

# Modeling & Forecasting COVID-19 in NM

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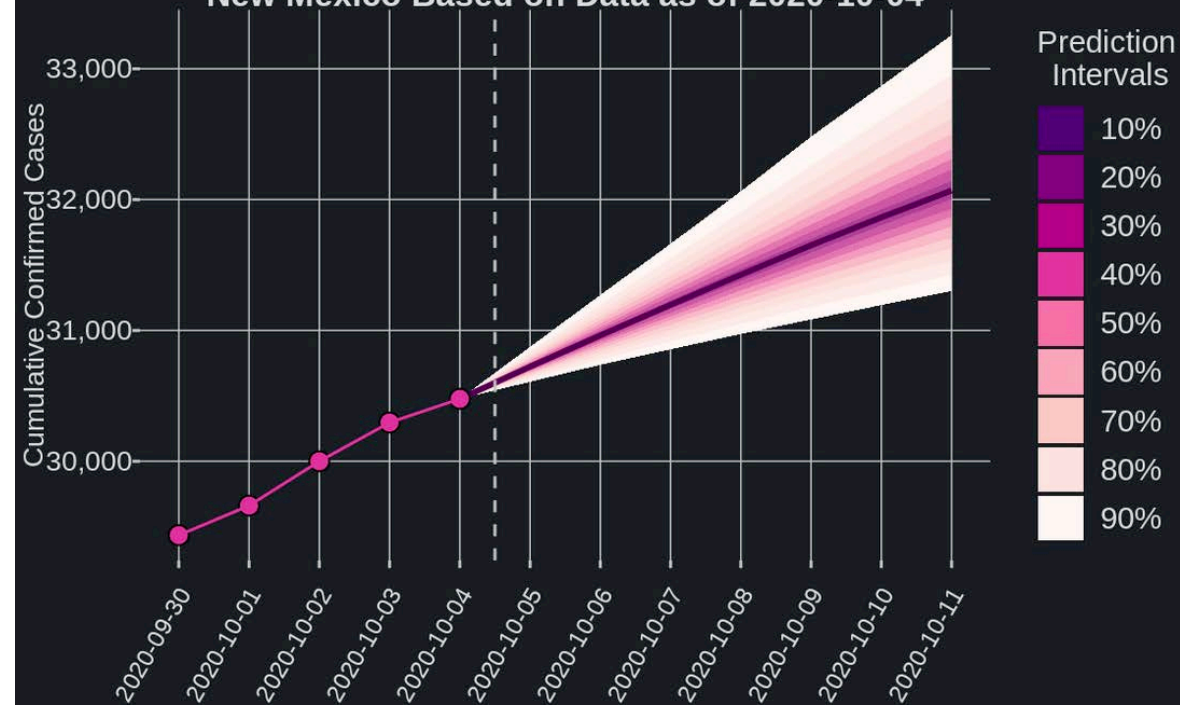
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# Short- & Long-Term Forecast for NM: Cases

7-day Cumulative Confirmed Cases Forecast for New Mexico Based on Data as of 2020-10-04



6-Week Forecast of Confirmed Cases for New Mexico Based on Data as of 2020-10-04

Week	Best Case (5th Percentile)	Middle Case (50th Percentile)	Worst Case (95th Percentile) <sup>^</sup>
2020-10-04		30,477*	
2020-10-11	31,302	32,069	33,258
2020-10-18	31,910	33,409	35,989
2020-10-25	32,370	34,530	38,468
2020-11-01	32,735	35,412	40,811
2020-11-08	32,978	36,151	43,029
2020-11-15	33,171	36,802	44,946

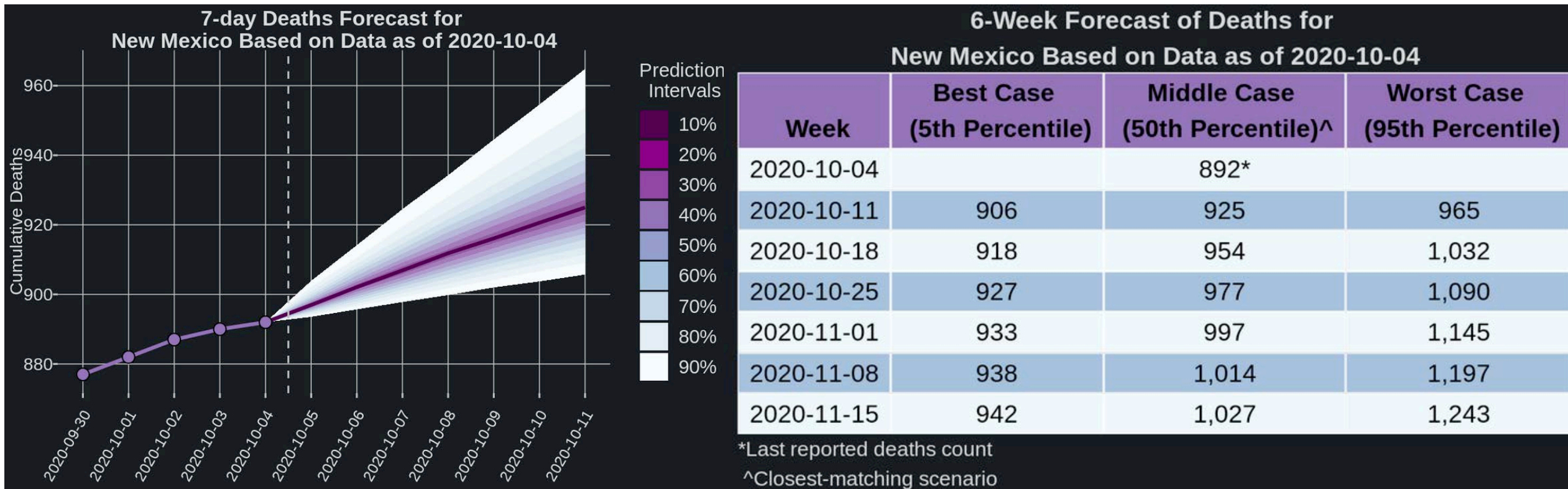
\*Last reported confirmed cases count

<sup>^</sup>Closest-matching scenario

So what?

The number of cases are expected to continue to grow slowly  
Our forecasts are currently tracking with the worst case scenario

# Short- & Long-Term Forecast for NM: Deaths



So what?

The number of deaths are expected to continue to grow slowly  
Our forecasts are tracking with the middle case scenario



# Growth Rate for NM

Daily Growth Rate for the Past Six Weeks in New Mexico as of 2020-10-04



6-Week Forecast of the Average Weekly Growth Rate for New Mexico Based on Data as of 2020-10-04

Week	Best Case (5th Percentile)	Middle Case (50th Percentile)	Worst Case (95th Percentile) <sup>^</sup>
2020-10-04		0.79%*	
2020-10-11	0.38%	0.73%	1.3%
2020-10-18	0.28%	0.59%	1.1%
2020-10-25	0.20%	0.47%	0.96%
2020-11-01	0.16%	0.36%	0.85%
2020-11-08	0.11%	0.30%	0.76%
2020-11-15	0.083%	0.26%	0.62%

