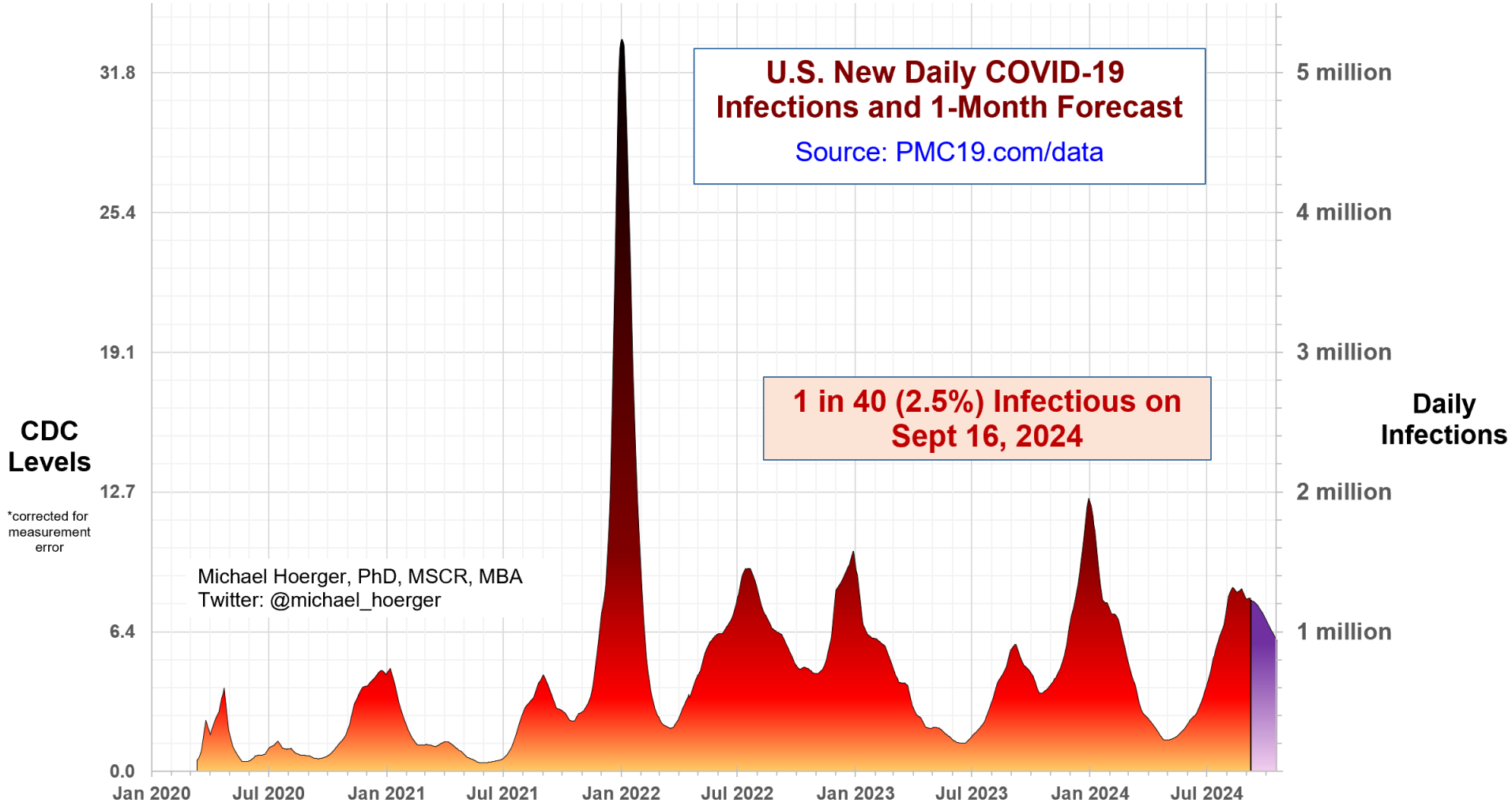
PMC U.S. COVID-19 Case Estimation and Forecasting Model: Report for September 16, 2024, pmc19.com/data

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



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Drs. Moriarty and Hoerger Talk COVID
Tuesday, September 17 at 8 PM ET / 7 PM CT

On Tuesday evening (8 PM ET / 7 PM CT), Dr. Hoerger will join the COVID-19 Resources Canada data discussion hosted by Dr. Moriarty who conducts similar research in Canada. Dr. Moriarty runs an in-depth dashboard there, and it has been exciting from a scientific standpoint to see such a close correspondence between her team's estimates of the proportion of Canada infectious with Covid at any given time and the PMC estimates for the U.S.

