

Modeling & Forecasting COVID-19 in NM

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February 8, 2022

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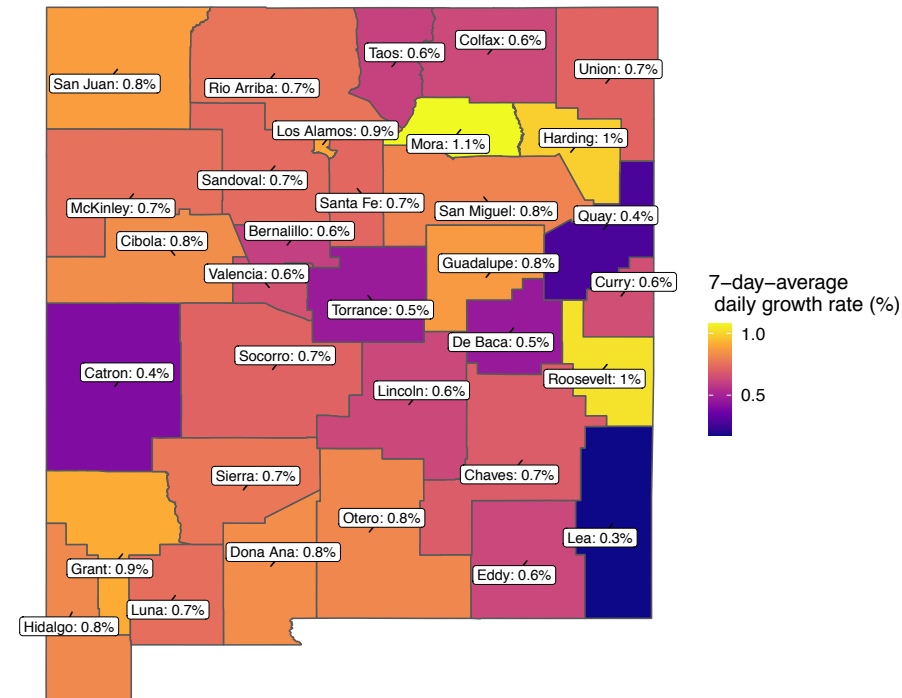
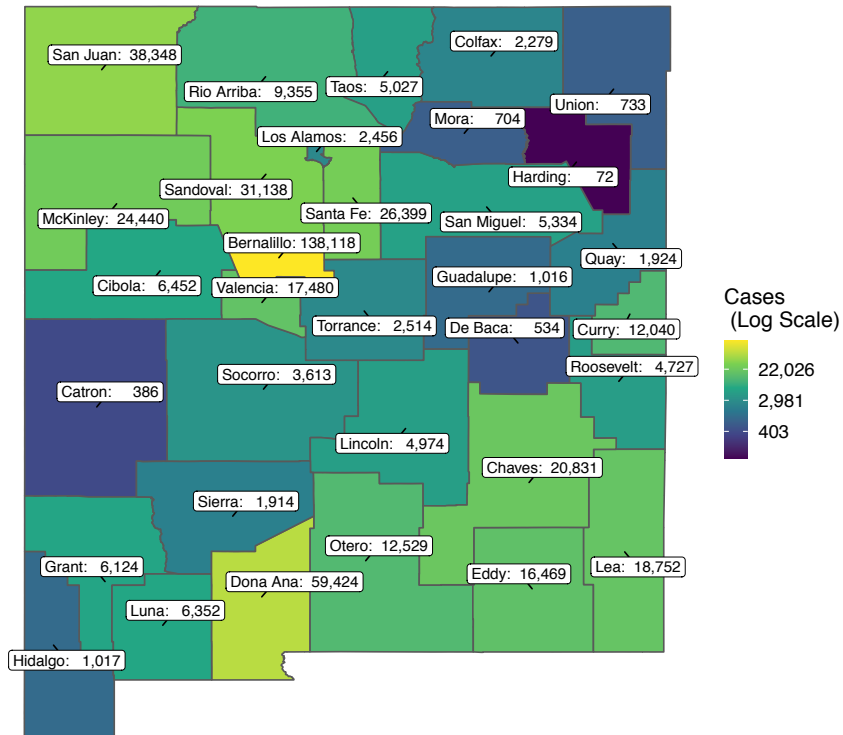
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Cumulative Cases & Daily Growth Rate for NM: Feb 8

