Modeling & Forecasting COVID-19 in NM

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Short- & Long-Term Forecast for NM: Cases

The daily number of cases are expected to range between 50 and 80 in the next few weeks.
So what?

The daily number of deaths are expected to range between 3 and 14 in the next few weeks.
Growth Rate for NM

As of May 31st, the average growth rate in NM is at 0.045% (down from two weeks ago)
Cumulative Cases & Daily Growth Rate for NM: May 31

So what? Torrance, Guadalupe, Harding, Rio Arriba, San Juan, Catron, Otero, De Baca have slightly elevated growth

*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 decelerating growth.
- Rio Arriba, Torrance, and Dona Ana 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
1 Jun 2021: EpiGrid modeling

- NM daily incidence is slowly decreasing.
- 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 being the major variant.
A look at the raw incidence data

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

Cases appear to be declining.

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

- ~1,096,000 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 decreasing slowly.
  - B.1.1.7 is primary variant in US
    - “UK variant”
  - B.1.617.2 is present (low percentages early May)
    - “Indian variant”
    - probably even more contagious than B.1.1.7.
  - P.1 is increasing in US and NM
    - “Brazilian variant”

- Baseline EpiGrid results reflects B.1.1.7 variant of SARS-CoV-2.
  - Assumes a 50% increase in contagion/force of infection per Volz, Ferguson, et al.

Vaccination sped up when 12-15 year olds became eligible
T-80 Mobility – northern counties (data only)

Slow increase over past several weeks: Bernalillo, San Juan, Santa Fe, Valencia
Very slight increase: Rio Arriba, Sandoval, Taos
Stable: Los Alamos, McKinley (also most highly vaccinated counties …)
T-80 Mobility – southern counties and Curry (data only)

Rising: Chaves, Socorro, Grant, DA, Lea
Flat: Eddy, Luna, Otero, Roosevelt
Recent decrease: Curry, Lincoln
Significantly more heterogeneity than in the northern counties.
Counties to Watch

• Curry and San Juan – There was a significant uptick in cases weeks ago. Now decreasing.

• DeBaca and Quay, Santa Fe – incidence was high in mid-May – is probably decreasing.

• Current uptick in cases: Guadalupe, Lincoln, Rio Arriba, Roosevelt, San Miguel, Torrance

• Over the past few months, case data from several counties are consistent with small outbreaks that were stopped.
What is happening in the rest of the U.S.? The 10 most populous states

Lowest Rates: California
Not decreasing: Texas
Slight decrease: California, Pennsylvania
Decreasing: Florida, Georgia, Illinois, Michigan, Ohio, New York, North Carolina

Compare with NM (lower right).
Cases (15May-28May) versus immunity (vaccination and recovered cases)