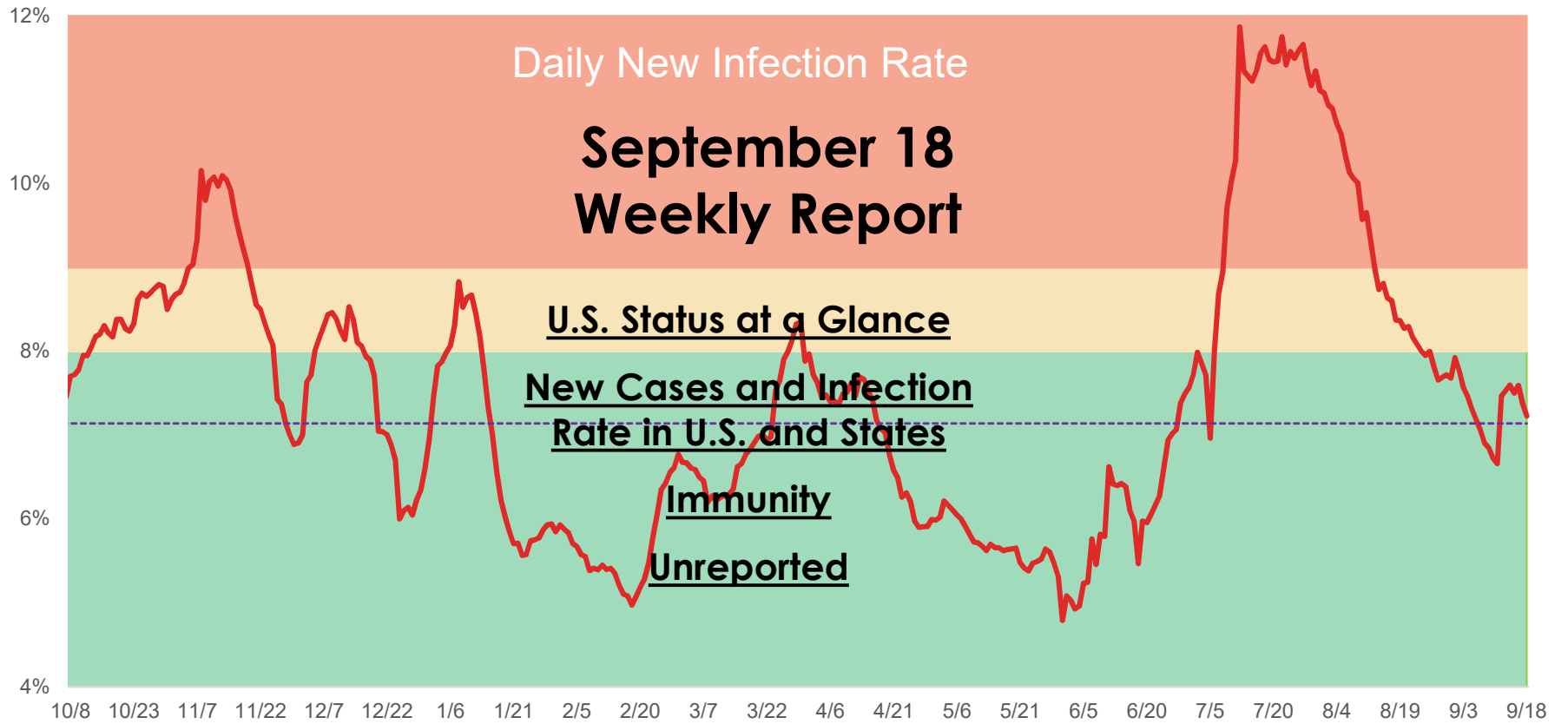


COVID Monitoring

1



U.S. COVID Status At a Glance

2

	September 11	September 18	Change
Cases in U.S.	40.9 M	42.0 M	+1.1 M
U.S. NIR	6.7%	7.2%	+0.6%
U.S. Infection Level (per 100k)	658	657	-1

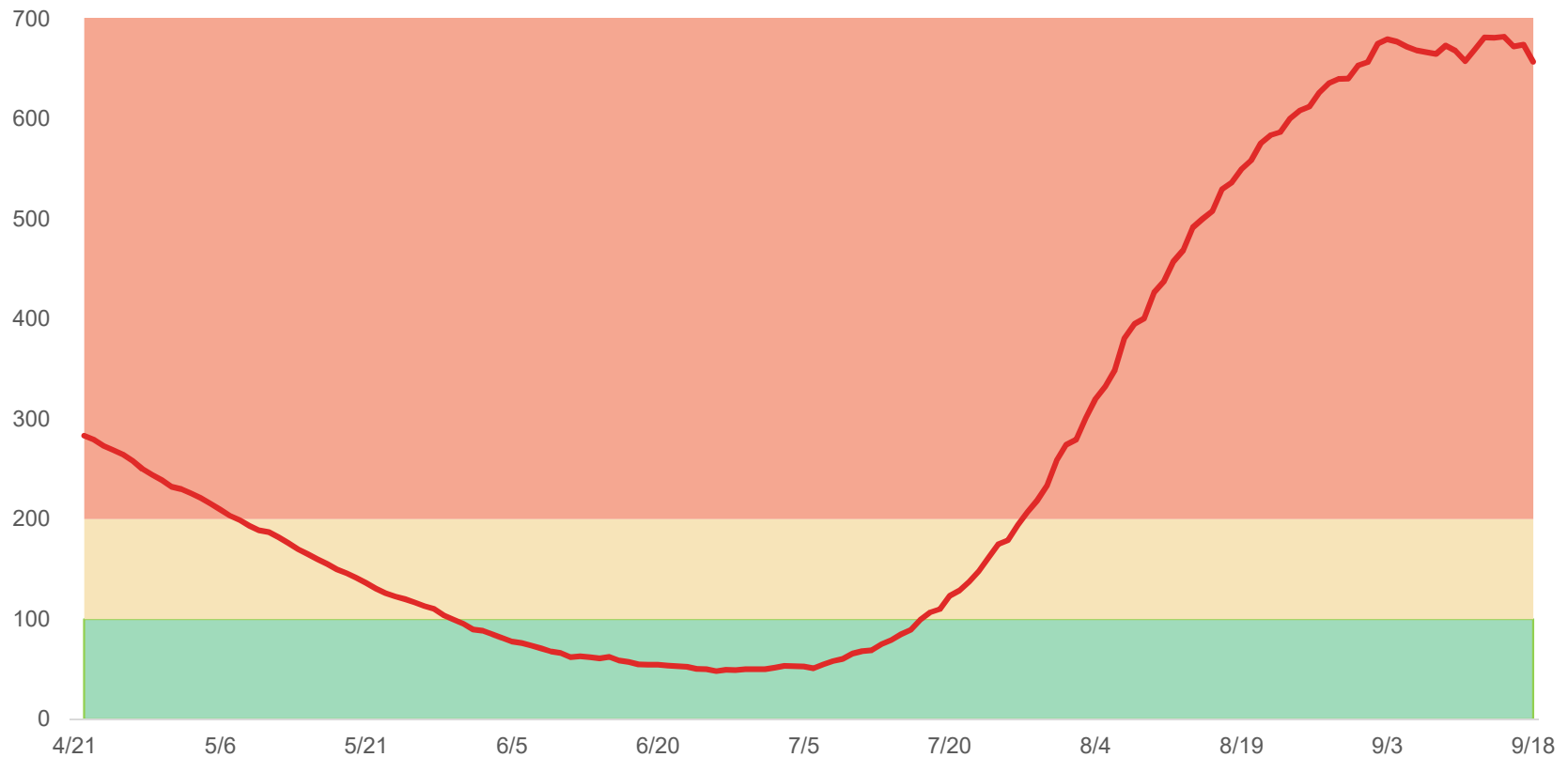
Using data from Johns Hopkins and the CDC, we calculate two statistics:

- ▶ **Infection Level** - The rate of new cases in each state and the U.S. per 100,000 people
- ▶ **Daily New Infection Rate [NIR]** - Rolling average of an individual day's rate of new infections compared to the previous two weeks

This report is a continuation of the analysis of the COVID-19 Pandemic without the view of Mitigation Compliance that was the main driver of the COVID Mitigation Monitoring Project.

Infection Level in U.S. (14-days New Cases per 100,000 People)

3



Based on the sum of new cases over previous 14 days. Data indicates most infections last about 14 days.*

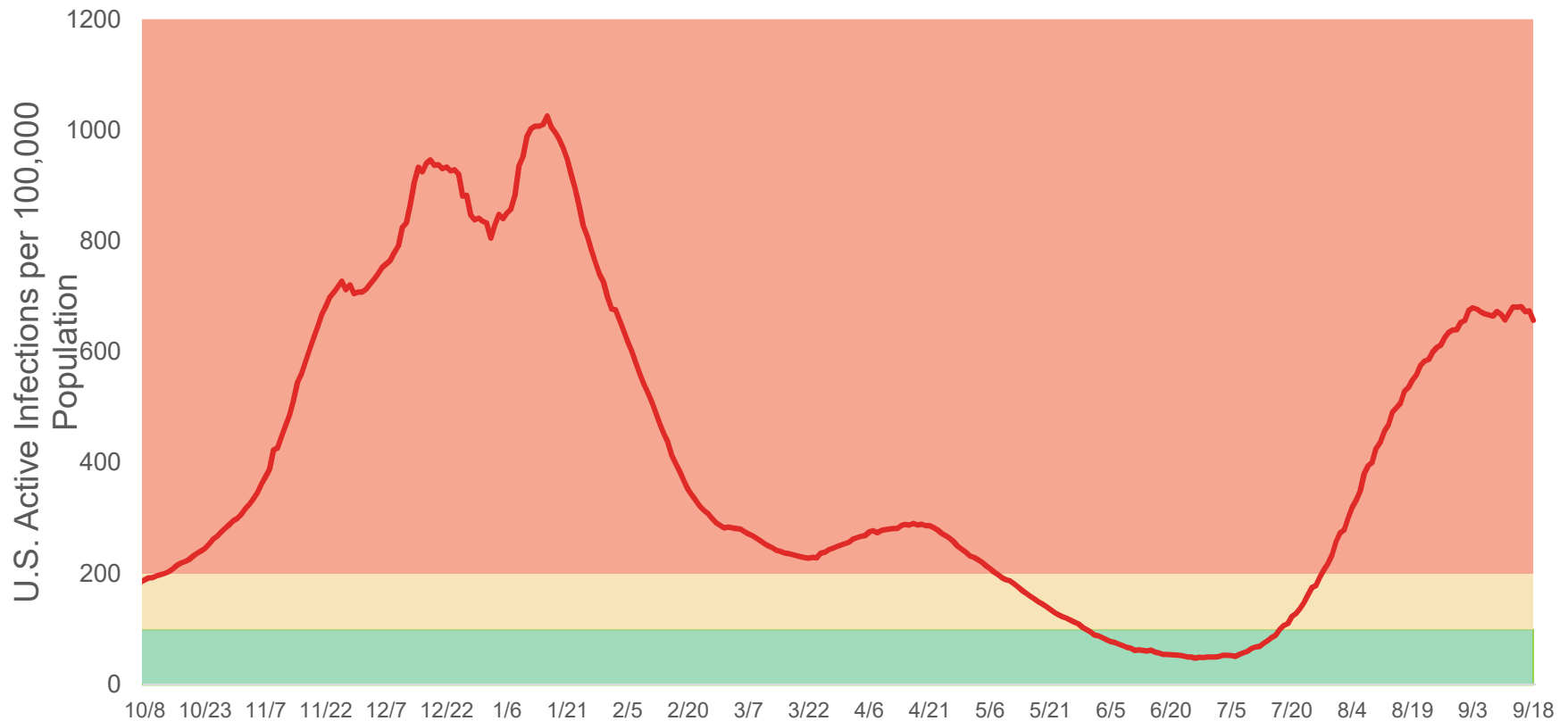
The Infection Level stayed the same this week. Read further in this report to see if there is any indication of what might be driving this.

*Source: [Health.Com Article "How Long Does Coronavirus Last"](#)

Infection Level in U.S.