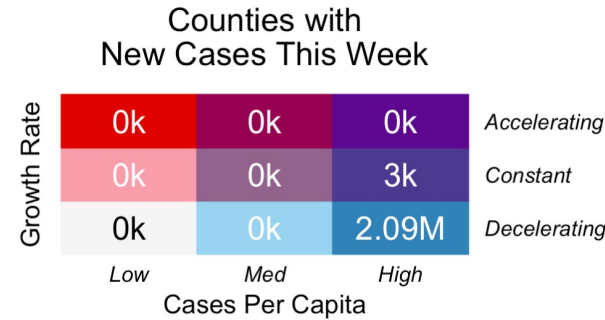
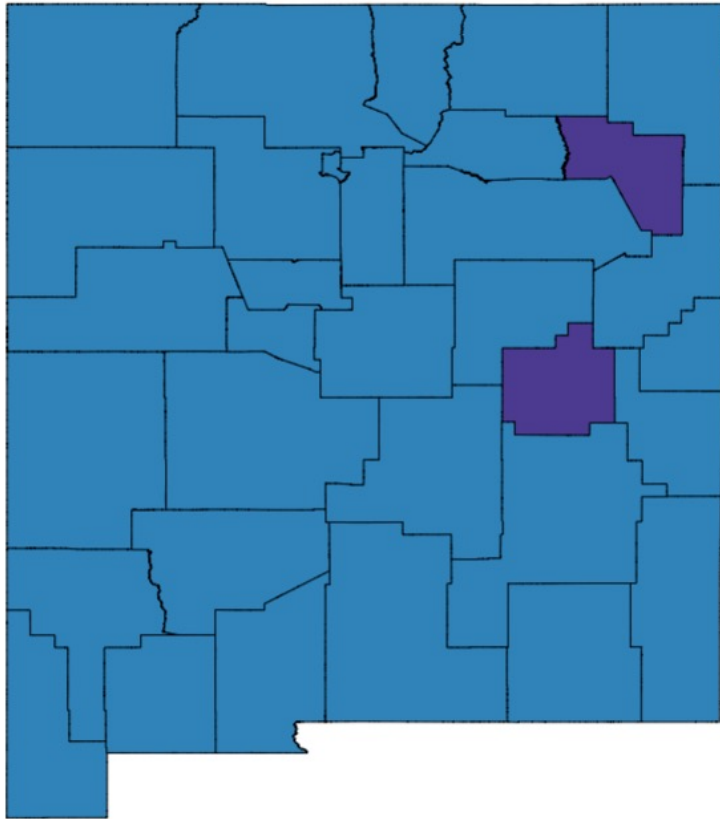


Harding, Mora and Roosevelt counties have the highest cumulative growth rates.

*Growth rate is in cumulative cases

Weekly Growth Rate for NM: Another View (Feb 8)

Impacted New Mexicans



So what?

- Most people in New Mexico are living in a county that has **high per-capita case counts and decelerating**

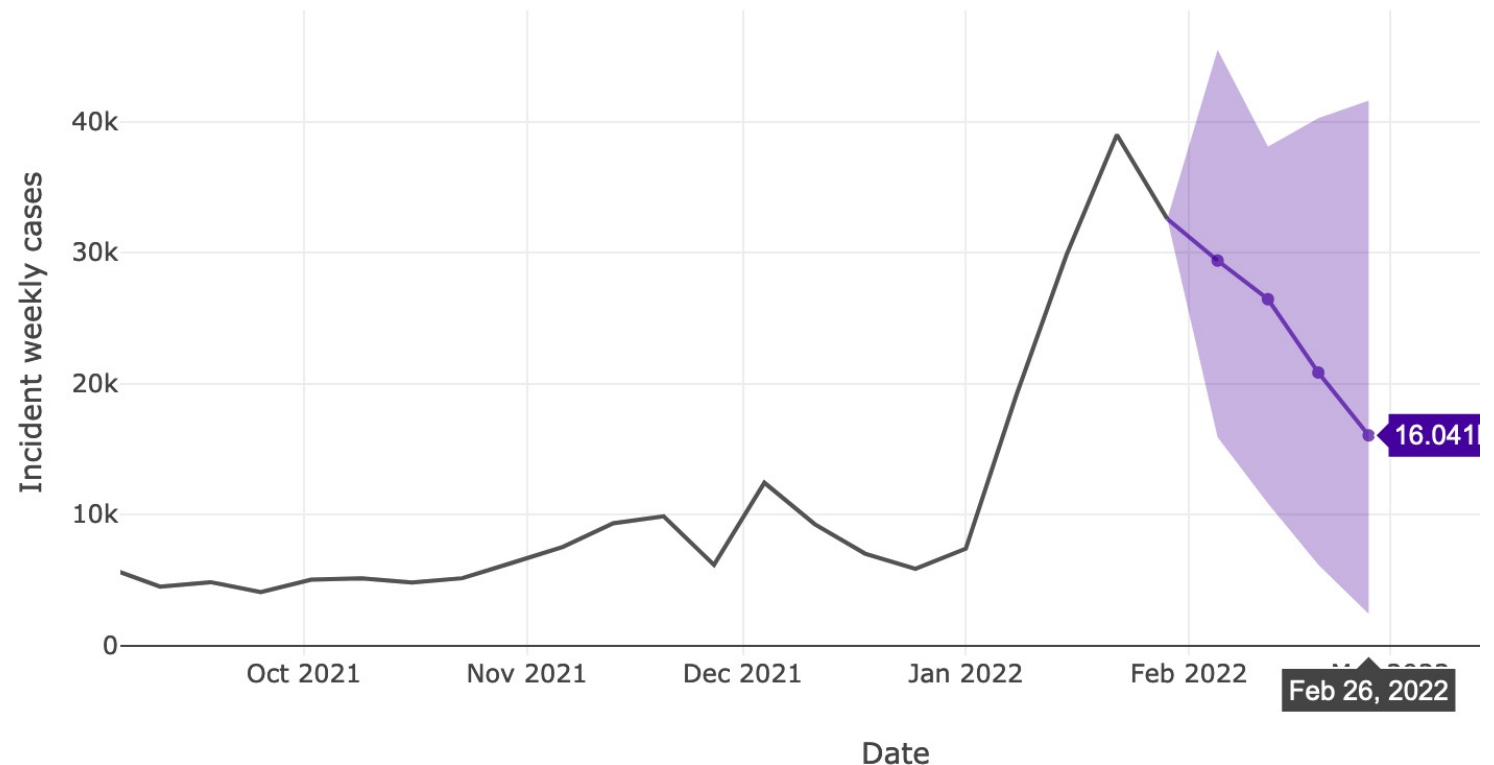
Number of New Mexicans living in regions with particular combinations of per capita case counts and 7-day growth rates