\*Last weekly mean daily growth rate

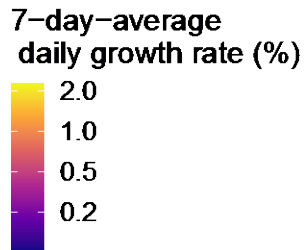
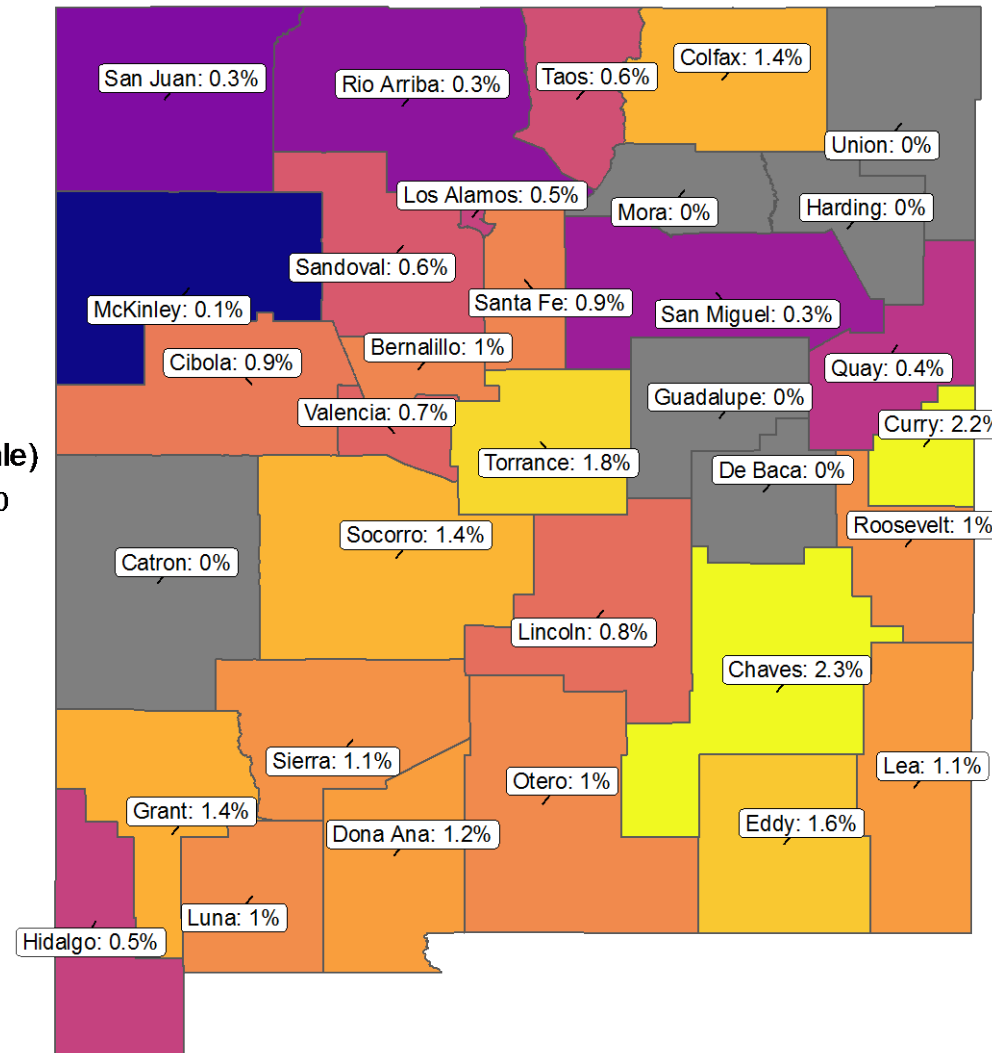
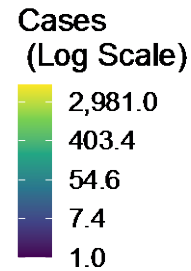
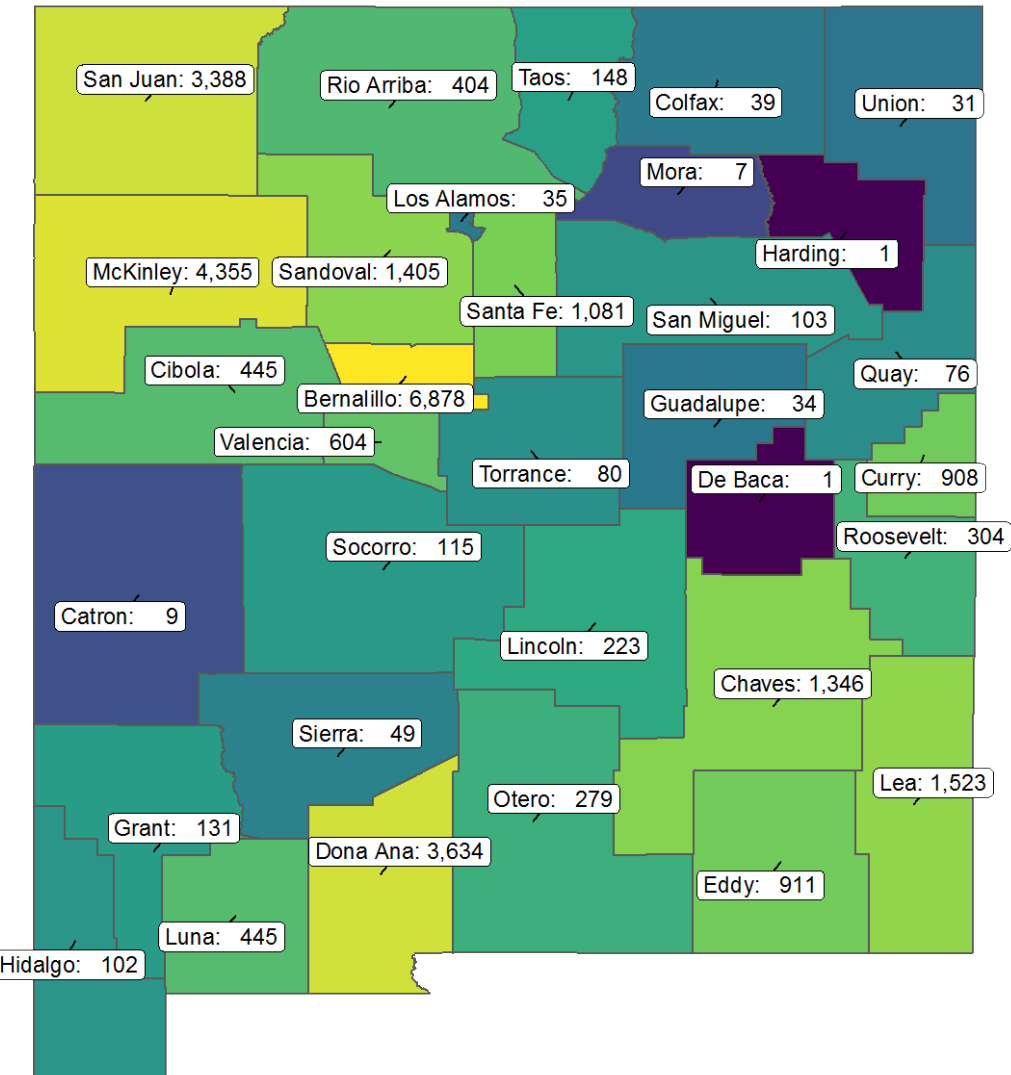
<sup>^</sup>Closest-matching scenario

So what?

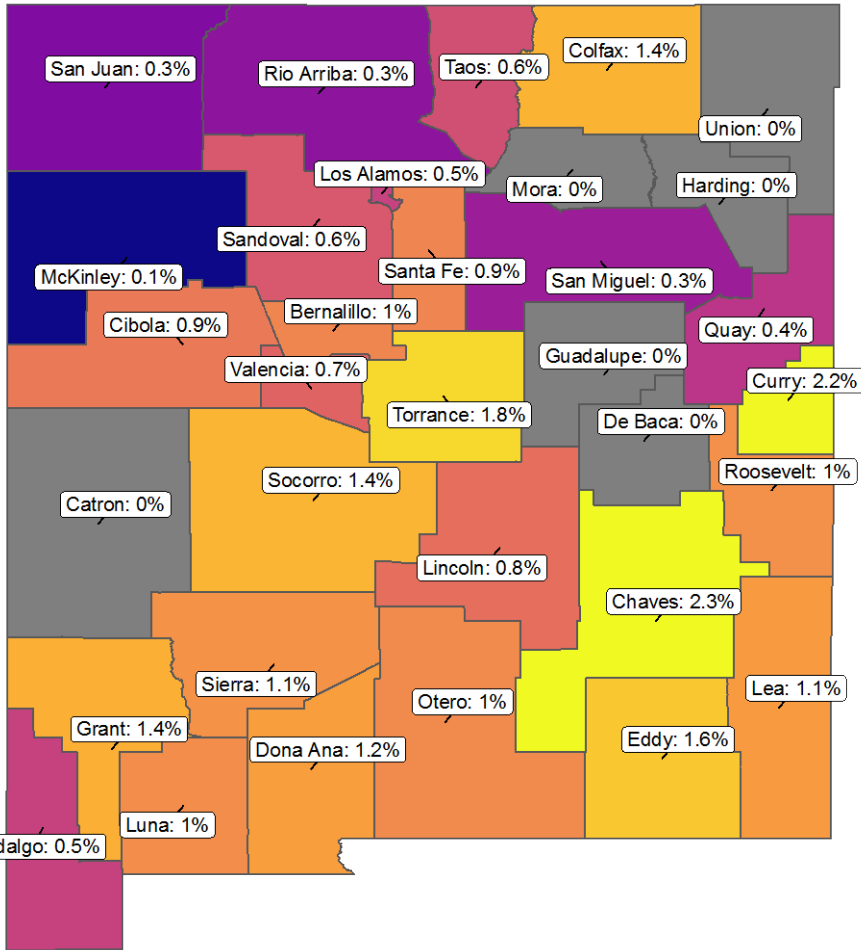
As of October 6<sup>th</sup>, the average growth rate in NM is at 0.79% (up from 0.64%)

