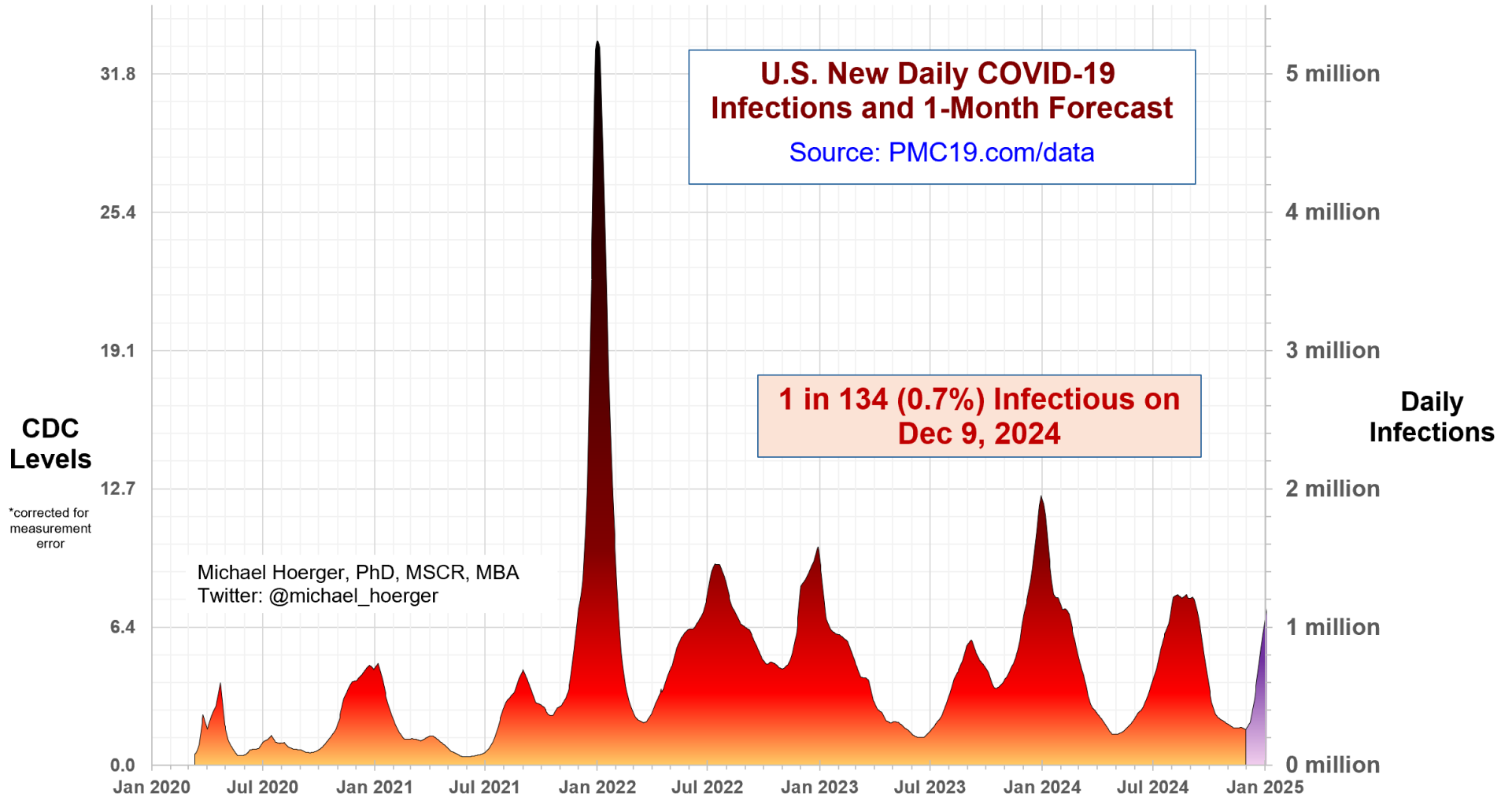


# PMC U.S. COVID-19 Case Estimation and Forecasting Model: Report for December 9, 2024, [pmc19.com/data](http://pmc19.com/data)

