

The COVID-19 Pandemic

An Update for the OkDCN Nursing Home ECHO Project

Dale W. Bratzler, DO, MPH, MACOI, FIDSA

Chief COVID Officer – University of Oklahoma

Professor College of Medicine

Chief Quality Officer – OU Health

Interim Dean - Hudson College of Public Health

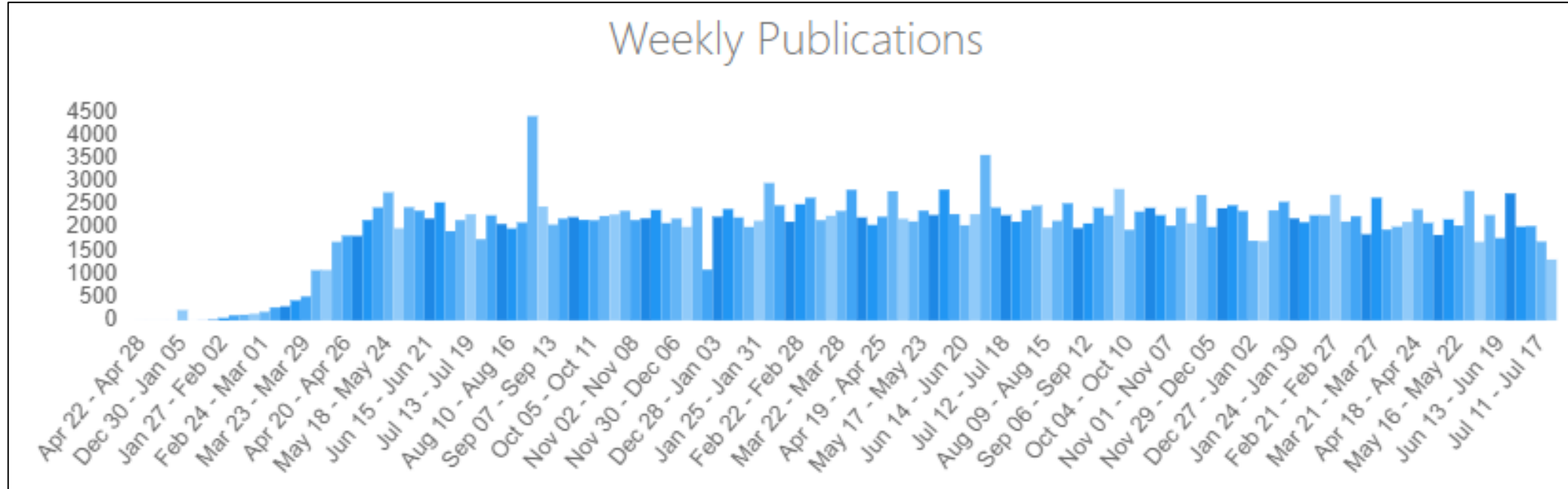
Edith Kinney Gaylord Presidential Professor

Email: dale-bratzler@ouhsc.edu

Office Phone: (405) 271-3932

July 27 and 28, 2022

No one can keep up with the literature....



***272,442 articles on COVID published
and counting.....***

Don't trivialize COVID!

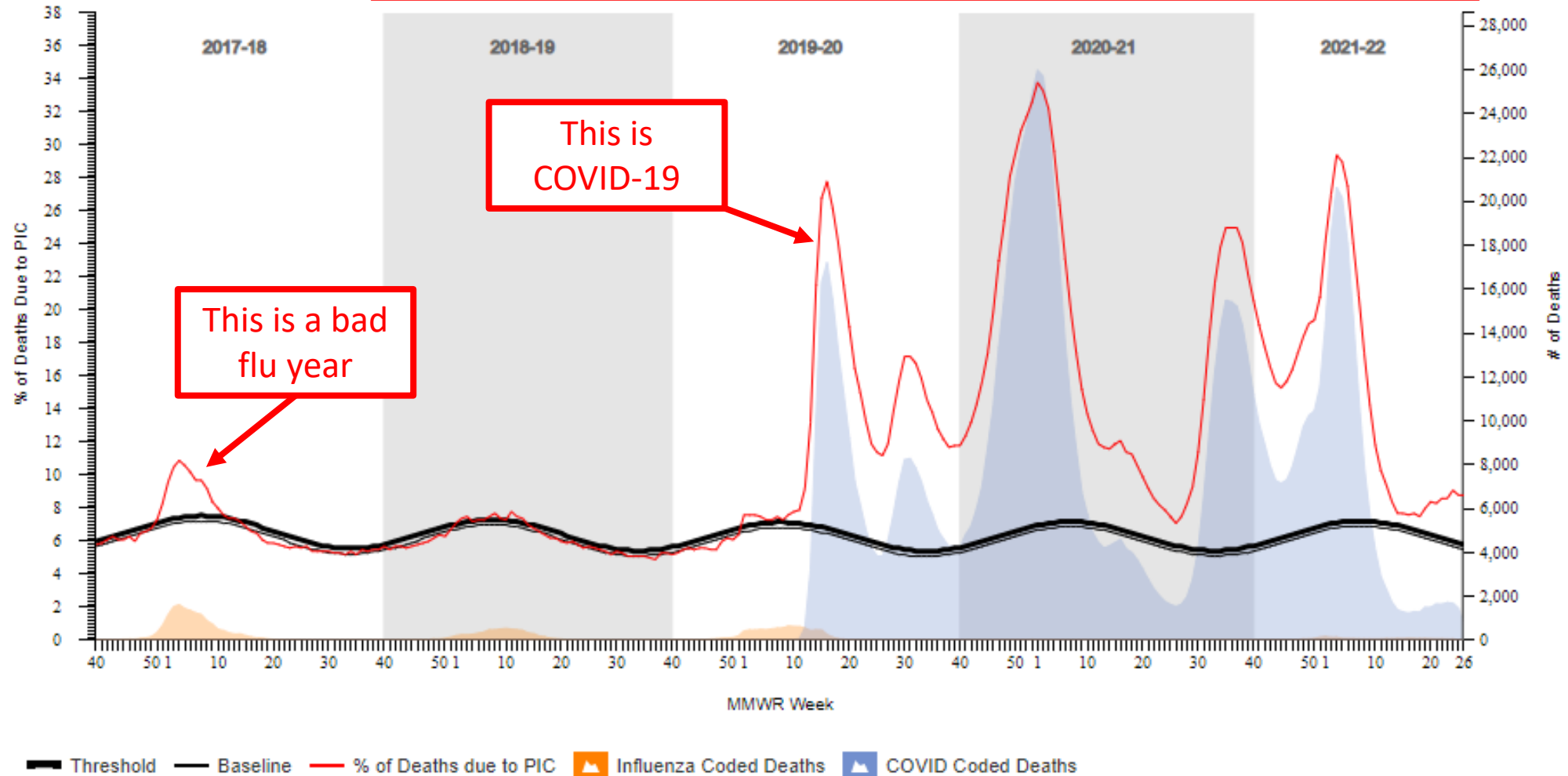
Percentage of all deaths due to pneumonia, influenza, and COVID-19, National Summary

[Download Image](#)

2017-22

Show Number of Influenza Deaths and COVID Deaths

COVID-19 was the 3rd leading cause of death in the United States in 2020 and in 2021!



We will have to learn to live with COVID-19!

