

# **COVID 19**

**March 2020 to September 2021**

**Lessons Learned and Learnings from confronting  
previous and the current pandemic**

*Health policy is a critical component of economic and  
foreign policy and should be part of economic and  
foreign policy discussions throughout not just in a crisis*

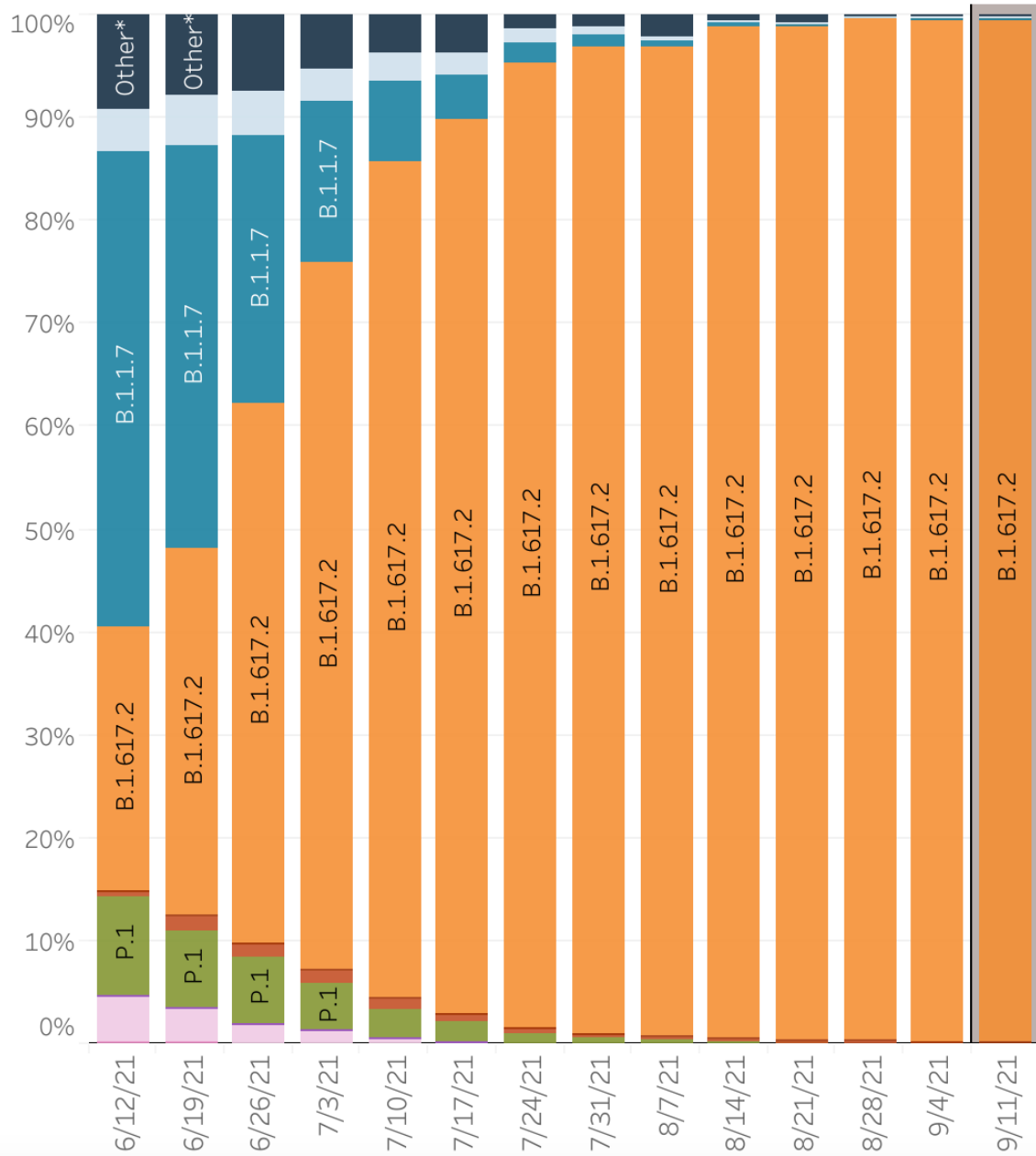
# The pandemic in the USA : What we know

- To date
  - **March-May 2020** surge with main origin SARS-CoV2 though a slight variation with primary China derived strain (West Coast) and the European variant (East Coast) – loss of approx. 100K Americans
  - **June-August 2020** surge primarily across the Sunbelt, inclusive of CA, AZ, NM, TX, LA, MS, AL, FL, GA, SC as outdoor heat drove families and friends inside to gather – loss of approx. 100K Americans
  - **September-February 2021** surge across the country beginning in Northern America and Heartland as cooling temperatures drove families and friends inside to gather Loss of 300K Americans
  - **Late March and April 2021** alpha variant across MI, WI, MN – loss of approx. 40K Americans
  - **July – Current 2021 surge** – Delta variant across the Sunbelt but with much early spread into the Rocky Mountain States, Central Valley of CA and moving into the Midwest and IN, OH, WVA, KY, TN – already another 100K Americans loss and continues
  - Current surge is **similar in geography** to last summer’s surge but with **more rapid increase in cases** and more rapid movement towards the North
  - **Current surge is proving to be higher in case numbers, hospitalizations and fatalities than the summer surge last year despite vaccine availability**
- This raises significant concern for the Fall and Winter 2021-2022 - preparing and planning now is critical
- **Vaccinees** with an immune response have significant protection against severe disease, hospitalization and death
- However, **vaccinees** can be transiently infected with high nasal viral load and transmission to others during this infection even if asymptomatic or with mild disease
- We don’t know the full protection of the most vulnerable groups as we don’t have clear real-life immunogenicity from nursing homes and the frail elderly in our communities – if they received Pfizer they need to receive a third dose as soon as possible as recommended by the FDA and

United States: 6/6/2021 – 9/11/2021

United States: 9/5/2021 – 9/11/2021 NOWCAST

\*\* \*\*



USA

WHO label	Lineage #	Type	%Total	95%PI
Alpha	B.1.1.7	VOC	0.0%	0.0-0.2%
Beta	B.1.351	VOC	0.0%	0.0-0.2%
Gamma	P.1	VOC	0.0%	0.0-0.2%
Delta	B.1.617.2	VOC	99.4%	98.6-100.0%
	AY.1	VOC	0.2%	0.0-0.7%
	AY.2	VOC	0.1%	0.0-0.5%
Eta	B.1.525	VOI	0.0%	0.0-0.2%
Iota	B.1.526	VOI	0.0%	0.0-0.2%
Kappa	B.1.617.1	VOI	0.0%	0.0-0.2%
Mu	B.1.621		0.1%	0.0-0.5%
N/A	B.1.617.3	VOI	0.0%	0.0-0.2%
Other	Other*		0.2%	0.0-0.7%

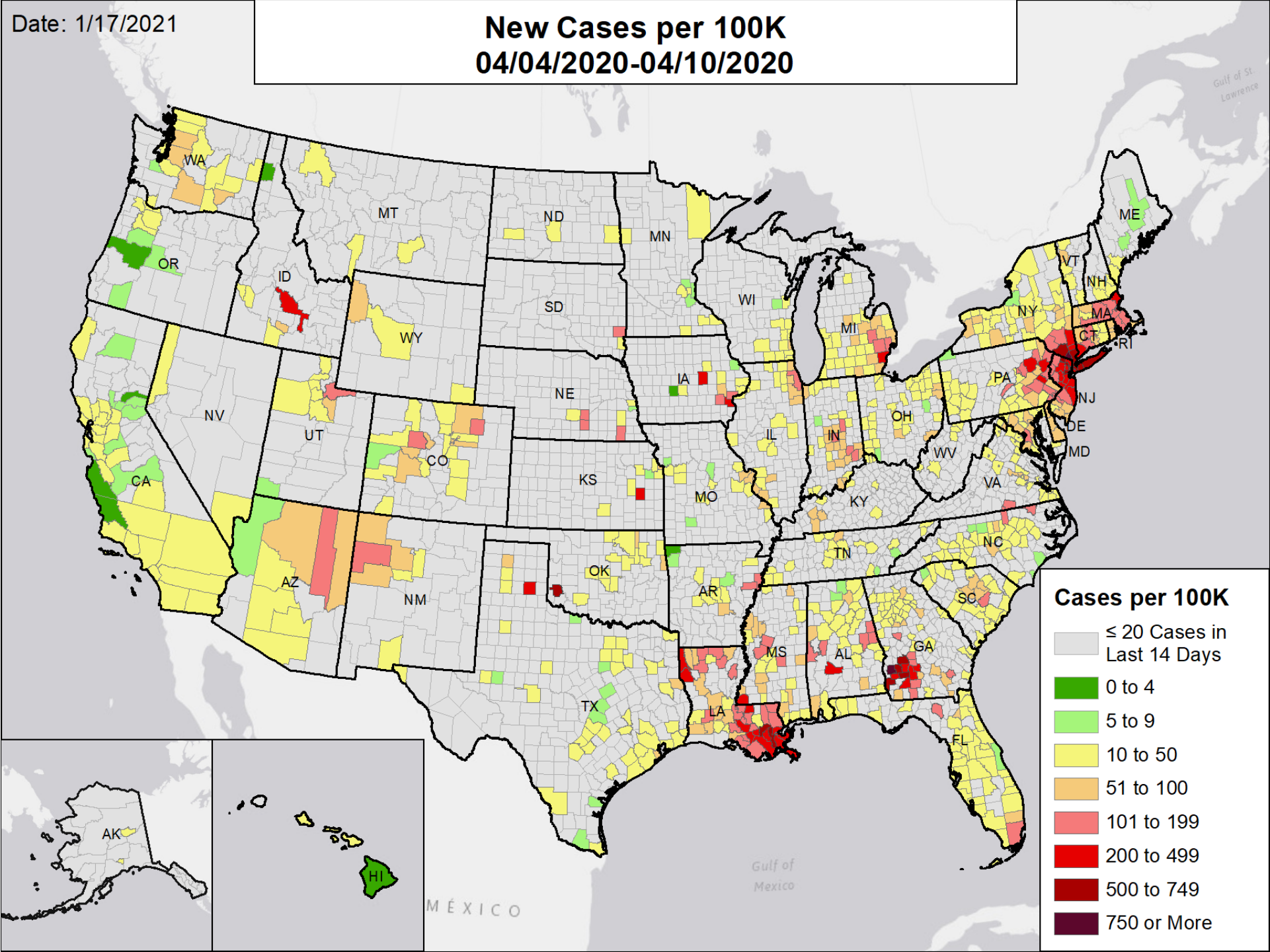
Alpha variant 1.6X  
Blue columns

Delta variant 2.4X  
Orange columns

\* Enumerated lineages are VOI/VOC or are circulating >1% in at least one HHS region during at least one two week period; remaining lineages are aggregated as "Other".  
 \*\* These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates  
 # Sublineages of P.1, B.1.351 and B.1.621 are aggregated with the parent lineage and included in parent lineage's