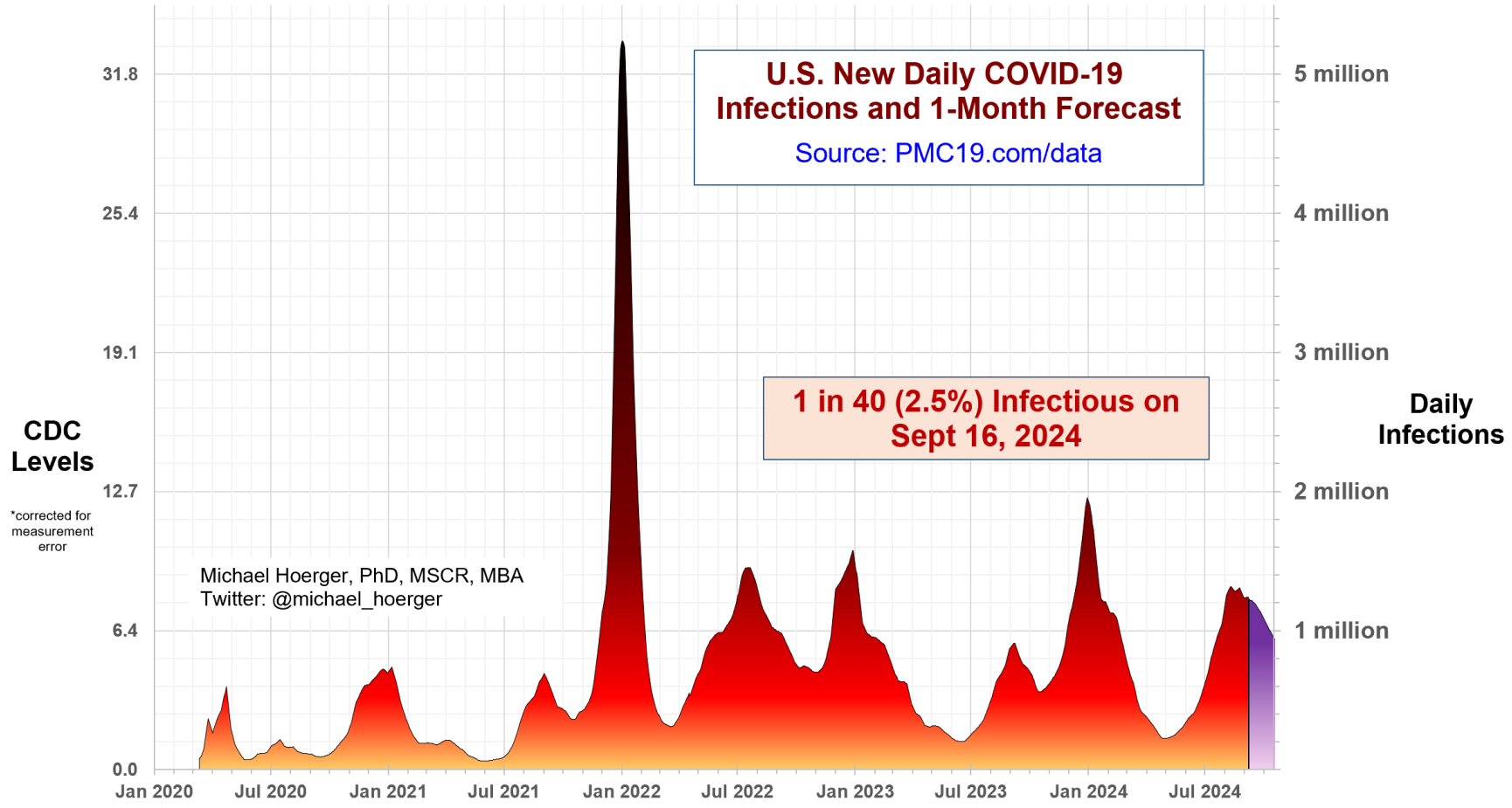
For example, the PMC model estimates that 2.5% of people in the U.S. (1 in 40) are actively infectious. Dr. Moriarty's team estimates that 2.7 of people in Canada (1 in 37) are actively infectious. These are independent scientific teams in adjacent countries estimating remarkably similar estimates of the current state of the ongoing COVID-19 pandemic.