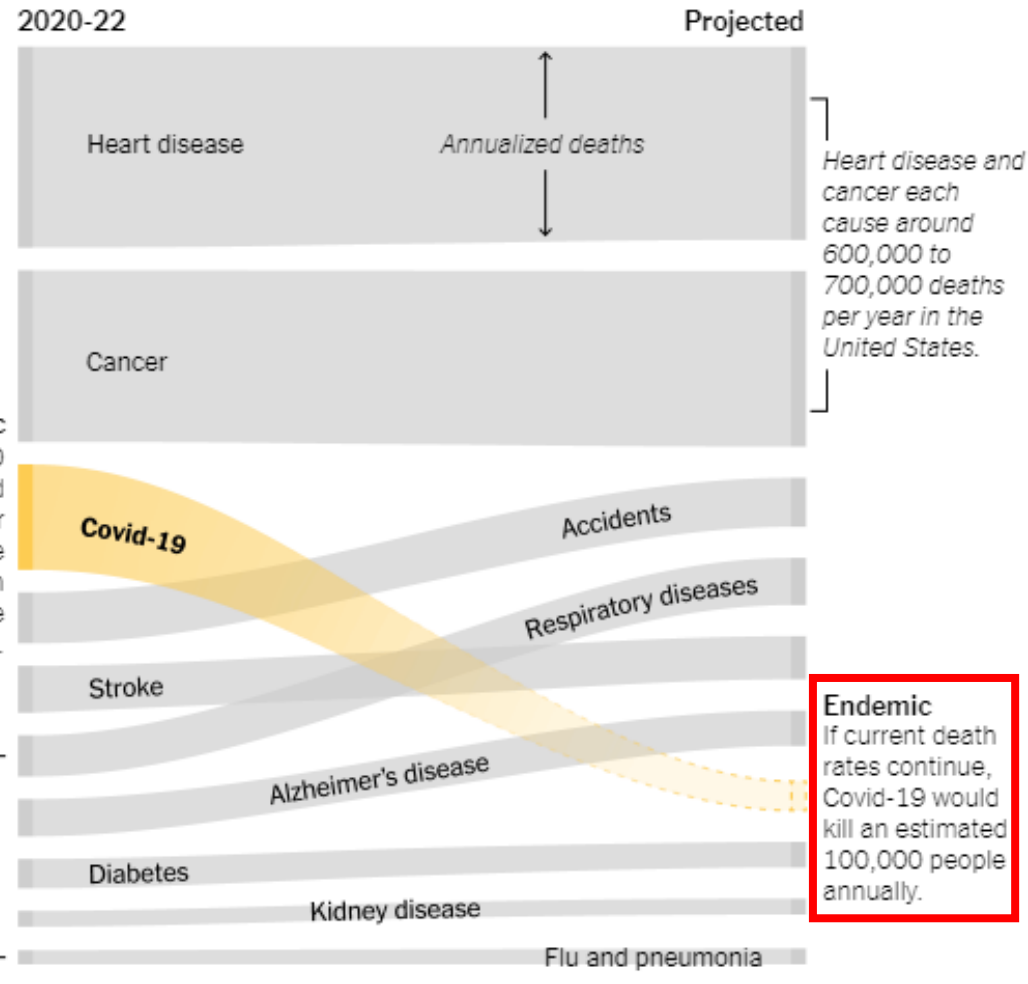
Table 7.3: Eradication of Human Diseases: Smallpox (now COVID)

	Smallpox	COVID
Disease is limited to humans, i.e., no animal reservoir		No
Limited persistence in the environment?	Yes	Yes
Absence of long-term carrier state?	Yes	??
Long-term immunity results from infection?	Yes	No
Vaccination confers long-term immunity?	Yes	??
Herd immunity prevents perpetuation of an epidemic?	Yes	No
Easily diagnosed disease?	Yes	No
Vaccination effective postexposure?	Yes	No

We can not eliminate COVID!

How Covid-19 might fit into the leading causes of death

Some of the most common causes of death in the United States, sized by number of deaths per year, shown during the pandemic and projected into the future.



Source: Mortality data for 2018 through June 2022 from CDC WONDER, provisional from 2021 onward. Future mortality estimated based on 2018 and 2019 data. • Note: Respiratory disease deaths were low during the pandemic due in part to lower circulation of respiratory viruses, and because some people with lung problems who could have died from respiratory disease died from Covid-19 infections instead. • Graphic by Sara Chodosh

The New York Times

OPINION
DAVID WALLACE-WELLS

Endemic Covid-19 Looks Pretty Brutal

July 20, 2022



This isn't over even this year

More than 300 Americans have been dying nearly every day for months; the number is today above 400 and growing....

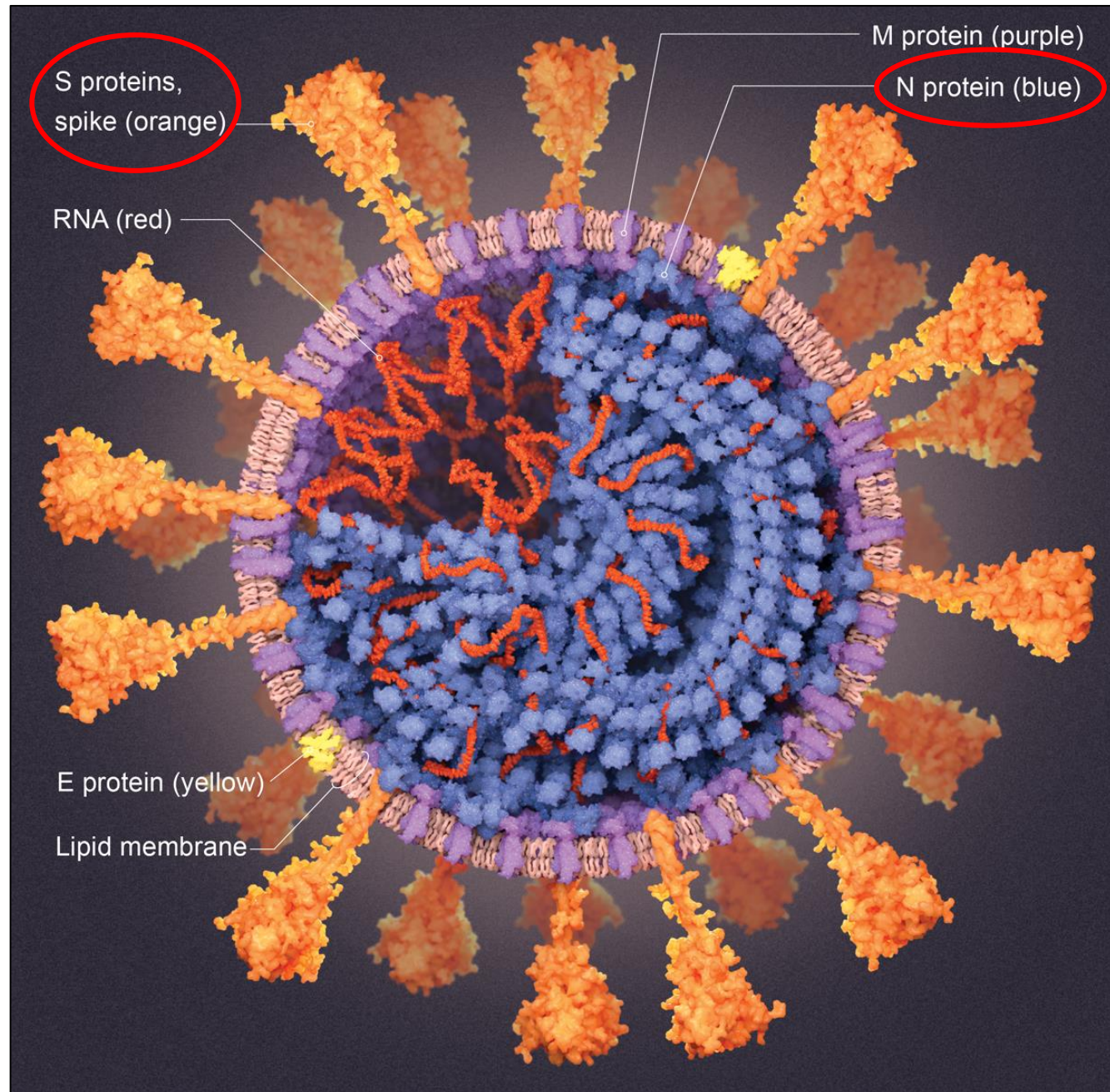
.... With a combination of seasonality and waning immunity among older people, he said, there's potential for a fall wave of perhaps 1,000 a day. That would bring the number of American deaths, this year, to potentially 300,000 or more.