# > Regional Forecasts, Growth Rates, & Hospitalizations

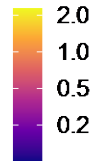
# Cumulative Cases & Growth Rate for NM: Aug 10



# Growth Rate for NM Sept 21



7-day-average daily growth rate (%)



Hidalgo 0.5% =  
 Union 0.0% =  
 Catron 0.0% =  
 Mora 0.0% =  
 Los Alamos 0.5% ↓  
 Quay 0.4% =  
 DeBaca 0.0% =  
 Roosevelt 1.0% =  
 Socorro 1.4% ↓  
 Colfax 1.4% ↓

County	Daily Growth Rate	Change
San Juan	0.3%	=
Rio Arriba	0.3%	=
Sierra	1.1%	↓
McKinley	0.1%	=
Sandoval	0.6%	=
Santa Fe	0.9%	=
Cibola	0.9%	=
Bernalillo	1.0%	=
Valencia	0.7%	=
Torrance	1.8%	=
Lincoln	0.8%	↓
San Miguel	0.3%	↓
Chaves	2.3%	↑
Dona Ana	1.2%	=
Otero	1.0%	=
Lea	1.1%	=
Eddy	1.6%	↓
Curry	2.2%	↑
Grant	1.4%	=
Luna	1.0%	↑
Taos	0.6%	↓

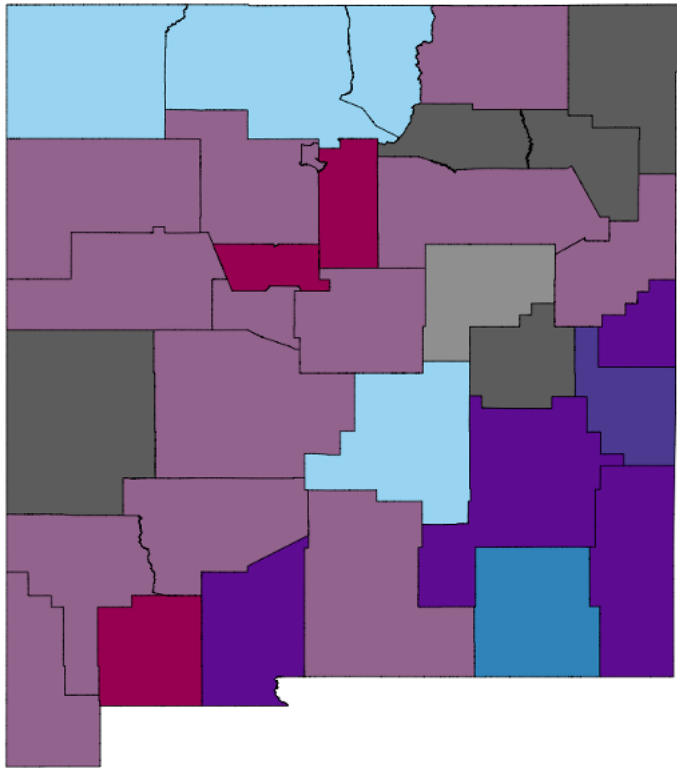
\*arrows if more than 0.5% difference from last Monday's analysis

# Growth Rate for NM: Another View (Oct 5)

## COVID-19 across New Mexico

A 7-day moving window comparison

October 5, 2020



Impacted New  
Mexicans

Counties with  
New Cases This Week

0k	850k	401k	Accelerating
0k	526k	19k	Constant
0k	219k	57k	Decelerating
Low	Med	High	Cases Per Capita

Counties With  
No New Cases In ...

0k	4.4k	15k
Last Week	Two Weeks	3+ Weeks

## So what?

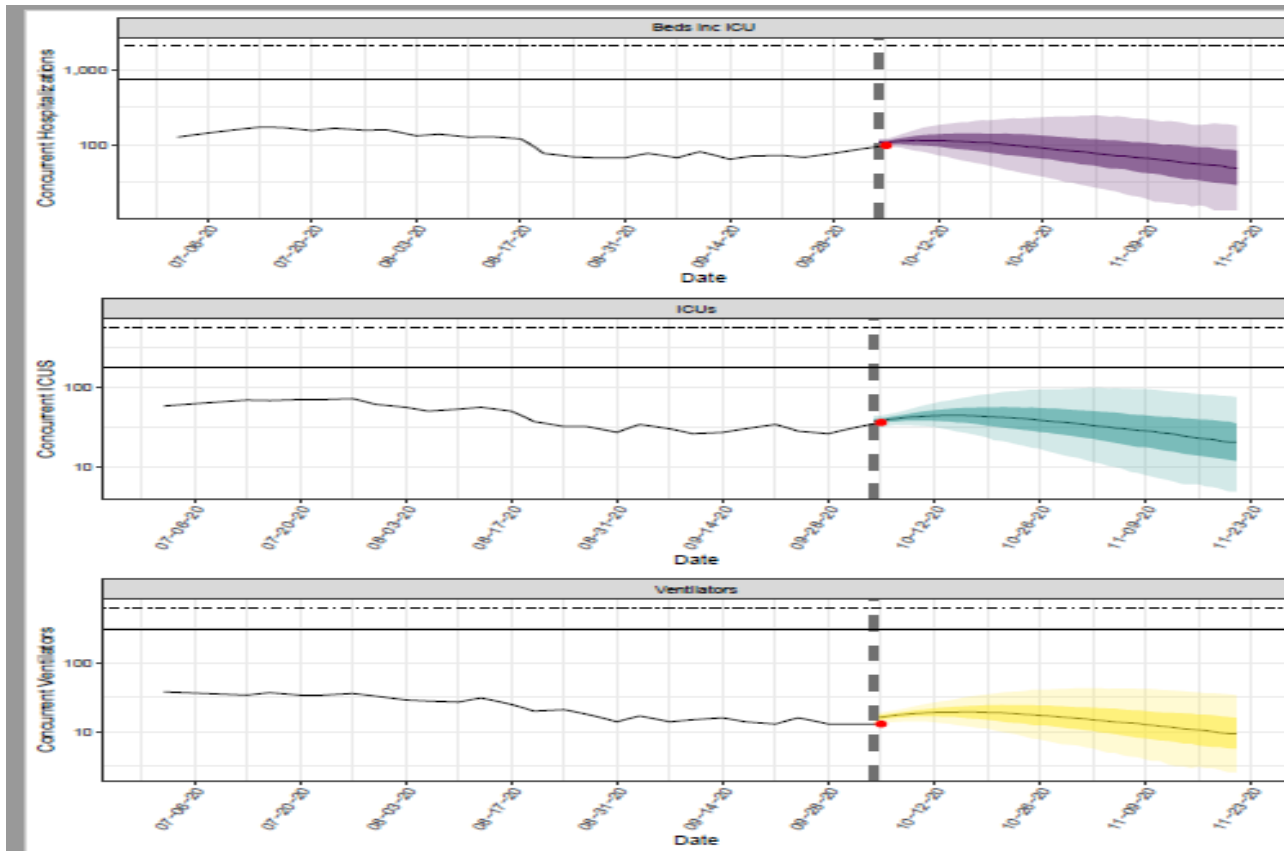
- Most New Mexicans live in a county with accelerating growth
- Curry, Lea, Chavez, and Dona Ana have high per capita case counts and are accelerating
- Bernalillo, Santa Fe, and Luna are accelerating with medium case counts