Low <10 cases/100k per week
 Med 10-99 cases/100k per week
 High >100 cases/100k per week

Forecast for Incident Weekly Cases in NM

Forecasts of Incident weekly cases in New Mexico as of 2022-01-2

The CDC ForecastHub is predicting a 68% decrease in incident weekly cases to 16,041K (from Jan 29 at 32,579K)

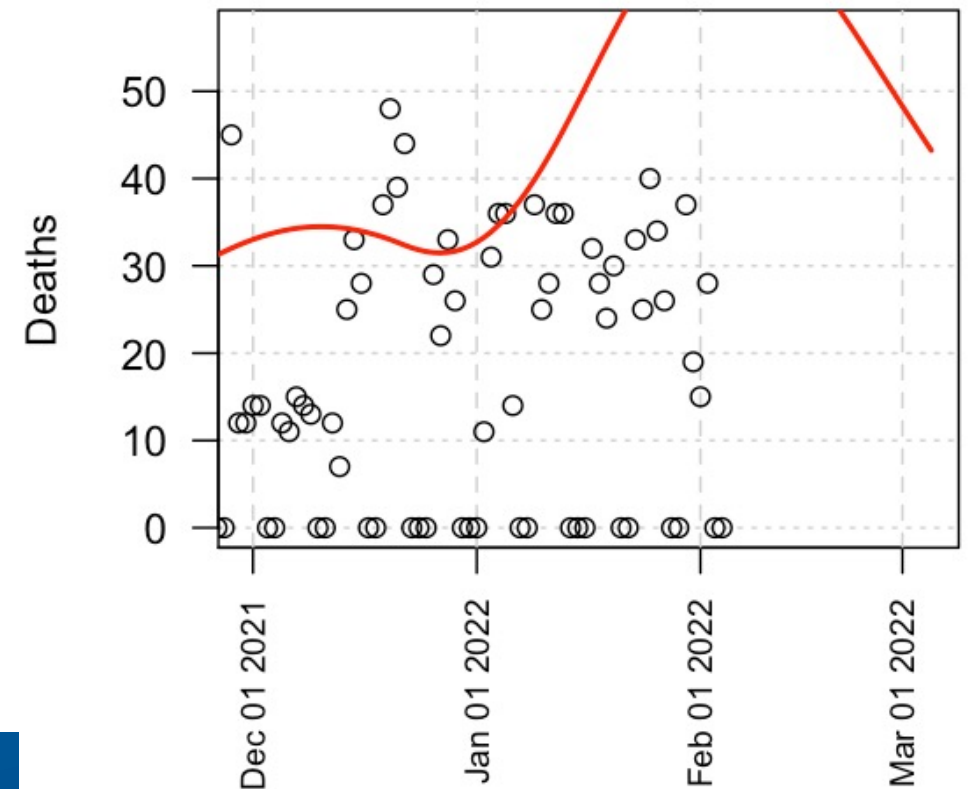
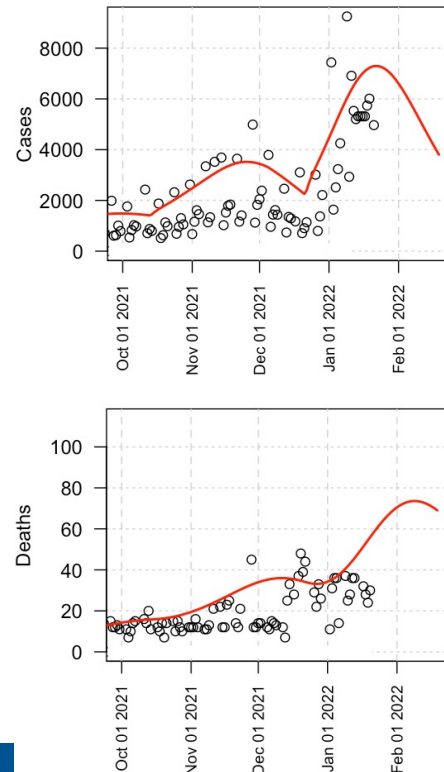
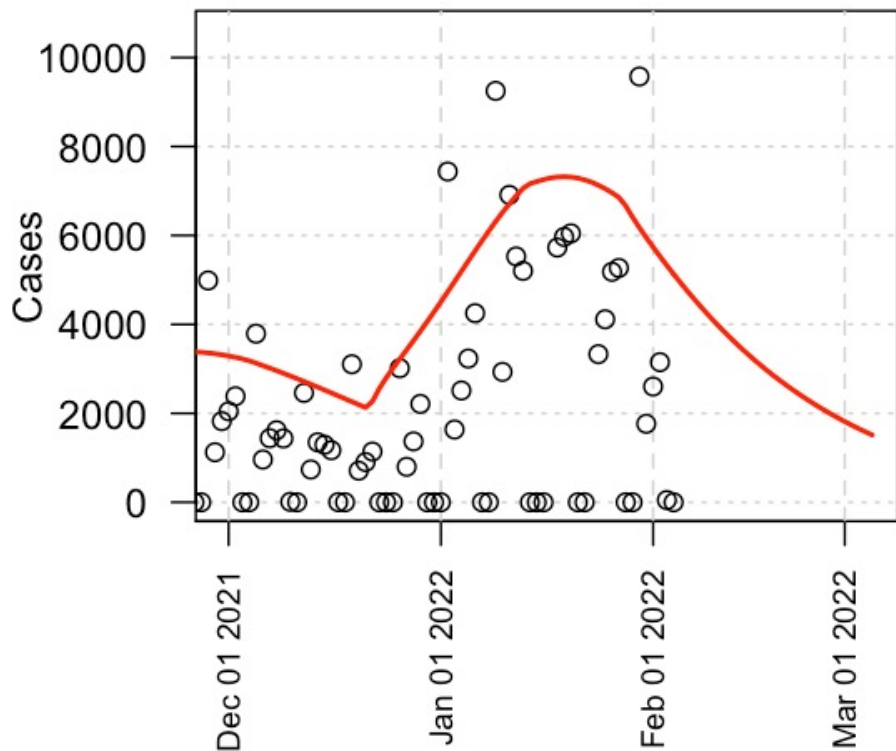


COVIDhub-4_week_ensemble prediction, COVID 19
ForecastHub

<https://viz.covid19forecasthub.org/>

8 Feb 2022: Epigrad modeling

- NM daily incidence is declining. Viral evolution away from existing immunity lead to the Omicron variant epidemic.
- Boosting is lowering case rates, and severe outcomes.
- Improvements in the case fatality rate are largely due to improved vaccination status.
- Some reduction in disease severity due to viral evolution is *possible*, but is not established or proven by these data.
- Omicron is about as infectious as Delta variant. Virus evolution leading to immune evasion explains of the main part of the rise in cases.
- Indoor masking remains critical to moderating all consequence. Respirator use instead of cloth masks will further mitigate consequences.
- New pharmaceuticals will improve the situation when available in large quantities.
- Drug administration is time-sensitive: Rapid contact-tracing is beneficial for early treatment.
- Immunological diversity from updated vaccines will incrementally improve the situation. Starting in perhaps March 2022.