Spike protein (S)

- Target of the mRNA and Novavax COVID vaccines

Anti-S antibodies from vaccination.

PCR tests are very sensitive and detect fragments of the RNA in the virus.



Nucleocapsid protein (N)

- Many rapid antigen tests detect this protein

Anti-N antibodies from prior infection.

COVID-19 Dashboard

by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

M/D/YYYY) 10:21 AM	Total Cases 570,332,626	Total Deaths 6,384,729	Total Vaccine Doses Administered 11,927,704,642
Days by Sovereignty	28-Day Cases 26,247,767	28-Day Deaths 53,004	28-Day Vaccine Doses Administered 239,236,705

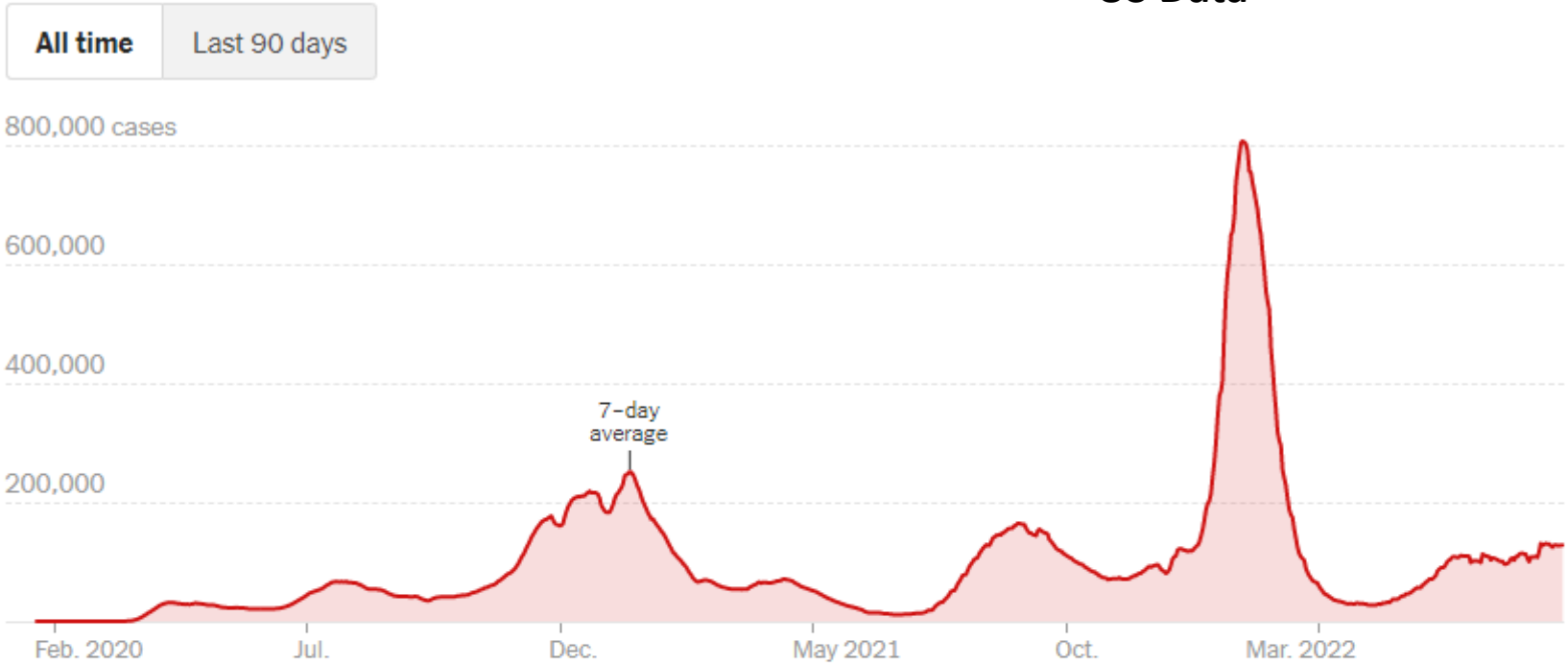
United States:

- 90,438,934 Cases
- 1,027,002 Deaths
- 597,670,903 Vaccine doses

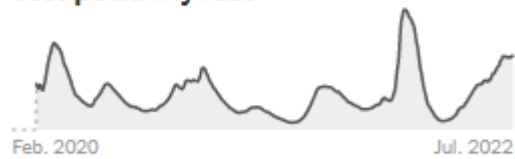
Data as of July 25, 2022.
<https://coronavirus.jhu.edu/map.html>

New reported cases

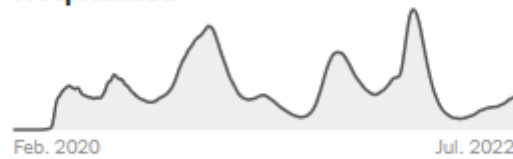
US Data



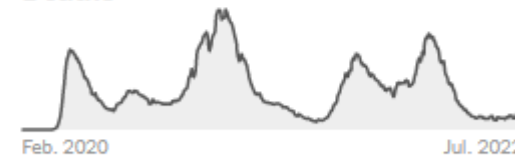
Test positivity rate



Hospitalized



Deaths



	DAILY AVG. ON JUL. 25	14-DAY CHANGE	TOTAL REPORTED
Cases	128,015	+10%	90,415,556
Test positivity	18%	—	—
Hospitalized	42,862	+12%	—

National Ranking – New Cases per 100,000 Population in the Past Week

Top Ten

State	Cases in the past week per 100,000 population
California	366
Florida	352
Alabama	346
Mississippi	335
West Virginia	329
New Mexico	325
Alaska	324
Kentucky	310
Louisiana	306
Oklahoma	305

Oklahoma is currently 10th at 305 new cases per week per 100,000 population.