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

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



# Concurrent Hosp & ICU Beds Based on Forecasts – Average Stay of 8 Hosp, 15 Days for ICU/vent & 25% ICU rate



Concurrent COVID-19 ICUs beds

Week	Qu. 5% (best case)	Qu. 50% (median)	Qu. 95% (worst case)
10/11	32	42	59
10/18	24	42	79
10/25	16	39	92
11/1	11	33	97
11/8	7	28	94
11/15	5	23	82

“Scaled” Scenario

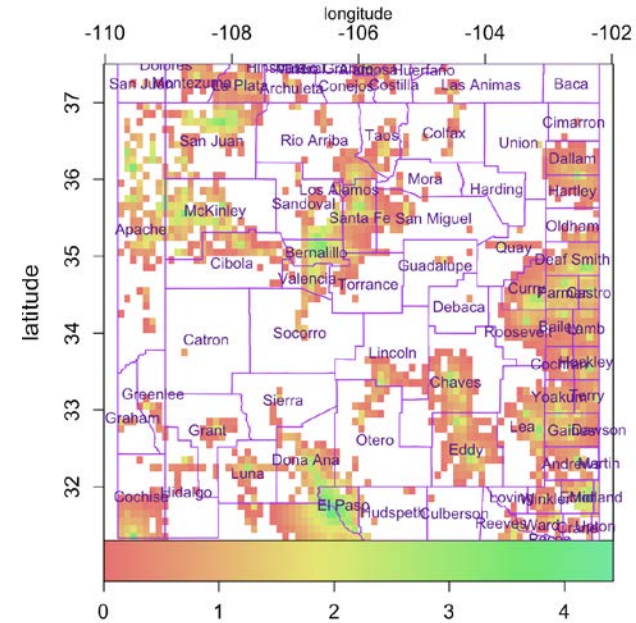
## So what?

- Forecasts for COVID-19 hospitalizations and ICU beds are below capacity, ICUs are expected to INCREASE over the next two weeks

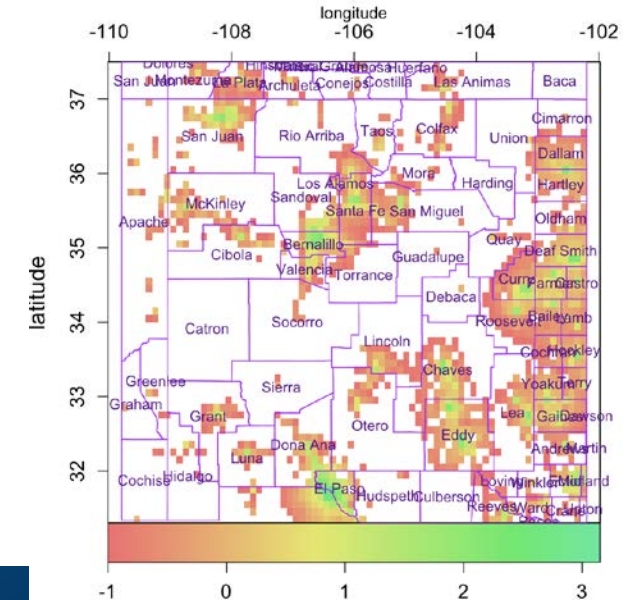
# 6 Oct 2020

- Statewide transmission increases for indoor dining and labor day (~5%): Aug. 29th PHO includes 25% indoor dining
- Large additional Transmission increases:
  - Bernalillo and Dona Ana > 30%
- Some counties ~10% additional transmission increases, but many rural counties have no excess transmission.
- TX transmission increases ~25: loosening of restrictions on Sept. 22.

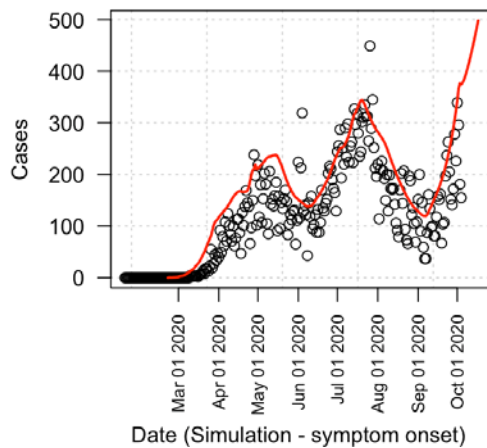
log10 Cumulative cases, wk 34, 2020-10-18