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



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## Announcement

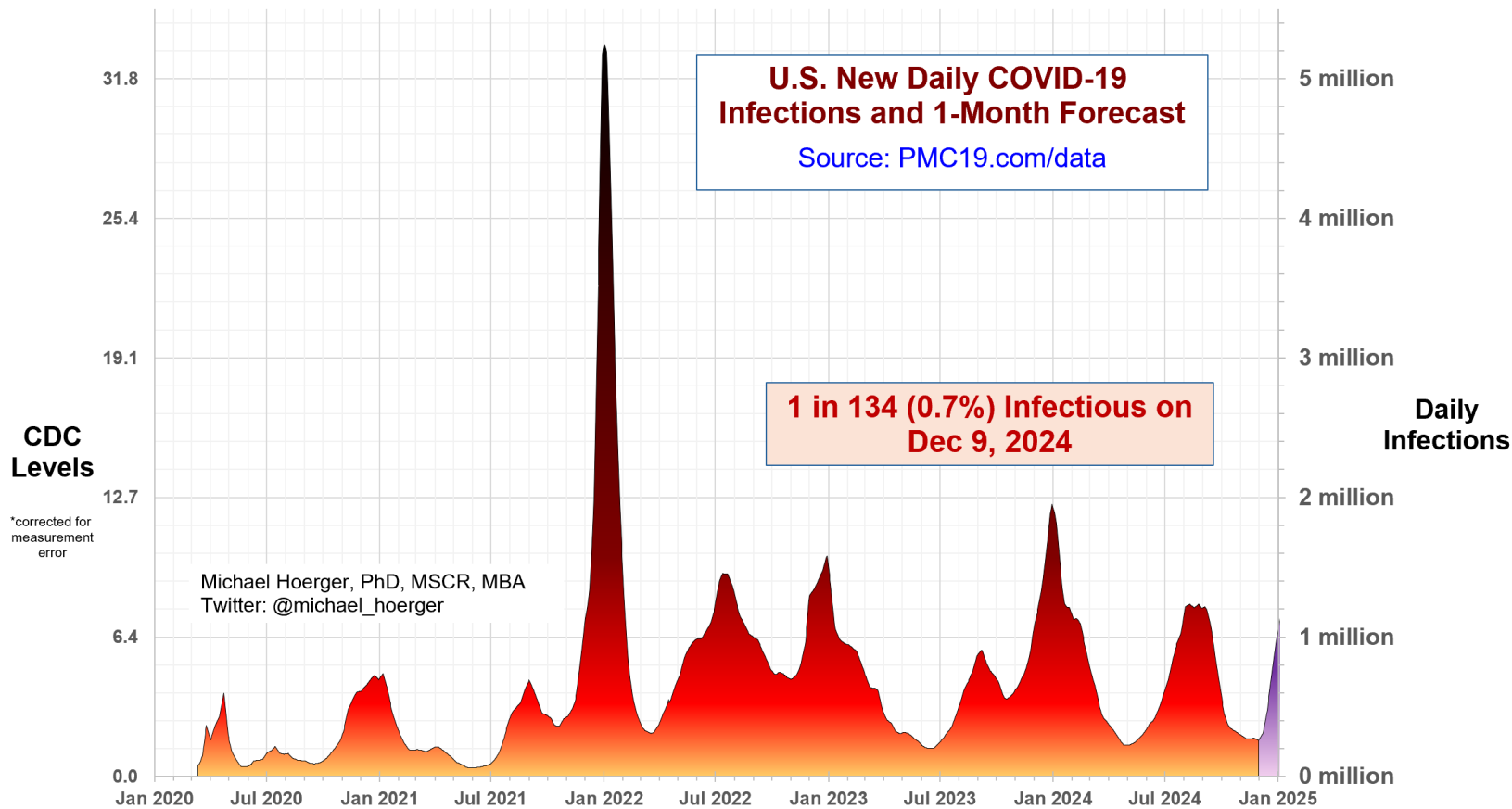
**Letters of Support:** As we aim to expand the COVI-CAN Covid Defense program for people with cancer, we are seeking the support of organizations interested in fighting cancer, fighting Covid, or supporting public health more generally. Earlier this year, we ran a pilot program funded by Tulane University and the American Cancer Society to distribute Covid Defense Kits to patients with cancer. Cancer is one of the greatest risk factors of severe outcomes of Covid, including Long Covid, and even a so-called mild infection often means stopping treatments for over a month. The kits include a booklet we developed explaining Covid transmission and how to reduce the risk of Covid, with information tailored to people with cancer and their families. The kits also include 5 FlowFlex rapid tests, 50 high-quality masks tailored to the sizing and usability needs of patients and their families, and 2 air purifiers. Our goal is to expand the program to 1,000 patients and families across the U.S. and conduct the best community-based study of Covid mitigation to date. In the long-term, we hope to expand similar types of programs to other high-risk and health-conscious groups, especially other individuals who are immunocompromised or have Long Covid. We believe the evidence from the study will improve public policy surrounding community-based precautions and precautions in medical settings. Accordingly, we are resubmitting a promising grant application on an invited fast-track deadline. We hope to have 50-80 letters of general support from allied regional, national, and international organizations and bipartisan U.S. elected officials. Please reach out to Dr. Hoerger ([mhoerger@tulane.edu](mailto:mhoerger@tulane.edu)) if potentially interested in helping, and we will make the process as easy as possible. Thank you.