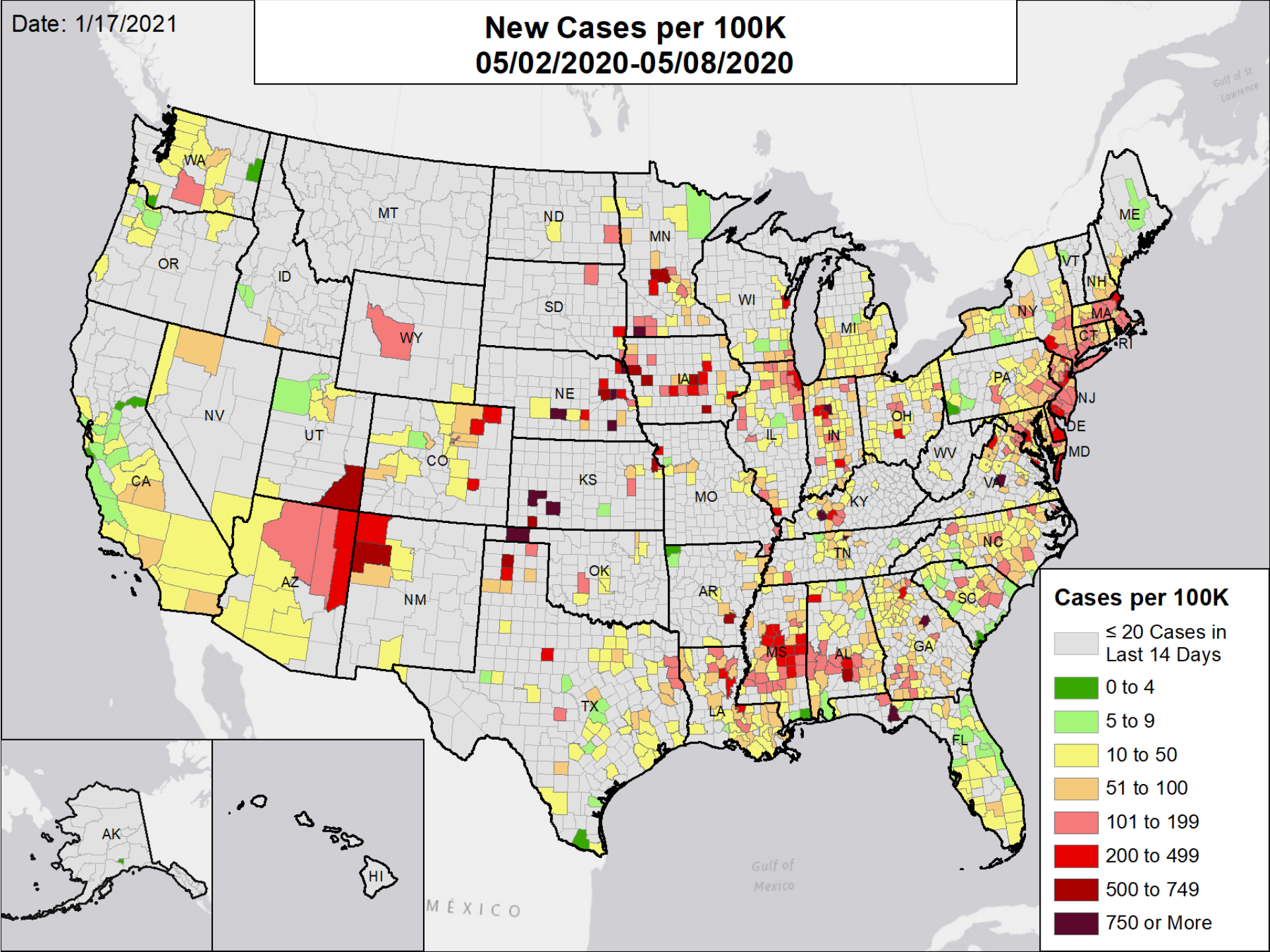
Date: 1/17/2021

# New Cases per 100K 04/04/2020-04/10/2020



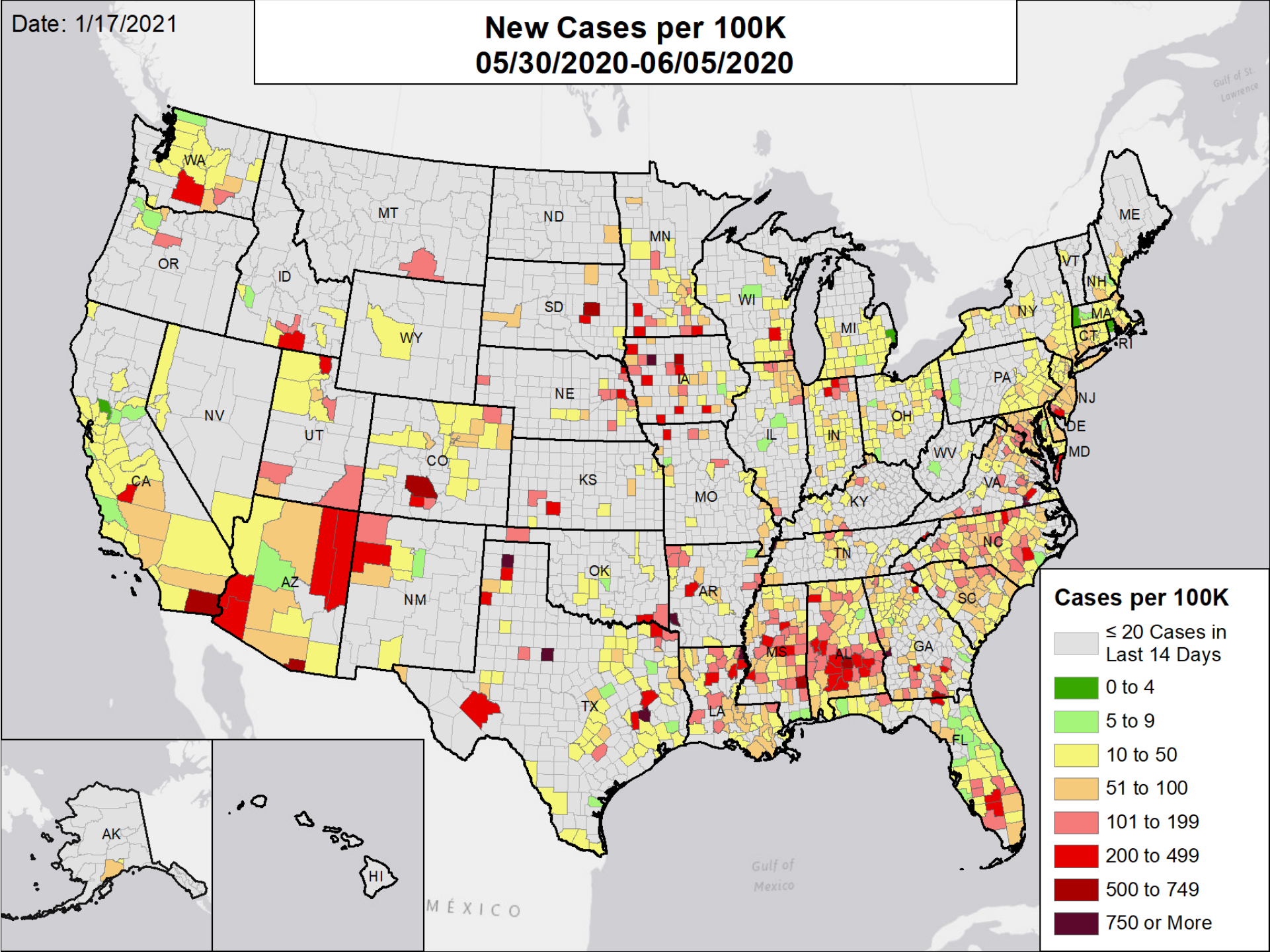
Date: 1/17/2021

# New Cases per 100K 05/02/2020-05/08/2020



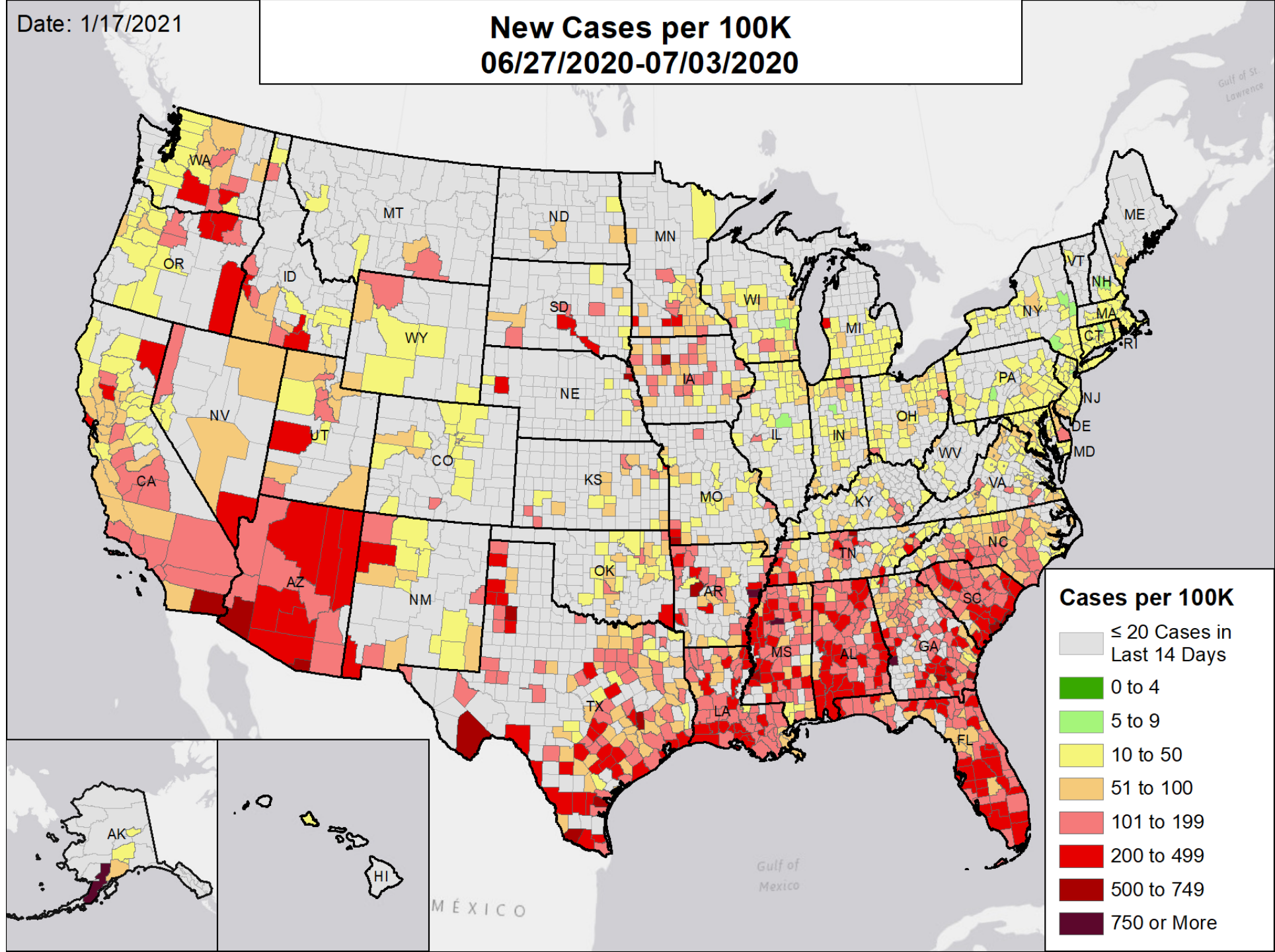
Date: 1/17/2021

# New Cases per 100K 05/30/2020-06/05/2020



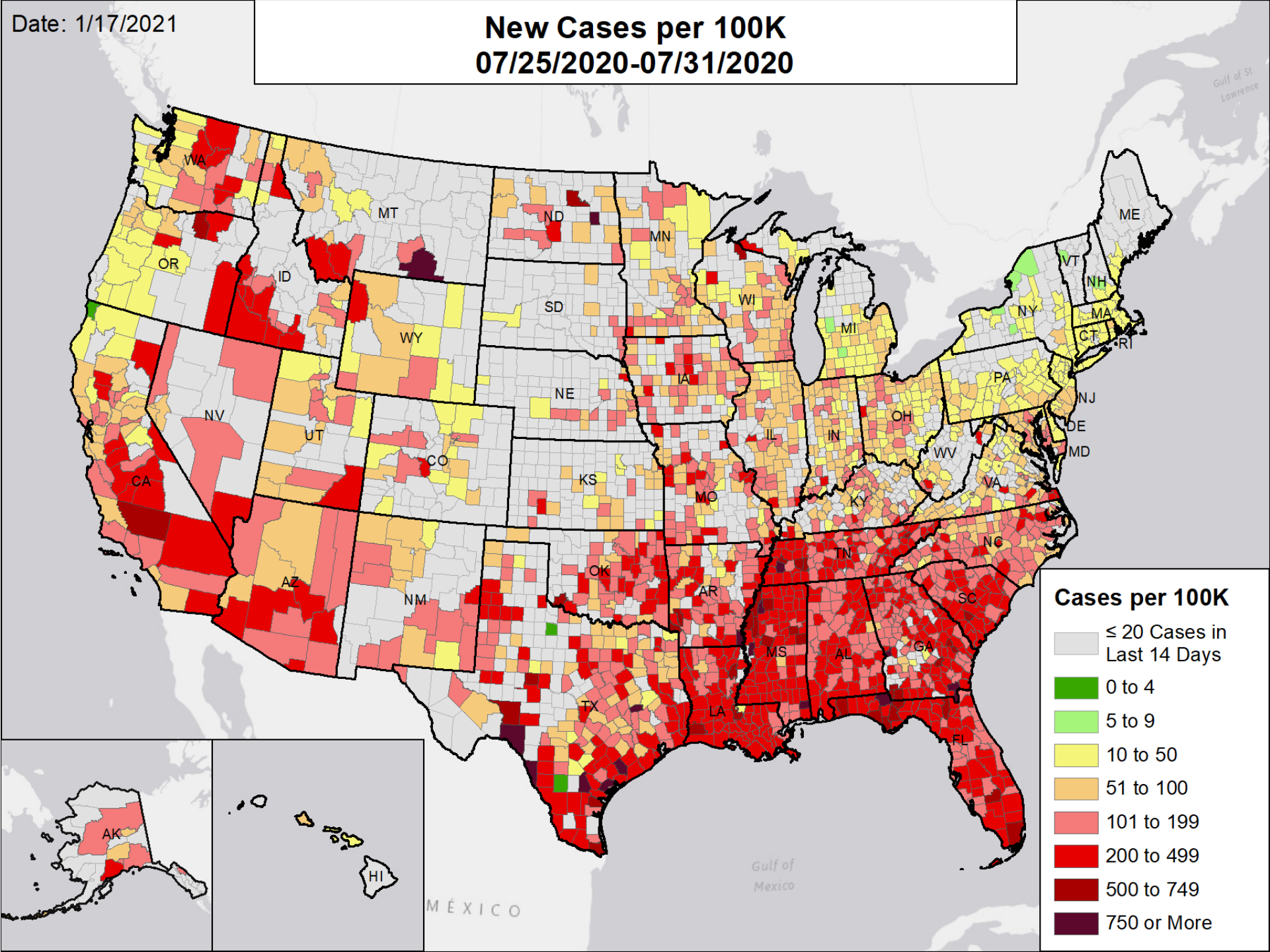
Date: 1/17/2021

# New Cases per 100K 06/27/2020-07/03/2020



Date: 1/17/2021

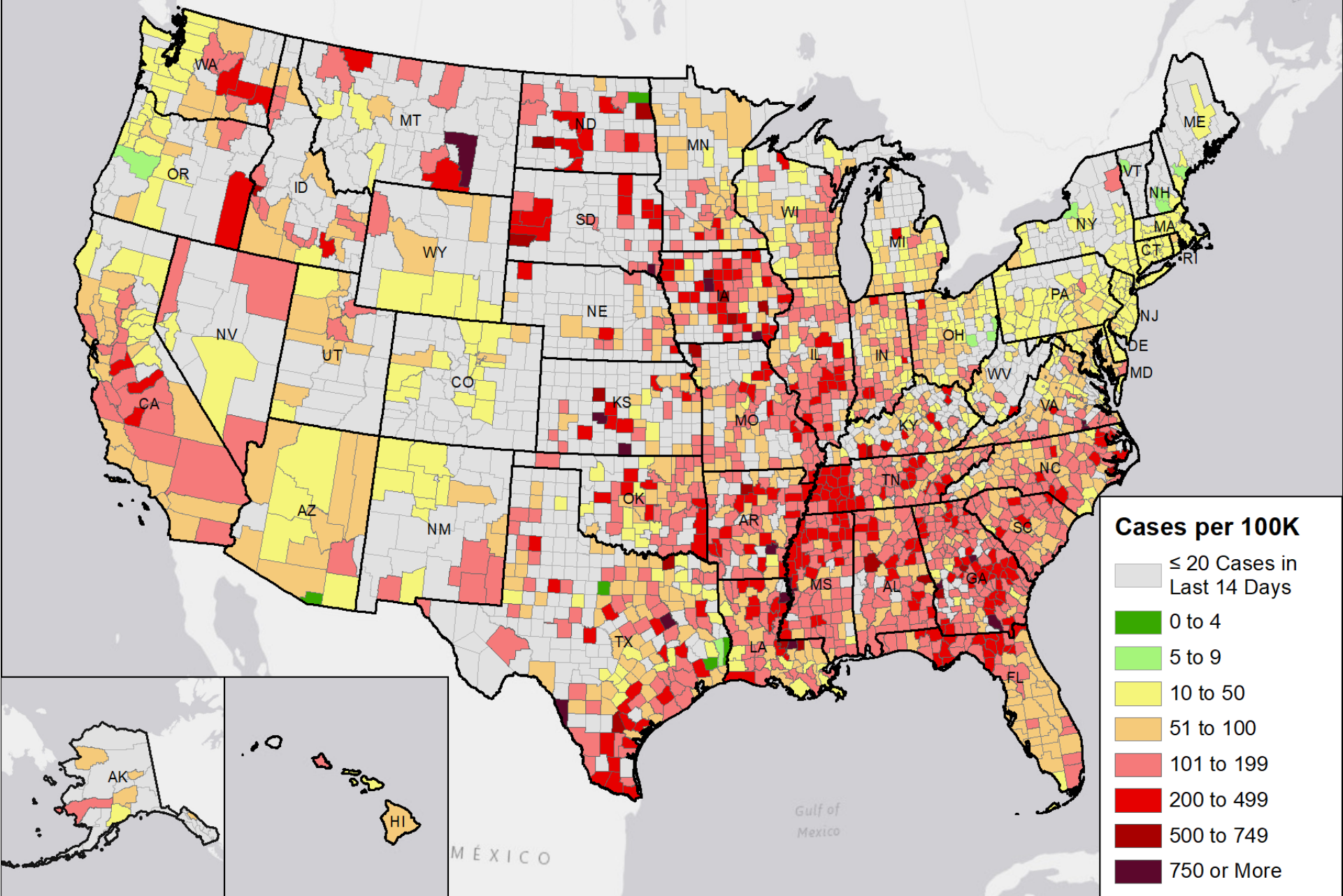
# New Cases per 100K 07/25/2020-07/31/2020





