17 May 2022: Epigrid modeling

- NM daily incidence is rising. Immune evasion is a significant factor.
- Reduced indoor masking facilitates community spread.
- Use of high-quality, well-fitted N95s enhances stopping transmission of covid, as observed in hospitals.
- Waning immunity is also likely significant to the current rise in daily incidence.
- Vaccination is largely protective against severe outcomes, as are timely, approved treatments.
A look at the raw incidence data

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

- The reported incidence is rising.
- Color-coded by-day-of-week incidence is rising.
- Recent within-week incidence does not show evidence of State-wide deceleration of growth.

The 190 cases in the Lea county correctional facility are removed from data reported on March 26th, 2021. The 1/3 of reported cases that were > 2 weeks prior were removed from March 24th, 2021. Case reported for weekends starting April 10-12th, 2021 are each divided by 3 to estimate individual day counts.
17 May 2022 Vaccine Analysis (NM)

- 1694k first doses.
- 1453k completed initial vaccine series
- 807k boosters completed +2k/2
- 117k fourth doses completed +39k/2
- 5-11 year old vaccinations continue to be slow.

- 805k * ~1/3 = >200k eligible for dose 4, but ~100k not inoculated.
- ~600k eligible for dose 3 who have not yet received it.
- **Waning immunity in May 2022 is likely playing a role:**
  - Effect on infection rate likely
  - Effect on severity is possible, data ambiguous
- **Viral evasion may eventually outpace the current low vaccination rate.**

- Vaccines with updated antigens would have high utility now.
Variant Monitoring: Omicron is the current variant

• Viral variant BA.2.12.1 is more evasive than BA.1 and BA.2
• NM data is consistent with BA.2.12.1 being evasive and contributing to growth.
• Case growth rates (~2x/month) are slower than BA.1
• Unlikely prior variants that appeared without evident intermediates, BA.2.12.1 is a derivative variant. More gradual changes are a possibility.
• Approximately 6-12 months is the longest variant-interval: D614G (~3 months), Alpha (~6-9 months), Delta (~6 months), Omicron BA.1 (~6 months). BA.2.12.1 May be only a 4 months interval.

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

Screenshot-only of CDC variant data, no static image available
Recent By-State Trends: Most Populous 10 States and New Mexico


Daily rates per 100,000 residents averaged May 4th thru May 17th, 2022.

<table>
<thead>
<tr>
<th>States</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>47.41</td>
<td>0.111</td>
</tr>
<tr>
<td>Michigan</td>
<td>39.61</td>
<td>0.109</td>
</tr>
<tr>
<td>Ohio</td>
<td>19.48</td>
<td>0.067</td>
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<tr>
<td>Florida</td>
<td>25.64</td>
<td>0.677</td>
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<tr>
<td>New Mexico</td>
<td>14.91</td>
<td>0.305</td>
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<tr>
<td>Illinois</td>
<td>45.52</td>
<td>0.056</td>
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<tr>
<td>Texas</td>
<td>11.18</td>
<td>0.637</td>
</tr>
<tr>
<td>California</td>
<td>21.96</td>
<td>0.092</td>
</tr>
<tr>
<td>North Carolina</td>
<td>24.18</td>
<td>0.015</td>
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<td>Georgia</td>
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<td>0.141</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>23.78</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Through 05/13
By-County Daily Incidence Trends (mostly) in New Mexico

• Rising daily incidence: Bernalillo, Cibola, Los Alamos, Rio Arriba, Sandoval, Santa Fe, Socorro, Valencia.
• Rising, but possibly exhausting susceptibles (for the time being): Curry, Dona Ana, Taos.
• Rising recently: Eddy, Grant, San Juan, Mora, Otero, San Miguel; El Paso, TX.
• Plateau in daily incidence: Chavez, Colfax, Guadalupe, Hidalgo, Lea, Lincoln, Luna, McKinley, Roosevelt, Sierra, Torrance.
Our model suggests that the number of daily cases is expected to range between 75 and 800 in the next few weeks.
So what?

Our model suggests that the number of daily deaths is expected to range between 3 and 25 in the next few weeks
Cumulative Cases & Daily Growth Rate for NM: May 15

De Baca, Rio Arriba, Los Alamos, and Santa Fe counties have the highest cumulative growth rates.

*Growth rate is in cumulative cases*
So what?

- Most people in New Mexico are living in a county that has high per-capita case counts and 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
The CDC ForecastHub is predicting an 8% increase in one week incident cases to 2,383 (from May 14 at 2,197)

COVIDhub-4_week_ensemble prediction, COVID 19 ForecastHub
https://viz.covid19forecasthub.org/
> Additional Regional Forecasts
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>
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<tbody>
<tr>
<td>5/22/22</td>
<td>3</td>
<td>5</td>
<td>8</td>
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<tr>
<td>5/29/22</td>
<td>2</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>6/5/22</td>
<td>2</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>6/12/22</td>
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<td>13</td>
</tr>
<tr>
<td>6/19/22</td>
<td>2</td>
<td>7</td>
<td>14</td>
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<tr>
<td>6/26/22</td>
<td>1</td>
<td>7</td>
<td>16</td>
</tr>
</tbody>
</table>

“Scaled” Scenario

So what?

Model is predicting an increase in COVID-19 ICU beds needed over the next several weeks
Concurrent Hosp & ICU Beds Based on Forecasts – Average Stay of 8 Hosp, 15 Days for ICU/vent & 25% ICU rate

So what?

Med-surge general bed needs are predicted to increase overall during the next 3 weeks.
Central & North Regions Daily Cases Forecast

**Northwest**

**Northeast**

**Central**

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**So what?**

The Central region is expected to see the most number of cases. Cases appear to be increasing.
South Regions Daily Cases Forecast

So what?
Both regions have a predicted plateau. The Southwest region is expected to see higher number of cases.
> Hospitalization Forecast