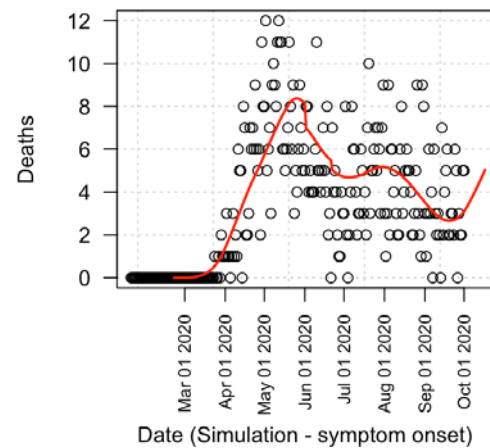
log10 Incidence, wk 34, 2020-10-18



United States\_\_New Mexico

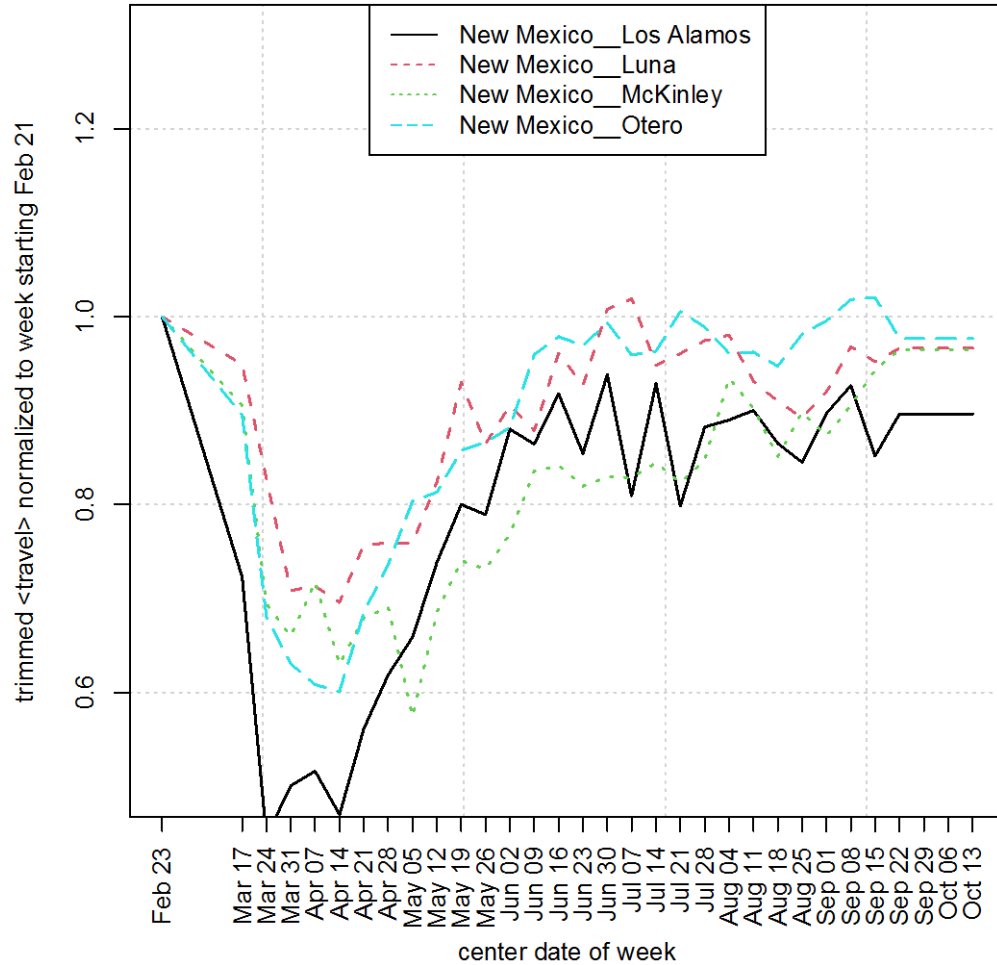


United States\_\_New Mexico

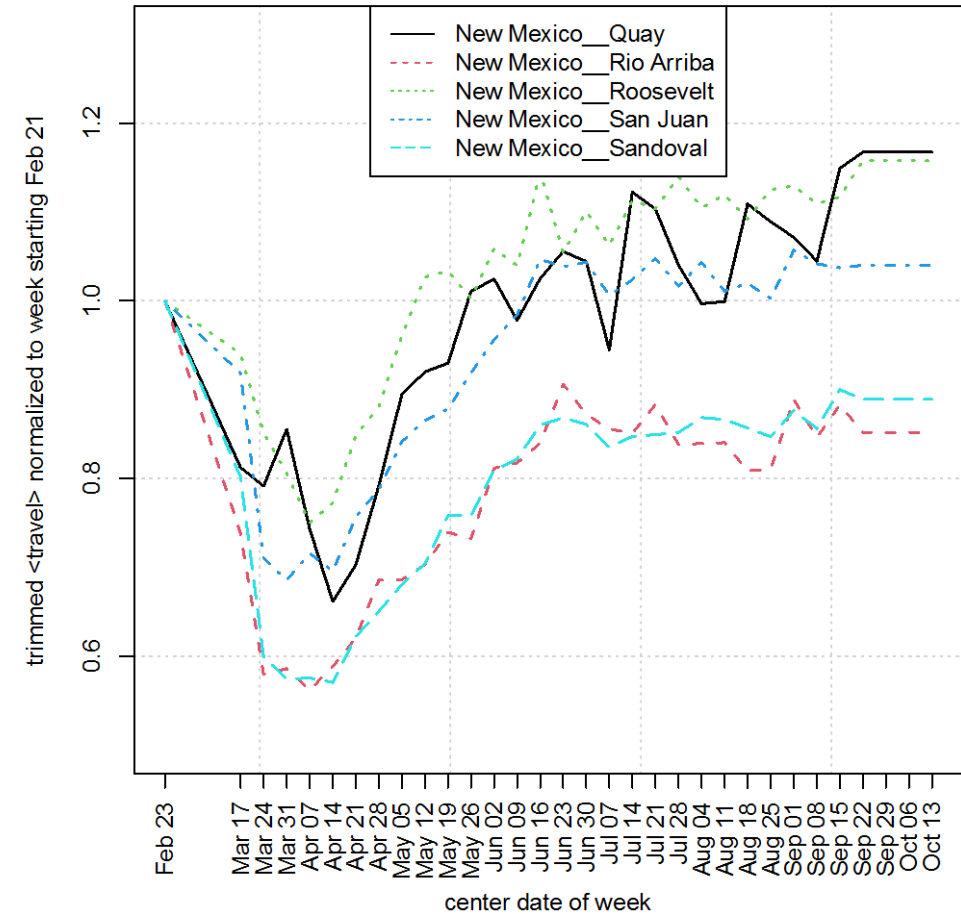


# Mobility (T80, Feb – Sept, 2020): Sandoval transmission rising anyway?

Normalized trimmed mean travel

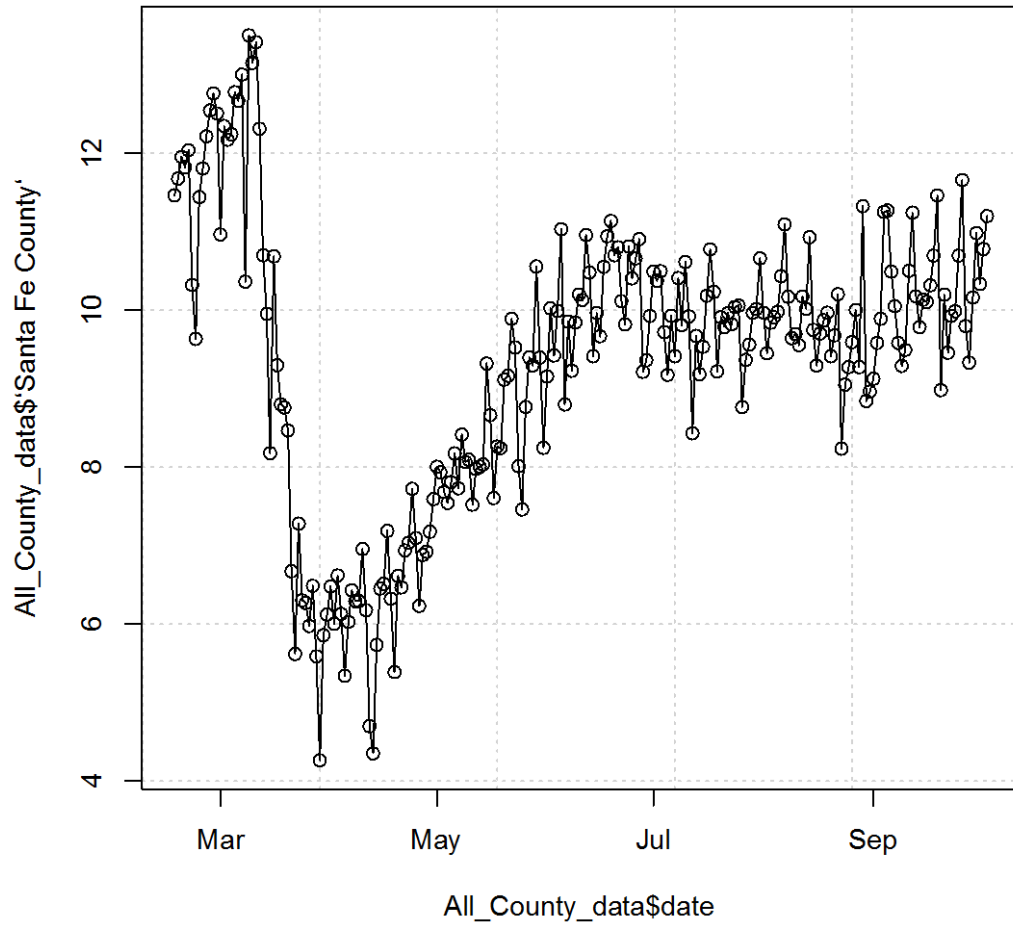


Normalized trimmed mean travel

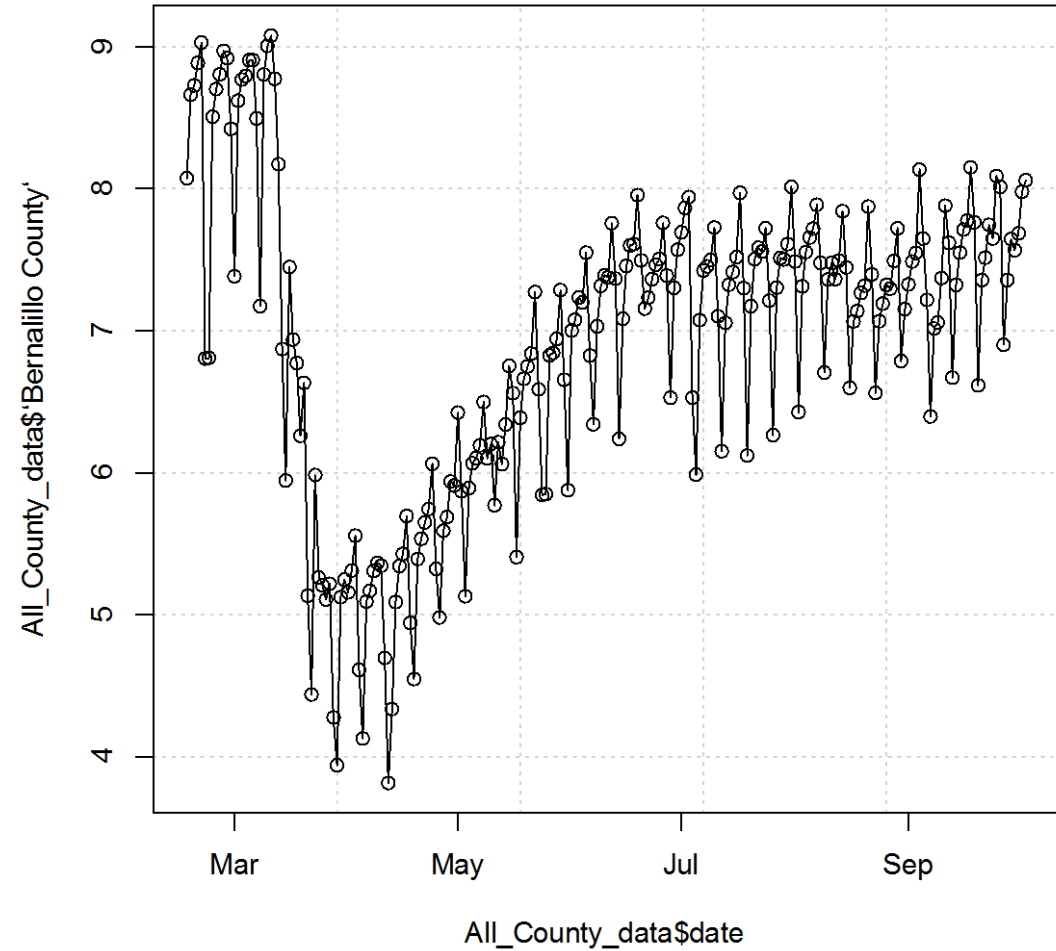


# Mobility is up or increasing in urban counties

Santa Fe

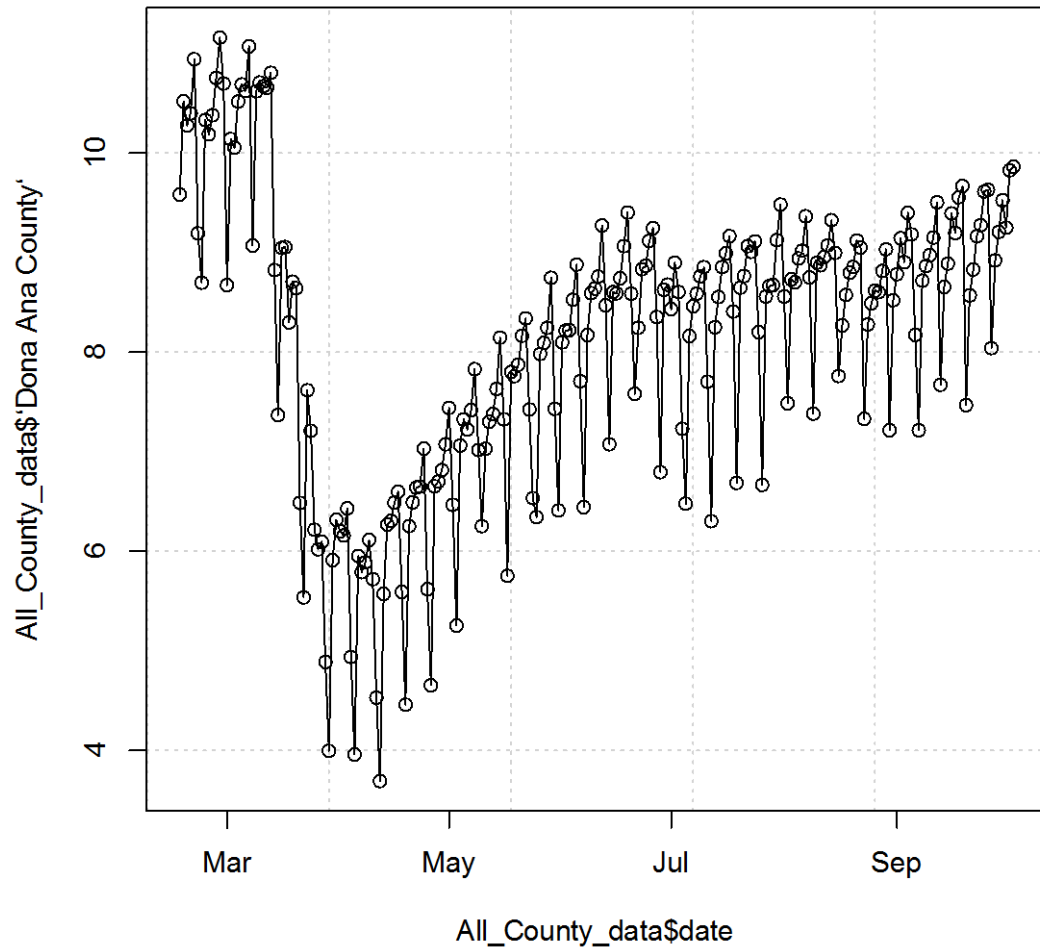


Bernalillo

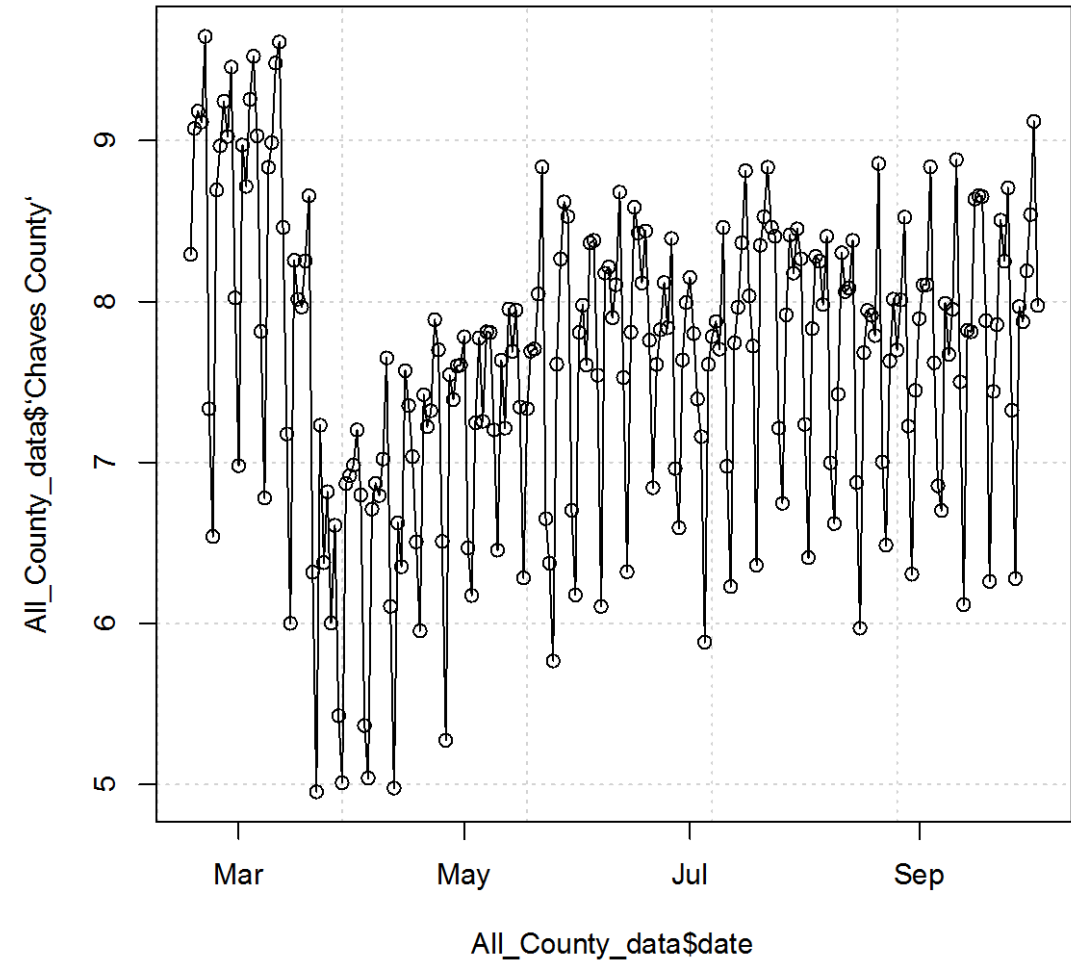