(14-days New Cases per 100,000 People)

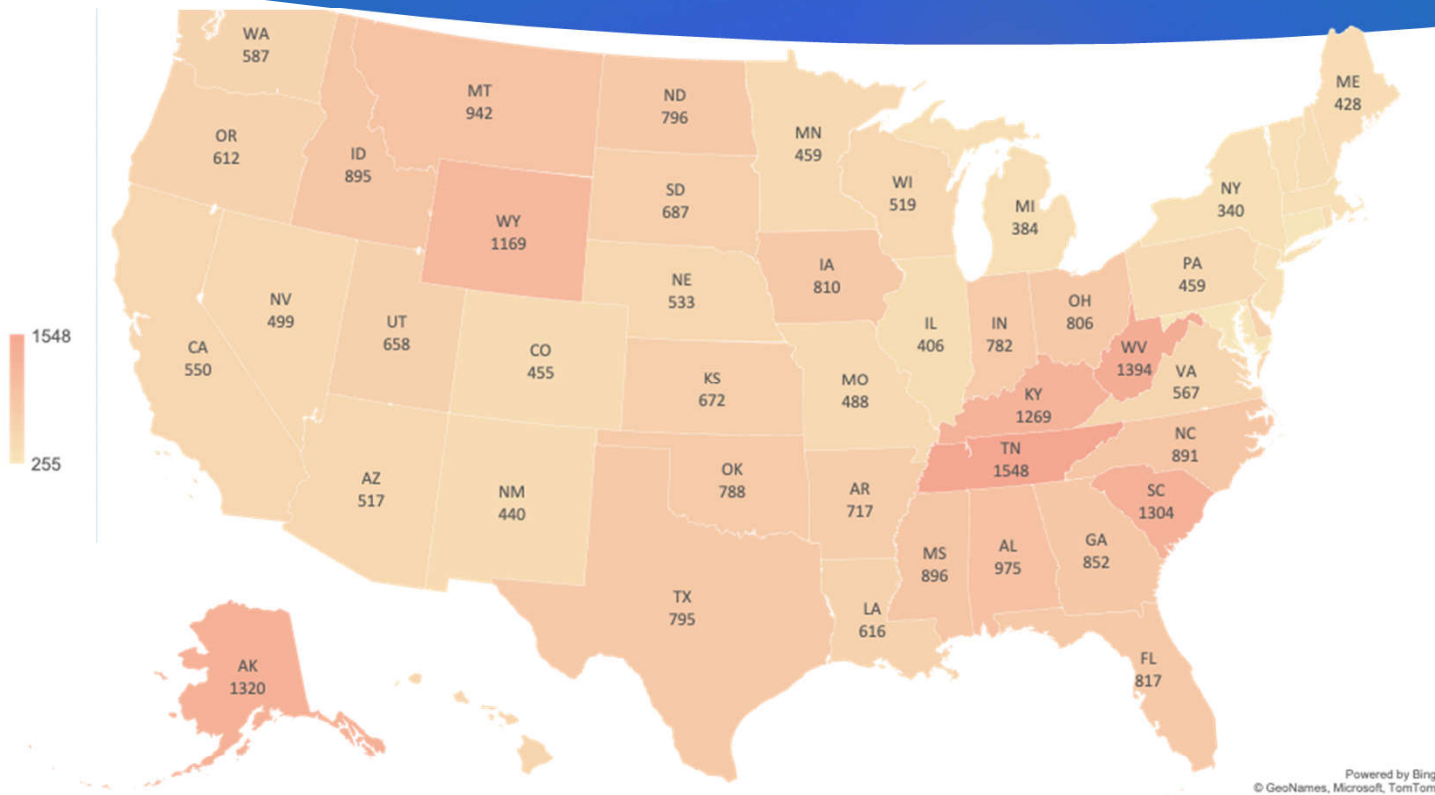
4



The long-term look at Infection Level shows that we may be peaking at about two-thirds the peak level of last winter. Still cannot tell whether this peak is a plateau of pause to be followed by further increases or the start of a drop in infections.

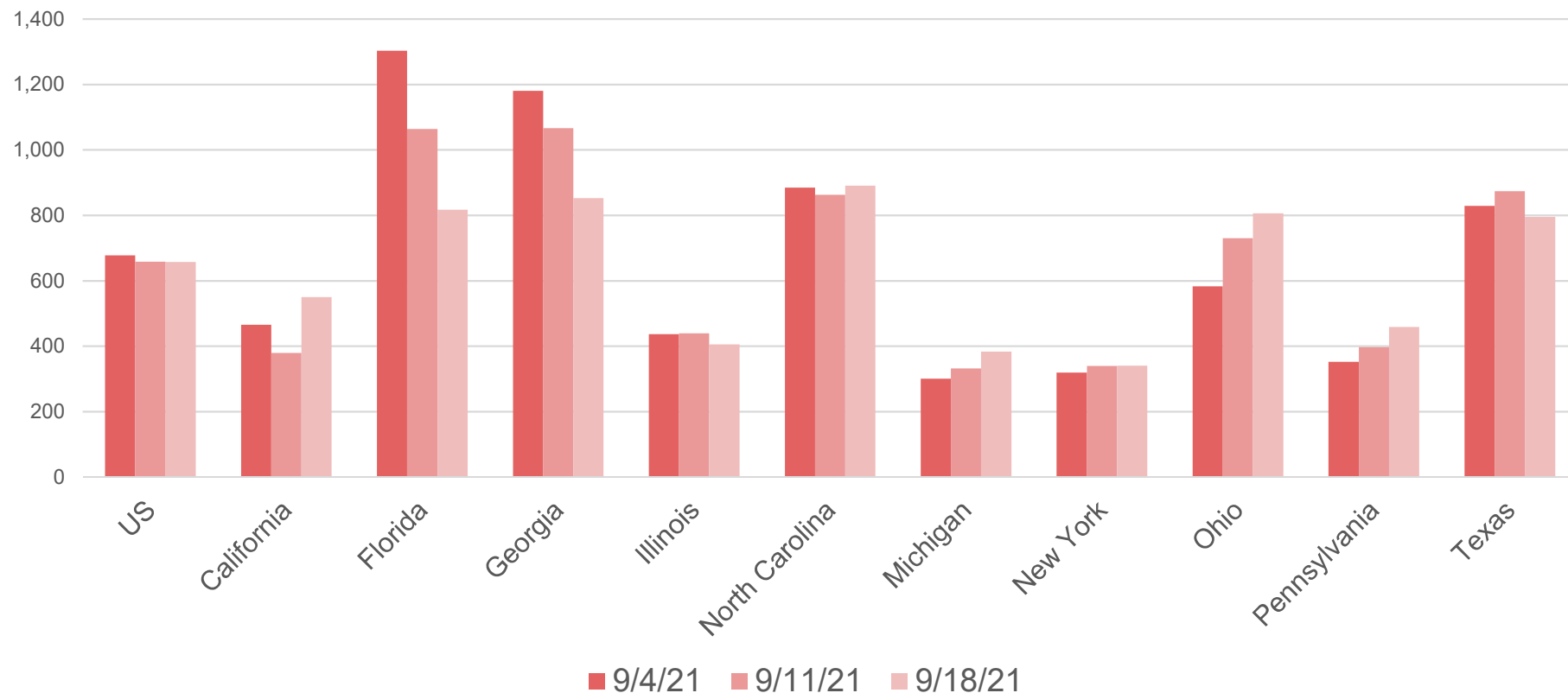
Infection Level in US

(14 days Reported New Cases per 100,000 People)



No states report being below 200 per 100,000. Thirty-three states are above 500. This week, twenty-one states had a decrease in Infection level down from twenty-three states last week.