Project Link: <https://covican.com/>



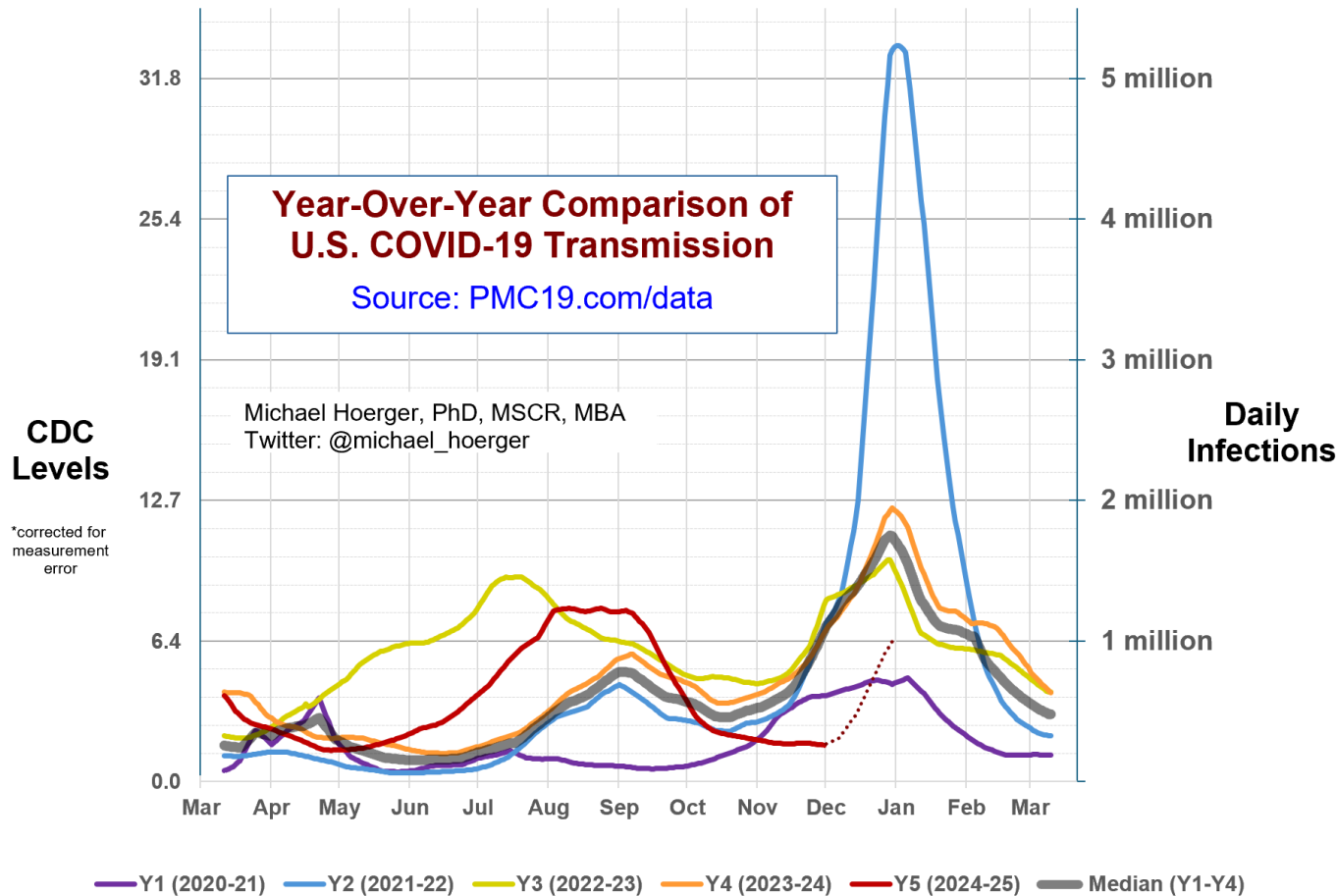
# The Big-Picture View of the Pandemic

We're in the most uncertain forecasting moment of the past 2.5 years. Our model, which accounts for historical transmission and recent changes, estimates just over 1 million daily cases by the end of the year. However, a good over/under would probably be 750,000. Expect a higher peak if we see a subvariant like LP.8.1. take off. If our subvariant evolution continues to paint itself into a corner, expect a later or irregular 10<sup>th</sup> wave peak, likely with considerable regional variation. Despite this uncertainty, the forecast will provide a better and better estimate and good early warning about 2 weeks out. Follow Dr. H. on Twitter for daily updates on the various dashboards.