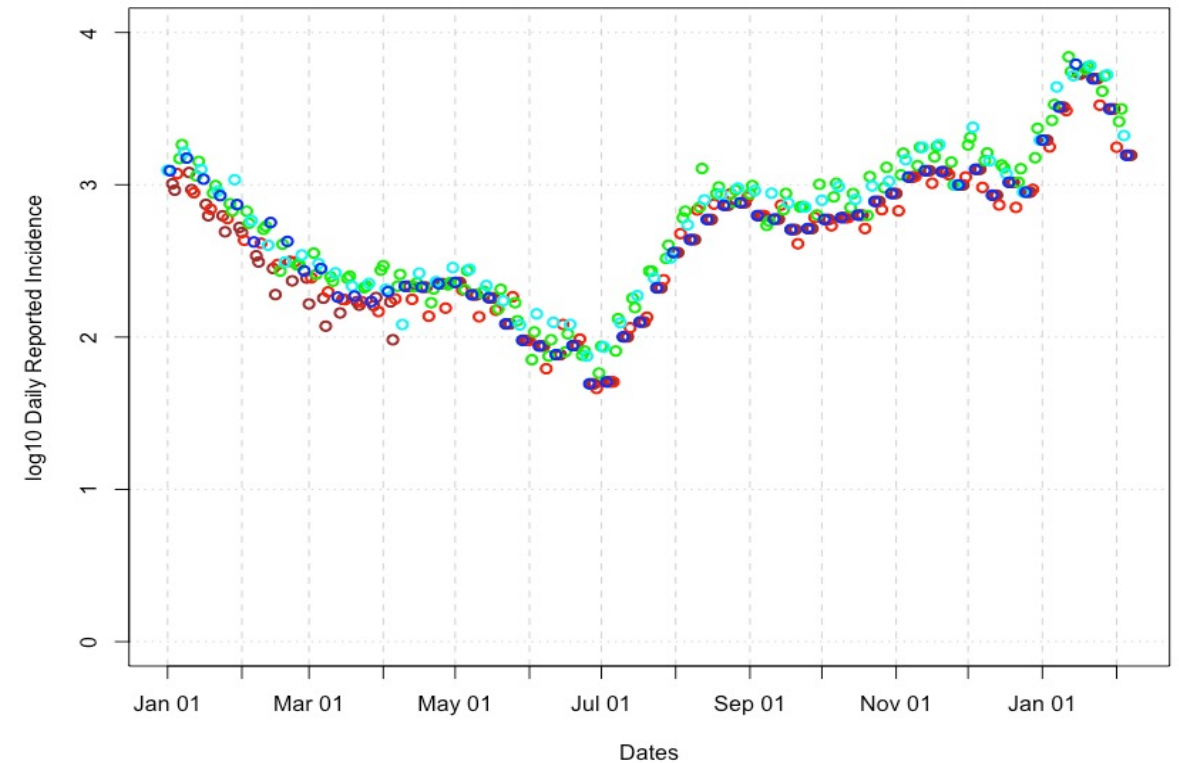
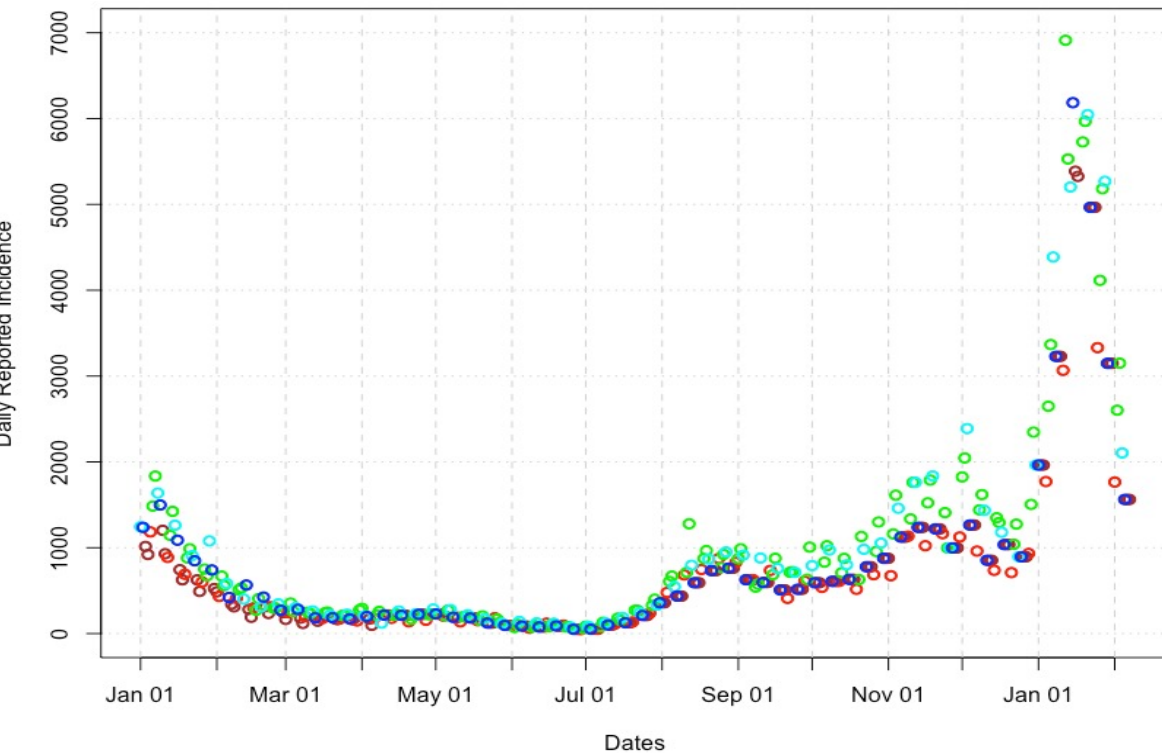


A look at the raw incidence data

- Sunday, Monday
- Tuesday
- Wednesday/Thursday
- Friday
- Saturday

- The reported incidence level is falling fast.
- Within-weekly variation is visible in NM data.
- Color-coded by-day-of-week decline is large.