https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days

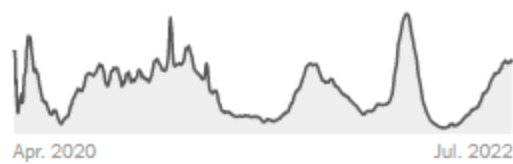
Data refreshed July 26, 2022

New reported cases

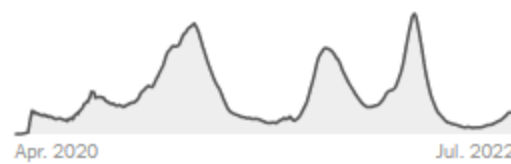
Oklahoma Data



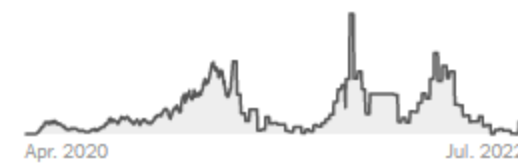
Test positivity rate



Hospitalized



Deaths

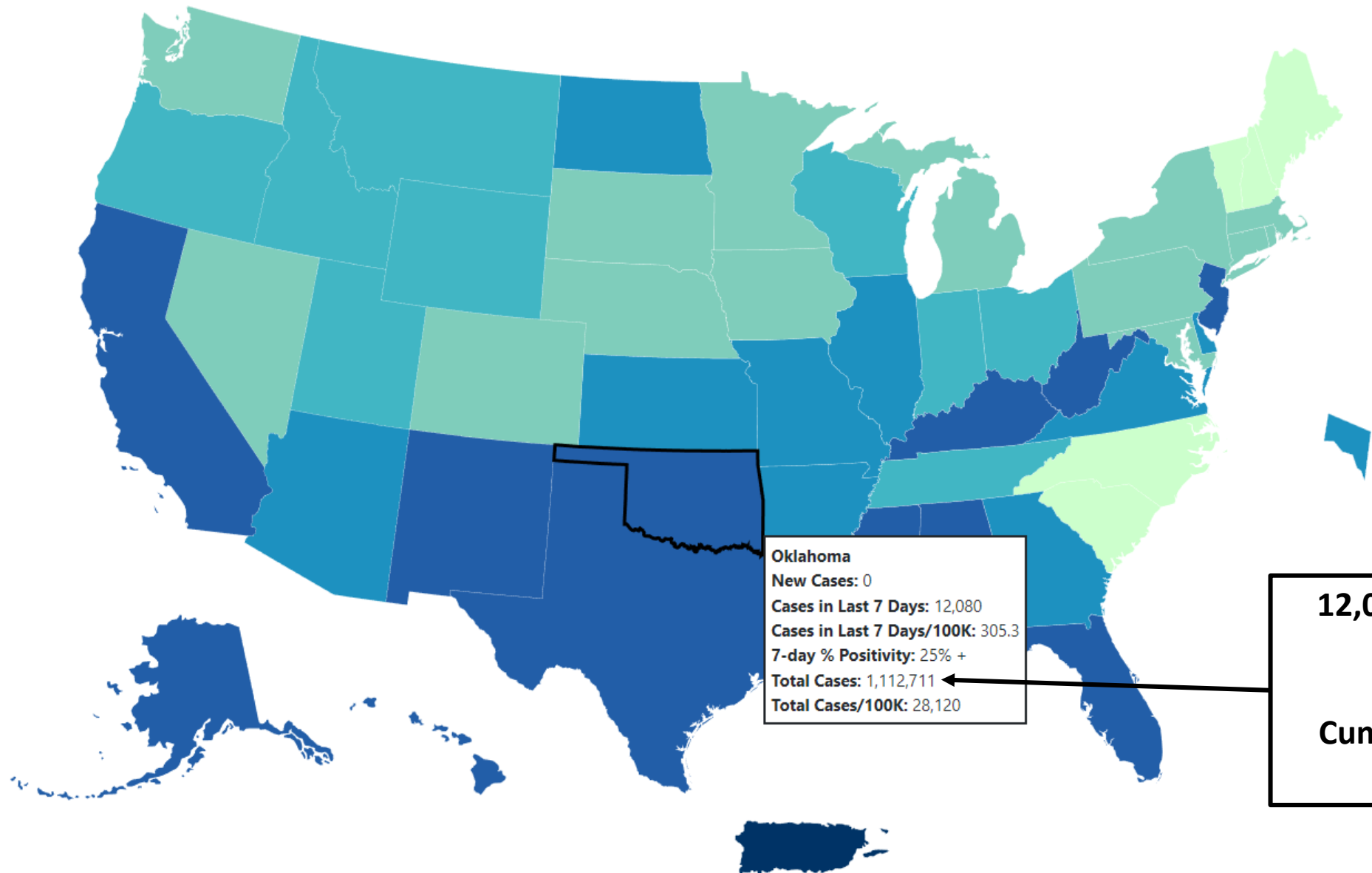


	DAILY AVG. ON JUL. 25	14-DAY CHANGE	TOTAL REPORTED
Cases	1,726	+41%	1,112,711
Test positivity	28%	—	—
Hospitalized	443	+16%	—

<https://www.nytimes.com/interactive/2021/us/oklahoma-covid-cases.html>

Refreshed:
July 26, 2022

US COVID-19 7-Day Case Rate per 100,000, by State/Territory



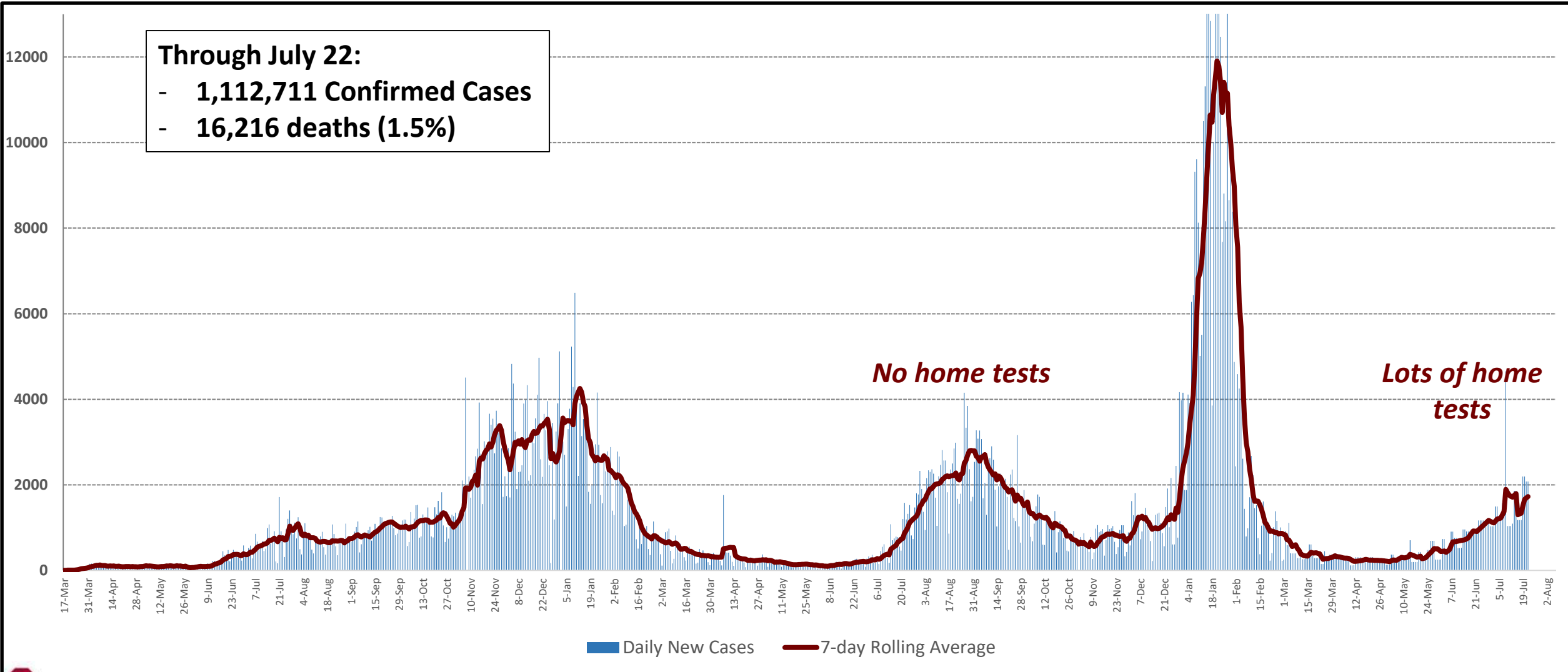
Oklahoma
New Cases: 0
Cases in Last 7 Days: 12,080
Cases in Last 7 Days/100K: 305.3
7-day % Positivity: 25% +
Total Cases: 1,112,711
Total Cases/100K: 28,120

12,080 Cases in the Past 7 days.