# Year-Over-Year Comparisons

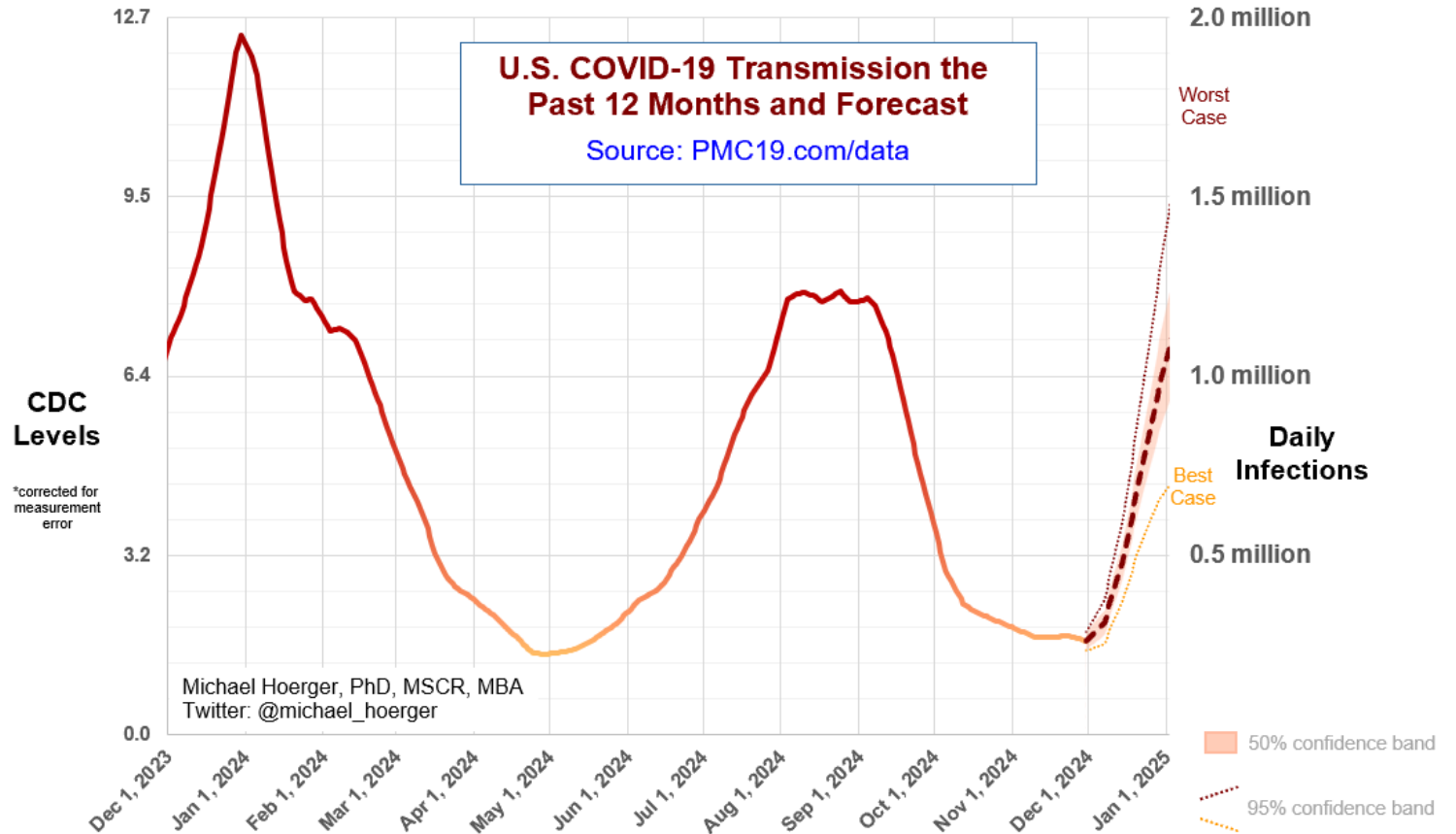
This is the most useful graph in this report because it clearly shows how 2024 transmission has varied so considerably from prior years. The start of the month likely saw the lowest level of Covid transmission nationally since 2019. Continue to monitor the forecast closely to see if transmission accelerates more in line with seasonal patterns. If it does not, encourage people to keep a closer eye on transmission the next 3 months, as we would be in for something atypical that forecasters by consensus would generally describe as quite concerning.



## Close-up on the Current Forecast

As the lull has extended the past two weeks, the estimated wave peak has declined. By the end of the year, the model suggests a peak of approximately 1 million daily infections. Under a worst-case scenario, the peak would be closer to 1.5 million daily infections. However, the model does not account for the atypical subvariant evolution. The model's best-case scenario is closer to 0.7 million daily infections. A good over/under would probably be 0.75 million when qualitatively considering factors outside the model. LP8.1 is potentially a critical factor that will determine whether transmission is at the low end for this time of year or bends closer to that 1.0 million mark. Biobot (20% weight in our model) did not report data last Wednesday. Dashboards outside of our model show increases, including a national increase in Walgreens' dashboard and a moderate increase in the Midwest and extreme increase in the

Northeast on the WastewaterSCAN dashboard. If the national peak is at the lower end, expect more regional volatility the next several months, greater challenges forecasting, and likely a more roller-coaster like wave appearance for the national average. If transmission remains flat the next two weekly CDC reports, the peak could be as low as 0.6 million, even below our 95% confidence interval.



