13 Jul 2021: EpiGrid modeling

- NM daily incidence is slowly increasing. Without localized outbreaks, NM would be low or slowly declining. This model may be too optimistic: Outbreaks may be starting in some more populated areas.
- NM deaths similar to model.
  - The model does not account for better vaccination of cohorts with higher death rates, nor the compensating effect of B.1.1.7 and P.1 being major variants.
A look at the raw incidence data

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

Cases rates are fluctuating.

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.
1 Jun 2021 Model (Mechanistic) – more details and information

• ~1,165,000 first doses have been administered in NM (Federal and State).

Black – vaccination for all New Mexicans
Blue – vaccination for New Mexicans 16+
Red – First dose data used in EpiGrid.

Daily reported cases in El Paso are no longer dropping.
Variants

B.1.1.7 is “UK variant”

P.1 is “Brazilian variant”

B.1.617.2 is “Indian variant”

- probably even more contagious than B.1.1.7.

Note that data from both NM and CDC are about a month old.

New Mexico data
(P-1 may be over represented at some time points.)
T-80 Mobility – northern counties (data only)

Increasing: Los Alamos, Santa Fe, Taos, Valencia
Stable: Bernalillo, Los Alamos, McKinley, Rio Arriba, Sandoval, San Juan, Taos

- Weekends not shown
- Monday
- Wednesday/Thursday
- Friday (usually higher)
T-80 Mobility – southern counties and Curry (data only)

Increasing: Socorro, Taos
Flat or slight decrease: Chaves, Curry, Dona Ana, Eddy, Lea, Lincoln Luna, Otero
Decreasing: Curry, Grant, Luna, Roosevelt

- Weekends NOT shown
- Monday
- Wednesday/Thursday
- Friday (usually higher)
What is happening in the rest of the U.S.? The 10 most populous states plus New Mexico

**Trend over last 3 weeks:** Increasing: Florida, Georgia, Illinois, Michigan, New York, Texas,
Recent increases: California, New Mexico, North Carolina. **Steady:** Ohio, Pennsylvania

<table>
<thead>
<tr>
<th>State</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida</td>
<td>15.46</td>
<td>0.11</td>
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<tr>
<td>Texas</td>
<td>5.93</td>
<td>0.07</td>
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<tr>
<td>Georgia</td>
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<td>0.07</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1.36</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Daily rates per 100,000 residents averaged July 4th thru July 10th 2021.
There is a relationship between vaccination and cases.

- Rio Arriba county is an outlier.
- Sierra county might be an outlier
  - Could people be going to Texas for vaccination?
- Is there behavioral “over compensation” among unvaccinated individuals?
- Seven counties are not on this plot due to relative isolation and small populations: Catron, De Baca, Guadalupe, Harding, Hidalgo, Mora and Union.
Cases decrease with vaccination (no matter how the vaccination data are plotted)

May 5th, average doses 1 and 2

June 1, 1st dose

June 13, average of doses 1 and 2

May 5th, 2nd dose
Short- & Long-Term Forecast for NM: Cases

So what?
The daily number of cases are expected to range between 20 and 137.
Short- & Long-Term Forecast for NM: Deaths

So what?
The daily number of deaths are expected to range between 0 and 6 in the next few weeks.
As of July 13th, the average growth rate in NM is at 0.058% (up as two weeks ago)
Cumulative Cases & Daily Growth Rate for NM: June 14

Cumulative Cases: 2021-07-11

Data Source: JHU https://github.com/CSSEGISandData/COVID-19 Cumulative Cases: 2021-07-11

County COVID-19 Weekly Growth Rate

Data Source: JHU https://github.com/CSSEGISandData/COVID-19

*Growth rate is in cumulative cases
So what?

- Most people in New Mexico are living in a county that is medium per-capita case counts with a constant growth.
- Bernalillo, Chaves, Curry, McKinley, and Taos are accelerating.

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