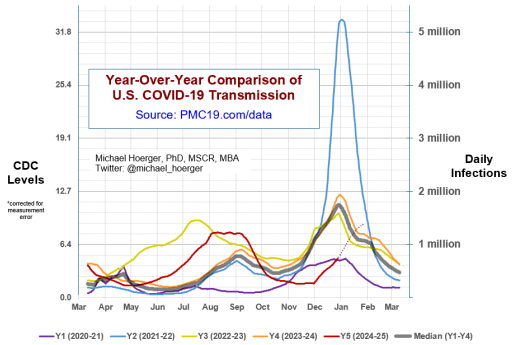

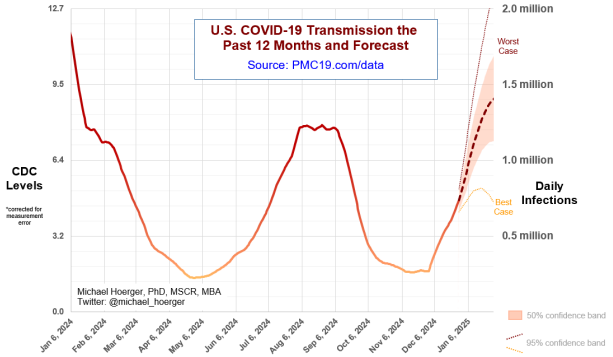

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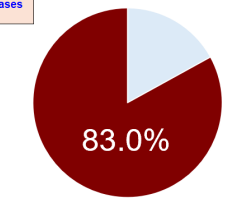

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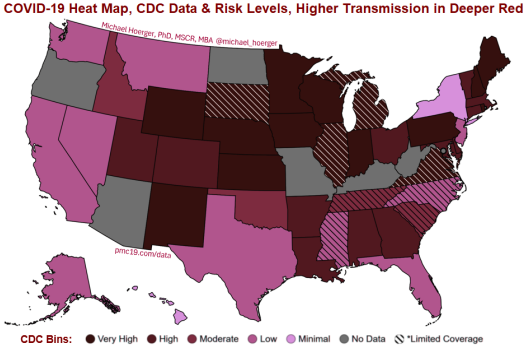
COVID-19 Heat Map, CDC Data & Risk Levels, Higher Transmission in Deeper Red



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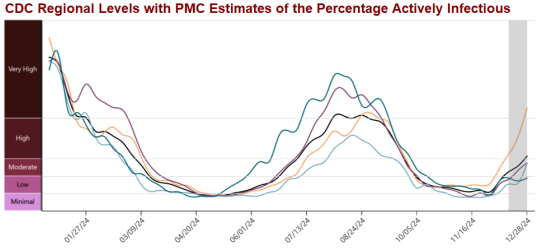

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A separate document called a Technical Appendix appears on the dashboard page and has more methodologic info.