Dr. Hoerger will present 30 minutes of slides on his team's COVID-related research, and then we will open it up for 60 minutes of audience questions.

Register to join the Zoom:
https://covid19resources.ca/event/covid-data-discussions-70/

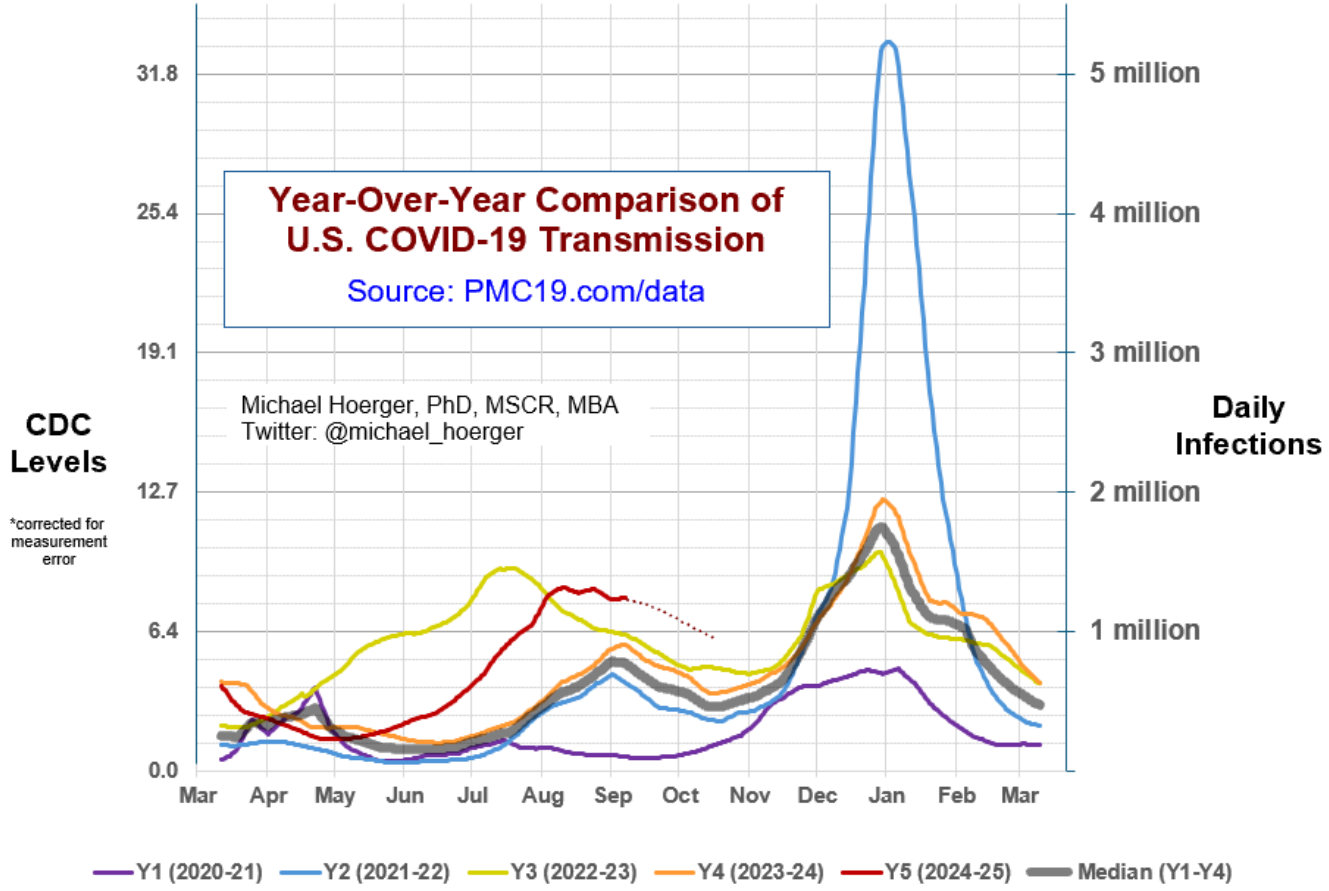
The Big-Picture View of the Pandemic

We are passing through the 9th wave of the pandemic, which appears to have peaked at just over 1.3 million infections per day, barring retroactive corrections. Expect to stay over 1 million infections per day for most of the next month. We are still anticipating an extremely high "lull" between the summer and winter waves the first week of November at around 850,000 daily infections. Transmission is higher for this time of year (mid-summer through mid-fall, i.e., August through November) than any prior year. We expect high transmission the remainder of 2024.