Current Reported Infection Level Top 10 Most Populous States

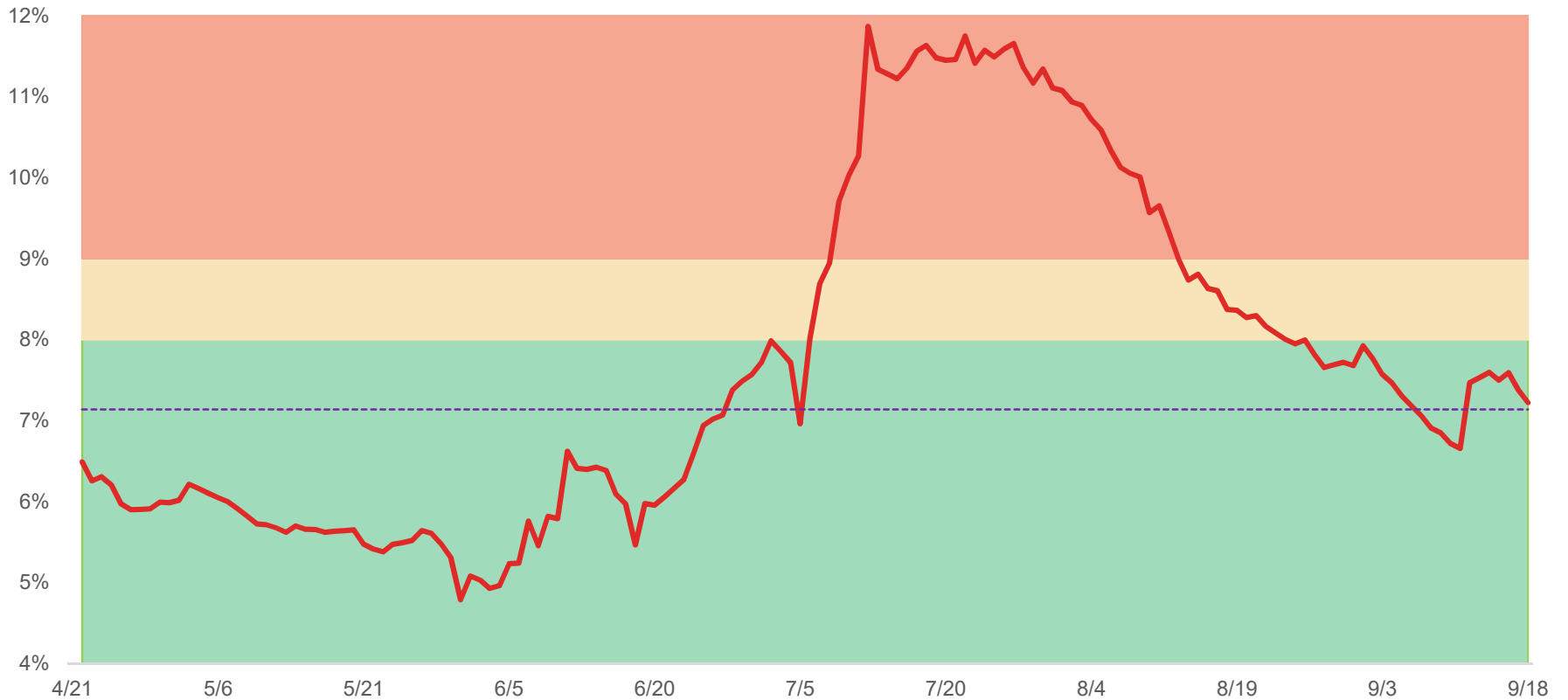


Infection levels rose in five of ten states. Four states decreased and New York held steady. Florida, North Carolina and Georgia are above 800 for the third week in a row, now joined by Ohio. Texas fell to slightly below 800.

Daily New Infection Rate in US [NIR]

(percentage of last two week's cases, rolling 7-day average)

7



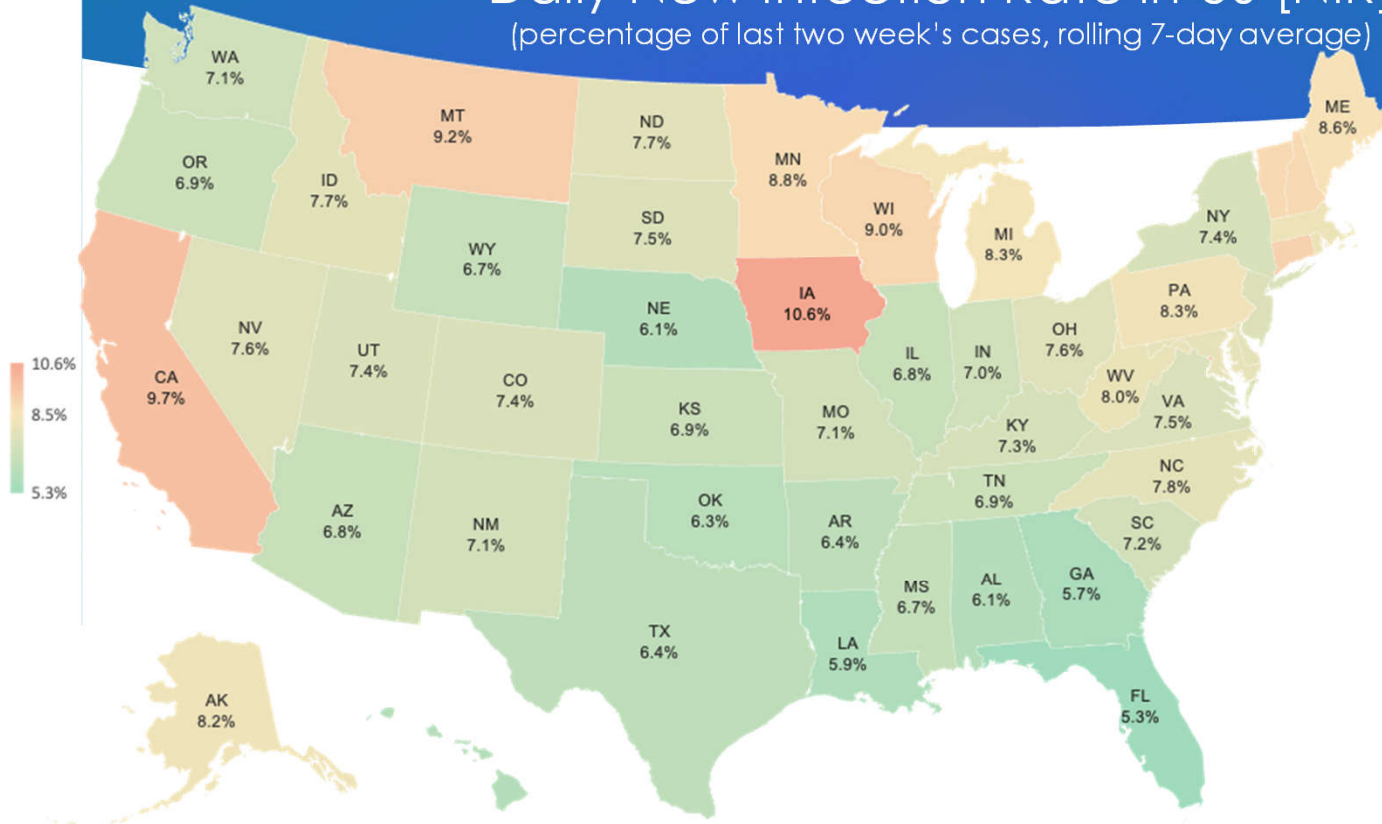
No Growth Level: If new infections in the US remain below 7.14%, the number of cases of COVID will shrink over time in the US.