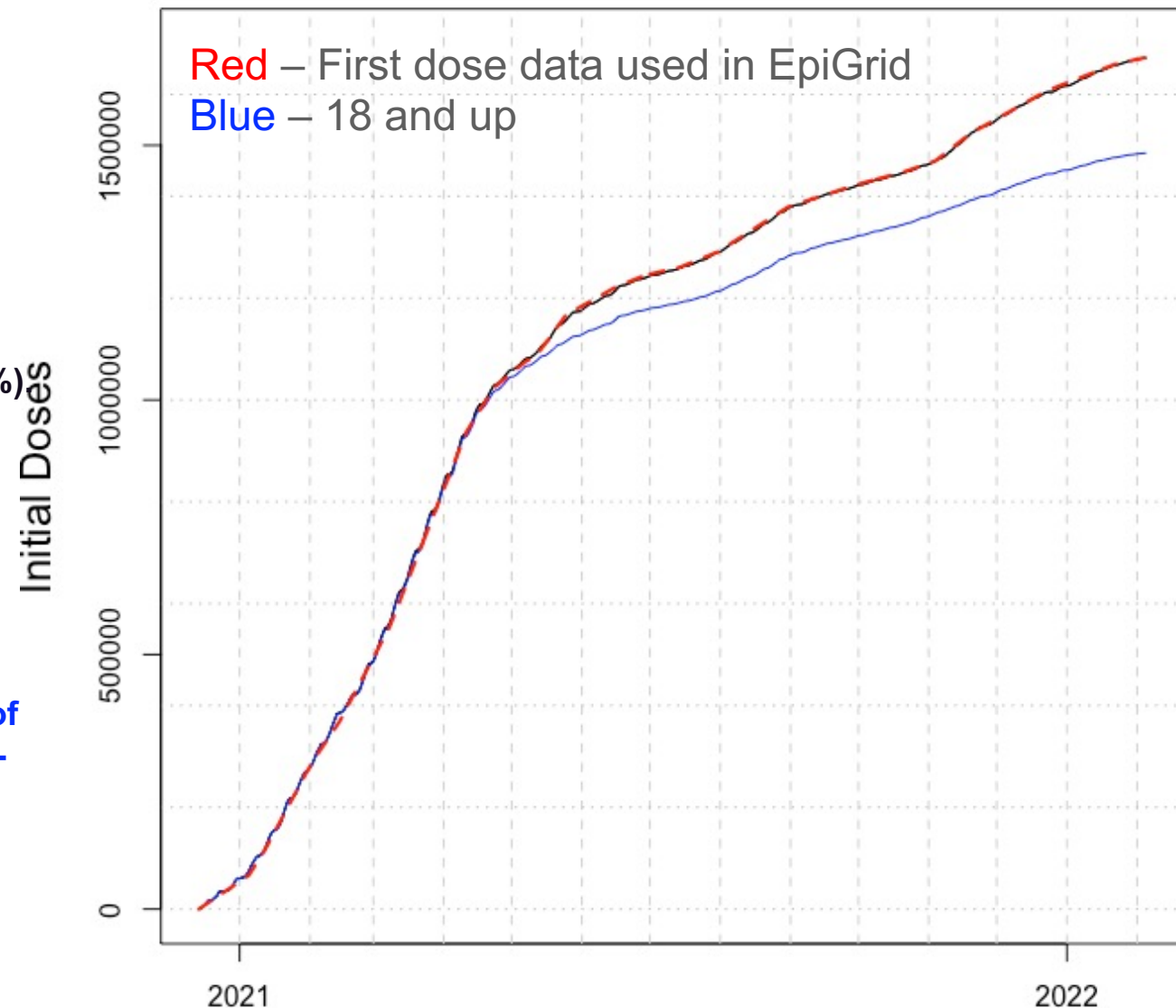
The 190 cases in the Lea county correctional facility are removed from data reported on March 26th. The 1/3 of reported cases that were > 2 weeks prior were removed from March 24th. Case reported for weekends starting April 10-12th are each divided by 3 to estimate individual day counts.



