

The Effect of COVID-19 Vaccinating Health Professionals Prior to Patients

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Abstract

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I. INTRODUCTION

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II. METHODS

I. Model Methods

General process of how the guys created the model. What they chose as parameters, why they chose specific set-up/ structure etc.

- software used
- Thought process, planning
- architecture of model chosen and why
- how/why parameters were chosen
- optimization methods
- 1-D model set up
- 2-D model set up

II. Data Analysis Methods

Process and methods used to gather and then analyze the data. How we ruled out factors, how we ruled in factors, process of elimination etc.

*A thank you or further information

- Where is data from
- How we got it
- Pipeline analysis set-up
- types of plots generated
- Analysis after plots– how we determined "significance" in event analysis
- What constitutes ruling in a parameter; ruling out a parameter
- What constitutes a likely conclusion

III. RESULTS

I. Model Results

I.1 Jake's Model Results

I.2 Ethan's Model Results

II. Data Analysis Results

II.2 State-Level Data Analysis Results

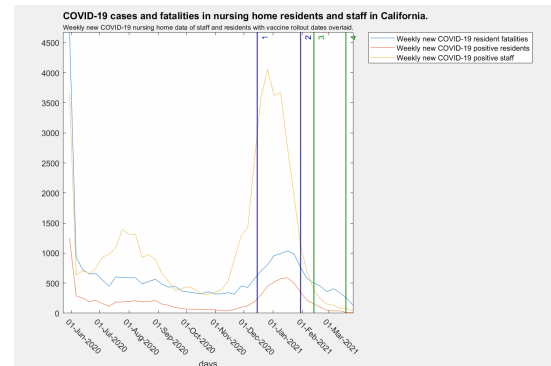


Figure 2: Roughly 2 weeks after release of the first COVID-19 vaccine, new COVID-19 cases in nursing home staff in California begins to decline, followed by a reduction in COVID-19 cases and fatalities in residents approximately 2 weeks later.

II.1 National-Level Data Analysis Results

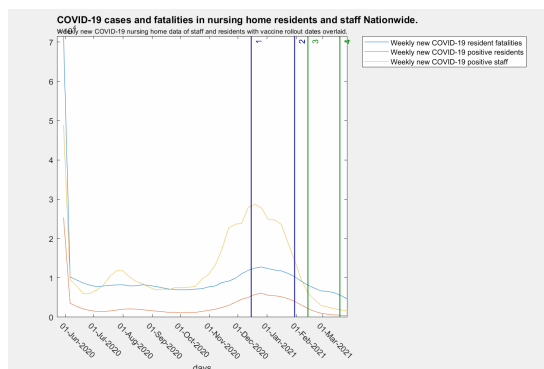


Figure 1: The distribution of the first COVID-19 vaccine immediately reduced new COVID-19 cases in nursing home staff Nationwide, followed by a similar reduction in nursing home residents approximately 2 weeks later.

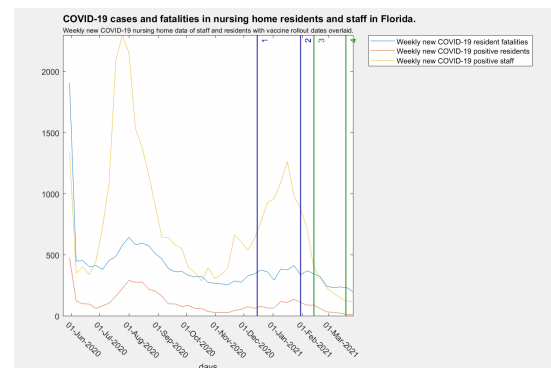


Figure 3: Approximately 4 weeks after the distribution of the first COVID-19 vaccine, new COVID-19 cases in nursing home staff in Florida begin to decline, and COVID-19 cases and fatalities in nursing home residents remained constant for nearly 3 months after the first wave of vaccine distributions before declining.

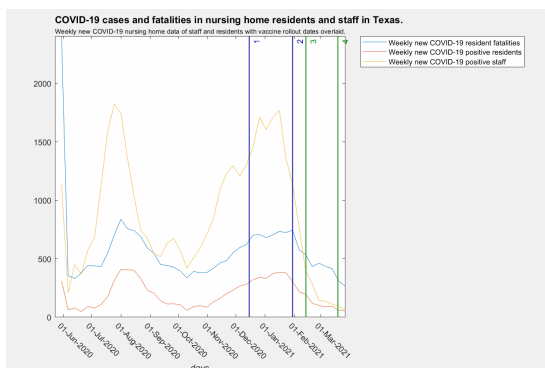


Figure 4: Approximately 4 weeks after the release of the first COVID-19 vaccine, new COVID-19 cases in nursing home staff in Texas began to decline, followed by a decline in COVID-19 cases and fatalities in nursing home residents approximately 1 week later.