Cumulative cases = 1,112,711

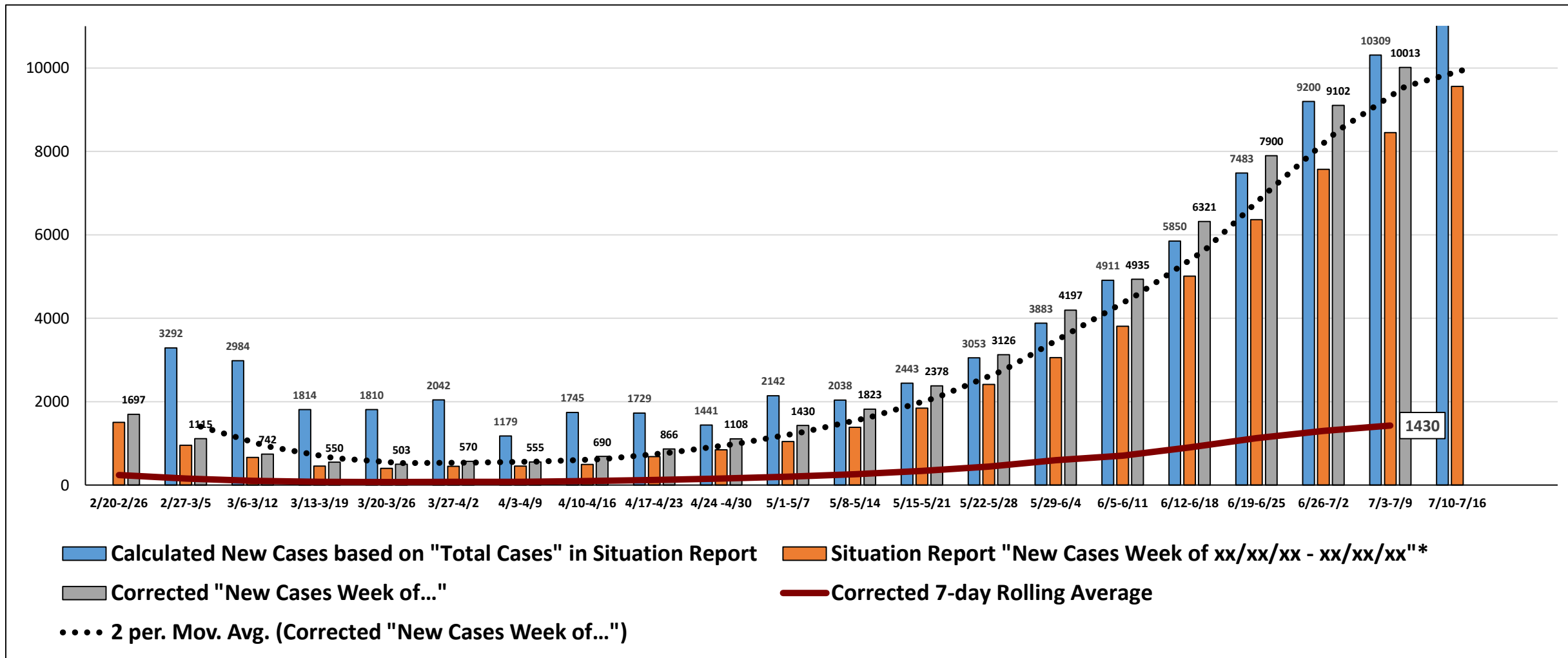
Daily New Cases with 7-day Rolling Average

Oklahoma



New Cases Per OSDH Situation Reports

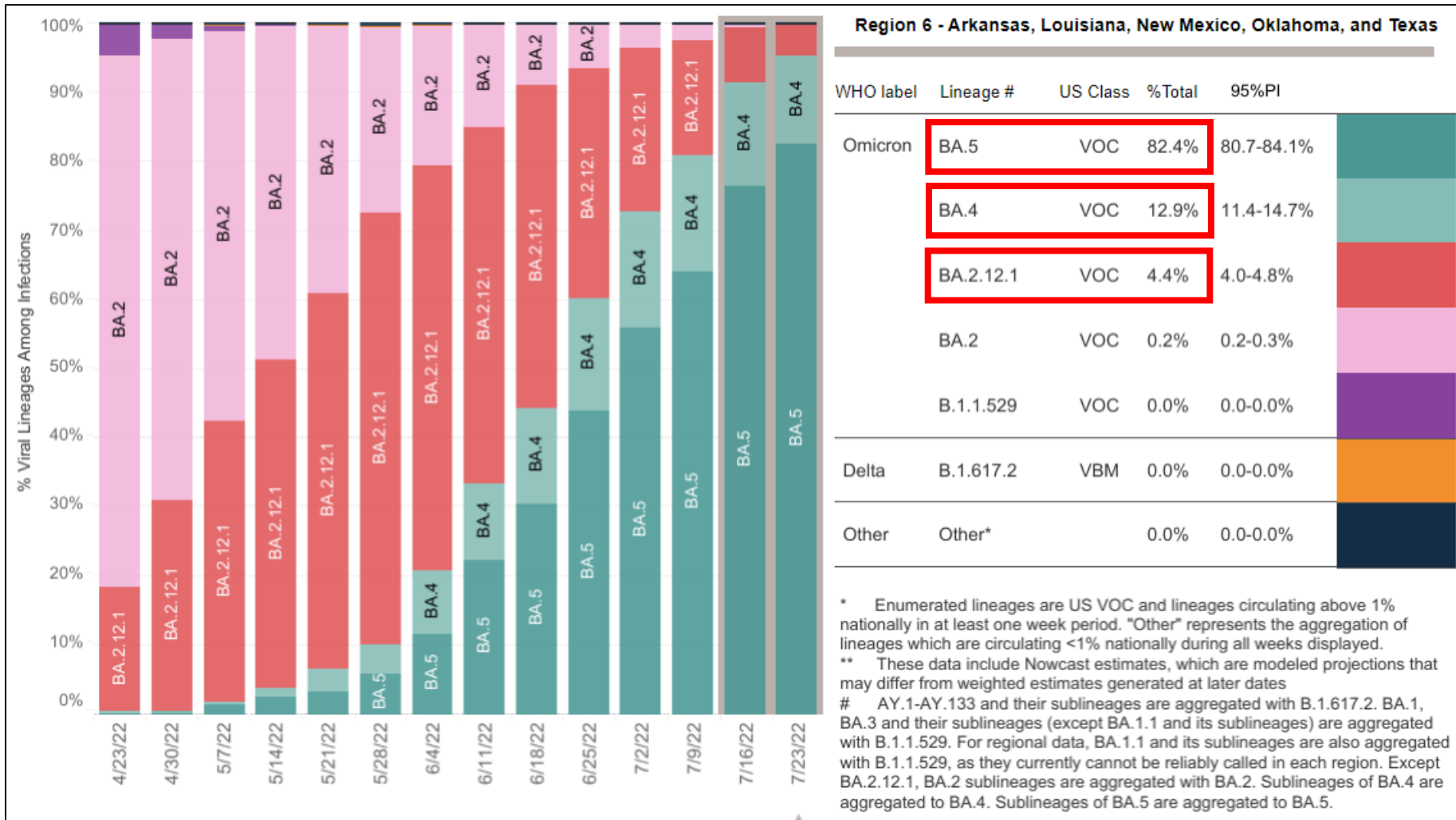
Oklahoma – New Methodology*



*Cases per week only includes events (specimen collection date or onset) reported to OSDH that occurred in that week.

+ "Corrected Case Count includes newly added positive tests that were reported late to OSDH for that week.

BA.2.12.1, BA.4, BA.5 all have the “delta mutation” which evades protection from prior Omicron infection. All are more contagious than the original Omicron variant



BA.2 – 0.5% of cases in Region 6 (which includes Oklahoma) at this time.

BA.2.12.1, BA.4, and BA.5 now represent 99.7% of our cases.