The New Infection Rate (NIR) has now very slightly above the 7.14% No Growth level which means a likely very small increases or decreases in the coming week.

Daily New Infection Rate in US [NIR]

(percentage of last two week's cases, rolling 7-day average)

8



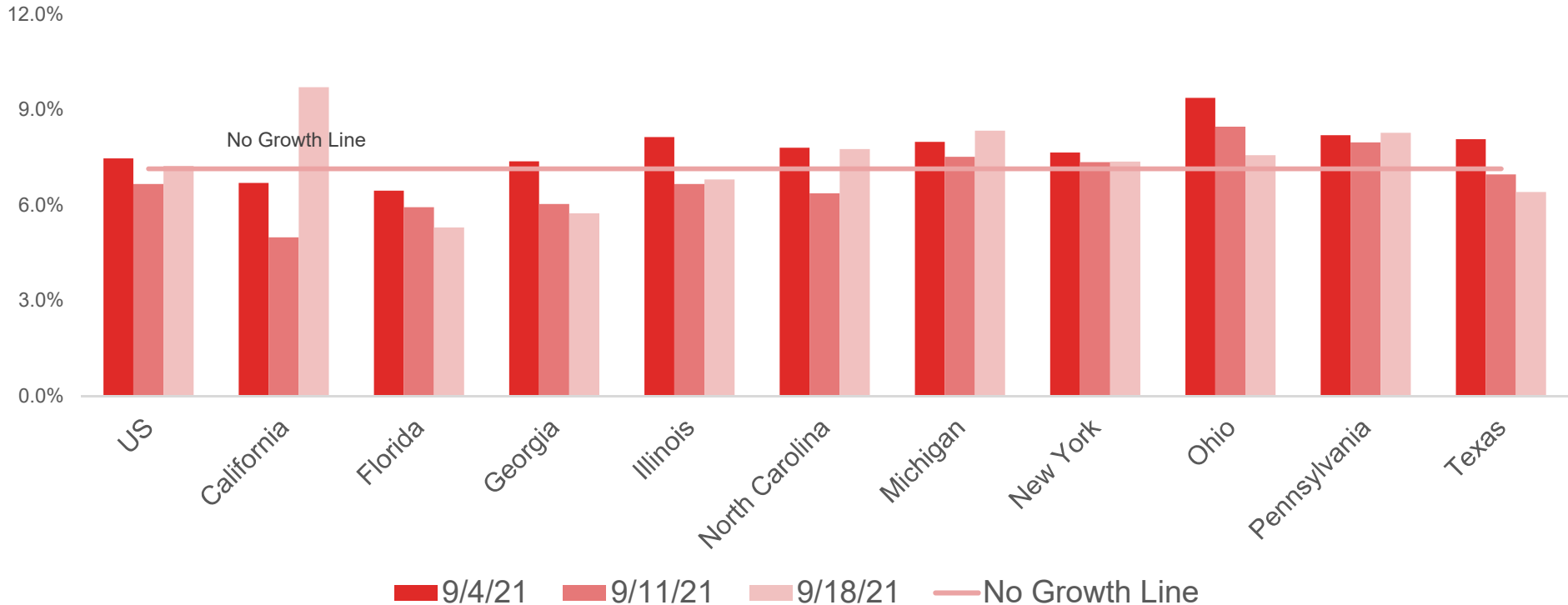
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Thirty-two states are now below the No Growth level (7.14%). Thirteen states had a significant (>1%) weekly increase in NIR, while only Nebraska had a decrease of 1% or more in NIR last week. The other 37 states stayed within +/- 1% of the prior week.

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Daily New Infection Rate in US [NIR]