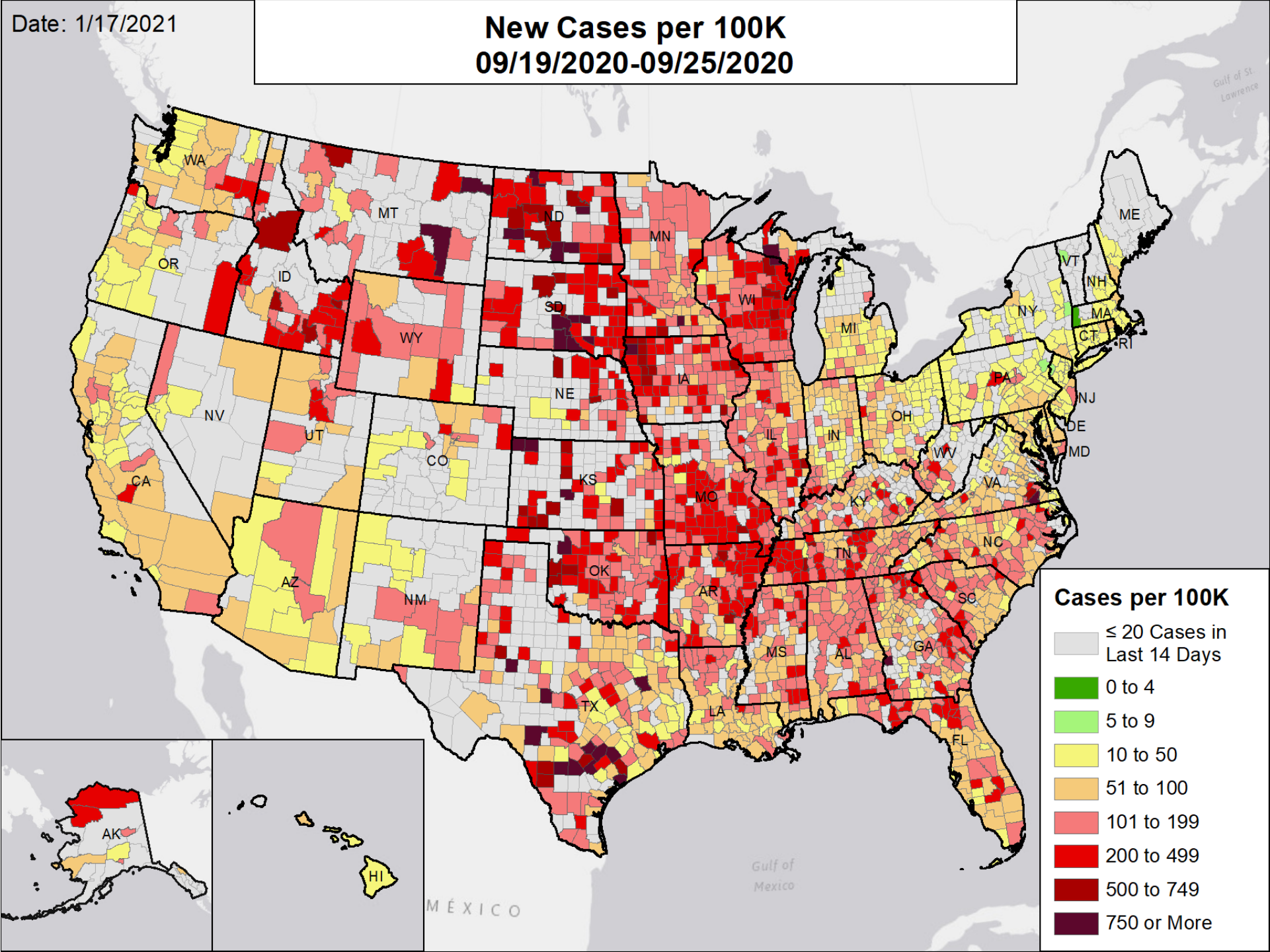
Date: 1/17/2021

# New Cases per 100K 08/22/2020-08/28/2020



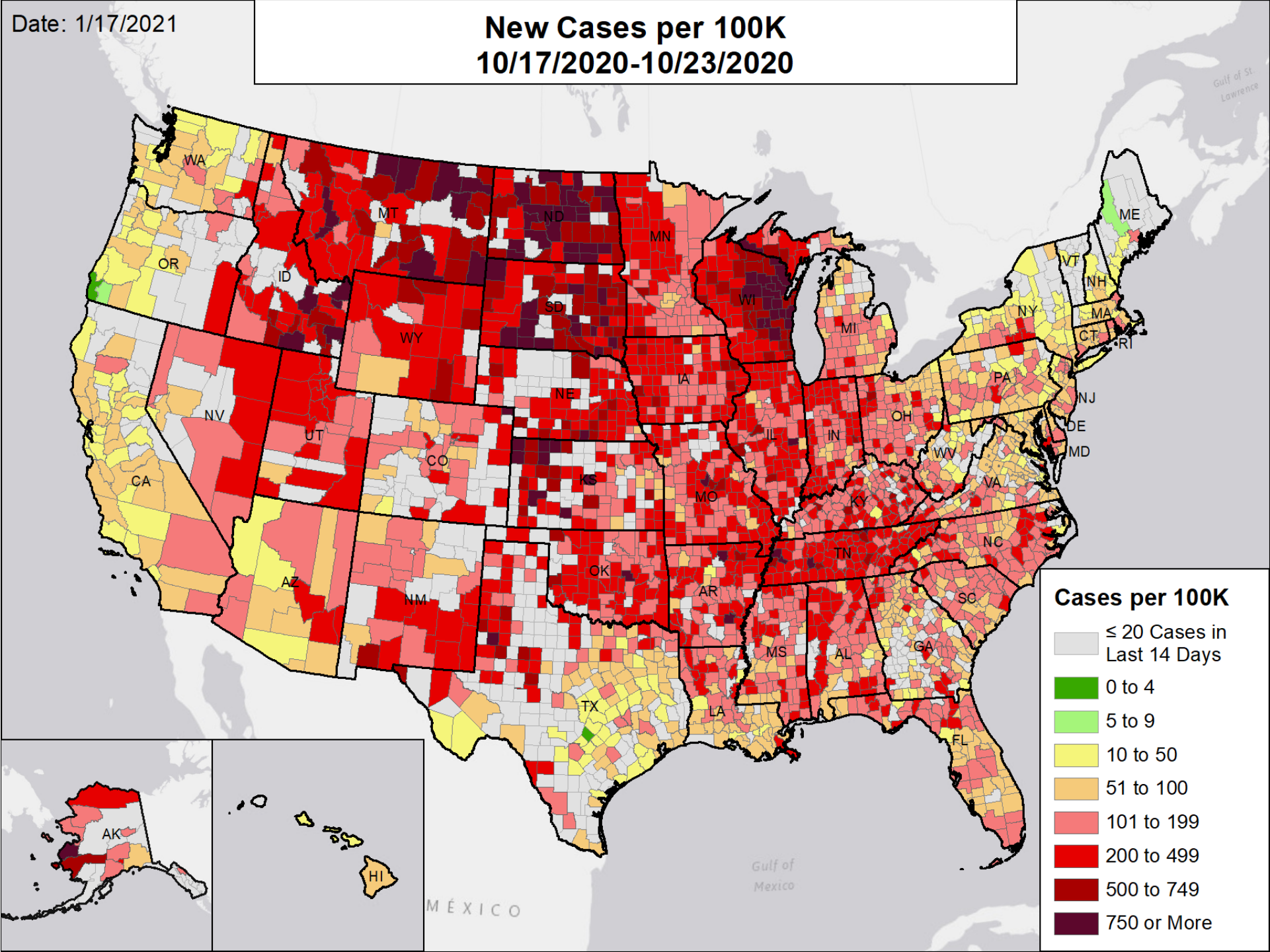
Date: 1/17/2021

# New Cases per 100K 09/19/2020-09/25/2020



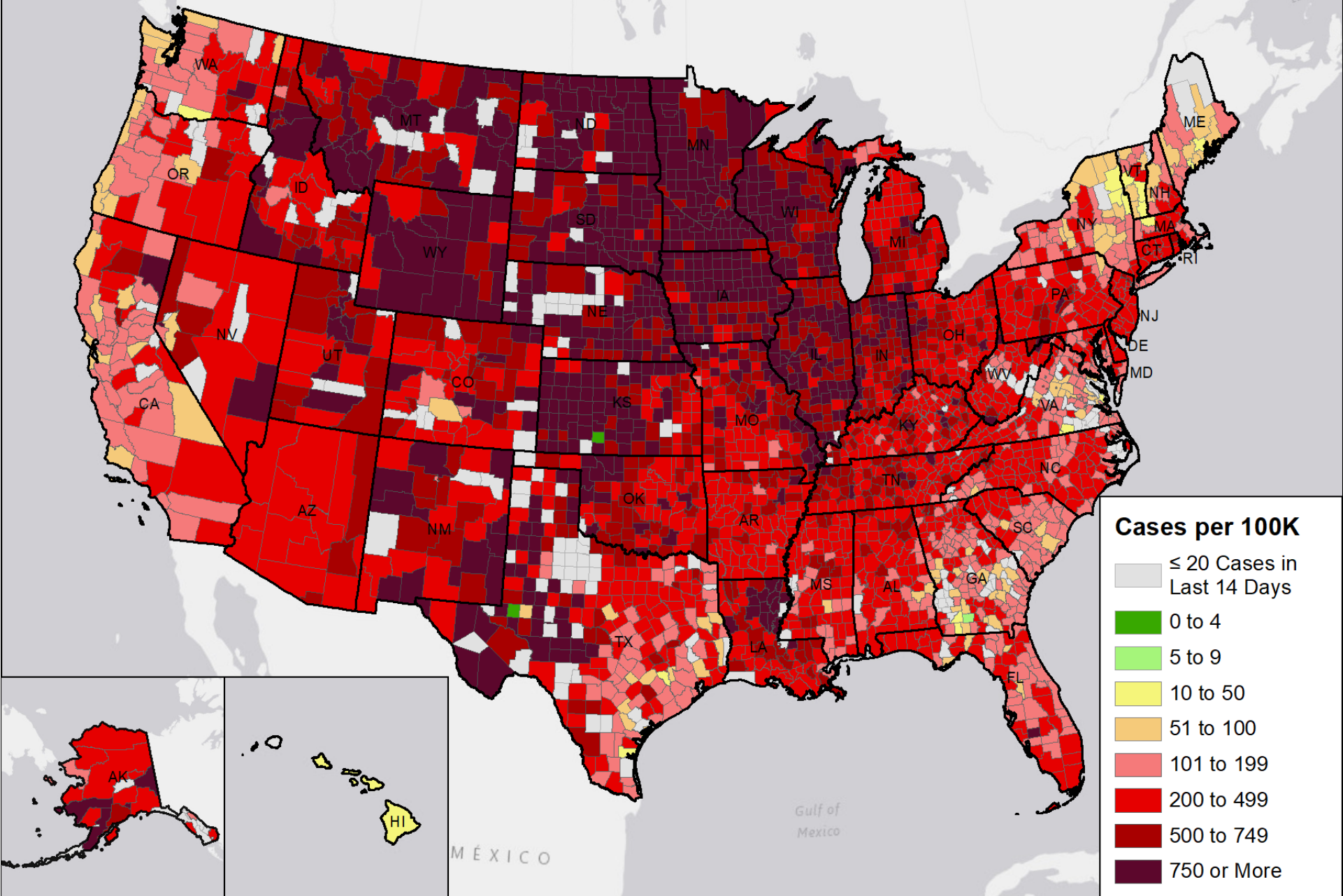
Date: 1/17/2021

# New Cases per 100K 10/17/2020-10/23/2020



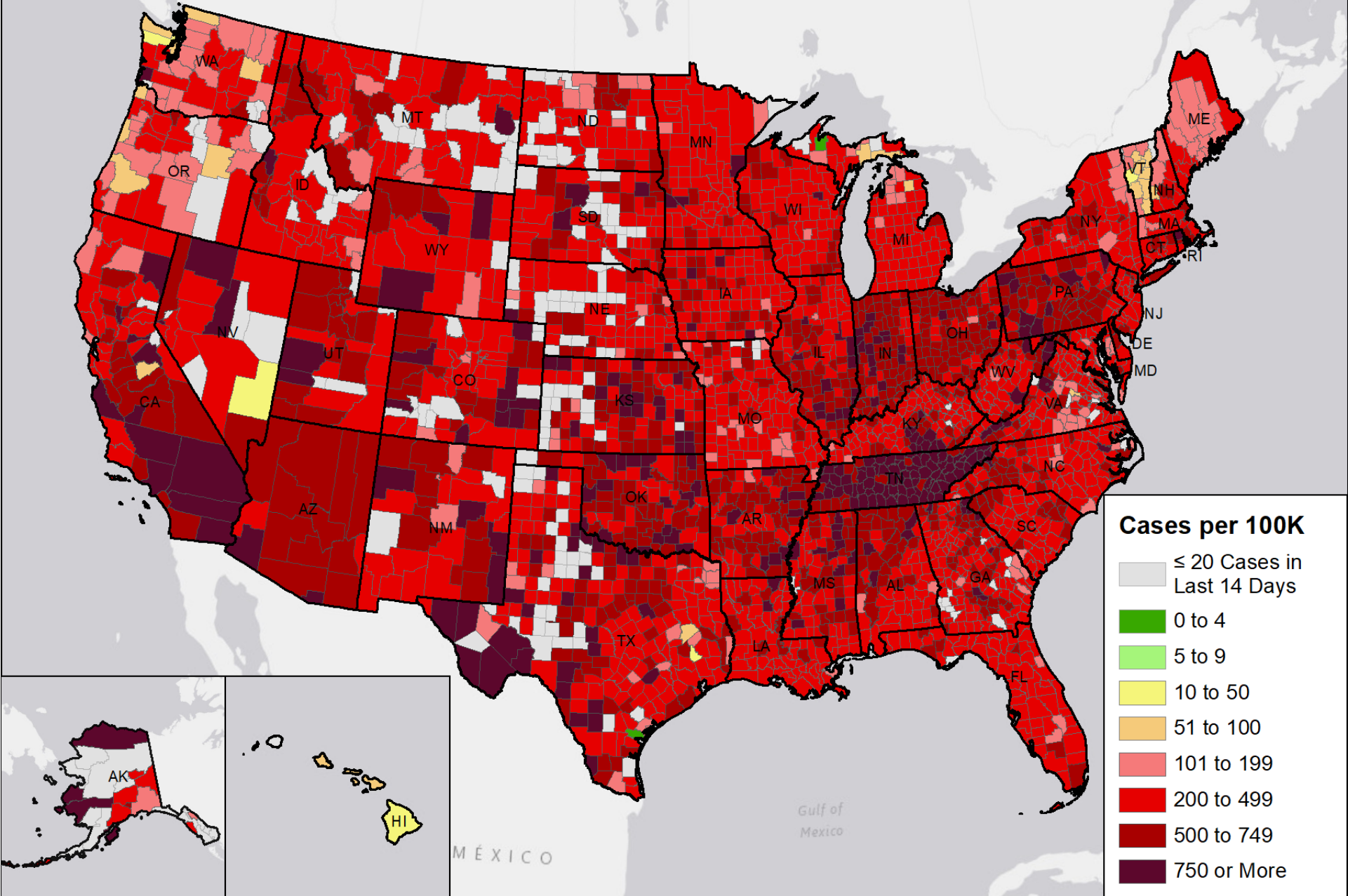
Date: 1/17/2021

# New Cases per 100K 11/14/2020-11/20/2020



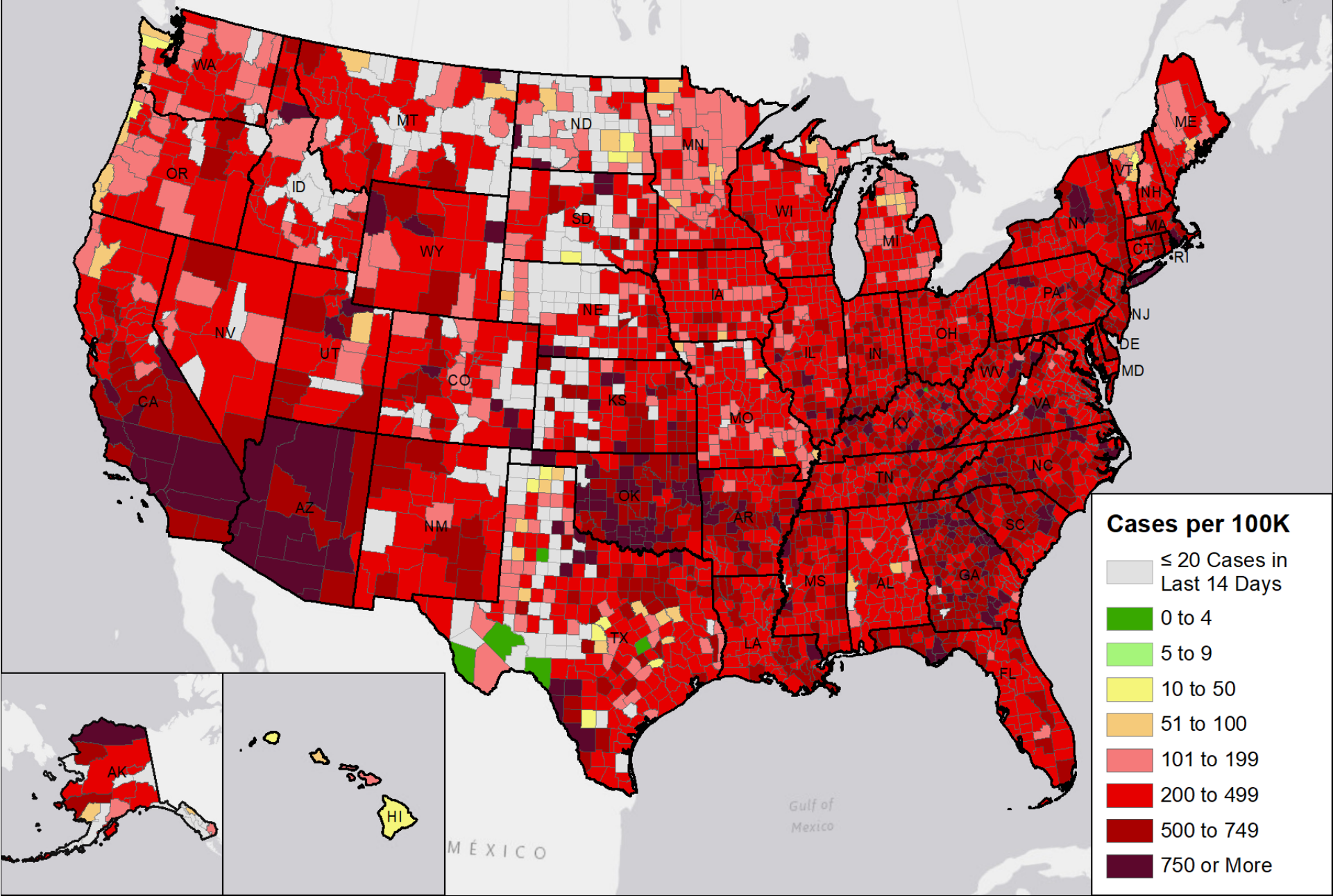
Date: 1/17/2021

# New Cases per 100K 12/12/2020-12/18/2020



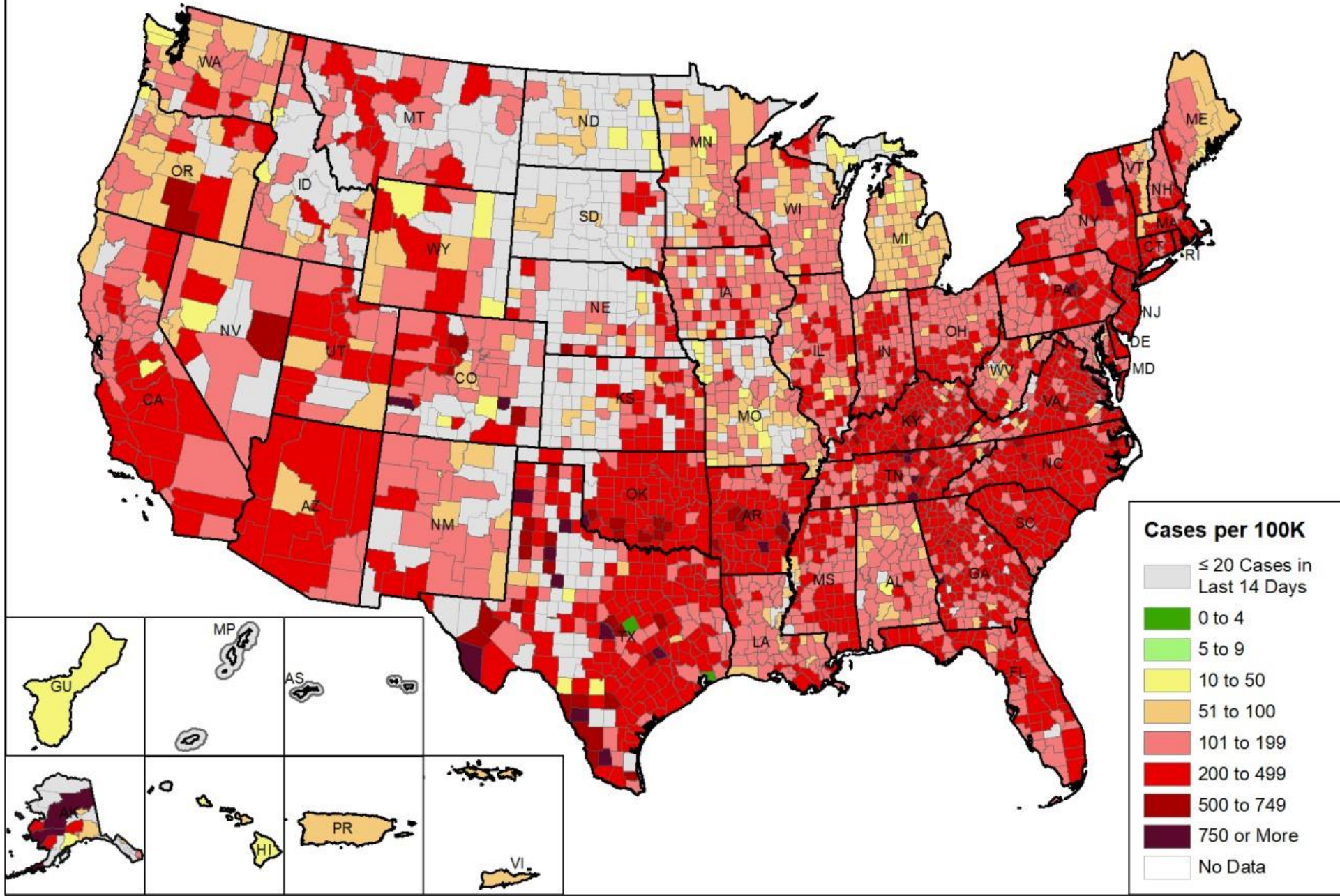
Date: 1/17/2021

# New Cases per 100K 01/09/2021-01/15/2021



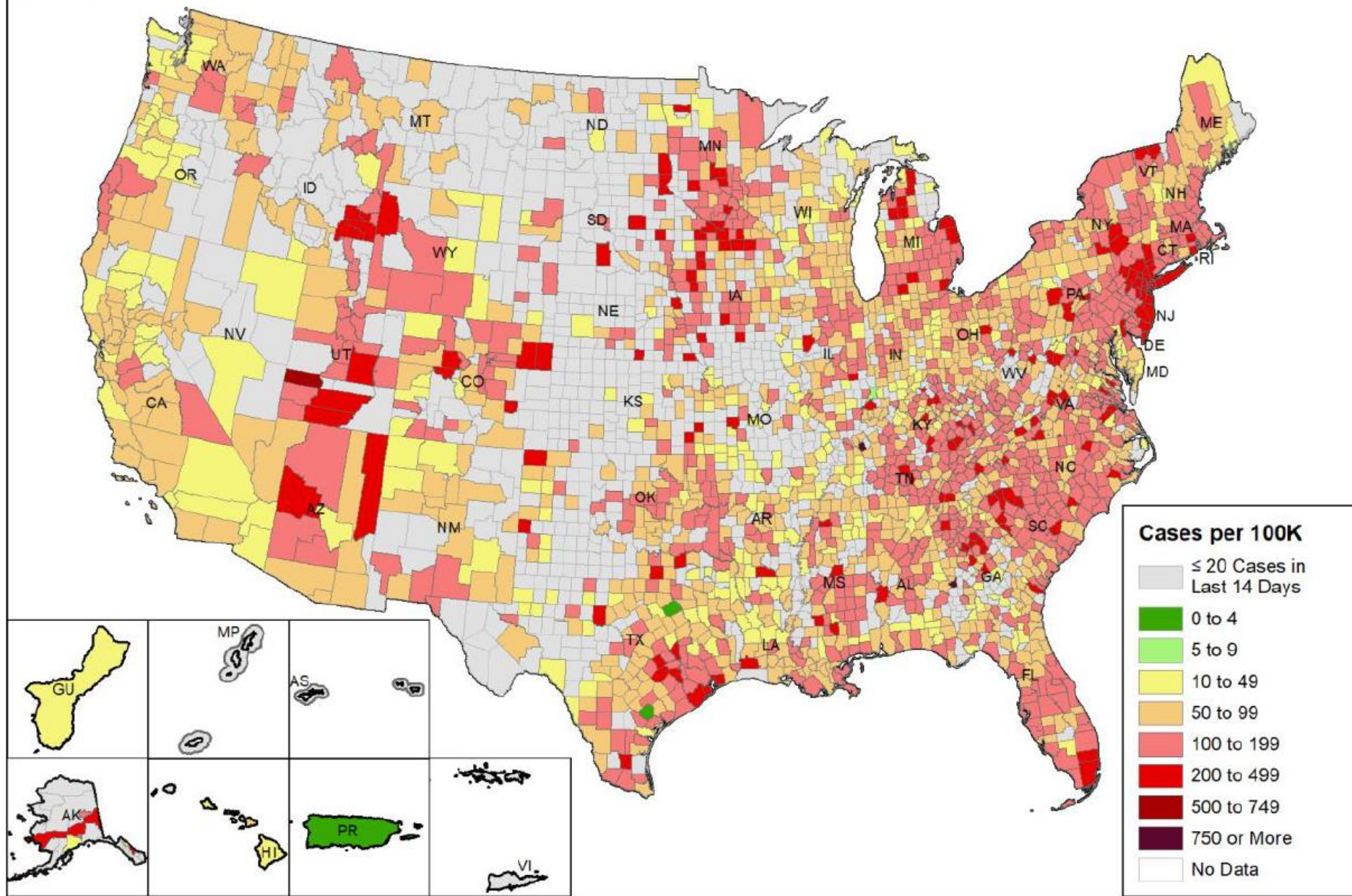
Date: 2/11/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

