Short- & Long-Term Forecast for NM: Cases

So what?
The daily number of cases are expected to range between 100 and 140 for the middle case.
Short- & Long-Term Forecast for NM: Deaths

The daily number of deaths are expected to range between 2 and 6 in the next few weeks.
Growth Rate for NM

So what?
As of May 4\textsuperscript{th}, the average growth rate in NM is at 0.11\% (same as two weeks ago)
Cumulative Cases & Daily Growth Rate for NM: May 4

Cases (Log Scale)

- San Juan: 14,514
- Rio Arriba: 3,583
- Taos: 1,656
- Mora: 170
- De Baca: 0.9%

- Otero: 3,791
- Catron: 92
- Hardin: 361
- Socorro: 1,309
- Sandoval: 0.1%

- Union: 250
- Catron: 0.4%
- Union: 0.2%

- San Miguel: 1,342
- Colfax: 750
- Grant: 1,696
- Roosevelt: 0.1%

- Taos: 0.1%
- Cibola: 2,861
- Grant: 0.1%

- Grant: 1,696
- Eddy: 6,801
- Curry: 5,109
- Roosevelt: 0.1%

- Luna: 3,308
- Luna: 0.1%
- Bernalillo: 56,899
- Rio Arriba: 0.1%

- Eddy: 0.1%
- McKinley: 12,231
- McKinley: 0%
- Lincoln: 1,662

- Santa Fe: 10,103
- San Miguel: 0%
- Santa Fe: 0.1%

- Bernalillo: 6,632
- Cibola: 0%
- De Baca: 0.1%

- Torrance: 720
- Torrance: 0.4%
- San Juan: 0.3%

- Grant: 0.1%
- Quay: 452
- Lincoln: 0.3%

- Chaves: 8,917
- Guadalupe: 0.1%
- Guadalupe: 0.1%

- Otero: 3,791
- Chaves: 0.3%
- Lincoln: 0.3%

- Luna: 8,272
- Socorro: 0.4%
- Chaves: 0.1%

- Sierra: 748
- Roosevelt: 0.1%
- Roosevelt: 0.1%

- Socorro: 1,309
- Otero: 0.2%
- Otero: 0.1%

- Valencia: 6,632
- Valencia: 0.1%
- Valencia: 0.1%

- Dona Ana: 24,589
- Grant: 0.1%
- Grant: 0.1%

- Eddy: 6,801

7-day-average daily growth rate (%)

- Hardin: 0.0
- Luna: 0.1%
- Luna: 0.1%

- Chaves: 0.1%
- Dona Ana: 0.1%
- Dona Ana: 0.1%

- Santa Fe: 0.1%
- Hidalgo: 0.1%
- Hidalgo: 0.1%

*Growth rate is in cumulative cases

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

Los Alamos National Laboratory
**Daily Growth Rate for NM May 4**

- **San Juan**: 0.3%
- **Rio Arriba**: 0.2%
- **Sierra**: 0.3%
- **McKinley**: 0.0%
- **Sandoval**: 0.1%
- **Santa Fe**: 0.1%
- **Cibola**: 0.0%
- **Bernalillo**: 0.2%
- **Valencia**: 0.1%
- **Torrance**: 0.4%
- **Lincoln**: 0.3%
- **San Miguel**: 0.0%
- **Chaves**: 0.1%
- **Dona Ana**: 0.1%
- **Luna**: 0.1%
- **Eddy**: 0.1%
- **Curry**: 0.1%
- **Grant**: 0.1%
- **Luna**: 0.1%
- **De Baca**: 0.9%
- **Los Alamos**: 0.1%
- **Quay**: 0.4%
- **Colfax**: 0.1%
- **Harding**: 0.0%
- **Guadalupe**: 0.1%
- **Catron**: 0.4%
- **Union**: 0.2%
- **Mora**: 0.1%
- **Taos**: 0.1%
- **Hidalgo**: 0.1%
- **Socorro**: 0.1%
- **Roosevelt**: 0.1%
- **Mora**: 0.1%
- **Sierra**: 0.3%
- **Valencia**: 0.1%
- **Torrance**: 0.4%
- **Lincoln**: 0.3%
- **San Miguel**: 0.0%
- **Chaves**: 0.1%
- **Dona Ana**: 0.1%
- **Otero**: 0.2%
- **Eddy**: 0.1%
- **Taos**: 0.1%

*arrows indicate more than 0.5% difference in growth rate from last week’s analysis; growth rate is in cumulative cases*