7 February 2022 Vaccine Analysis (NM)

- 1672k first doses are used in modeling.
- 1672k first doses have been administered, **+9k/2**, **+27k**, +13k, +12k.
- 1408k completed initial vaccine series, **+12k/2**, **+16k**, +9k, +9k.
- **~718k boosters completed**, **+35k/2**, **+31k**, **+35k**, **+33k**.
- ~79.7% of all persons in New Mexico are at least minimally vaccinated.
- ~94.5% of all New Mexicans are eligible (~1981k).
- 78.0/94.5=84.4% of eligible New Mexicans vaccinated.
- 5-11 year-olds: 69k first doses (**36.6% +2.0%/2**, +1.9%, +1.9%, +1.9%)
- ~426k unvaccinated New Mexicans. Many have been infected.
- ~266k incompletely vaccinated New Mexicans.
- Likely >275k New Mexicans are relatively unprotected.
- 50% VE against Omicron for initial series >500k susceptible, less serious outcomes.
- 75% VE boosted against Omicron, >140k, less serious.
- ~250k at higher risk for serious outcome (Omicron). This is ~12% of the population relatively naïve to SARS-CoV-2 (excepting distant T-cell responses).
- >~670k at lower risk for serious outcome (Omicron) and who are susceptible to infection.
- ~1205k functionally immune (Omicron, for now only).
- These population levels of protection depend on the viral-variant.

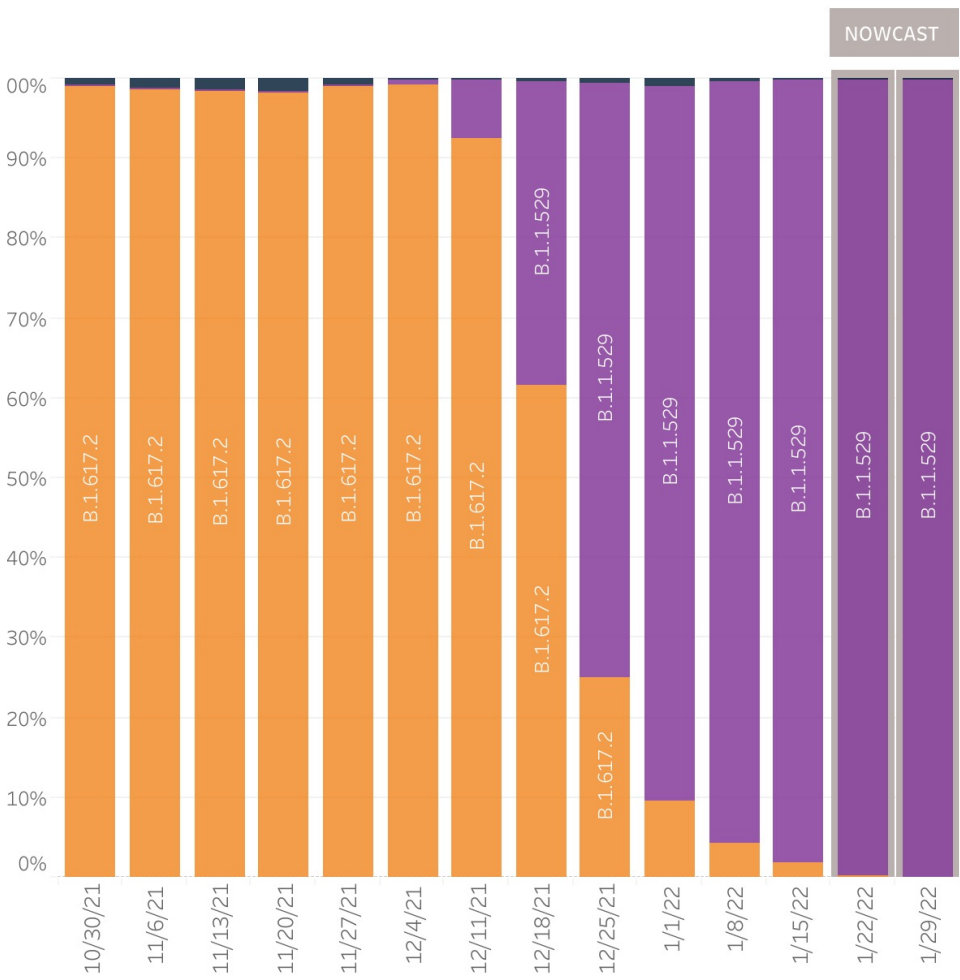
Black – vaccination for all New Mexicans