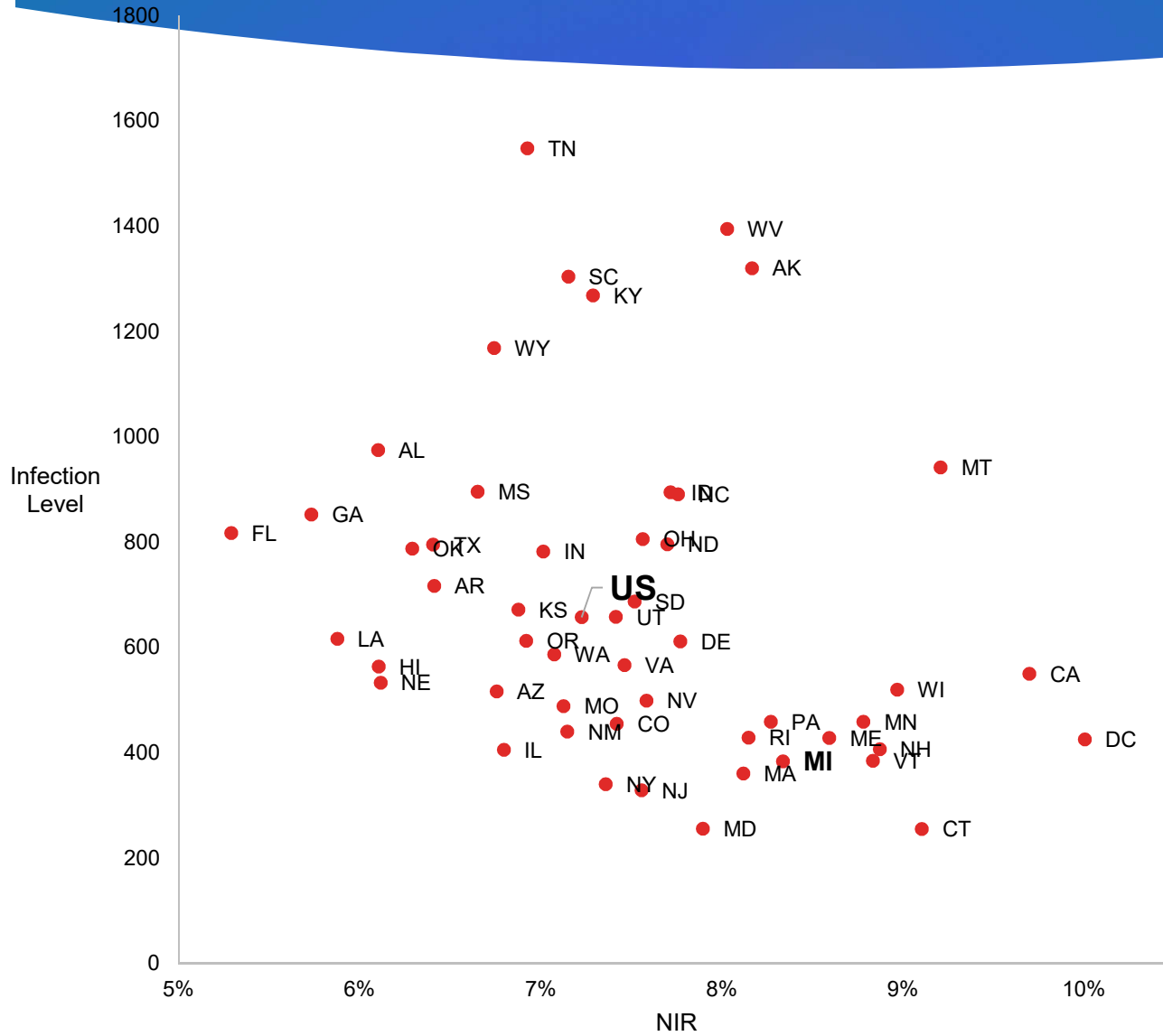
(percentage of last two week's cases, rolling 7-day average)



No Growth Level: If new infections in the US remain below 7.14%, the number of cases of COVID will shrink over time in the US.

The New Infection Rate (NIR) is at or below the No Growth Level nationally and for five of the ten largest states. Only four of these states had decreases in NIR. California had a large increase in NIR. This suggests that the largest states will show small increases and small decreases in Infection Level in the coming weeks.

Infection Level per 100,000 people and Rolling 7-Day average of today's cases as a percentage of total active cases [NIR], Sep 18



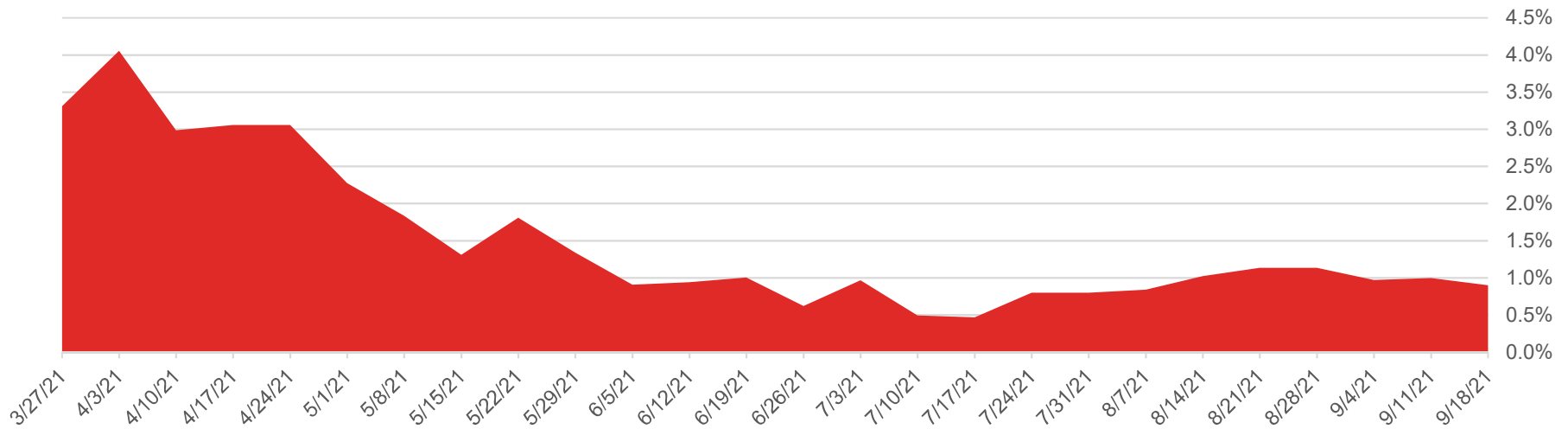
	New Infection Rate		
	<8%	8% - 9%	>9%
Infection Level >800	FL GA ID NC OH TN AL KY MS SC WY	AK WV	IA MT
Infection Level 500 - 800	AZ HI IN KS ND NE TX VA WA AR DE LA OK OR SD UT	WI	CA
Infection Level <500	IL MD MO NJ NV NY CO NM	MA ME MI MN PA RI NH VT	CT DC

Immunities

From Reported Recoveries and Vaccinations

Immunities	14-Aug	21-Aug	28-Aug	4-Sep	11-Sep	18-Sep
Recovered / Immune	34.2 M	35.0 M	35.8 M	36.9 M	37.9 M	39.0 M
Vaccinated	171.2 M	174.1 M	177 M	179.2 M	181.3 M	183.1 M
Total Immune	205.4 M	209.1 M	212.8 M	216 M	219.3 M	222.2 M
Pct of Population	63.0%	64.1%	65.3%	66.2%	67.2%	68.1%