## Supplemental Statistics

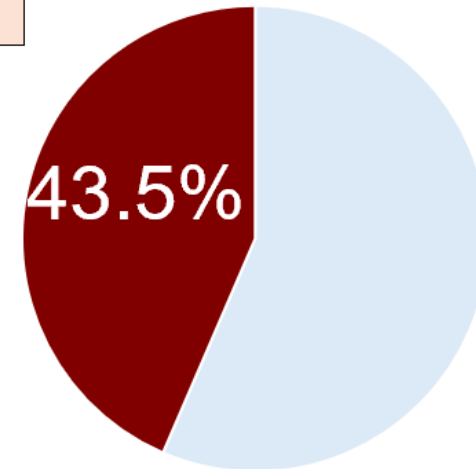
These supplemental statistics may prove useful in conversations about transmission and mitigation. The numbers are similar to the past 2 weeks. We see that 1 in 134 are actively infectious, or 0.7% of the population. In a university classroom of 100 people, it should be assumed that someone (about a 50% chance) has infectious COVID. Transmission is higher than 44% of the pandemic and lower than 56% of the pandemic. Note that we estimate 238 million infections in the U.S. so far this year as 2024 winds down.

Current Levels for Dec 9, 2024	
<b>% of the Population Infectious</b>	0.7% (1 in 134)
<b>New Daily Infections</b>	358,000
<b>New Weekly Infections</b>	2,506,000
<b>Resulting Weekly Long COVID Cases</b>	125,000 to 501,000