# Cases per 100K by County in the Week 04FEB2021-10FEB2021



Date: 3/12/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

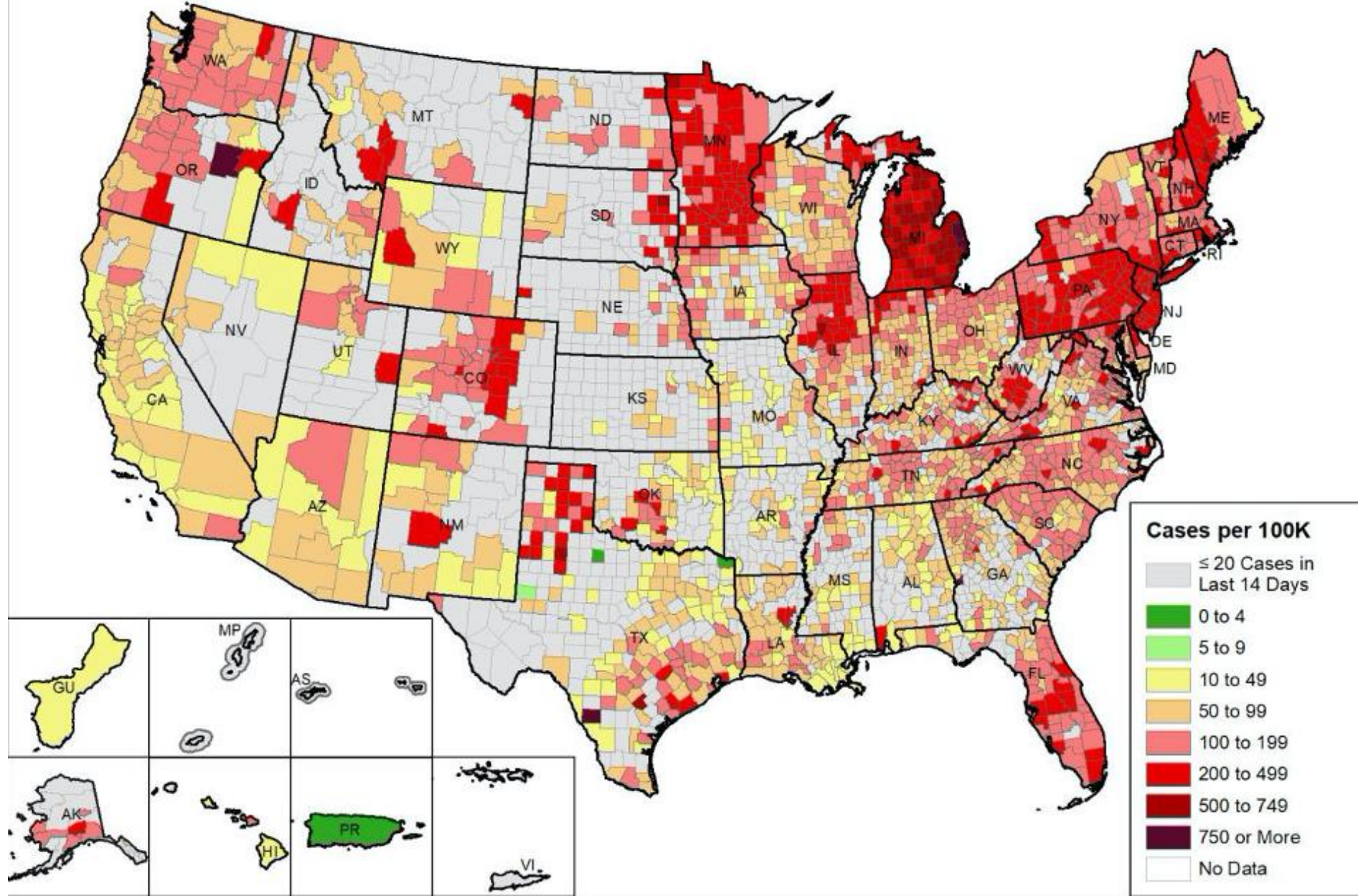
# Cases per 100K by County in the Week 05MAR2021-11MAR2021





Date: 4/18/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

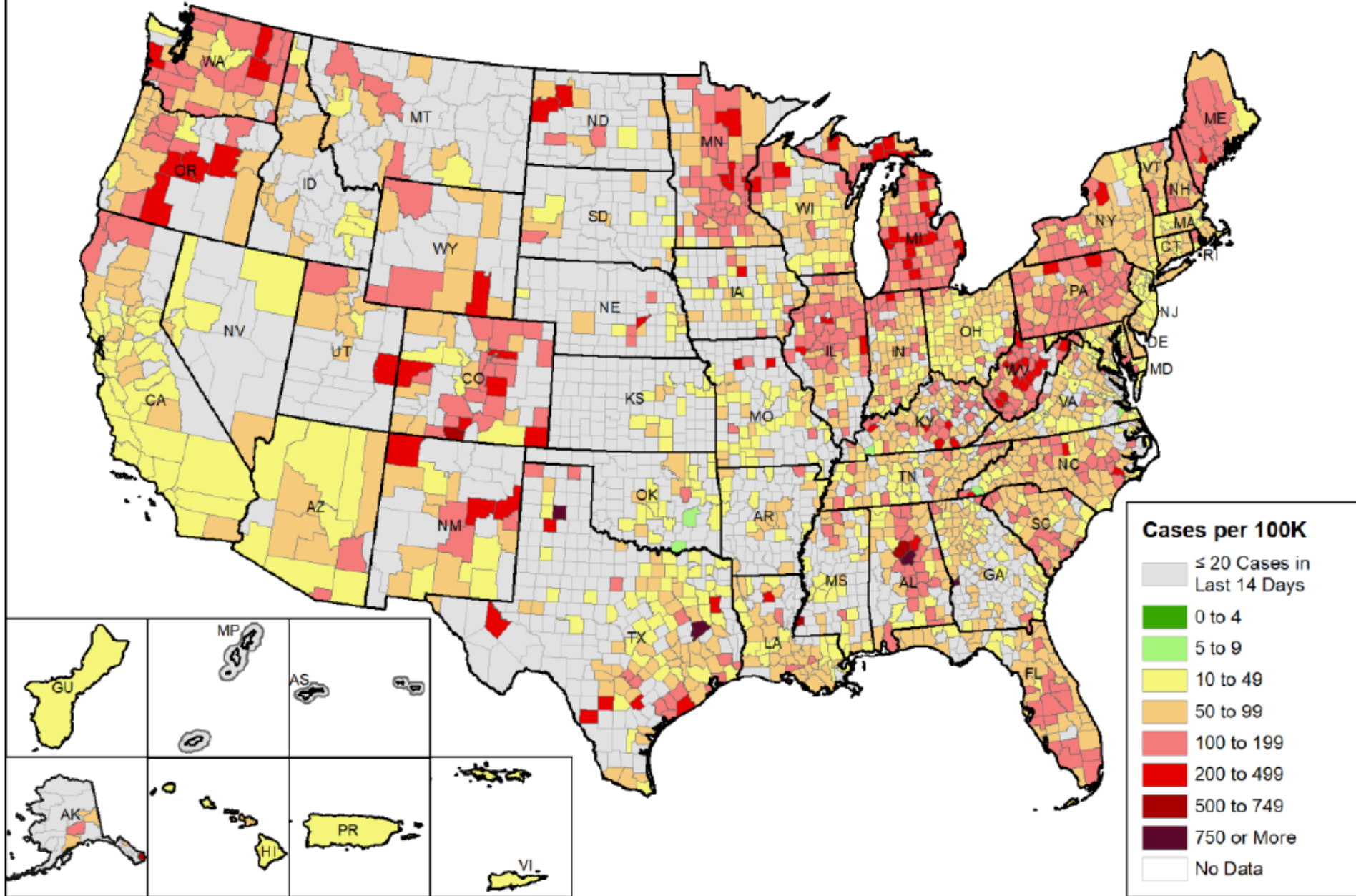
### Cases per 100K by County in the Week 11APR2021-17APR2021



Alabama cases reported at the county level in the current 7 day window include additional cases that occurred prior to 4/12/2021

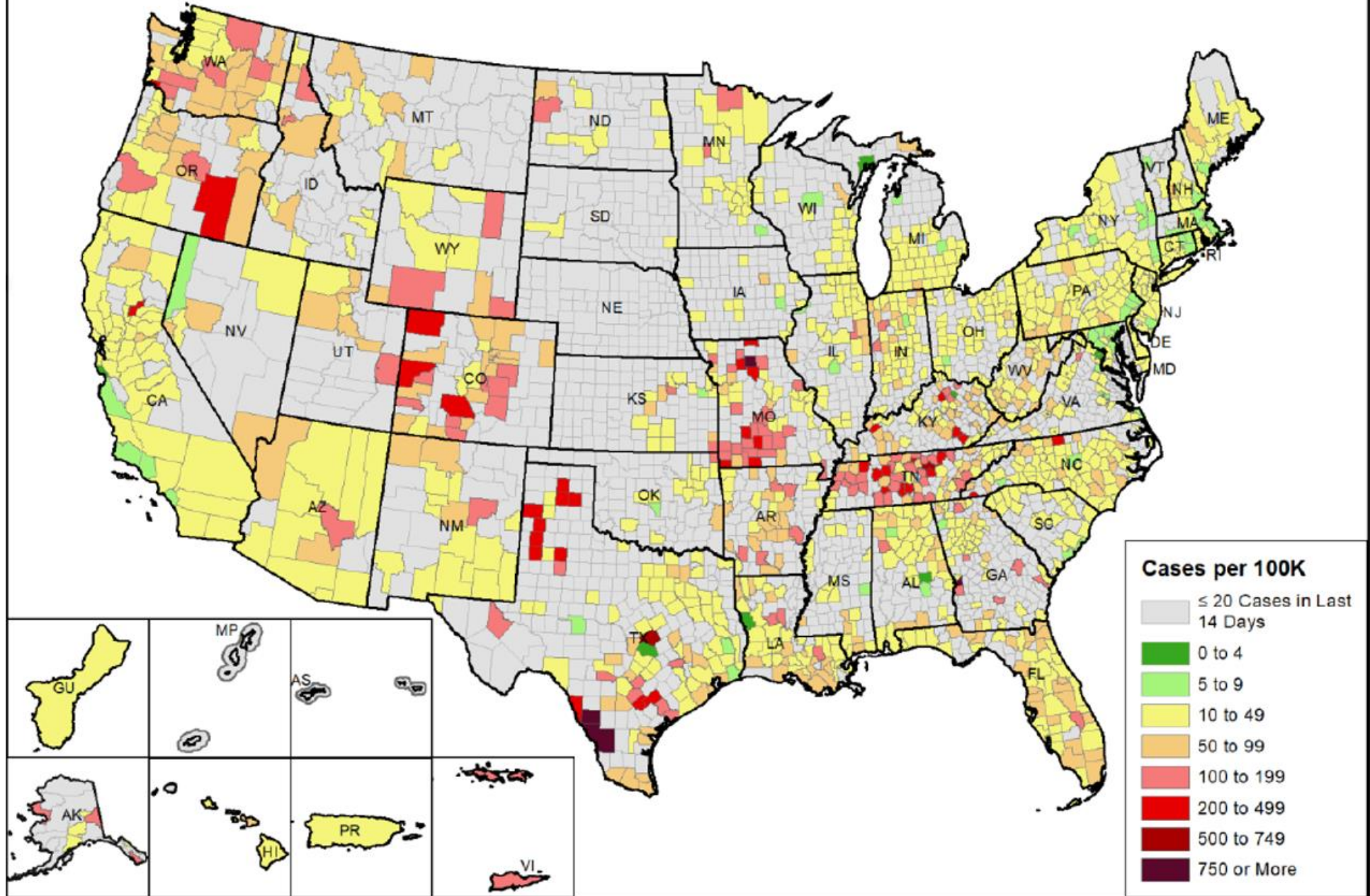
Date: 5/16/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

### Cases per 100K by County in the Week 09MAY2021-15MAY2021



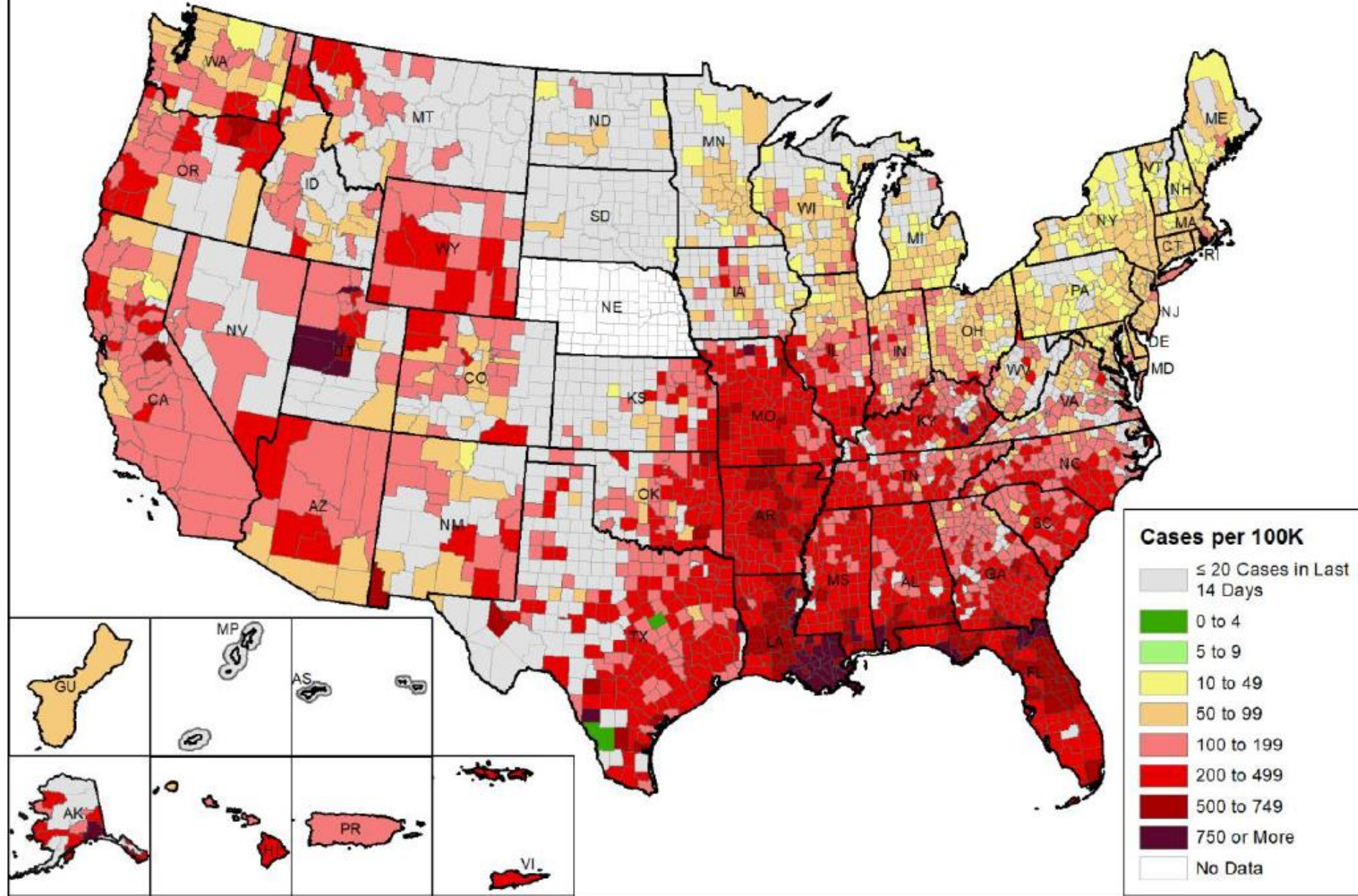
Date: 6/15/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