# Mobility is increasing in urban but not rural counties (e.g. Rio Arriba, Lea also not increasing)

Dona Ana



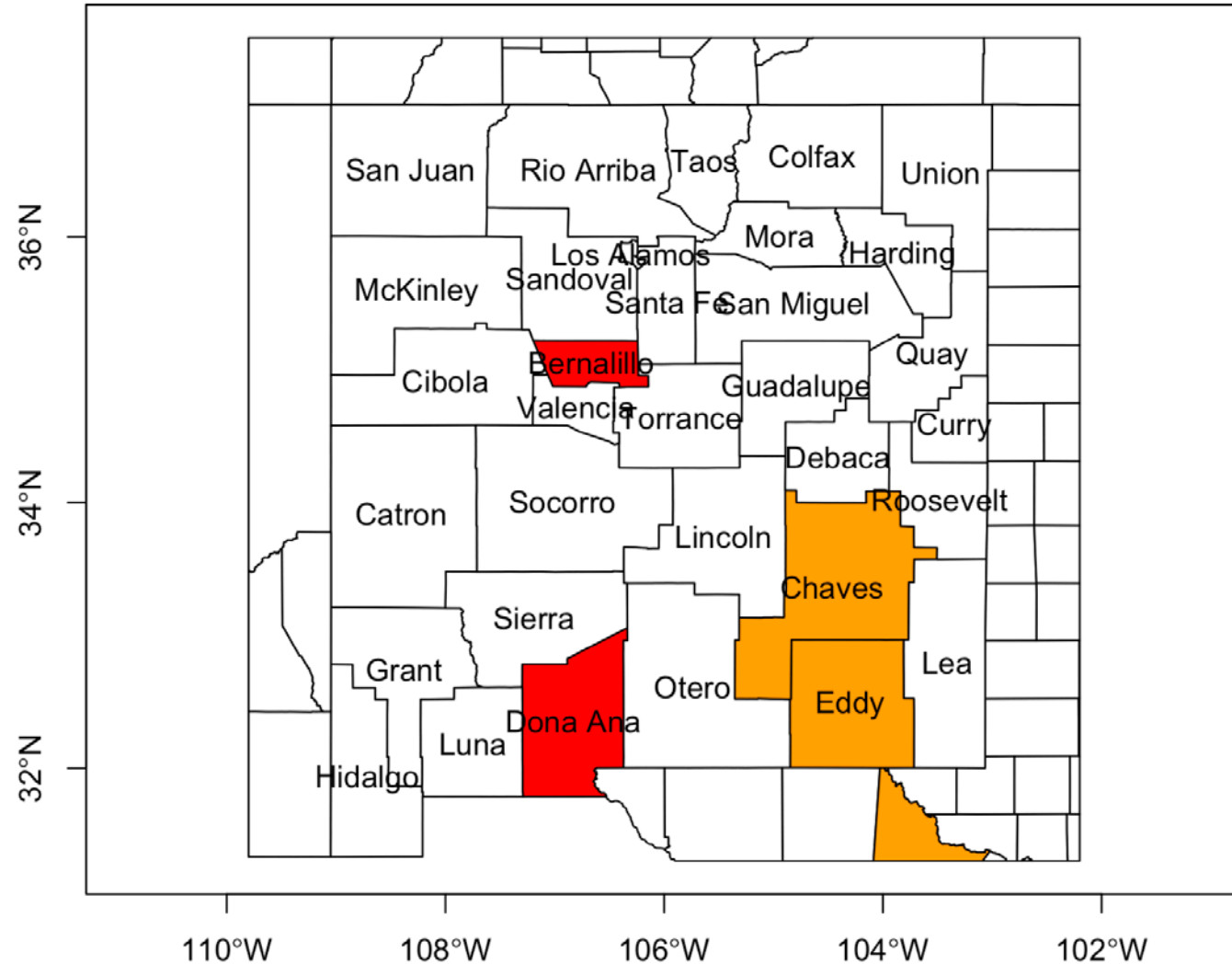
Chaves





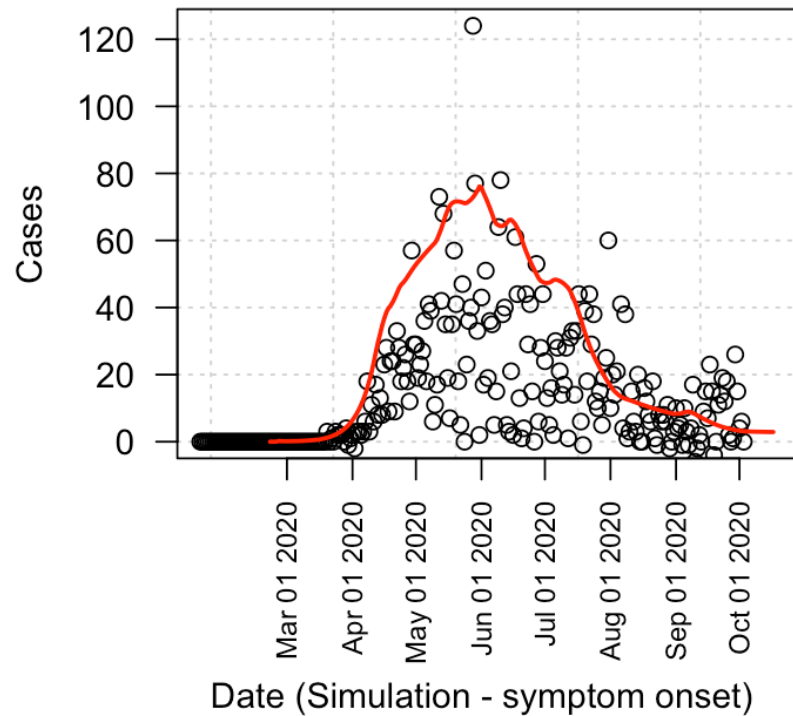
# Situational Awareness: Heterogeneity, mostly urban vs. rural

- Dona Ana and Bernalillo appear to be the main drivers of the current State-wide increases in incidence (daily cases). Not tied *simply* to increased T80 mobility. Probably dragging other counties to higher daily incidence as their epidemics spread.
- The Southeast still has high case counts; Chaves and Eddy have higher transmission relative to mobility than other non-urban counties in the state. Some rural/frontier counties normalized over the summer and have risen recently, while Chaves and Eddy remained high.
- Case-contact tracing appears to still be functioning reasonably well in the recent past and is a significant factor in limiting growth in the daily incidence, esp. outside Bernalillo and Dona Ana. The case-contacting situation in Bernalillo is not clear in this model.
- We cannot rule out the possibility that infection control is deteriorating in Santa Fe.