<https://covid.cdc.gov/covid-data-tracker/#variant-proportions>

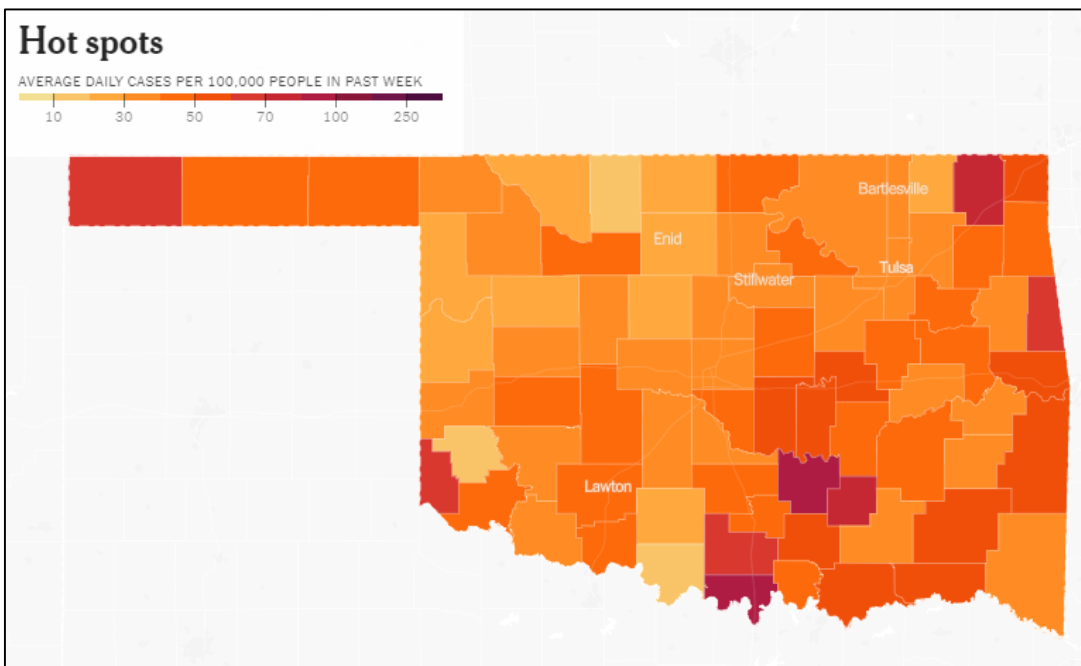
Through July 23, 2022.

**State population incidence
through July 21, 2022**

**County data last updated by
OSDH July 21, 2022**

Oklahoma County – 39*
Tulsa County – 39*
Cleveland County – 41*

**Daily New Cases per 100,000
population in the past week.*



	Daily Average Cases	Daily New Cases per 100,000 population in the Last 7 Days
Oklahoma	1663	42
County:		
Pontotoc	36	95
Love	8	82
Craig	11	76
Coal	4	70
Carter	32	67
Cimarron	1	67
Harmon	2	65
Adair	14	61
Choctaw	9	58
Bryan	28	58
Okfuskee	7	56
Seminole	13	55
Pottawatomie	39	54
Johnston	6	53
Sequoyah	22	53
Pushmataha	6	51
Le Flore	25	51
Ottawa	16	50
Muskogee	34	50
Caddo	14	50

**Cumulative Deaths per
100,000 Population
(For Comparison)**

Tulsa County – 335

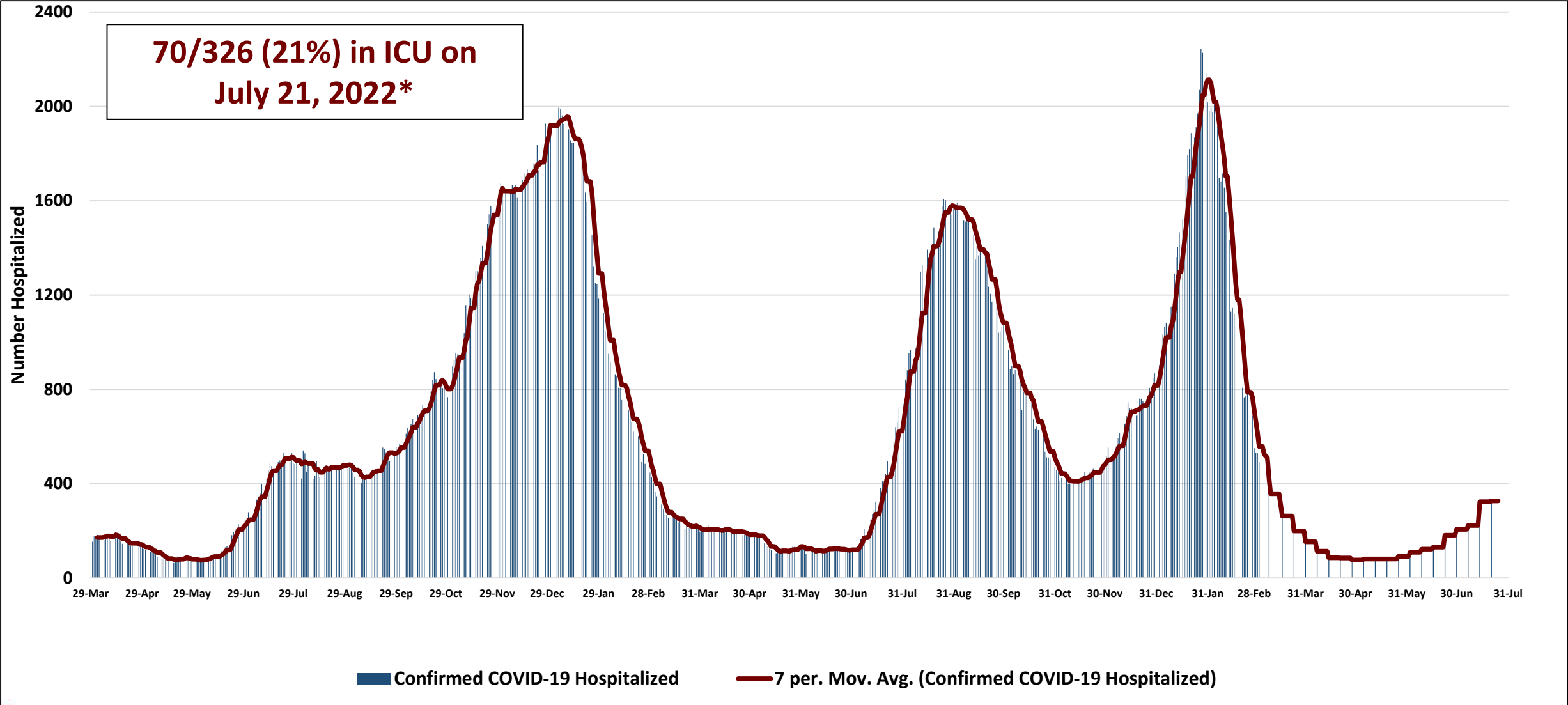
Oklahoma County - 311

	Cumulative Deaths	Cumulative Deaths per 100,000 Population
Oklahoma	14,419	364
County:		
Dewey	32	654
Greer	37	648
McIntosh	125	638
Kiowa	53	609
Caddo	172	598
Custer	169	583
Seminole	135	557
Murray	77	547
Cotton	31	547
Garvin	149	538
Major	41	537
Pawnee	85	519
Okfuskee	62	517
Muskogee	348	512
Washington	262	508
McCurtain	166	506
Washita	55	504
Kay	217	498
Carter	239	497
Johnston	55	496