Monthly Forecast	
<b>Average % of the Population Infectious</b>	1.6% (1 in 61)
<b>Average New Daily Infections</b>	785,867
<b>New Infections During the Next Month</b>	23,576,000
<b>Resulting Monthly Long COVID Cases</b>	1,179,000 to 4,715,000

Running Totals	
<b>Infections Nationwide in 2024</b>	238,369,000
<b>Average Number of Infections Per Person All-Time, U.S.</b>	3.49

How Does Risk Increase with More Social Contacts?			
Number of People	Chances Anyone Is Infectious	Number of People	Chances Anyone Is Infectious
1	0.7%	15	10.7%
2	1.5%	20	14.0%
3	2.2%	25	17.1%
4	3.0%	30	20.2%
5	3.7%	35	23.1%
6	4.4%	40	26.0%
7	5.1%	50	31.3%
8	5.8%	75	43.1%
9	6.5%	100	52.9%
10	7.2%	300	89.5%



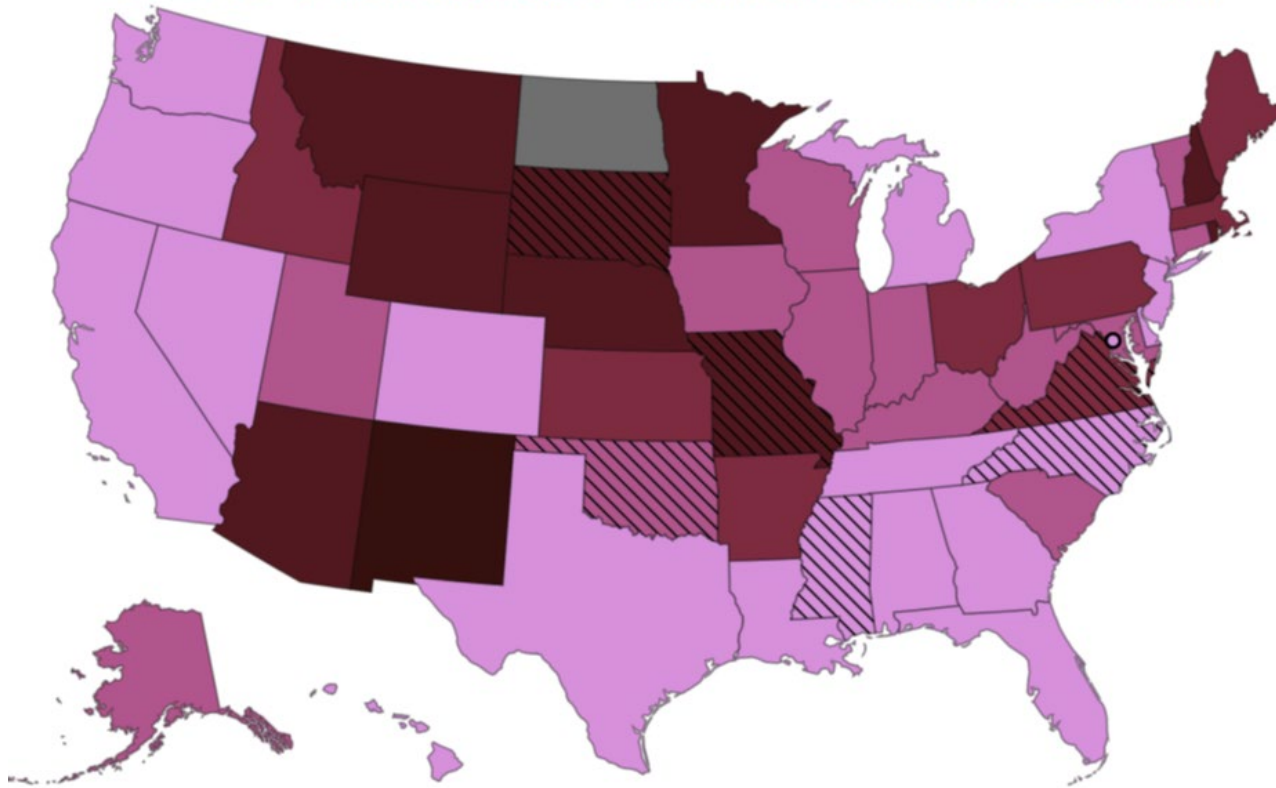
**There is more COVID-19 transmission today than during 43.5% of the pandemic.**