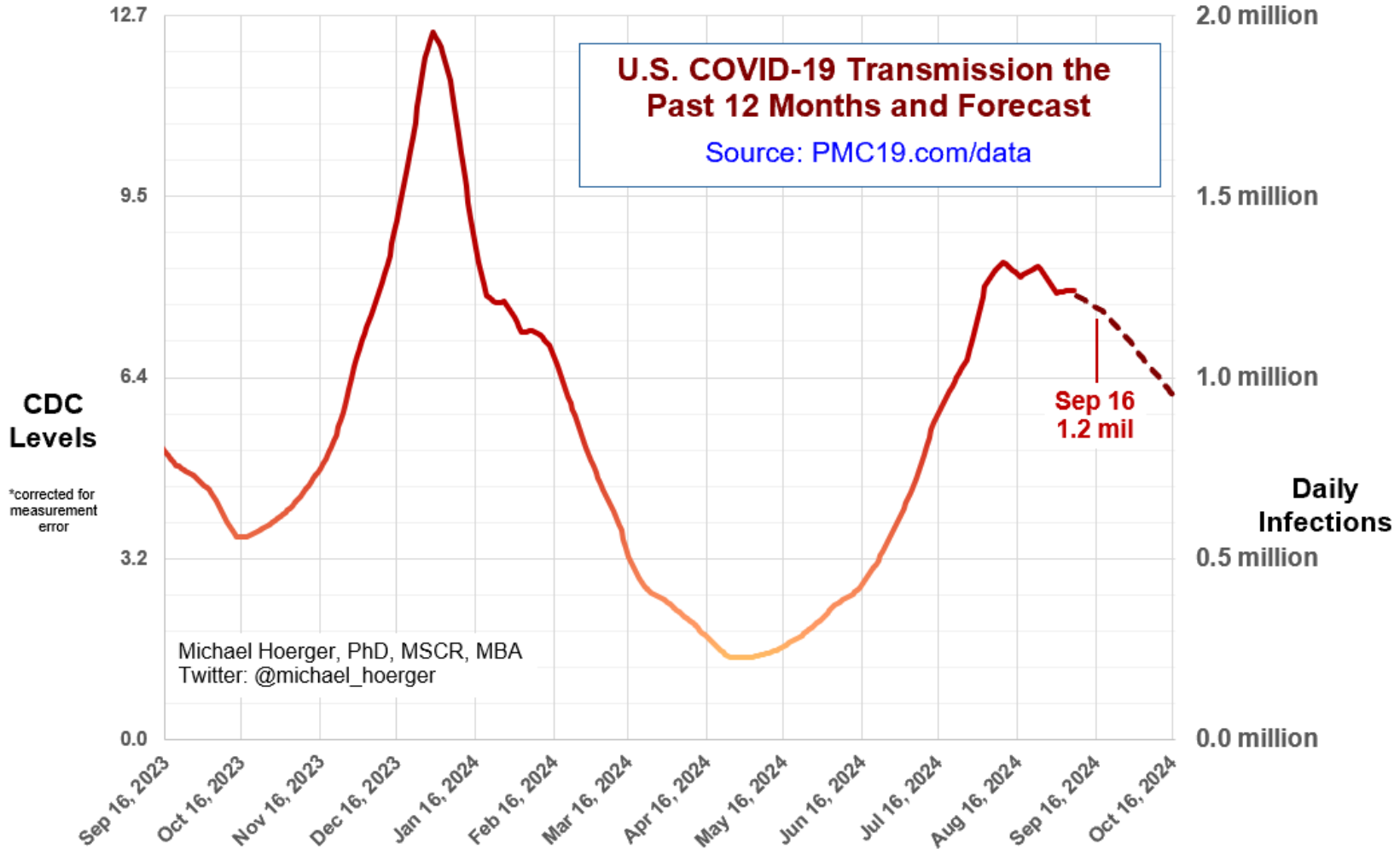
Year-Over-Year Comparisons

The year-over-year comparisons suggest that we are experiencing the highest-level of transmission all-time during this time of year. The surge is both high and wide, meaning sustained high levels of transmission. Notice the graph suggests the worst all-time COVID transmission for August, September, October, and likely November. Schools and businesses that lack multilayered mitigation (vaccines, masking, excellent indoor air quality, better-than-CDC isolation guidance, testing) should expect illness and absences.



Close-up on the Current Forecast

Barring significant retroactive corrections, all evidence suggests that the 9th wave has peaked. However, remember that 50-60% of transmission often occurs on the back end of a wave, which is why ongoing mitigation remains important. Expect >1 million new infections per day for almost another month and most of the remaining year.



Supplemental Statistics

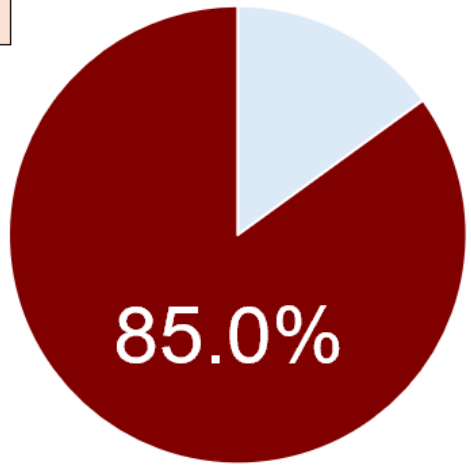
These supplemental statistics may prove useful in conversations about transmission and mitigation. The numbers are near-identical with last week's. We see that 1 in 40 are actively infectious. Over the next month, expect about 1.1 million infections/day on