**Oklahoma had the
third highest death
rate in the US from
COVID-19**

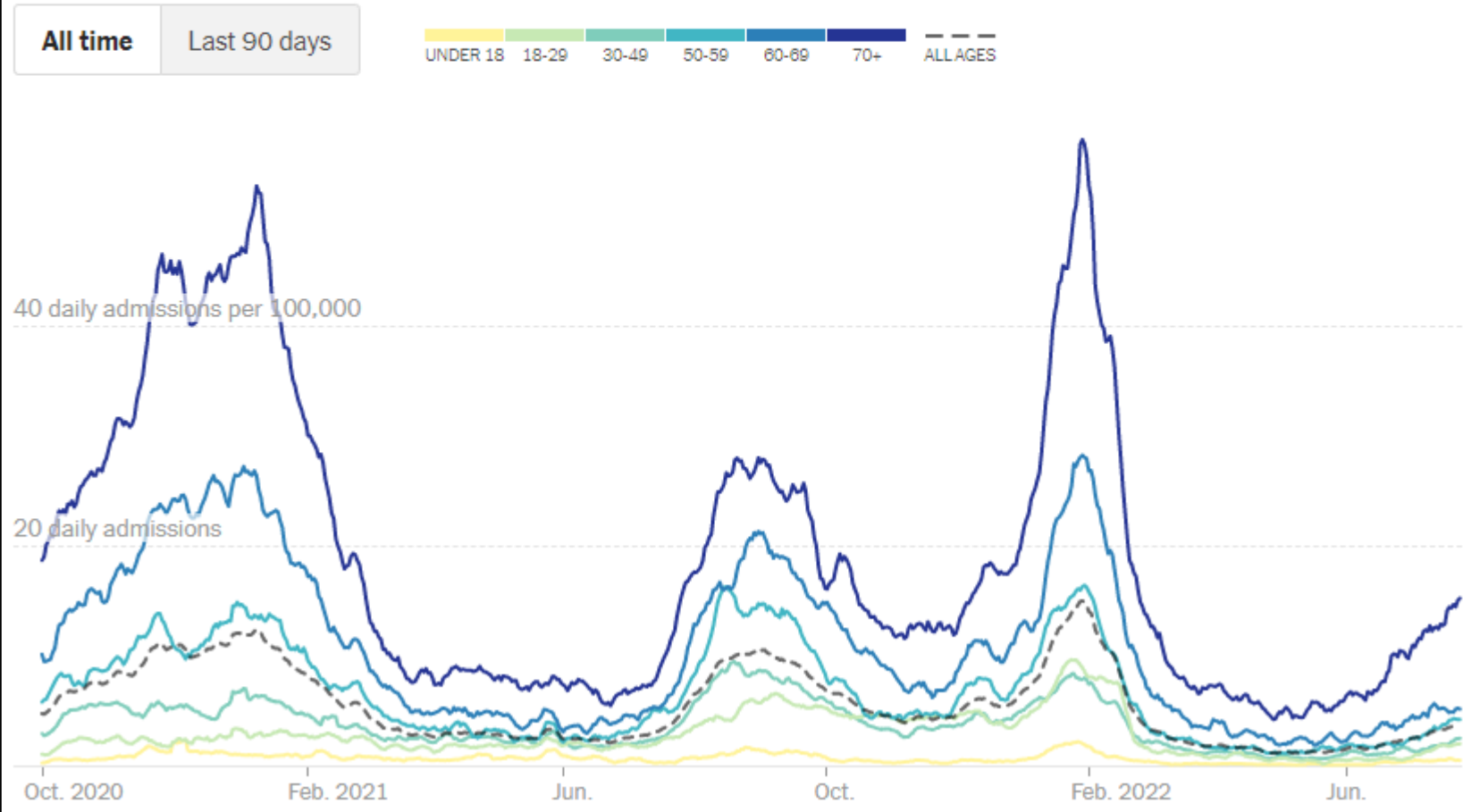
**Rural counties have
been hit the hardest
with cases and deaths
from COVID-19**

Oklahoma Hospitalizations – Confirmed Cases



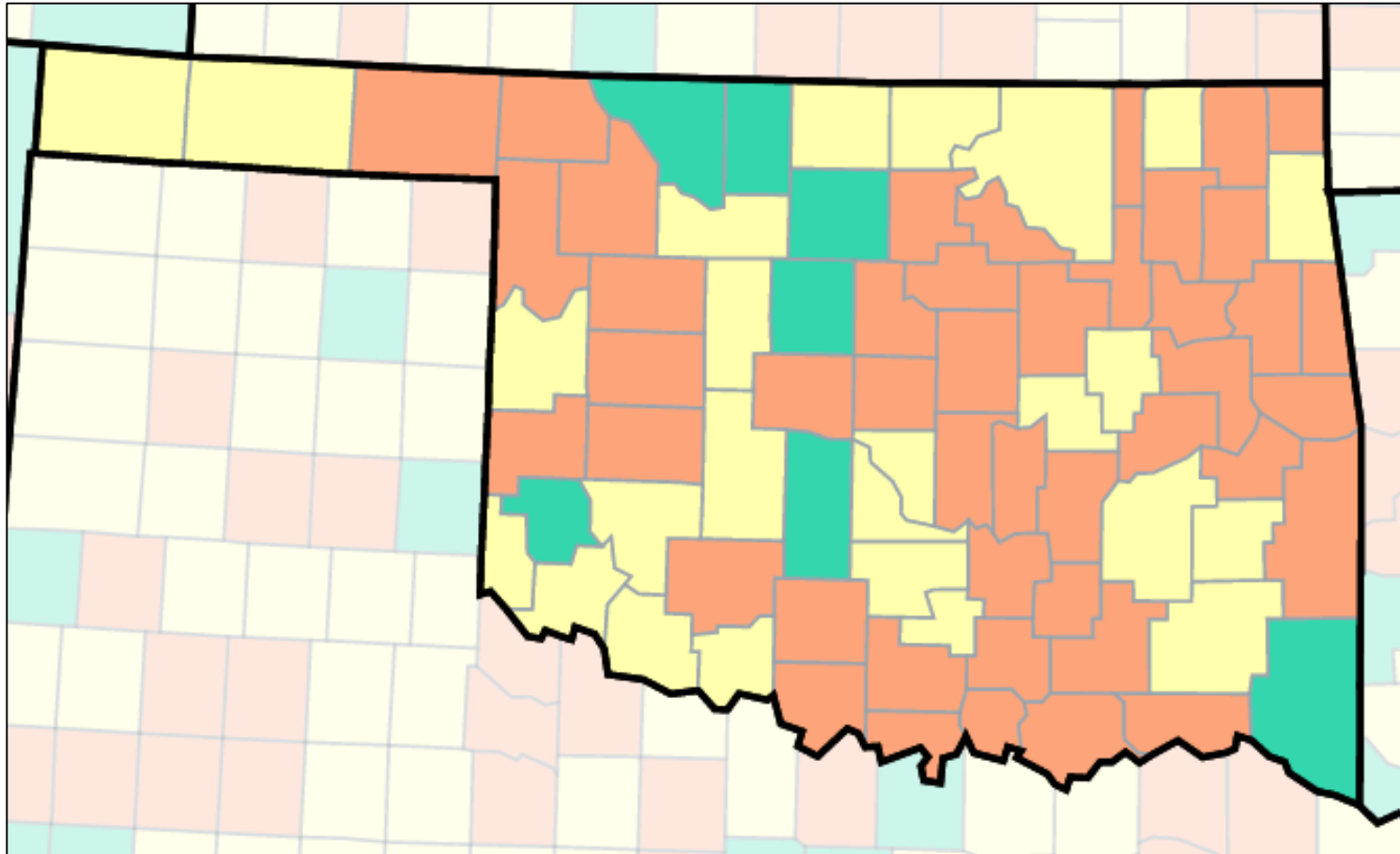
Daily new hospital admissions by age in Oklahoma

This chart shows for each age group the number of people per 100,000 that were newly admitted to a hospital with Covid-19 each day, according to data from the U.S. Department of Health and Human Services. Dips and spikes could be due to inconsistent reporting by hospitals.



**Age 70 years
and over!**

COVID-19 Community Levels



COVID-19 Community Levels – Use the Highest Level that Applies to Your Community

New COVID-19 Cases Per 100,000 people in the past 7 days	Indicators	Low	Medium	High
		Fewer than 200	New COVID-19 admissions per 100,000 population (7-day total)	<10.0
	Percent of staffed inpatient beds occupied by COVID-19 patients (7-day average)	<10.0%	10.0-14.9%	≥15.0%
200 or more	New COVID-19 admissions per 100,000 population (7-day total)	NA	<10.0	≥10.0
	Proportion of staffed inpatient beds occupied by COVID-19 patients (7-day average)	NA	<10.0%	≥10.0%

How is the disease spread?

BA.5 is the most contagious variant of the SARS-CoV-2 virus to date!



Delta variant

BA.5 subvariant

Omicron variant

The virus is transmitted on droplets and fine aerosols that surround all of us.