### Cases per 100K by County in the Week 08JUN2021-14JUN2021



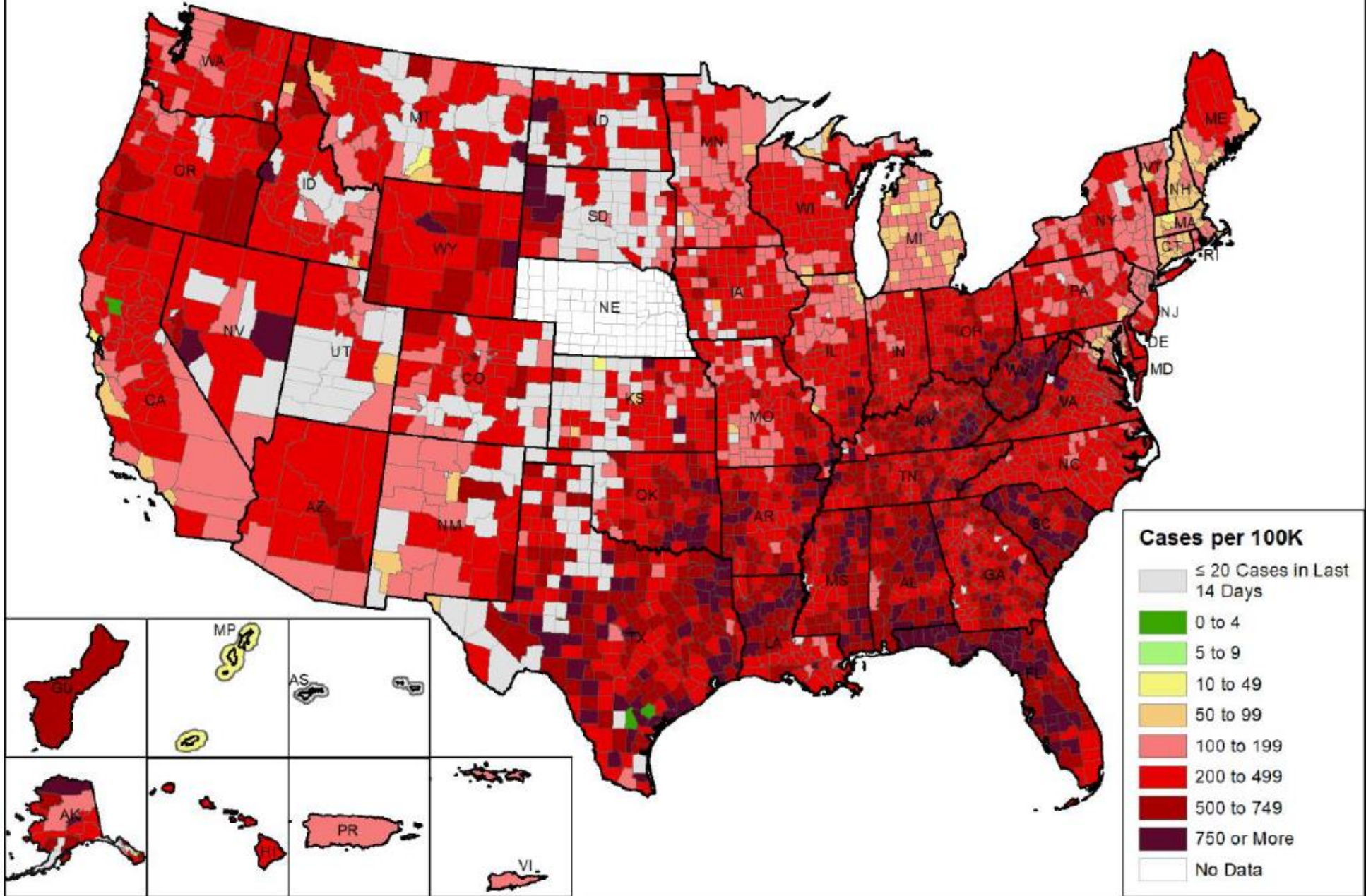
Date: 8/3/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

### Cases per 100K by County in the Week 27JUL2021-02AUG2021



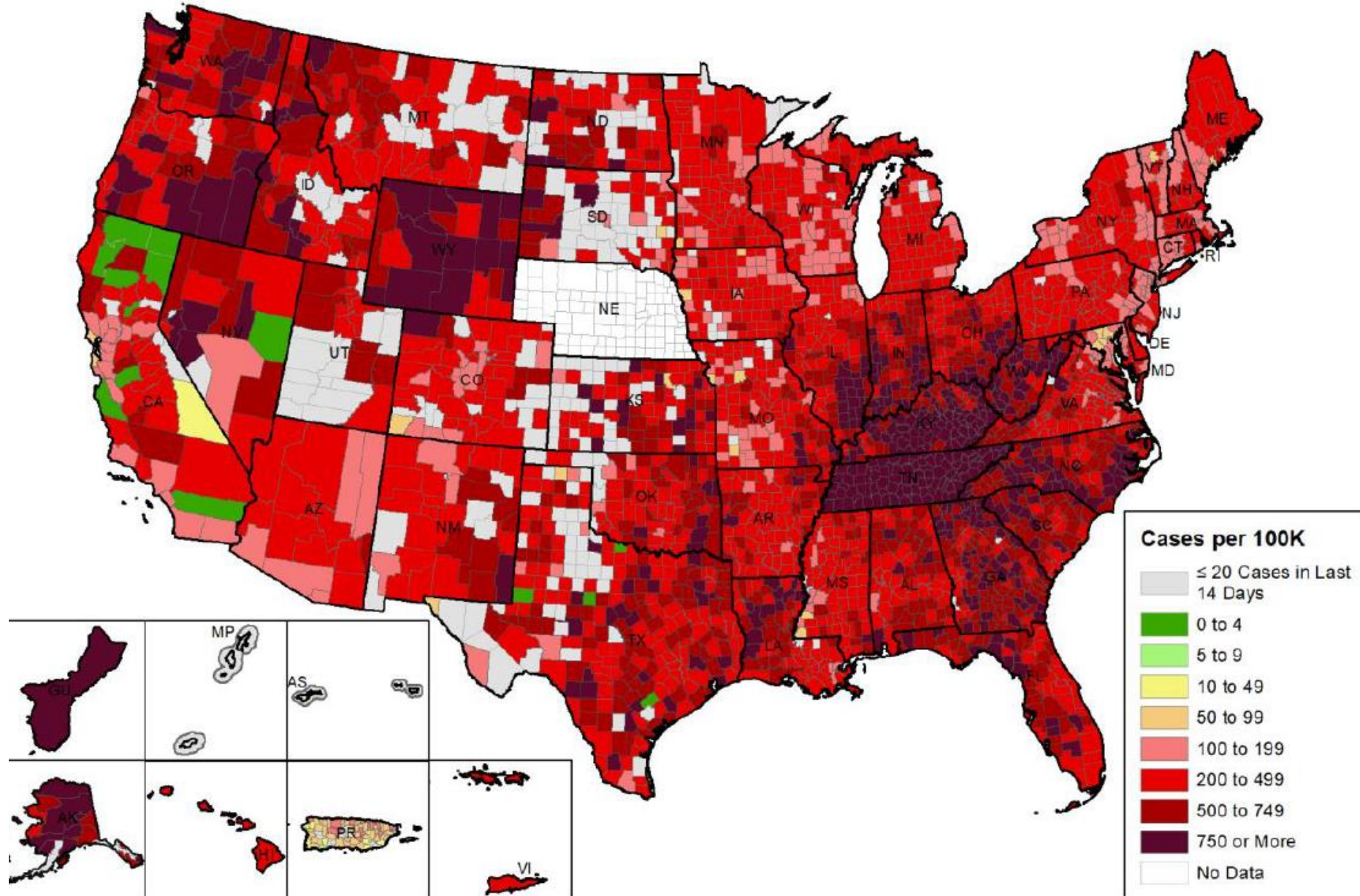
Date: 9/7/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

# Cases per 100K by County in the Week 31AUG2021-06SEP2021



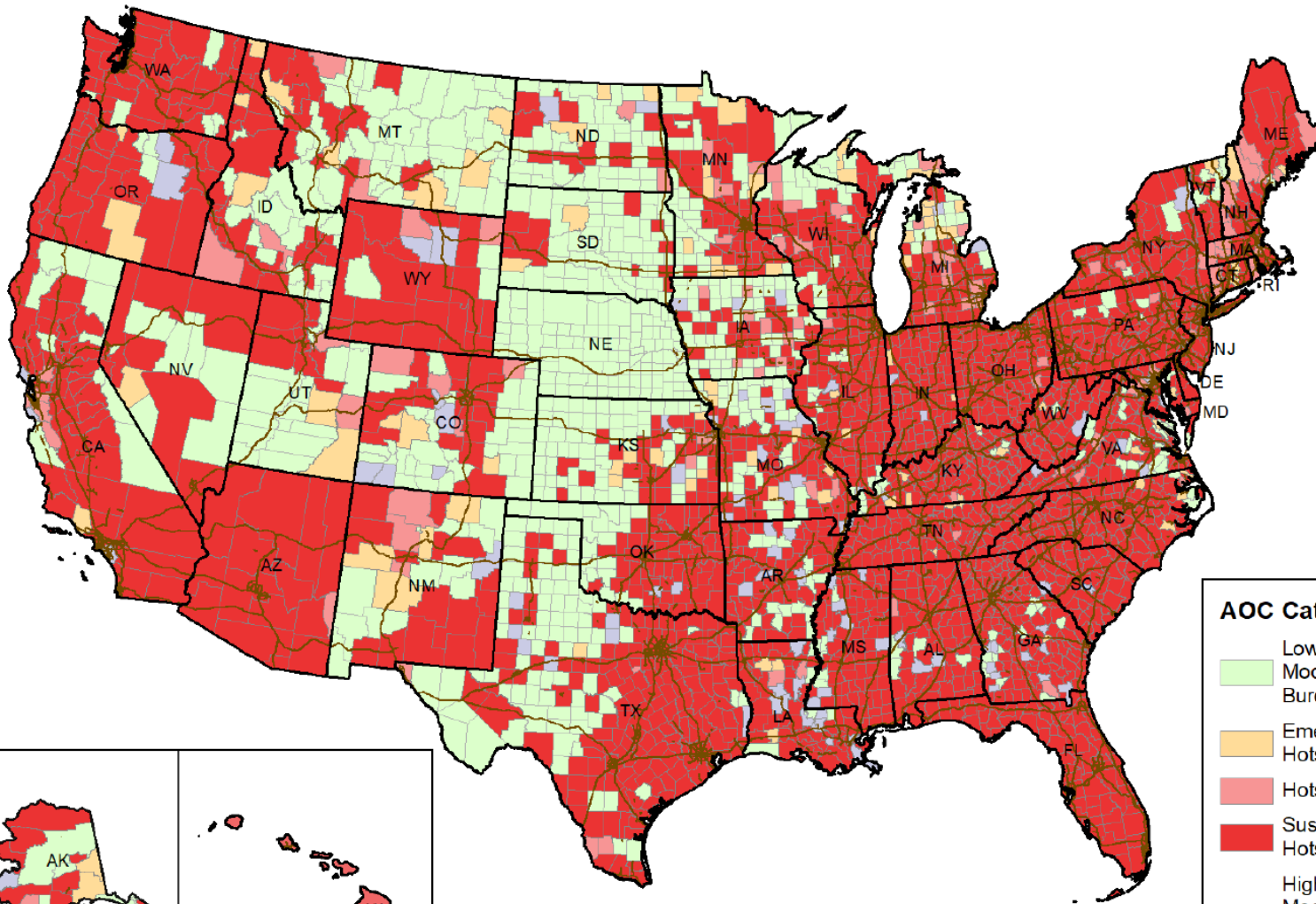
Date: 9/14/2021  
Source: CDC Aggregate  
County Data, CDC State-  
Reported Data (Territories)

### Cases per 100K by County in the Week 07SEP2021-13SEP2021

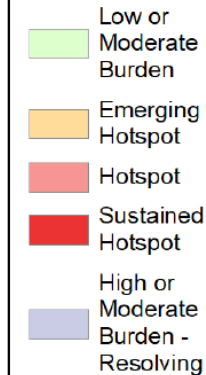


Date: 9/14/2021

## Area of Concern Continuum by County 13SEP2021



### AOC Category

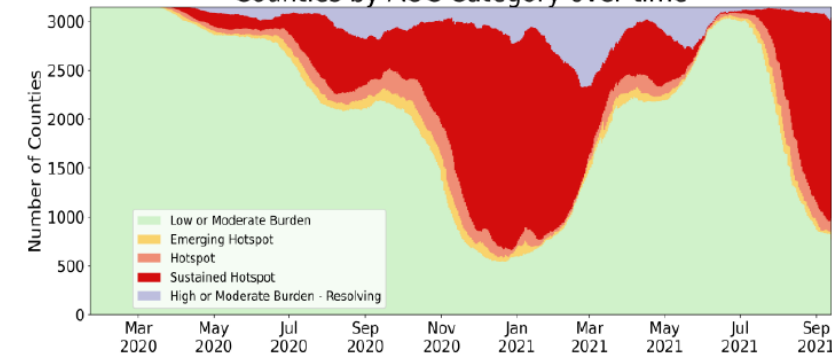


The Areas of Concern Continuum (AOCC) is used to describe communities as they progress through stages of the epidemic. There are 7 possible AOC classifications based on current and recent history of case and testing data for the location:

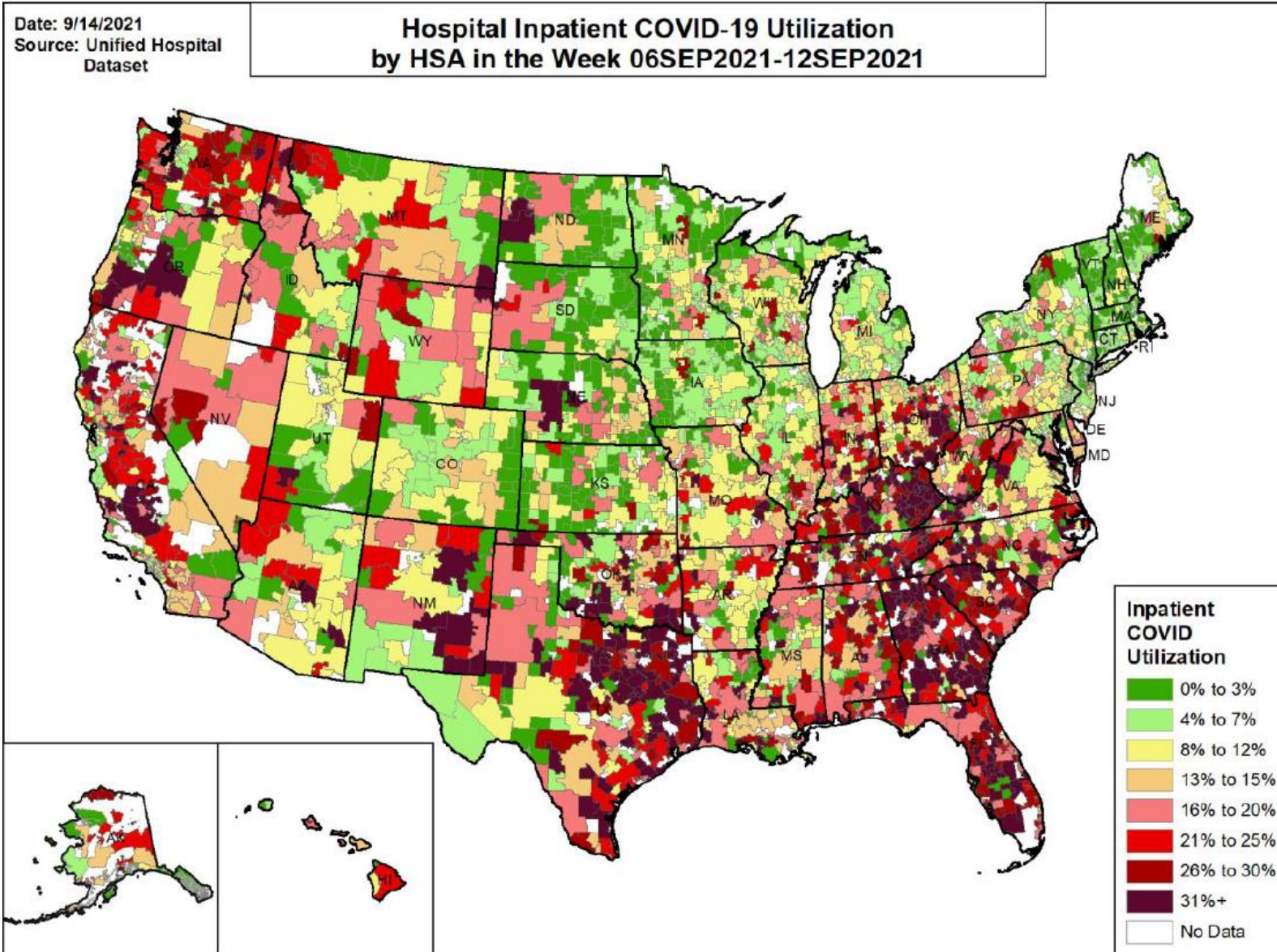
- (1) **Low Burden** – communities with minimal activity
- (2) **Moderate Burden** – communities with moderate disease activity
- (3) **Emerging Hotspot** – communities with a high likelihood to become hotspots in the next 1-7 days
- (4) **Hotspot** – communities that have reached a threshold of disease activity considered as being of high burden
- (5) **Sustained Hotspot** – communities that have had a high sustained case burden and may be higher risk for experiencing healthcare resource limitations
- (6) **High Burden – Resolving** – communities that were recently identified as hotspots and are now improving
- (7) **Moderate Burden – Resolving** – communities that have a moderate level of burden, but are demonstrating improvement

See Data Sources/Methods slides for more information.