Weekly Increase in Percent Immune

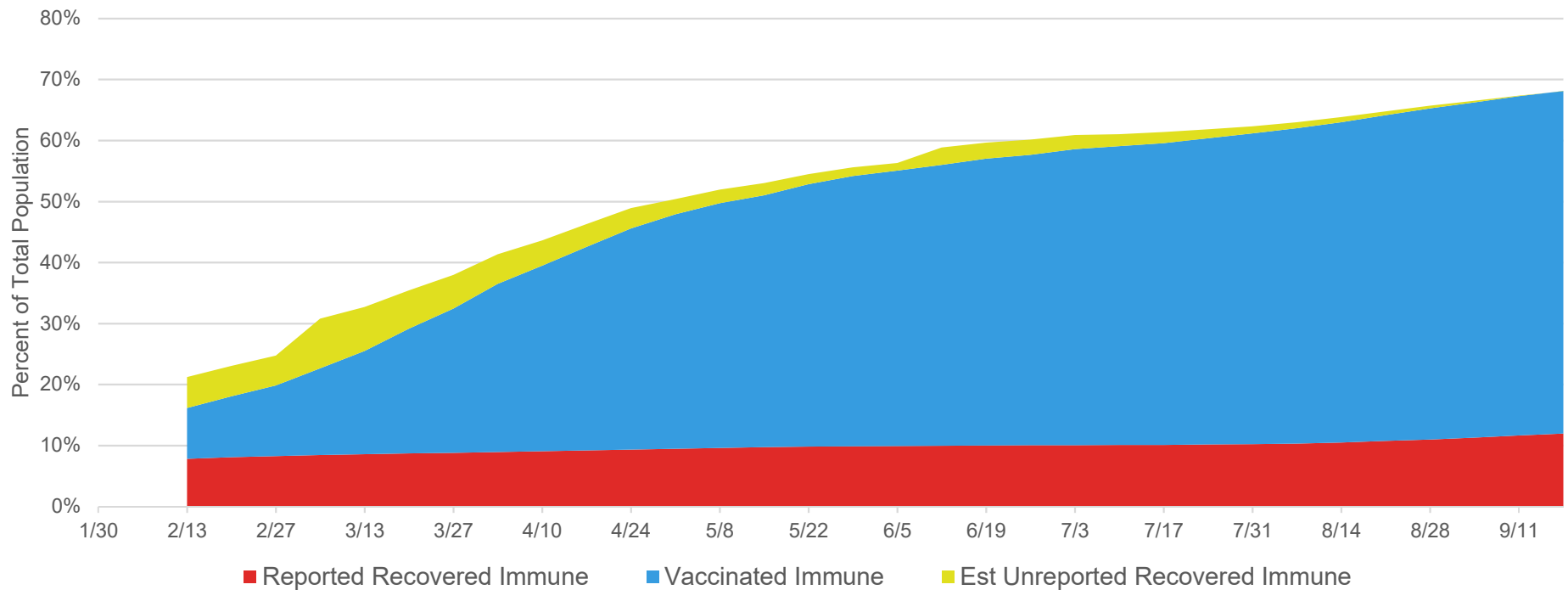


Immunities are increasing very slowly as vaccinations have slowed significantly.

Estimated Immunity Impact of Unreported Infections Based upon CDC Seroprevalence Study

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Estimated Total Immune



CDC Seroprevalence Study collects data on presence of antibodies in thousands of blood samples drawn for routine medical tests from labs across the U.S. These calculations show an estimate of the number of unreported cases assuming that this study is representative of the entire population. This report uses the recently released June 2021 update. Underreporting jumped substantially in some states but declined in others and in total declined as a percentage of reported cases. For this display, net underreporting declines over time as we are assuming that a proportionate share of the recovered immune people are getting vaccinated and are then reported in the vaccinated group.

Estimated Immunity Level by State

Based upon Reported Infections and vaccinations

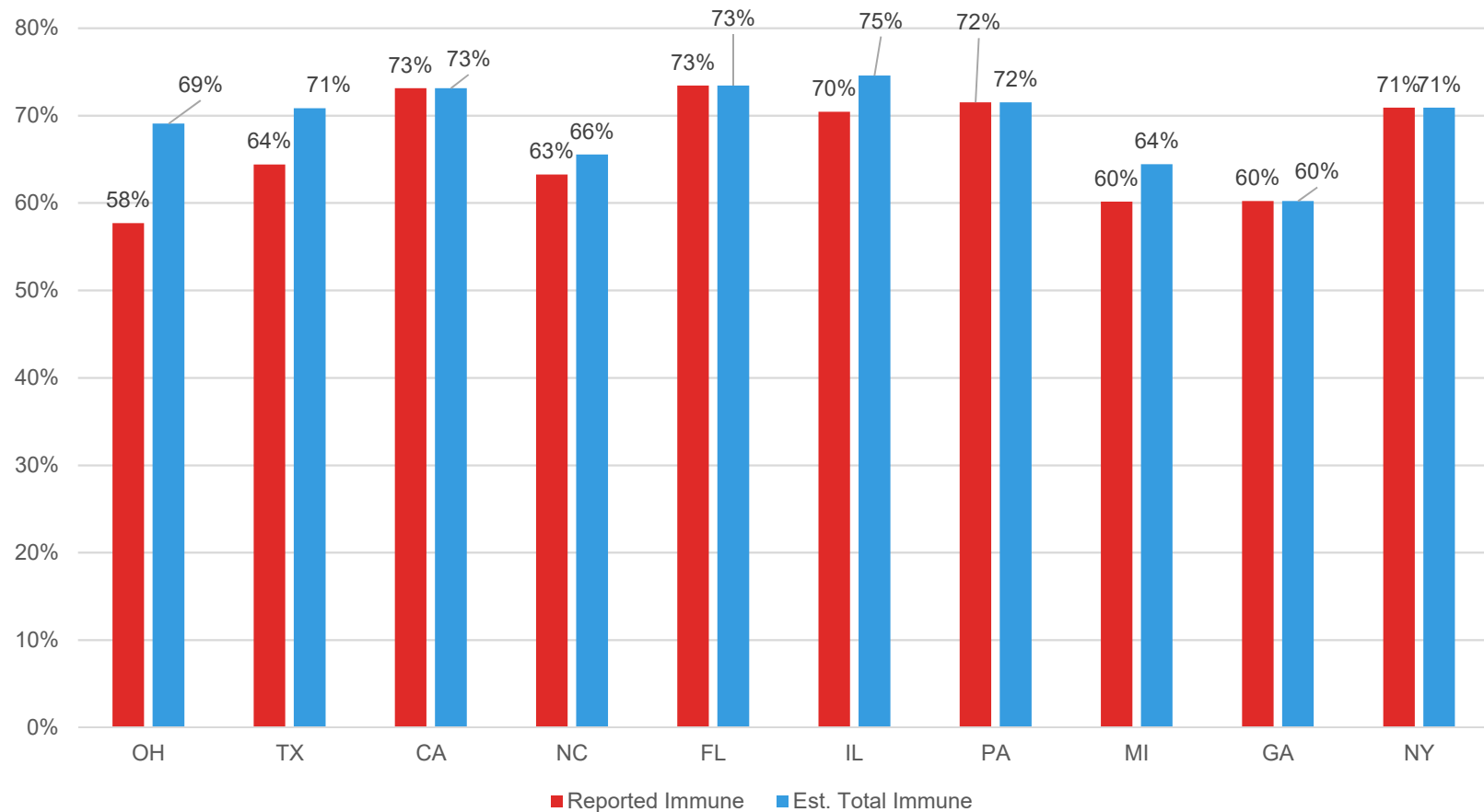
Highest Immunity Level			
		Reported	With Estimated Unreported
1	Rhode Island	78%	78%
2	Massachusetts	77%	77%
3	Connecticut	76%	76%
4	New Mexico	74%	74%
5	Florida	73%	73%
6	California	73%	73%
7	New Jersey	72%	73%
8	Pennsylvania	72%	72%
9	Vermont	71%	71%
10	New York	71%	71%