Data Source: JHU [https://github.com/CSSEGISandData/COVID-19](https://github.com/CSSEGISandData/COVID-19) County COVID-19 Weekly Growth Rate
COVID-19 across New Mexico
A 7-day moving window comparison
May 3, 2021

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 and Otero are accelerating with medium per-capita case counts

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

**Concurrent COVID-19 ICU beds**

<table>
<thead>
<tr>
<th>Week</th>
<th>Qu. 5% (best case)</th>
<th>Qu. 50% (median)</th>
<th>Qu. 95% (worst case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/9</td>
<td>29</td>
<td>51</td>
<td>97</td>
</tr>
<tr>
<td>5/16</td>
<td>11</td>
<td>45</td>
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<td>8</td>
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<tr>
<td>6/13</td>
<td>6</td>
<td>54</td>
<td>177</td>
</tr>
</tbody>
</table>

“Scaled” Scenario

So what?

Model is predicting ICU beds to remain steady over the next 3 weeks. We are tracking between best case and median scenarios.
4 May 2021: EpiGrid modeling

- NM daily incidence is flat, but model rises slowly
  - Model over-predicts incidence in a few counties (Eddy, Lea, Quay, Roosevelt) with low State vaccination levels.
- NM deaths are now slightly below the model.
  - Model does not account for better vaccination of cohorts with higher death rates, nor potential changes in severity with B.1.1.7 being the major variant
A look at the raw incidence data

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

Cases appear to be nearly constant.

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.
4 May 2021 Model (Mechanistic) – more details and information

- ~1,000,000 first doses have been administered in NM (Federal and State).
  - Federal and state doses attributed to counties according to data provided by state of NM
- Transmission is based on mobility with modifications due to PHO’s and the red/yellow/green/turquoise (RYGT) framework.
  - Public health orders (PHO) and public behavior similar to previous models.
  - There are no extrapolations to RYGT assignments.
  - Currently modeling turquoise counties as a progressively increasing force-of-infection.
- Daily reported cases in El Paso are flat, some ambiguity.

**Baseline results reflects B.1.1.7 variant of SARS-CoV-2.**
- Assumes a 50% increase in contagion/force of infection.
- CDC shows the NM, TX, OK, AR, LA region as being 69% B.1.1.7
- EG incorporates B.1.17 strain replacement and now has B.1.1.7 at 73%.
T-80 Mobility – northern counties (data only)

Mobility is stable or slightly decreased

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

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

Increasing: Curry
Staying the same: Chaves, Dona Ana, Grant, Lea, Lincoln, Luna, Otero, Socorro
decreasing: Eddy, Roosevelt

- Weekends NOT shown
- Monday
- Wednesday/Thursday
- Friday (usually higher)
Counties to Watch

• **San Juan** – there has been a significant uptick in cases. San Juan reports a larger proportion of school cases per total population than other counties. (data from COVID-By-The-Numbers Weekly Report – New Mexico Public Education Department, April 21, 2021)

• Several other counties could be seeing the start of an increase in cases: Lincoln, Quay, Roosevelt, Torrance
Hospital bed concurrent usage by COVID-19 patients (Statewide)

- Left panel: Linear vs. time (y-scale=0:1000) shows hospital beds.
- Right panel: Log vs. time, same data and models (y-scale = 80:800, 10x).
- Modest increase in hospital load compared with expectation is possible.
- Begin prioritizing viral sequencing of hospitalized patients to maintain awareness of severity vs. viral variant?
What is happening in the rest of the U.S.?
The 10 most populous states

Cases are steady: Georgia, Illinois, North Carolina, Ohio, Texas
Case are decreasing: California, Florida, Michigan, New York, Pennsylvania
Outlook with Vaccination

- ~1000k people vaccinated (1 or 2 doses).
- ~747k people with 2 doses.
- New vaccination rate has slowed dramatically in New Mexico.
- Expanded EUA for ages >= 12 years is likely important.
- Quarantine continues to play an important role in control.
- Infection control is important but may be playing a numerically less-dominant role at this time.
- Currently modeling 90% vaccine effectiveness.
- Matching to county vaccination data.
- Are out-of-state vaccines making a net contribution in some counties?
  - Curry, Eddy, Roosevelt, and Quay Counties cannot be easily explained with the reported vaccination data and observed cell phone T80 mobility data. (Shorter list than last time).
- Both susceptible and recovered people are vaccinated.
- Interim vaccine hesitancy numbers are being implicitly accounted.