Counties by AOC Category over time



# Average Daily COVID-19 Hospital Inpatients over Last 7 Days: 92,608





# Summary of the USA pandemic

- The delta variant is almost **2.4x** more "contagious" than the original circulating March 2020 strain of SARS-CoV2 - so shorter exposure to fewer people can lead to infection
- The virus continues to move in a geographic pattern especially related to increased indoor activities
- We are carrying much more virus into this Fall (150K cases/day) rather than last year (50K cases/day)
- Vaccines are protecting **primarily against severe disease and death** and may not be as effective against preventing infection
  - What does that mean : the vaccines may not prevent viral shedding from the upper respiratory track or prevent vaccinated individuals from transmitting the virus to others – although fewer vaccinated individuals will become infected compared to unvaccinated – as there are more vaccinated adults than unvaccinated the number of vaccinated individuals spreading the virus maybe equal in absolute number to the unvaccinated spreading virus
- With actively circulating virus in your community : vaccination alone won't be enough to ensure you are not exposed and infected with new evolving variants and increased layer protection is needed, masking indoors, minimizing unmasked indoor gatherings, testing with isolation of those infected, and ensuring protection of indoor air especially in multigenerational and households with unvaccinated children
- Consider additional steps to protect your home and workplaces from persistent aerosol clouds of virus especially in hallways, elevators, bathrooms and classroom areas – increasing the safety of indoor air

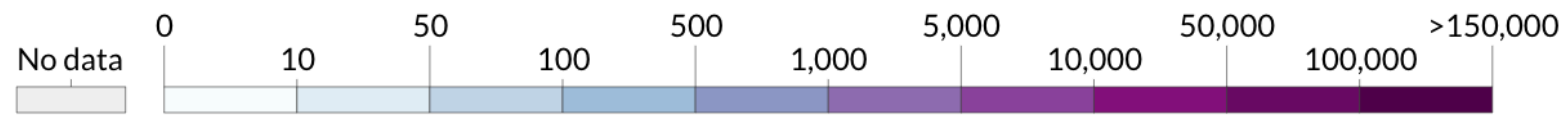
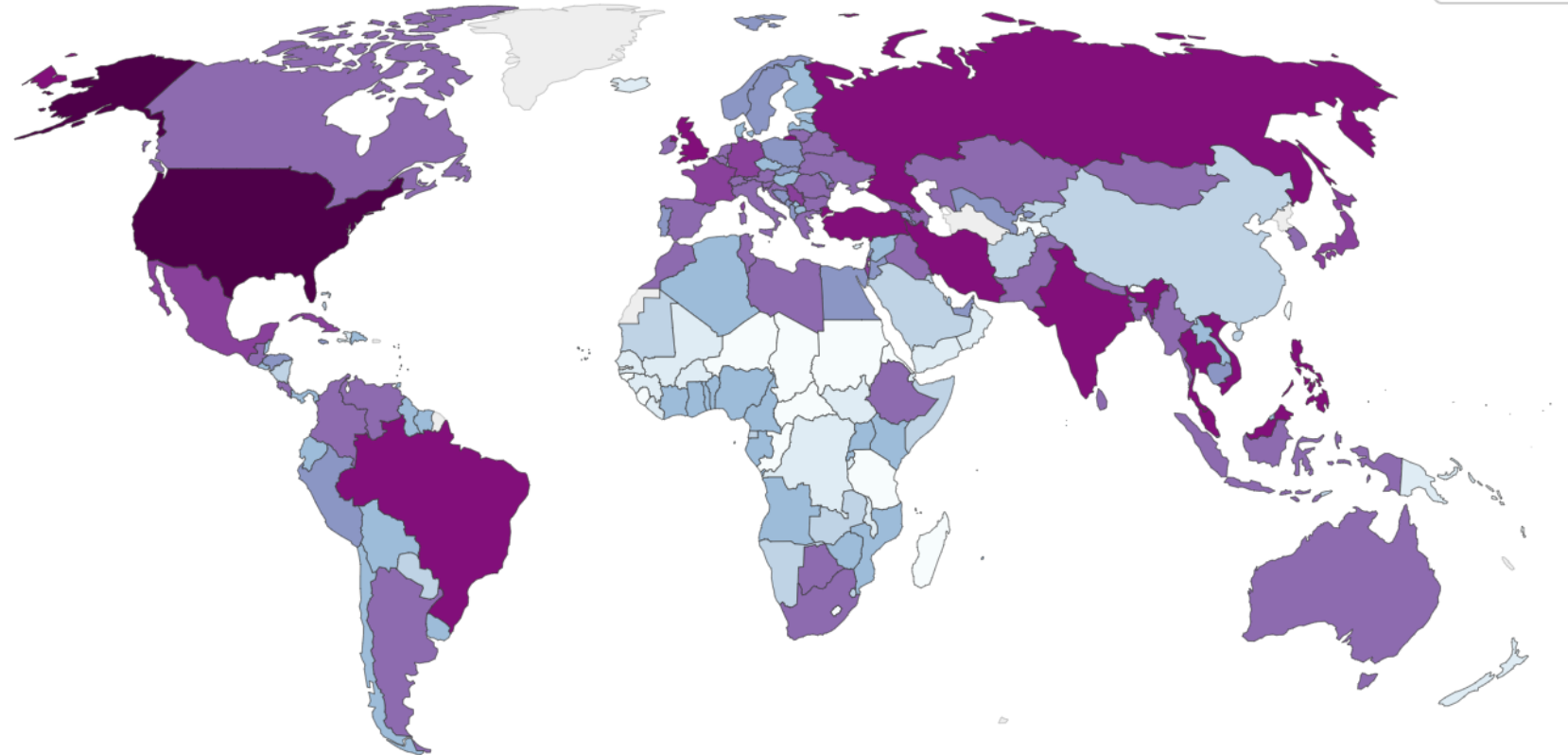
# Global COVID pandemic and vaccination status

- Where is the SAR-CoV2 virus now, where has it been and what can we learn?

# Daily new confirmed COVID-19 cases, Sep 19, 2021

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

World



Source: Johns Hopkins University CSSE COVID-19 Data

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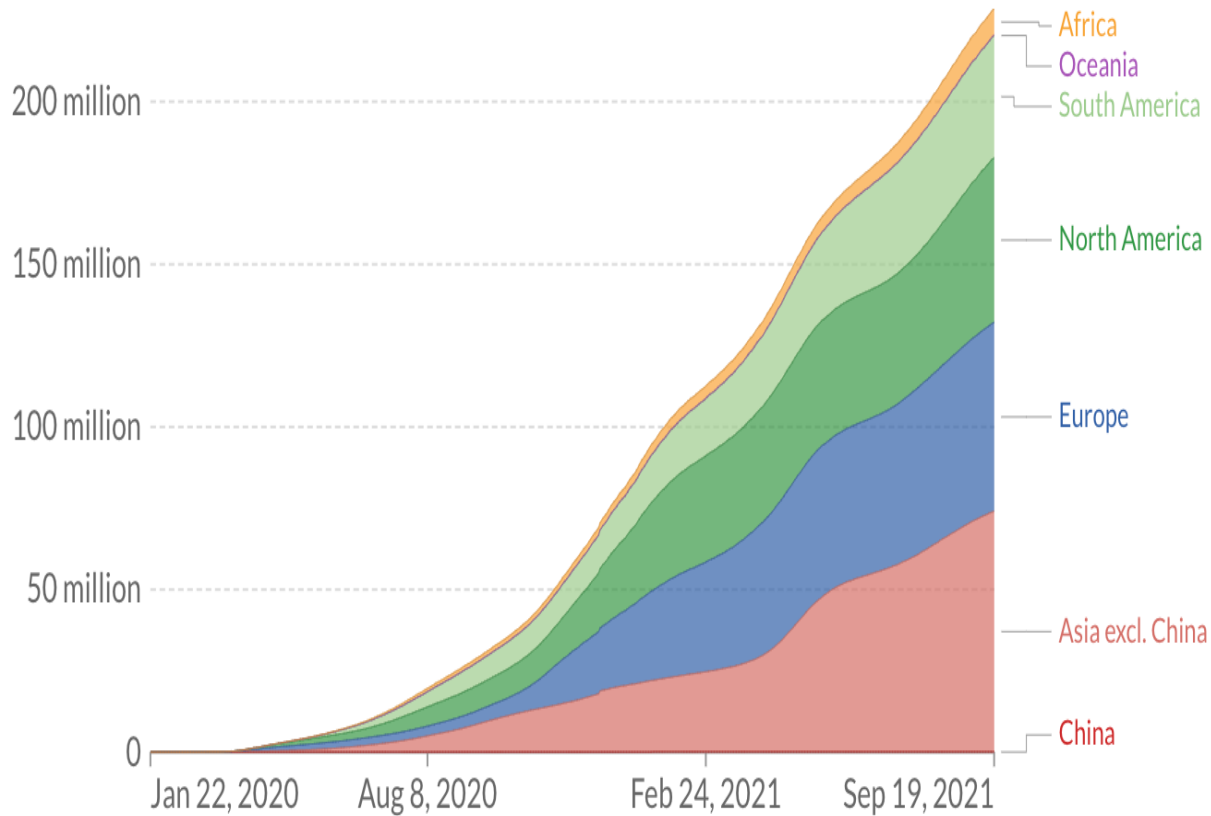


# Cumulative confirmed COVID-19 cases



The number of confirmed cases is lower than the number of actual cases. The main reason for this is limited testing.

Relative



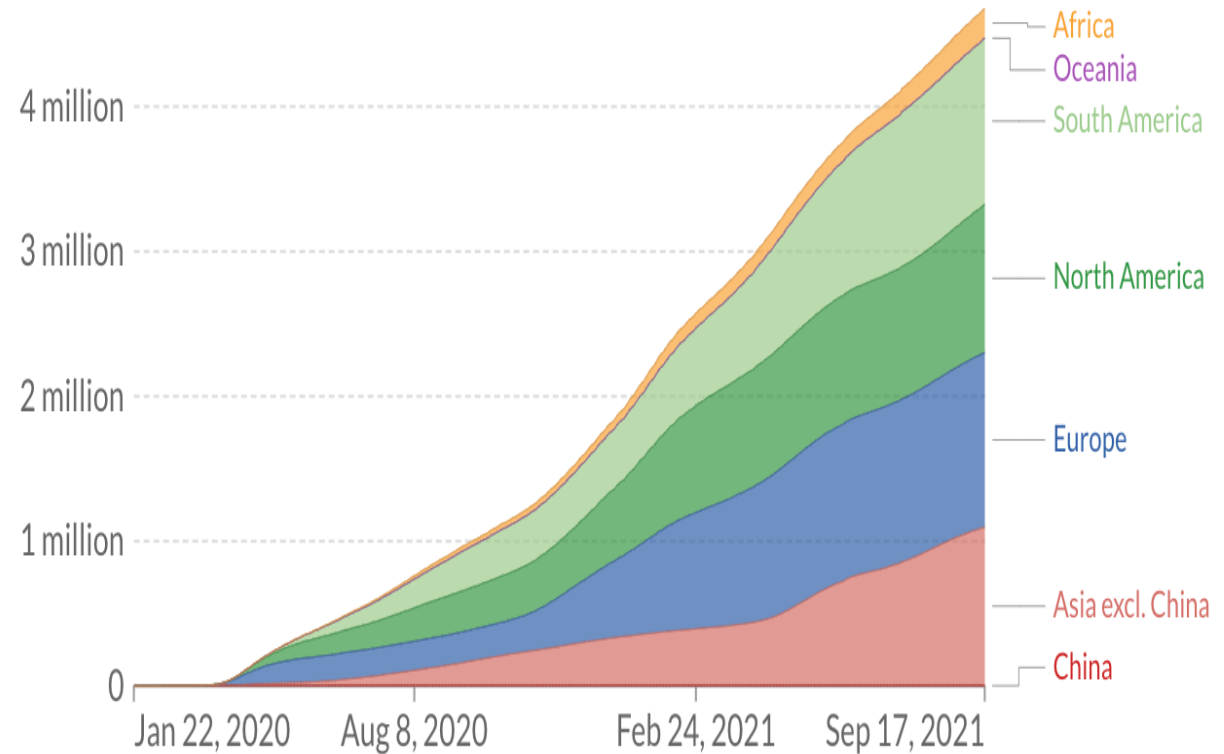
Source: Johns Hopkins University CSSE COVID-19 Data - Last updated 20 September, 09:03 (London time)  
OurWorldInData.org/coronavirus • CC BY

# Cumulative confirmed COVID-19 deaths



Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the actual number of deaths from COVID-19.

Relative

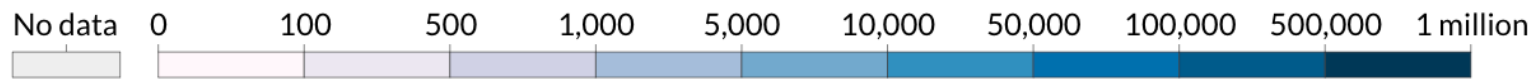
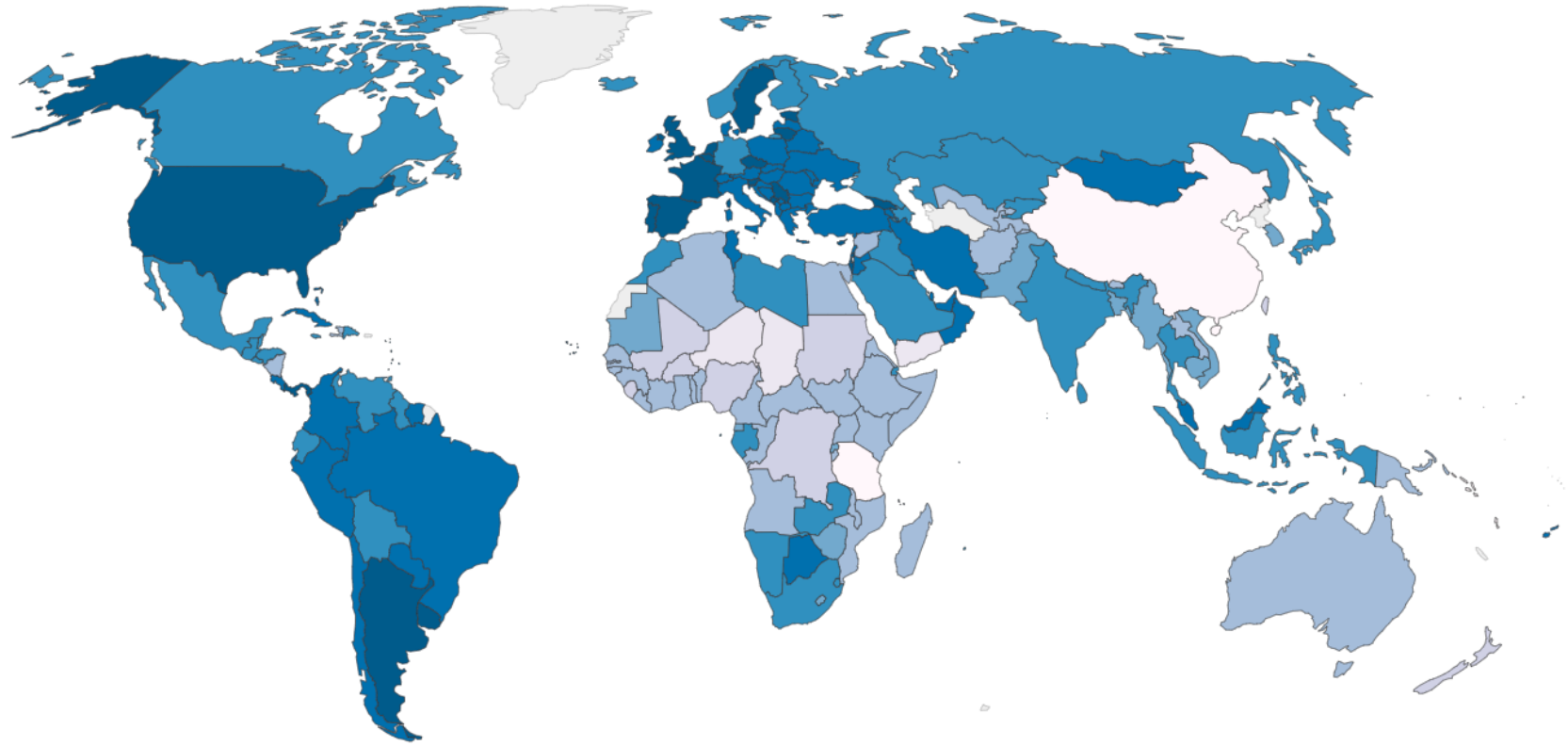