ARTICLE



Monitoring SARS-CoV-2 in air and on surfaces and estimating infection risk in buildings and buses on a university campus

Xin Zhang ^{1,2}, Jianfeng Wu^{1,2}, Lauren M. Smith¹, Xin Li¹, Olivia Yancey¹, Alfred Franzblau¹, J. Timothy Dvonch¹, Chuanwu Xi ¹✉ and Richard L. Neitzel ¹✉

© The Author(s), under exclusive licence to Springer Nature America, Inc. 2022

The estimated probability of infection was about 1 per 100 exposures to SARS-CoV-2-laden aerosols through inhalation and as high as 1 per 100,000 exposures from contacting contaminated surfaces in simulated scenarios.

Risk from breathing was 10,000 times more likely than a contaminated surface.

What can we do to end the pandemic?

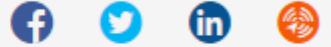
- **Prevention of infection**
 - **Wearing a mask still works!**
 - **Vaccination!!!!**

- **Treatment**



Morbidity and Mortality Weekly Report (*MMWR*)

CDC



Risk Factors for Severe COVID-19 Outcomes Among Persons Aged ≥ 18 Years Who Completed a Primary COVID-19 Vaccination Series — 465 Health Care Facilities, United States, December 2020–October 2021

Weekly / January 7, 2022 / 71(1);19–25

Christina Yek, MD^{1,2,*}; Sarah Warner, MPH^{1,*}; Jennifer L. Wiltz, MD³; Junfeng Sun, PhD¹; Stacey Adjei, MPH³; Alex Mancera, MS¹; Benjamin J. Silk, PhD³; Adi V. Gundlapalli, MD, PhD³; Aaron M. Harris, MD³; Tegan K. Boehmer, PhD³; Sameer S. Kadri, MD¹ ([View author affiliations](#))

Very large study of 1.2 million people who had completed the primary COVID vaccinations between December 2020 and October 2021.

Bottom Line Findings

- **Fully vaccinated** persons were protected from most complications:
 - Risk of severe COVID-19-associated outcomes – 0.015%
 - Risk of death – 0.0033%
- All persons with severe outcomes had at least one (out of eight) underlying risk factor for poor outcomes
- **Of those who died, 78% had four or more risk factors.**

Severe COVID-19 outcomes were defined as hospitalization with a diagnosis of acute respiratory failure, need for noninvasive ventilation (NIV), admission to an intensive care unit (ICU) including all persons requiring invasive mechanical ventilation, or death (including discharge to hospice)

<https://www.cdc.gov/mmwr/volumes/71/wr/mm7101a4.htm>

Eight Risk Factors and Oklahoma Prevalence

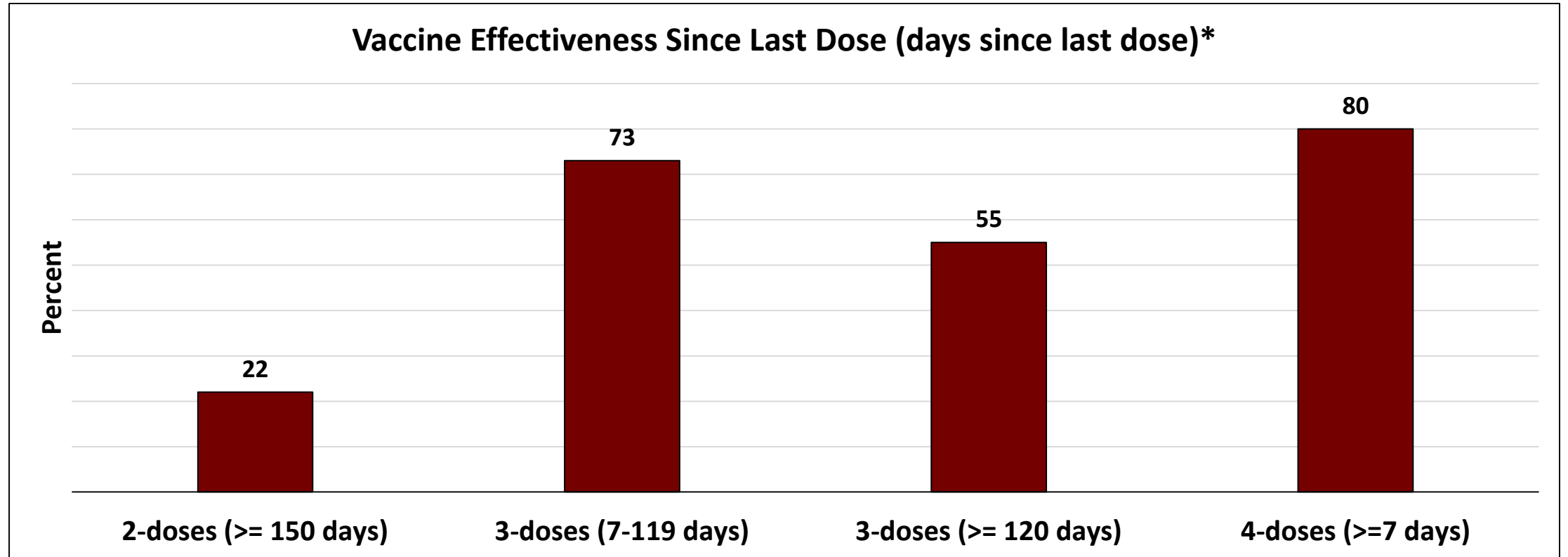
Risk Factor	Increased Risk of Severe Disease or Death*	Oklahoma Rank or Prevalence
≥ 65 years	3.2-fold higher risk	~635,000 (16% of population)
Immunosuppressed	1.9-fold higher risk	3-4% of US population
Diabetes	1.5-fold higher risk	4 th in the nation
Chronic kidney disease	1.6-fold higher risk	25 th in the nation
Chronic neurologic disease	1.5-fold higher risk	9 th highest in the nation for stroke
Chronic cardiac disease	1.4-fold higher risk	1 st in the nation
Chronic pulmonary disease	1.7-fold higher risk	2 nd in the nation
Chronic liver disease	1.7-fold higher risk	5 th in the nation

*In fully vaccinated individuals.

Most ranking data from CDC:

<https://www.cdc.gov/nchs/pressroom/states/oklahoma/oklahoma.htm>

mRNA Vaccine Effectiveness against laboratory-confirmed COVID-19 hospitalization (Age 50 and over)



*During the Omicron BA.2/BA.2.12.1–predominant period.

Link-Gelles R, Levy ME, Gaglani M, et al. Effectiveness of 2, 3, and 4 COVID-19 mRNA Vaccine Doses Among Immunocompetent Adults During Periods when SARS-CoV-2 Omicron BA.1 and BA.2/BA.2.12.1 Sublineages Predominated — VISION Network, 10 States, December 2021–June 2022. MMWR Morb Mortal Wkly Rep. ePub: 15 July 2022. DOI: <http://dx.doi.org/10.15585/mmwr.mm7129e1>

You should have Paxlovid in your facility for immediate use!

Figure 1. Therapeutic Management of Nonhospitalized Adults With COVID-19

PATIENT DISPOSITION

Does Not Require
Hospitalization or
Supplemental Oxygen

PANEL'S RECOMMENDATIONS

All patients should be offered symptomatic management (**AIII**).

For patients who are at high risk of progressing to severe COVID-19,^a use 1 of the following treatment options:

Preferred Therapies

Listed in order of preference:

- Ritonavir-boosted nirmatrelvir (Paxlovid)^{b,c} (**AIIa**)
- Remdesivir^{c,d} (**BIIa**)

Alternative Therapies

For use ONLY when neither of the preferred therapies are available, feasible to use, or clinically appropriate. Listed in alphabetical order:

- Bebtelovimab^e (**CIII**)
- Molnupiravir^{c,f} (**CIIa**)

The Panel **recommends against** the use of **dexamethasone^g** or **other systemic corticosteroids** in the absence of another indication (**AIII**).

Key take aways.....

- COVID is not going to go away. We will likely deal with cases for years to come. The elderly remain at greatest risk.
- Vaccination remains the best strategy we have to prevent infection and to reduce the complications of infection when it occurs.
- We have treatments available for high-risk individuals – they are not used often enough.

dale-bratzler@ouhsc.edu