## 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 to 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>

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



# Regional Case Estimation

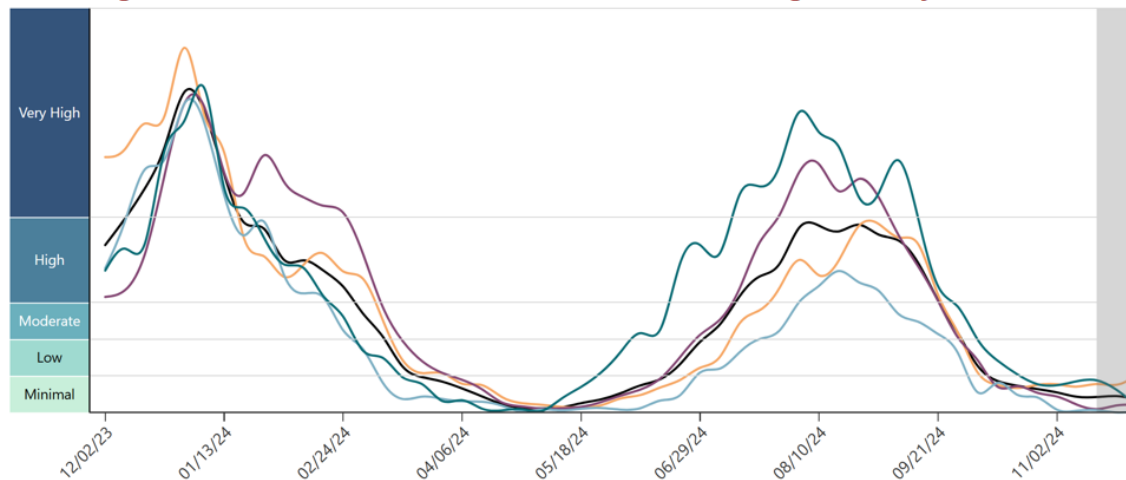
This graph from the CDC shows regional variation in transmission. You can use the “PMC Regional Multiplier” to get a ballpark estimate the proportion of a given region actively infectious with COVID-19 (see Technical Appendix document on the dashboard page).