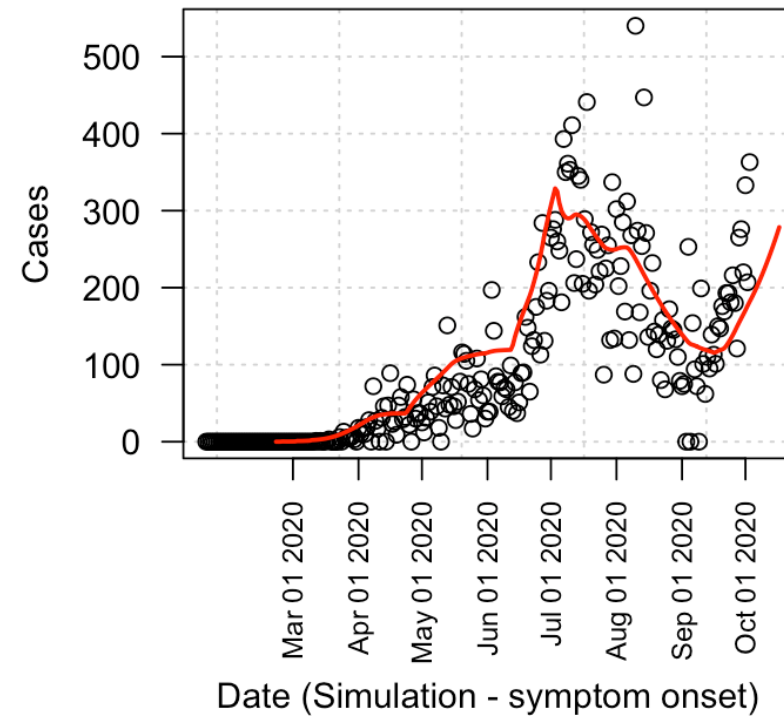


# Cases appear to be rising in border counties of importance

## Arizona\_\_Apache

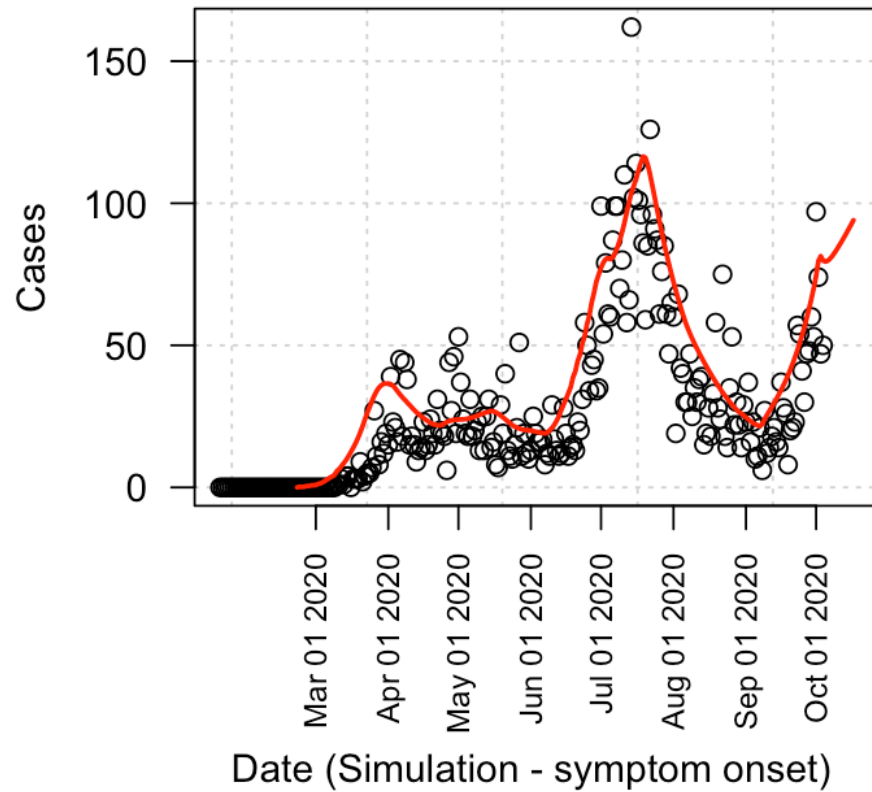


## Texas\_\_El Paso

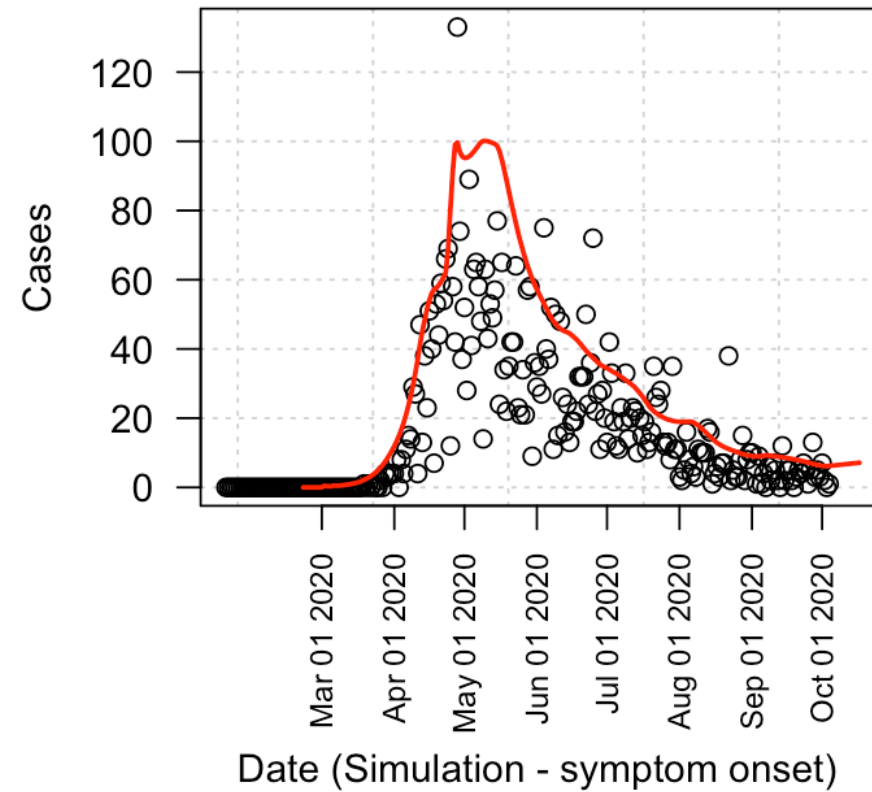


# Diversity across the state

## New Mexico\_\_Bernalillo

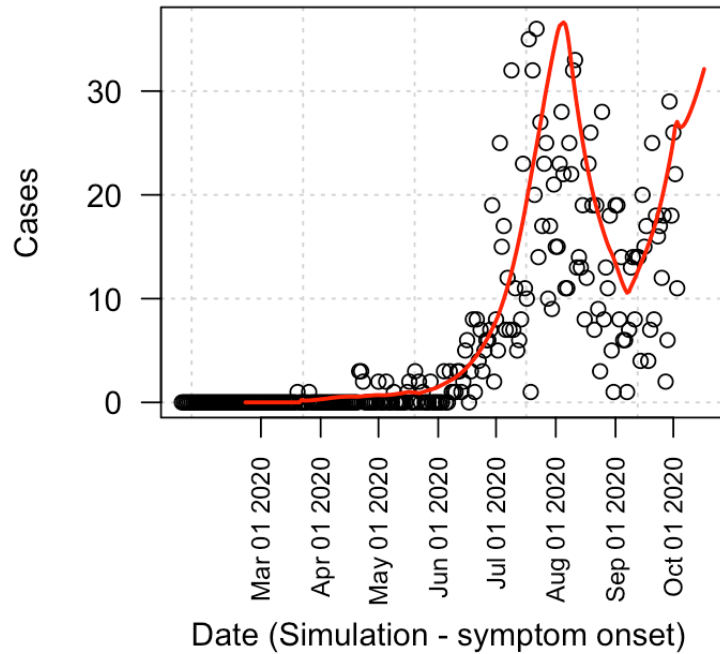


## New Mexico\_\_McKinley

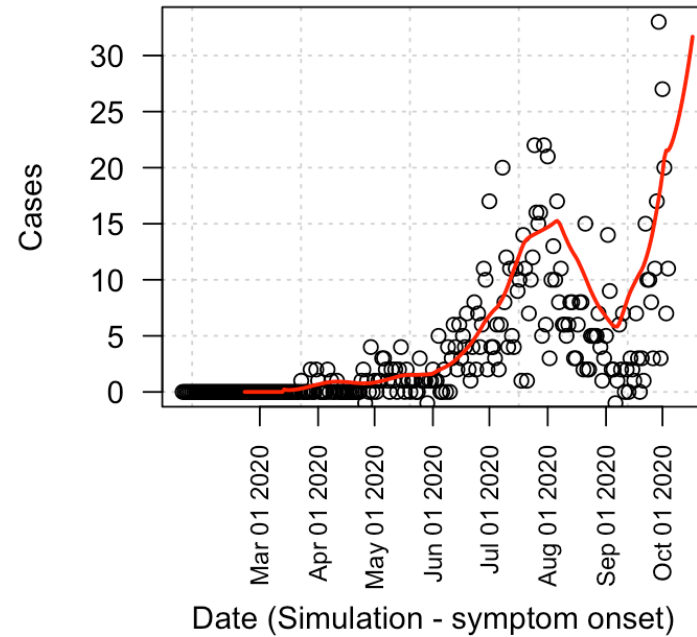


# A few other counties

## New Mexico\_\_Lea



## New Mexico\_\_Curry



## New Mexico\_\_Chaves