Source: Johns Hopkins University CSSE COVID-19 Data - Last updated 18 September, 09:03 (London time)  
OurWorldInData.org/coronavirus • CC BY

# Cumulative confirmed COVID-19 cases per million people, Sep 19, 2021

The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

World



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

▶ Jan 22, 2020

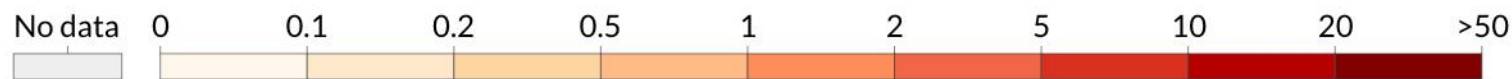
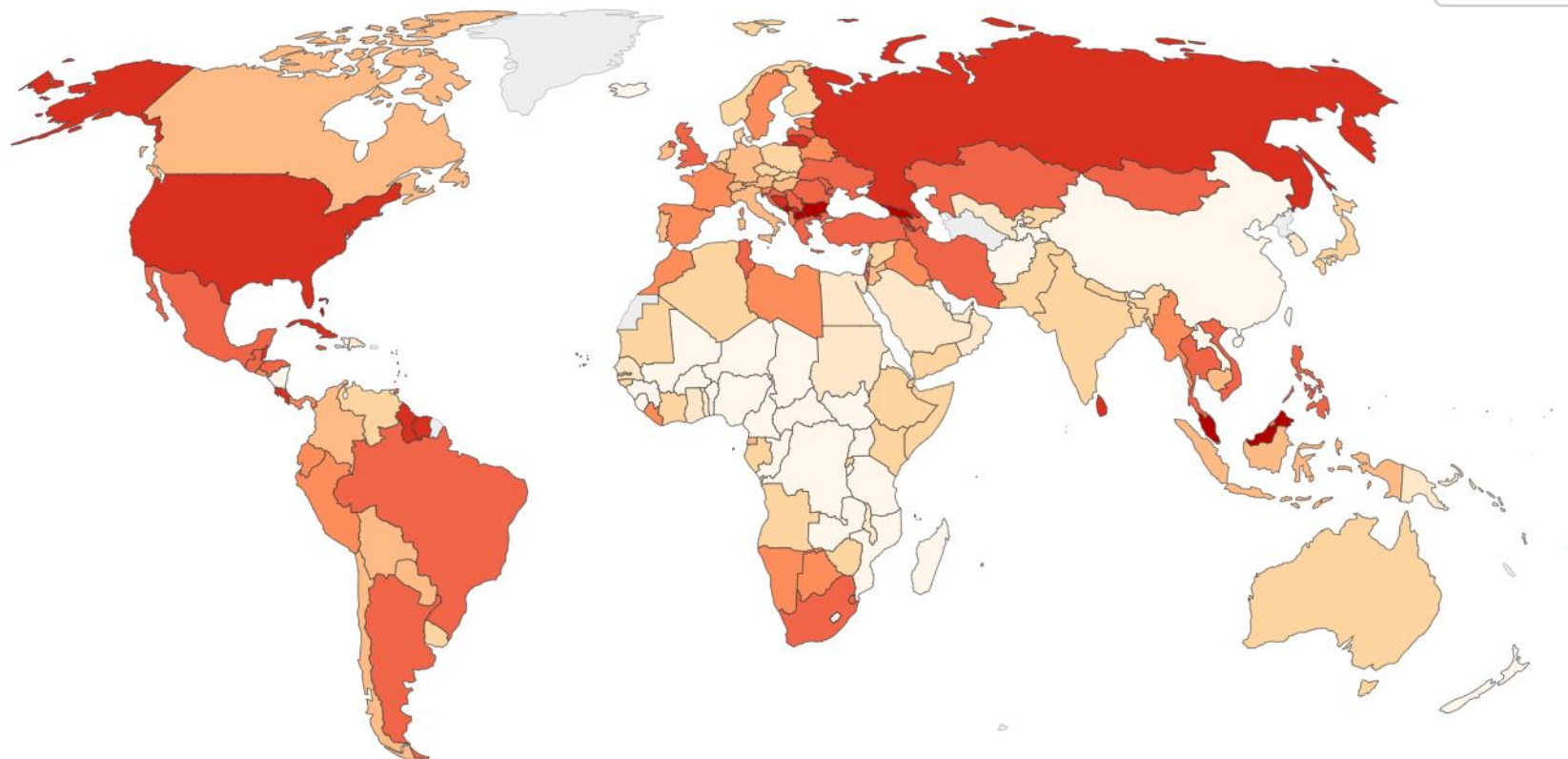


○ Sep 19, 2021

# Daily new confirmed COVID-19 deaths per million people, Sep 19, 2021

Shown is the rolling 7-day average. Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

World 



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

▶ Jan 28, 2020

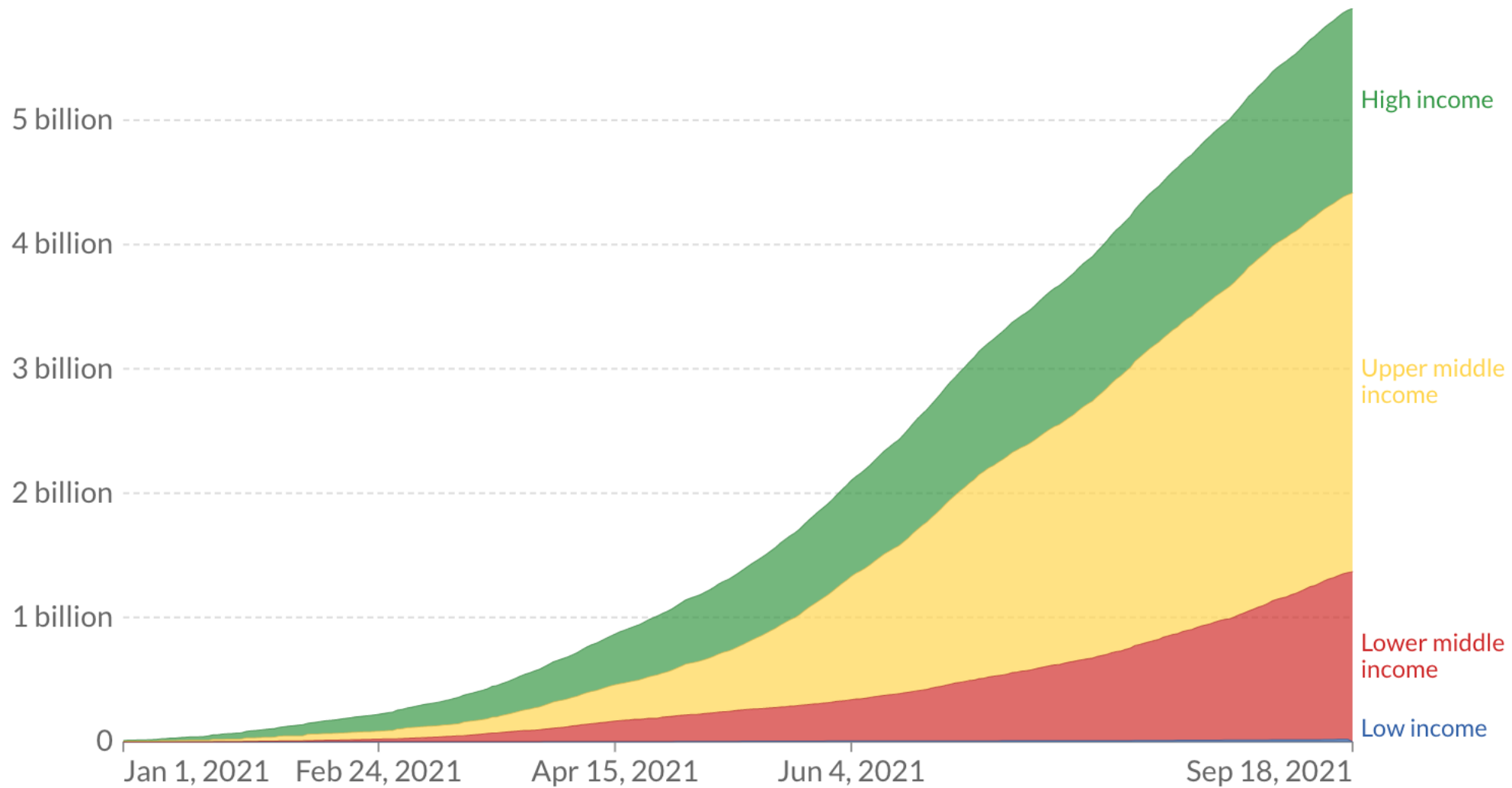


○ Sep 19, 2021

# COVID-19 vaccine doses administered by country income group

For vaccines that require multiple doses, each individual dose is counted. As the same person may receive more than one dose, the number of doses can be higher than the number of people in the population.

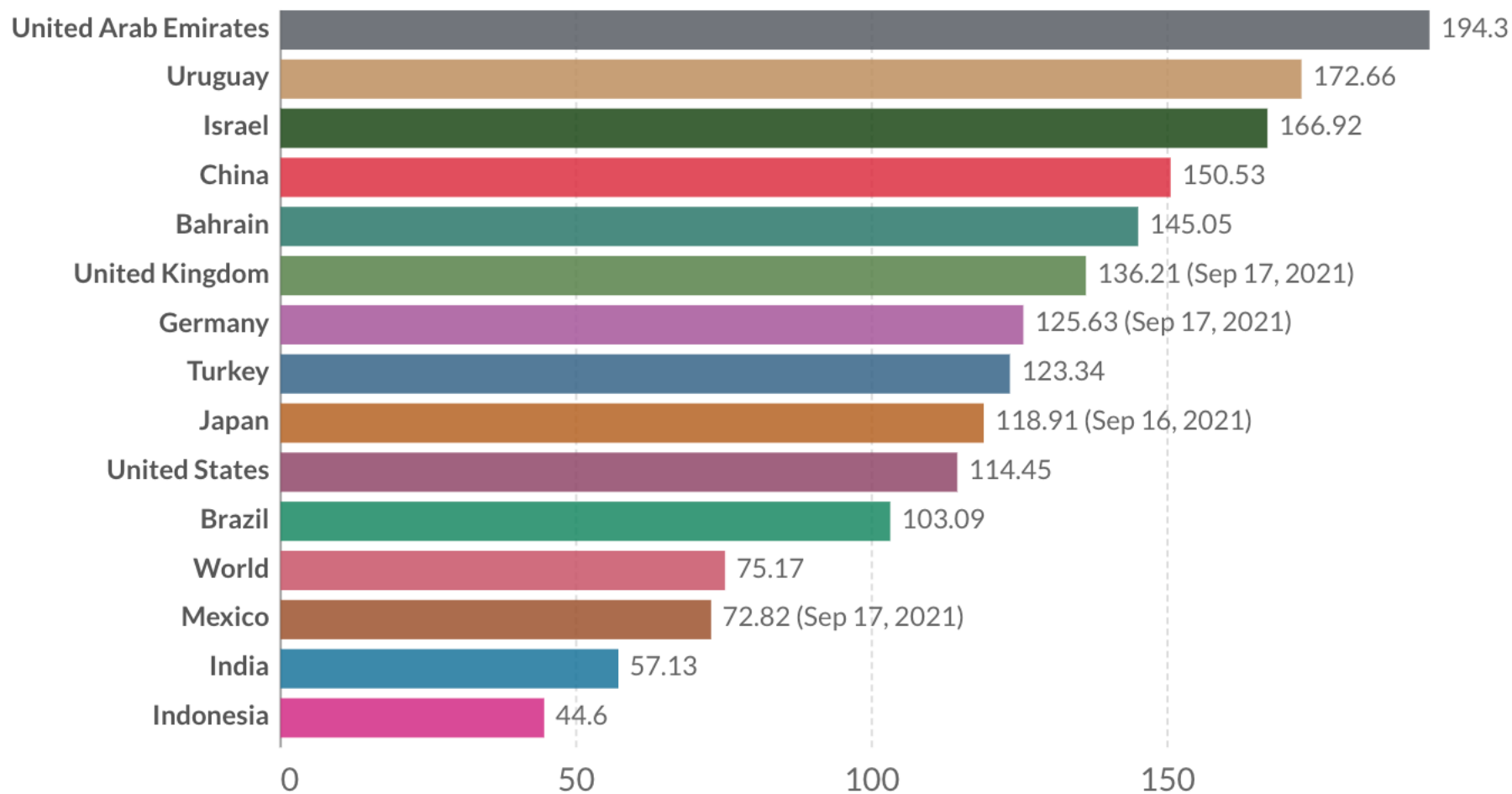
Relative



# COVID-19 vaccine doses administered per 100 people, Sep 18, 2021

For vaccines that require multiple doses, each individual dose is counted. As the same person may receive more than one dose, the number of doses per 100 people can be higher than 100.

**LINEAR** LOG **+ Add country**



Source: Official data collated by Our World in Data - Last updated 19 September 2021, 09:00 (London time)

OurWorldInData.org/coronavirus • CC BY

▶ Dec 1, 2020

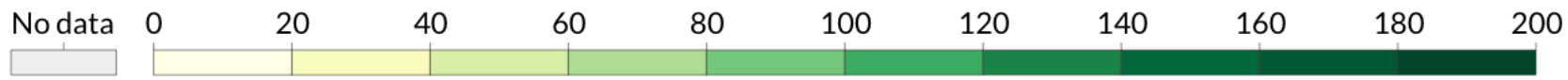
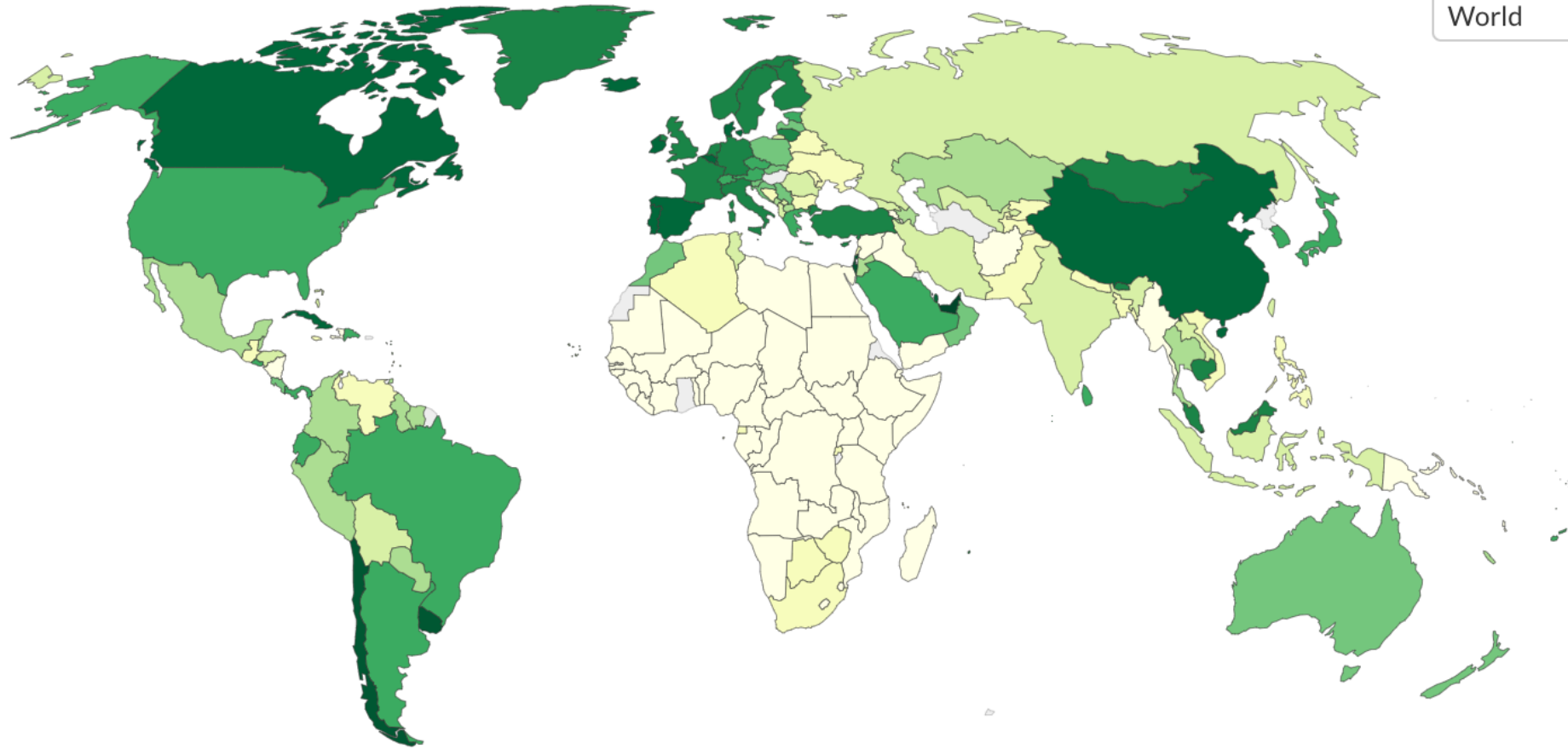
○ Sep 18, 2021



# COVID-19 vaccine doses administered per 100 people, Sep 18, 2021

For vaccines that require multiple doses, each individual dose is counted. As the same person may receive more than one dose, the number of doses per 100 people can be higher than 100.