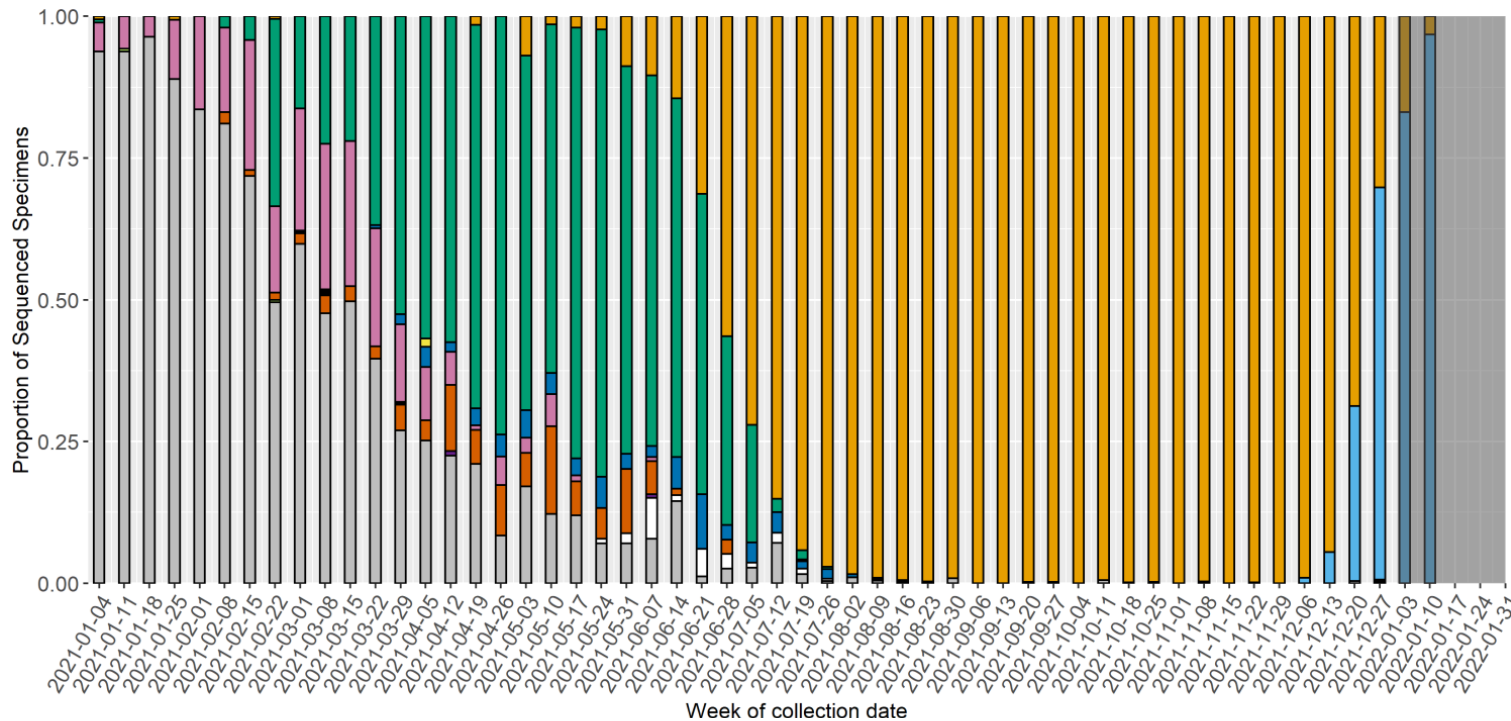
US Census Bureau reports 2097k people in New Mexico.

Variant Monitoring: Omicron is the current variant

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



- New variants have appeared without evident intermediates. **Global monitoring.**
- NM small-number statistics in NM, likely all B.1.1.529 (Omicron).
- Extremely rapid rise; faster than Δ. Viral evolution / immune evasion played a major role.
- Possible shorter foot-to-head time of NM epidemic suggests help from vaccination.
- **Approximately 6-12 months is the longest variant-interval: D614G (~3 months), Alpha (~6-9 months), Delta (~6 months), Omicron (~6 months).**
- Updated mRNA vaccine from Pfizer in March 2022? Less than 6 months “since Omicron”



Screenshot-only of CDC variant data, no static image available

Recent By-State Trends: Most Populous 10 States: True incidence?

Trends over the last 1-3 weeks: *Increasing: n/a Flat: n/a Declining: California, Florida, Georgia, Illinois, Michigan, New Mexico, Texas, New York, N. Carolina, Ohio, Pennsylvania.*

	Cases	Deaths
New York	38.77	0.66
Michigan	85.58	0.966
Ohio	45.16	1.398
Florida	83.33	0.862
New Mexico	116.33	0.672
Illinois	69	0.816
Texas	88.72	0.65
California	123.88	0.456
North Carolina	129.25	0.67
Georgia	69.81	0.678
Pennsylvania	53.55	1.089

Daily rates per 100,000 residents averaged January 25th 2022 thru February 7th 2022.