average. In a school classroom of 25-30 people, it should be assumed that someone (about a 50% chance) has infectious COVID. Transmission is higher than during 85.0% of the pandemic, lower than just 15.0% of pandemic days. The impact on potential Long COVID cases the next month will be staggering, and expect high transmission throughout the remainder of 2024.

Current Levels for Sep 16, 2024
% of the Population Infectious
2.5% (1 in 40)
New Daily Infections
1,193,000
New Weekly Infections
8,351,000
Resulting Weekly Long COVID Cases
418,000 to 1,670,000

Monthly Forecast
Average % of the Population Infectious
2.3% (1 in 44)
Average New Daily Infections
1,083,100
New Infections During the Next Month
32,493,000
Resulting Monthly Long COVID Cases
1,625,000 to 6,499,000

Running Totals
Infections Nationwide in 2024
208,508,000
Average Number of Infections Per Person All-Time, U.S.
3.41

How Does Risk Increase with More Social Contacts?			
Number of People	Chances Anyone Is Infectious	Number of People	Chances Anyone Is Infectious
1	2.5%	15	31.6%
2	4.9%	20	39.7%
3	7.3%	25	46.8%
4	9.6%	30	53.2%
5	11.9%	35	58.7%
6	14.1%	40	63.6%
7	16.2%	50	71.7%
8	18.3%	75	85.0%
9	20.3%	100	92.0%
10	22.3%	300	99.9%



There is more COVID-19 transmission today than during 85% of the pandemic.