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	0.7% (1 in 134)	0.6% (1 in 179)
Northeast	0.5% (1 in 186)	0.4% (1 in 251)
Midwest	1.1% (1 in 88)	0.8% (1 in 118)
South	0.7% (1 in 153)	0.5% (1 in 205)
West	0.6% (1 in 155)	0.5% (1 in 209)

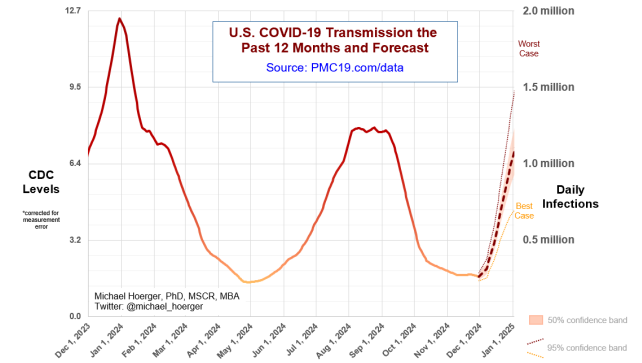
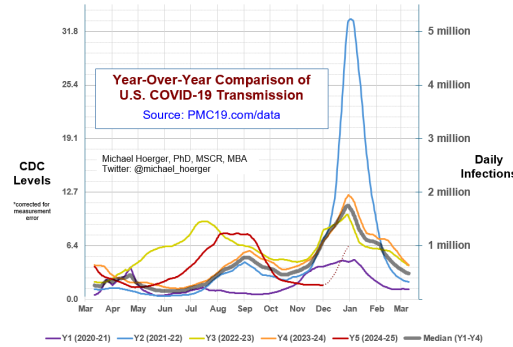
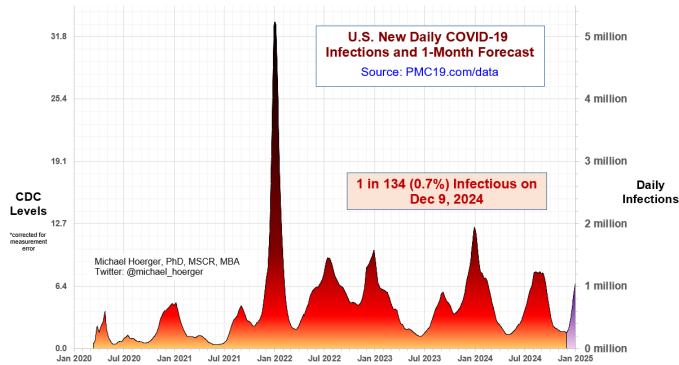
**PMC Regional Multiplier\***  
0.329

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

\* 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 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](http://pmc19.com/data)



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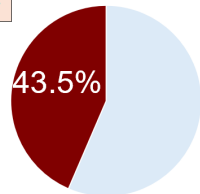
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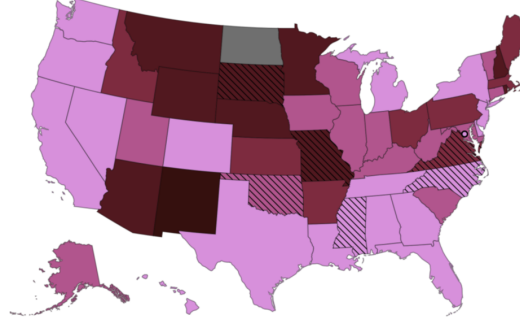
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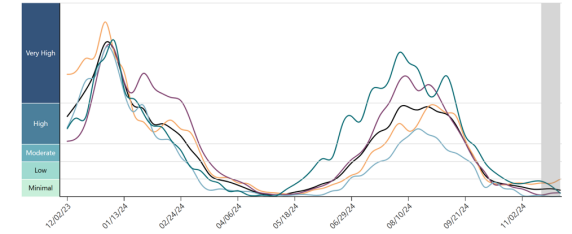


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**PMC Regional Multiplier\***

National	0.329
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\* The "Raw CDC" values are simply the values in the CDC chart multiplied by the PMC Regional Multiplier. The "PMC Model" estimates adjust those data by accounting for reporting time lag.

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

## Announcements

### 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.wvltv.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

Dr. Hoerger joined Dr. Moriarty and COVID-19 Resources Canada. We will post a link when the archived video is available. We received an update that the archived version is in progress.

### Later in 2024

Dr. Hoerger joins as a guest on the new podcast, Public Health Is Dead. No financial COIs. Catch the trailer online:

<https://www.publichealthisdead.com/>

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