Lowest Immunity Level			
		Reported	With Estimated Unreported
51	Idaho	52%	52%
50	West Virginia	53%	53%
49	Wyoming	55%	61%
48	Ohio	58%	69%
47	Indiana	58%	62%
46	Alabama	58%	65%
45	North Dakota	59%	63%
44	Mississippi	59%	68%
43	Montana	59%	59%
42	Louisiana	60%	60%

Note: These estimates do not reflect time lag in vaccine reaching full effectiveness.

Immunities as percent of Total Population (Top 10 Most Populous States)

14



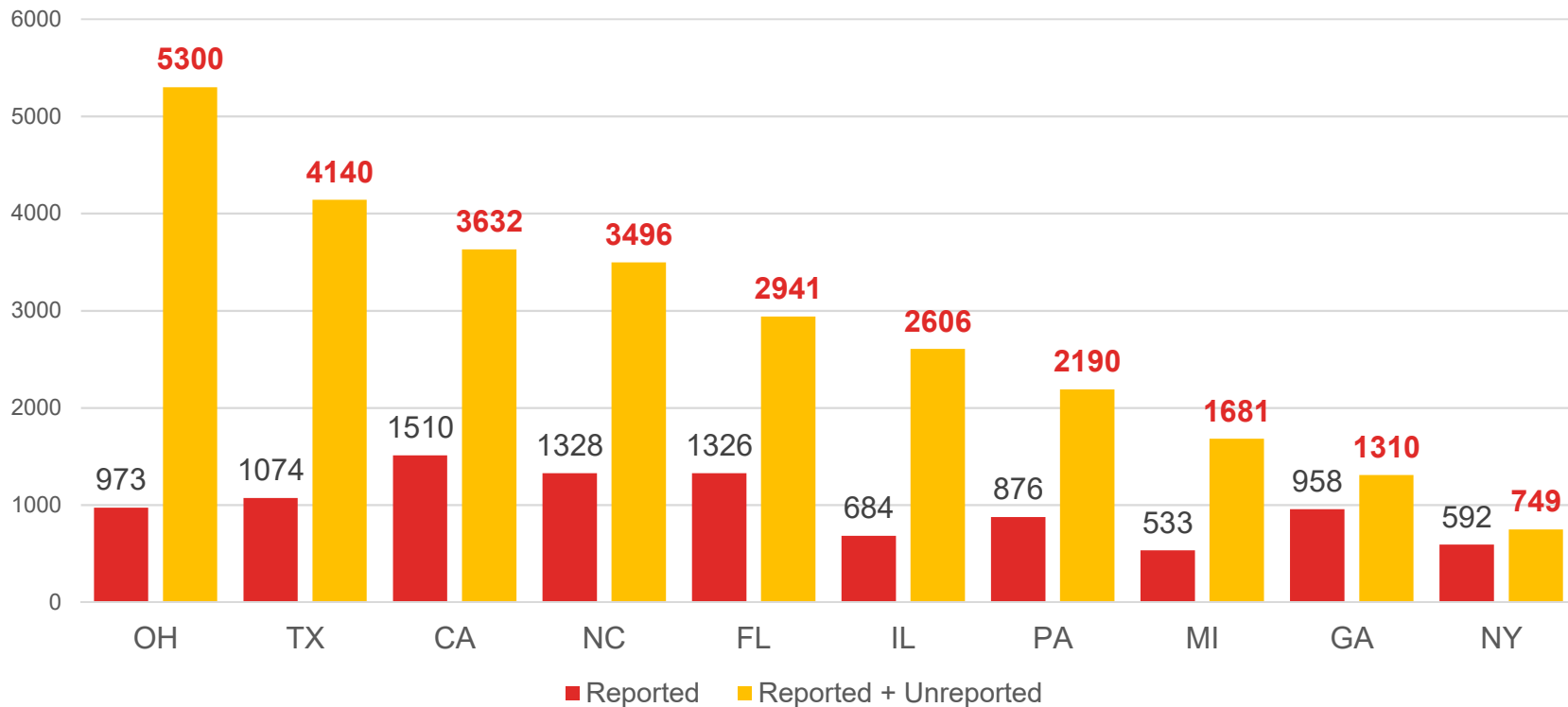
Immune levels have finally reached 60% in Georgia including the estimated unreported cases. Florida immune level is above U.S. average of 69% and while infection level is still very high, it is falling. Some states with the higher immunity levels have lower NIR, but some have higher NIR, which suggests that no states have yet hit herd immunity level of immunities.

Past week's New Infections

(Reported + Unreported)
per 100k Susceptible People

15

Week ending Sep 18 new infections per 100k Susceptible



Quite a wide range of New Infections compared to the susceptible population in each state. This ratio fell in several states as new infections fell. Note that this is not a suggestion that all infections are of susceptible people.

Updated for the May 2021 Seroprevalence report from CDC.

- ▶ This report relies upon data from public sources for the analysis. No attempt has been made to verify independently the accuracy of this data. CMMP does not represent or otherwise guarantee the accuracy or completeness of such data nor assume responsibility for the result of any error or omission in the data or other materials gathered from any source in the preparation of this analysis.
- ▶ There are many uncertainties inherent in this analysis. Future outcomes may vary considerably from past reports, especially as this is an emerging situation and there have been frequent corrections made to the data as more becomes known to the data providers.
- ▶ CMMP does not recommend making decisions based solely on the information contained in this analysis. Rather, this analysis should be viewed as a supplement to other information, including specific mitigation practices, claims experience, and financial situation. Independent professional advisors should be consulted with respect to the issues and conclusions presented herein and their possible application.
- ▶ This analysis is not intended to be a complete actuarial communication, and as such is not intended to be relied upon. A complete communication can be provided upon request.