World



Source: Official data collated by Our World in Data - Last updated 19 September 2021, 09:00 (London time)

OurWorldInData.org/coronavirus • CC BY

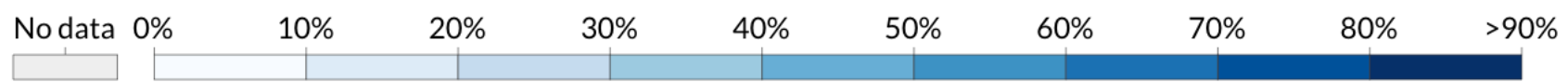
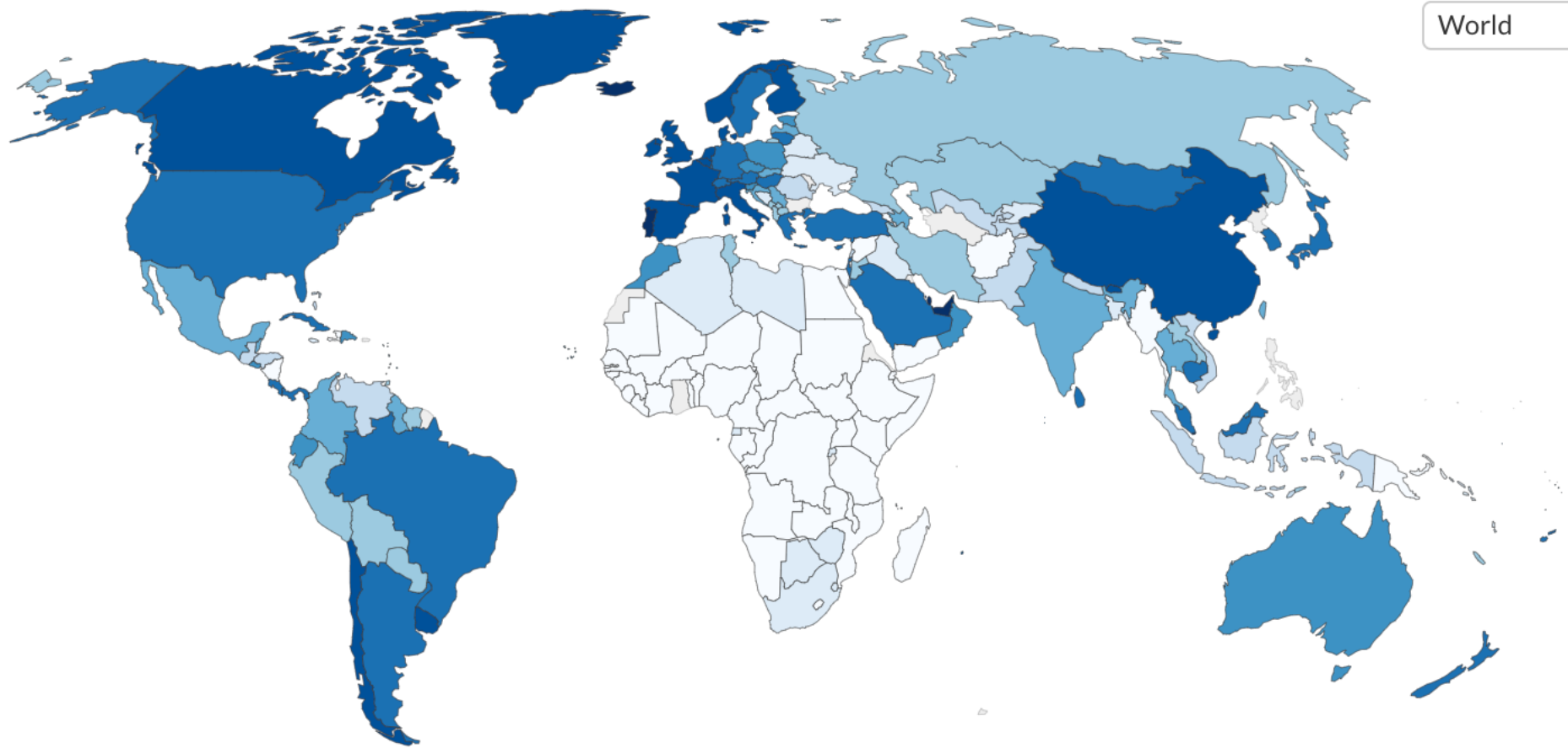
▶ Dec 1, 2020

○ Sep 18, 2021

# Share of people who received at least one dose of COVID-19 vaccine, Sep 18, 2021

Total number of people who received at least one vaccine dose, divided by the total population of the country.

World 



Source: Official data collated by Our World in Data - Last updated 19 September 2021, 09:00 (London time)

[OurWorldInData.org/coronavirus](https://OurWorldInData.org/coronavirus) • CC BY

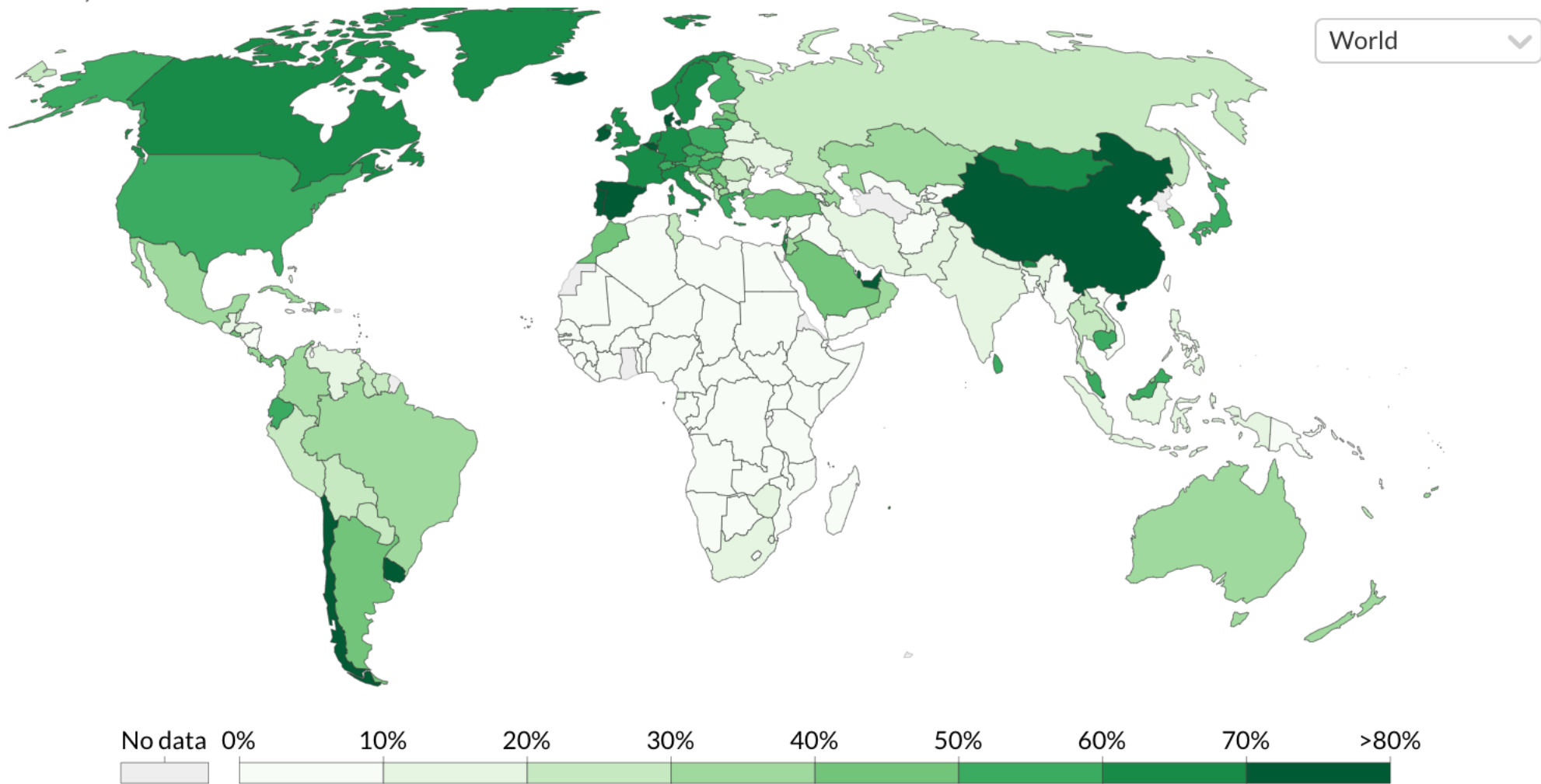
 Dec 1, 2020



 Sep 18, 2021

# Share of the population fully vaccinated against COVID-19, Sep 18, 2021

Total number of people who received all doses prescribed by the vaccination protocol, divided by the total population of the country.

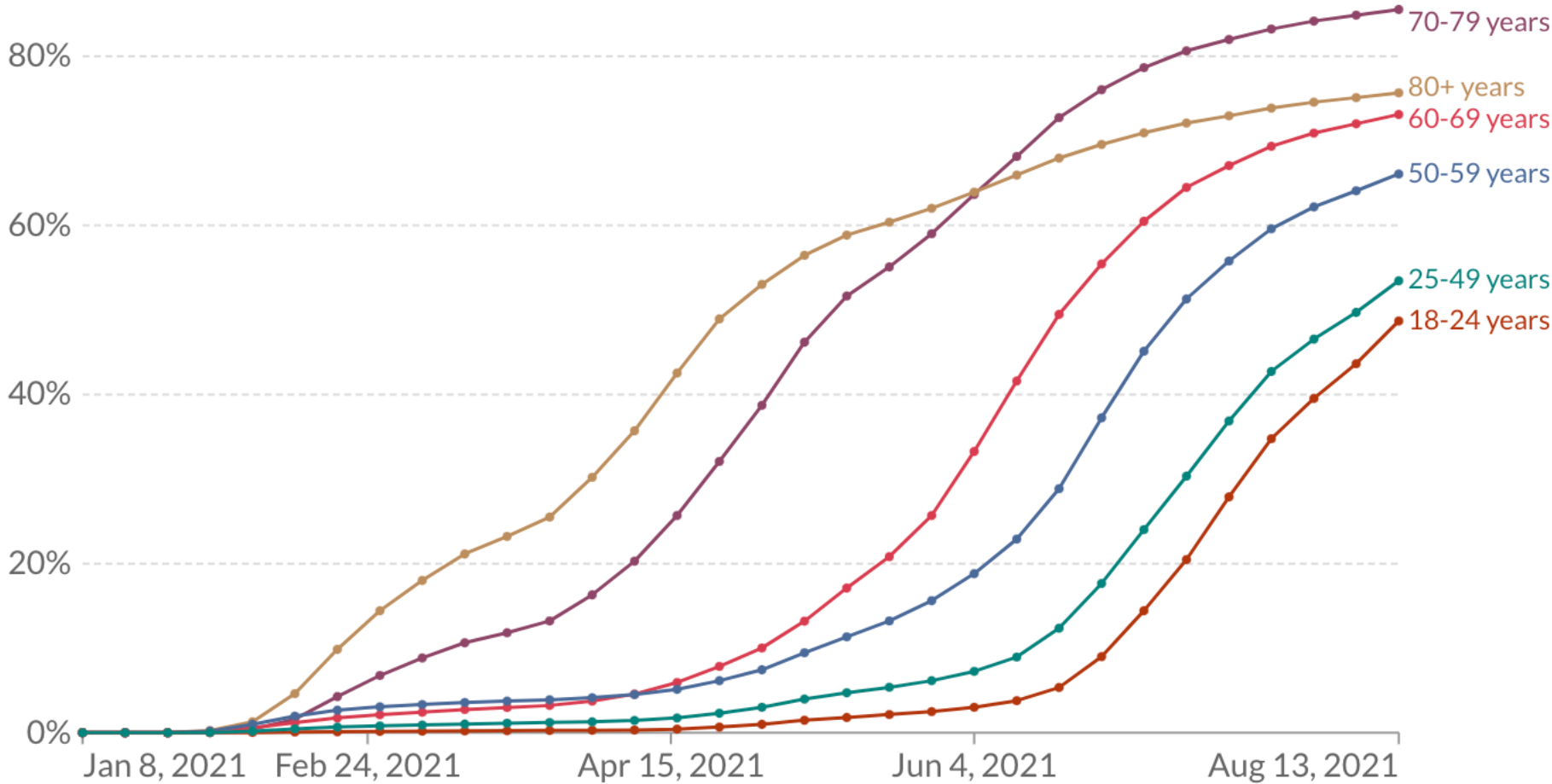


Source: Official data collated by Our World in Data – Last updated 19 September 2021, 09:00 (London time) [OurWorldInData.org/coronavirus](https://OurWorldInData.org/coronavirus) • CC BY  
Note: Alternative definitions of a full vaccination, e.g. having been infected with SARS-CoV-2 and having 1 dose of a 2-dose protocol, are ignored to maximize comparability between countries.

# Share of people fully vaccinated against COVID-19 by age, France

Share of the population in each age group that have received all prescribed doses of the vaccine.

↔ Change country



Source: Official data collated by Our World in Data

OurWorldInData.org/coronavirus • CC BY

Note: In some territories, vaccination coverage may include non-residents (such as tourists and foreign workers) so per-capita metrics may exceed 100%.

# Summary

VACCINATIONS : UAE, Bahrain, Israel and Qatar are among the most highly vaccinated populations to date globally

- What lessons can be learned from these countries and the vaccination of their adult populations.
- What lessons can be learned from France as their vaccination of 18-24 yo continues to increase
- All nations must achieve high levels of vaccinated populations to ensure pandemic control
- Vaccination is critical to prevent severe illness and preserve the health care delivery system

The Global PANDEMIC : COVID19 severe disease is age and co-morbidity driven.

- Fatalities are concentrated in countries with an older median age of their populations, countries with higher co-morbidities in their populations – cardiovascular disease, diabetes and obesity. Essentially upper and upper middle income countries across the globe.
- Sub-Saharan Africa and Asia countries with younger populations probably detected less SARS-CoV2 infections due to more mild and asymptomatic infections among their populations but will still need high levels of vaccinations to prevent reinfections and continued community spread and fatalities among their vulnerable residents
- Asymptomatic infections or very mild disease among the youth and young adults as well as potentially asymptomatic infection among the vaccinated can drive community spread - unknowingly infecting others when the virus is present in the community
- Focusing testing, contact tracing, isolation and quarantine only on the symptomatic individuals or those exposed to a symptomatic case will not control community spread due to spread from those with mild or no symptoms

In addition to vaccinations :

- **Proactive testing** independent of symptoms especially among populations that must be in the public – community college students, K-12 students and teachers, first responders, front line health care providers, essential workers and

# Lessons from previous and ongoing pandemics globally – HIV, TB, malaria

- **Data matters** : comprehensive population level data is critical to both understanding pandemics, understanding who is at risk, understanding success and failure of prevention and treatment interventions including policies
  - Real time community data is more important than geographic isolated highly controlled studies that maybe more biased and unique to specific cohorts
  - The absolute numbers are important but even more so are trends – are cases accelerating or declining etc
  - Integrating data from all sources is critical and do not let the perfect be the enemy of the good
  - Using data makes data better as everyone one in the data value chain realizes the importance of the data
  - Don't wait until every data point is perfect to draw conclusions – time is critical in a pandemic
- Data should drive policies and communication with the community with clear explanation of why that policy now based on the data and always make it clear that information is evolving and therefore

# Lessons cont. Policies matter but implementation of those policies down to the level of the community matters more

- Policies matter but implementation down to the community is equally important
  - Policies must be practical and implementable
  - Policies must be straightforward and explained to the community with listening and feedback sessions with communities to understand any barriers to implementation
  - Policies must be adapted to the specific populations and communities
  - Policies must evolve as needed as information and barriers continue to evolve
- Policies must address specific structural barriers that limit implementation or access to the prevention and treatment services
- Public health requires the **active engagement of the public** and continuous effort must be made to understand the root causes of issues and these must be addressed
- Public health requires **active engagement with communities** to increase bidirectional understanding, ensure cultural adaptation, and evolve policies to meet the specific needs
- If the general public or subgroups within communities are not following

# **Lessons learnt: The investments made in combatting HIV, TB and Malaria equipped countries with the tools to confront SARS-CoV2 – vertical investments mattered and provided the platform for the COVID response**

- The healthcare personnel trained and hired across the globe were the backbone of the COVID response and will be the backbone of vaccine roll-out
- Investment in communities and addressing structural barriers was important
- Investment in community health workers provided that trusted link between communities and facilities
- Physical infrastructure including laboratories, equipment and personnel were essential to the response
- Investment in local organizations was critical to sustaining the HIV



## **Lessons cont. : We need to re-envision pandemic preparedness**

**Pandemic preparedness is about improving routine laboratory diagnostic capacity from point of care to high throughput hospital systems – its about better real time data for current diseases and measuring outcomes and impact in real time – its about improving testing and treatment so new diseases will be evident and more treatable**

- SARS-CoV2 is a wake up call to upper and upper middle income countries
  - Need to address the underlying medical conditions that made these countries more vulnerable
  - Need to address data and data collection systems for realtime analysis and interventions – federal institutions must be embedded in and supportive of local governments
- SARS-CoV2 highlights the need for a systematic approach to adult vaccination
  - Who gets a flu shot why and why not? If we had conducted behavioral research we would have been better prepared for COVID vaccine roll-out
- We need to reimagine pandemic preparedness –
  - We should never accept syndromic diagnoses but ensure definitive laboratory diagnosis of disease – if we had been testing 100% of flu, RSV and other respiratory cases with PCR or quality Ag tests we would have seen this new disease earlier and will see future disease earlier with the development of clear baselines with clear laboratory based diagnosis
  - We should collect flu and other epidemic and seasonal data from around the world in real time at the population level not just surveillance sites and these data systems will be present and routine and available for any new outbreak
  - We need to engage the private sector as an equal partner in pandemic preparedness – they were a critical partner in rapid test development, aligning PPE supplies and vaccine