pmc19.com/data

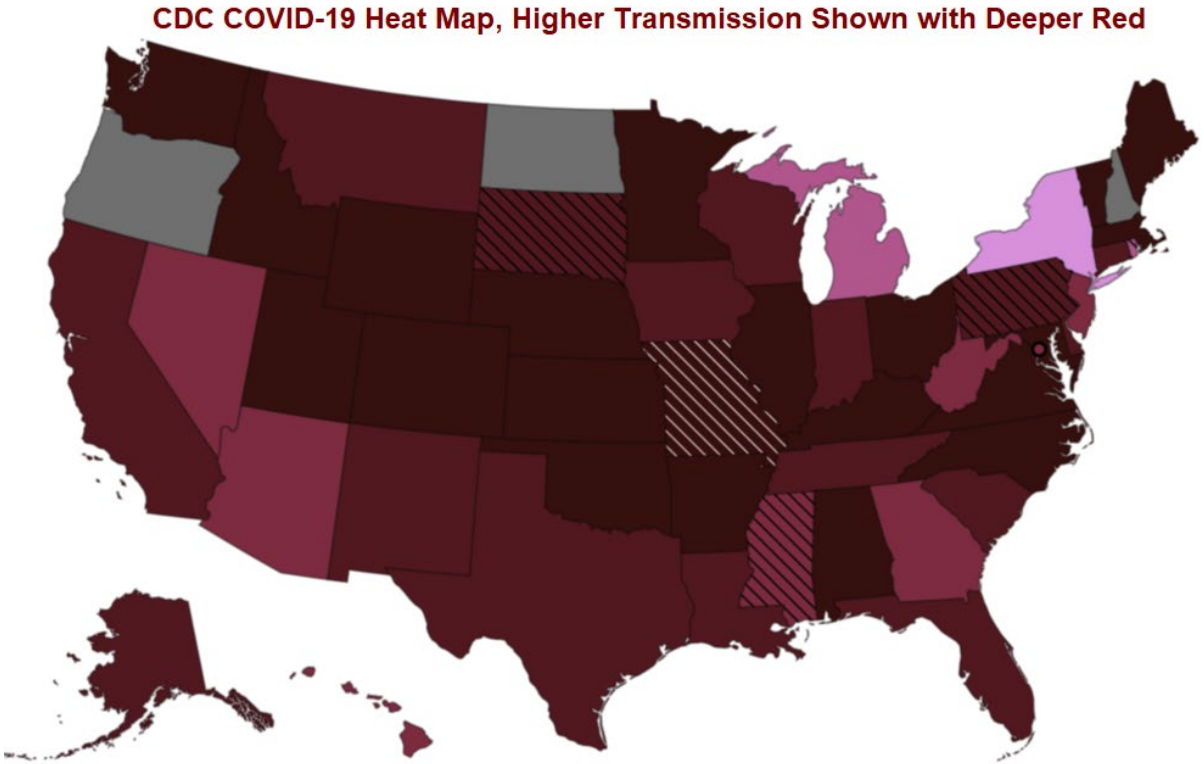
Michael Hoerger, PhD, MSCR, MBA
Twitter: @michael_hoerger

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. They recently switched from an 11-shade to 6-shade map, both blue, which tends confused people into thinking transmission is “cool” or low: https://www.cdc.gov/nwss/rv/COVID19-currentlevels.html

Comments on selected states:

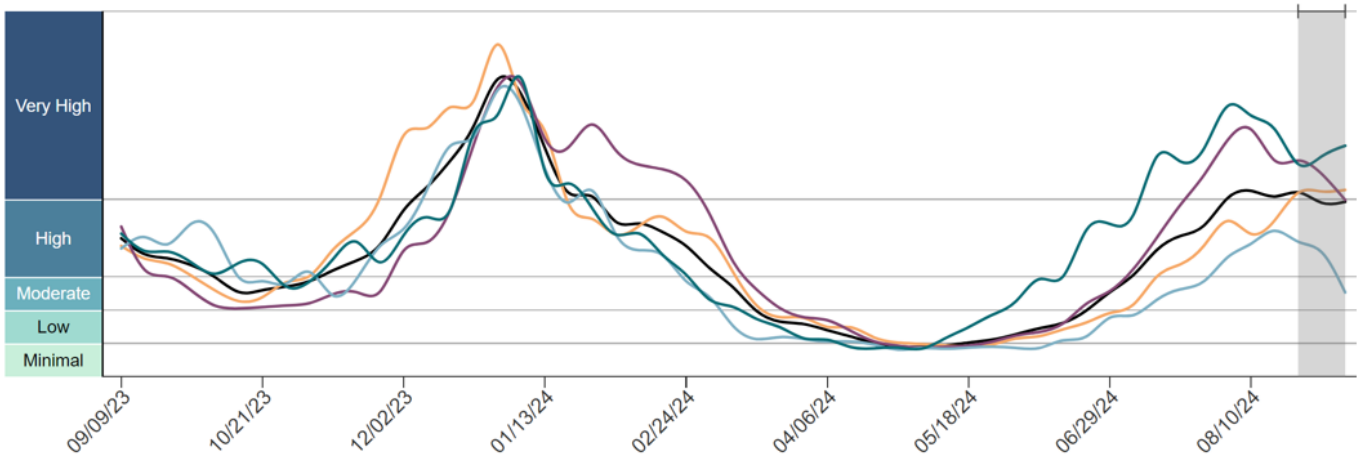
- **Missouri:** Ranks highest in current transmission (7.0% actively infectious), but only one site reporting, and the extreme uptick looks aberrant. It may be corrected, and that could push the national average downward.
- **Minnesota:** Ranks 2nd highest (5.1% actively infectious), locally attributed to their popular state fair.
- **Oregon:** No data. They had the highest transmission (6.5% actively infectious) when last reporting.
- **Michigan:** Continued low transmission (0.8% actively infectious) relative to other states.
- **New York:** Appears to have low transmission (0.4% actively infectious), relative to other states. Note that this conflicts with other dashboards (WastewaterSCAN and Walgreens) we consider of lower quality, but that show high transmission. The discrepancy may be due to high transmission in NYC but low transmission in the non-NYC areas that are covered by the CDC.



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	2.5% (1 in 40)	2.6% (1 in 38)
	Northeast	1.2% (1 in 83)	1.3% (1 in 80)
	Midwest	2.7% (1 in 38)	2.8% (1 in 36)
	South	2.5% (1 in 40)	2.6% (1 in 38)
	West	3.3% (1 in 30)	3.4% (1 in 29)

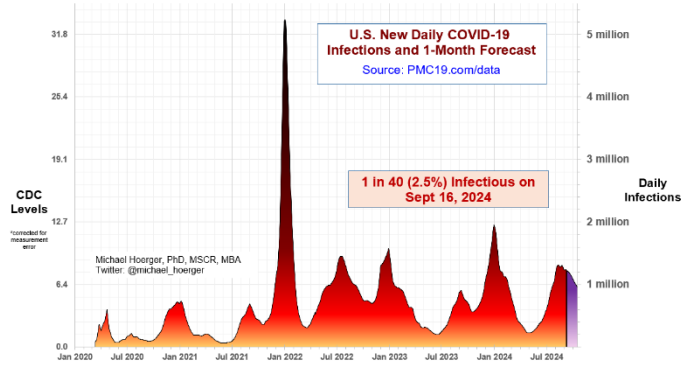
* The "Raw CDC" values are simply the value in the CDC chart multiplied by the PMC Regional Multiplier. The "PMC Model" estimates adjust those data by accounting for reporting time lag.

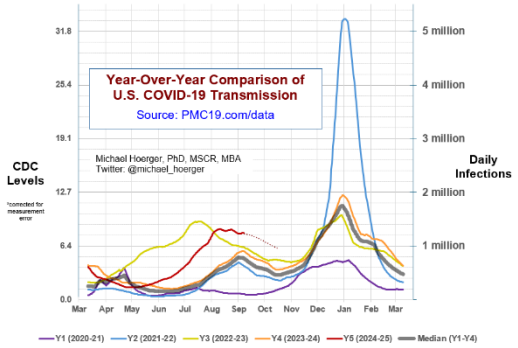
PMC Regional Multiplier*
0.329

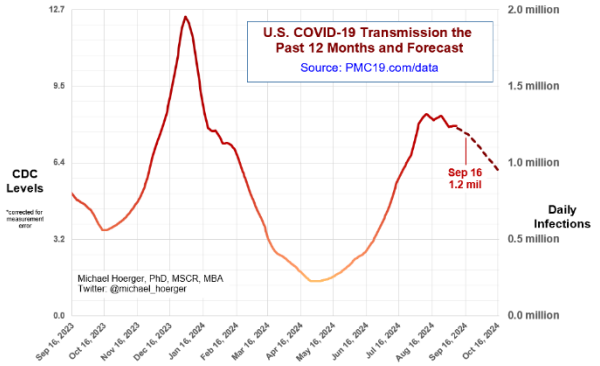
* CDC level multiplied by the PMC Regional Multiplier provides an approximate estimate of the percentage actively infectious.

PMC COVID-19 Dashboard

Here is the complete PMC COVID-19 Dashboard. Please share the images across social media and other websites.
Michael Hoerger, PhD, MSCR, MBA | Pandemic Mitigation Collaborative | pmc19.com/data







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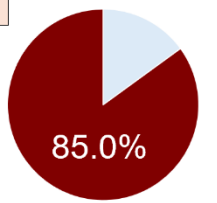
pmc19.com/data Michael Hoerger, PhD, MSCR, MBA Twitter: @michael_hoerger



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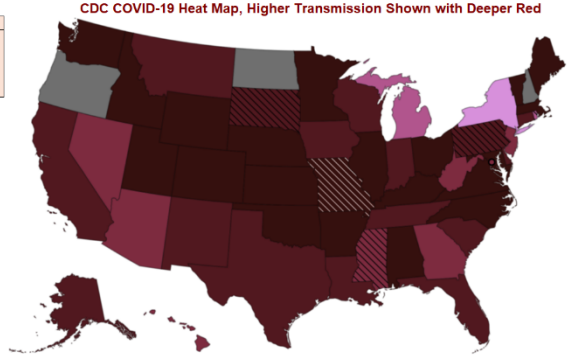
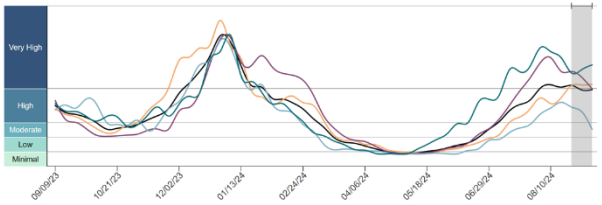
CDC COVID-19 Heat Map, Higher Transmission Shown with Deeper Red



CDC Regional Levels with PMC Estimates of the Percentage Actively Infectious



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Announcements

July 11
Recent COVID chat on Twitter had >2,000 listeners:
https://x.com/AnciraBecky/status/1808429122831401145

July 24
TODAY covers the PMC Forecast for the summer wave:
https://www.today.com/health/coronavirus/states-with-highest-covid-rates-2024-rcna163403

Aug 1
Check out our new empirical article in JAMA-NO framing masking in healthcare as a healthcare quality indicator.
Article: https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2821699
Summary: https://www.msn.com/en-gb/health/other/masking-policies-prevalent-in-top-cancer-centers-amid-winter-covid-wave/ar-BB1qZWnr
Twitter Spaces Conversation: https://x.com/i/spaces/1OdKrXllryAJX
*If new to Twitter, it is not terribly challenging to create an account. Do so, and check in once a month or so. You may find it more useful than realized. I did.
PPT for the Space: https://pmc19.com/jama.pdf

Aug 15
The dashboard and a related pilot project were featured on CBS, NBC, and FOX:
https://www.wwltv.com/article/news/health/new-orleans-free-home-air-filters-for-cancer-patients-covid-cases-special-kit-safe/289-5d873151-7069-478a-ab03-2260cd08c22a

Sep 17
Data Discussion with Dr. Moriarty, see pg. 2 of this report.

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