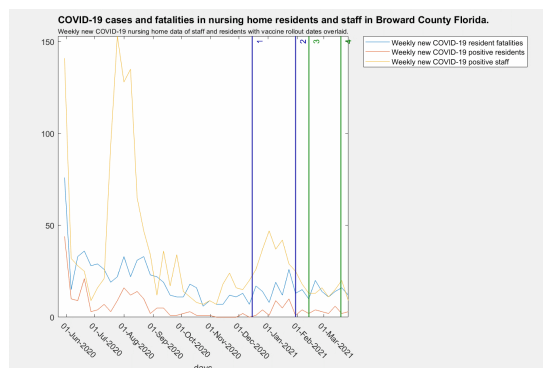


Figure 6: Approximately 2 weeks after COVID-19 vaccine distribution begins, new COVID-19 cases in nursing home staff begin to decline in Broward County Florida, while COVID-19 cases and fatalities in nursing home residents remain constant, displaying no change.

II.3 County-Level Data Analysis Results



Figure 5

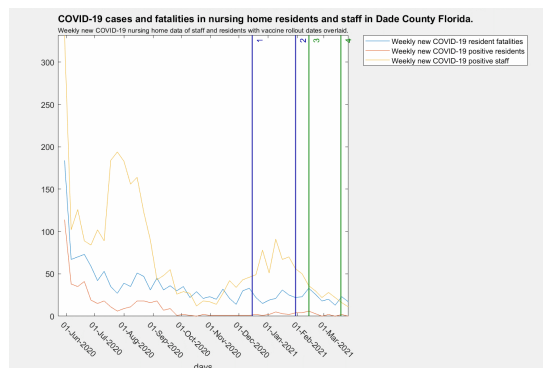


Figure 7: Nearly 4 weeks after COVID-19 vaccine distribution begins, new COVID-19 cases in nursing home staff begin to decline in Dade County Florida, while COVID-19 cases and fatalities in nursing home residents remain constant with a slight display in decline approximately 1 month after staff decline.

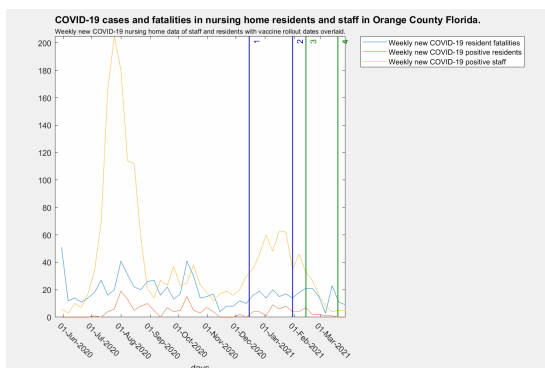


Figure 8: Approximately 5 weeks after the start of COVID-19 vaccine distribution, new COVID-19 cases in nursing home staff begin to decline in Orange County, Florida, while COVID-19 cases and fatalities in nursing home residents decline approximately 1 month after staff decline.

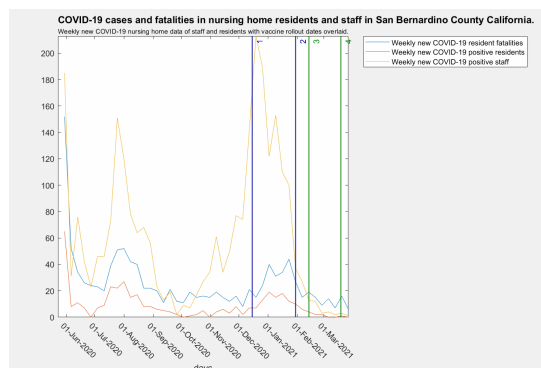


Figure 10: The release of the first COVID-19 vaccine is followed by a reduction in new COVID-19 cases in nursing home staff in San Bernardino County, California within 3 weeks, followed by a decline in COVID-19 cases and fatalities in nursing home staff approximately 1 week later.

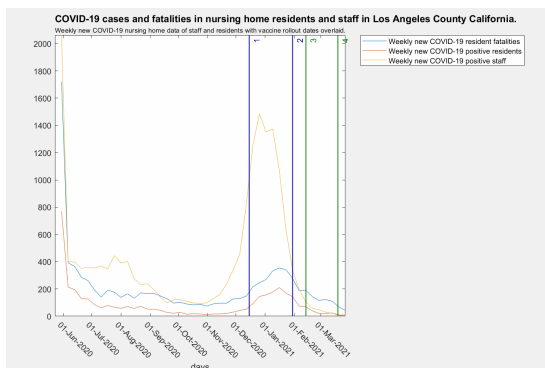


Figure 9: The release of the first COVID-19 vaccine is followed by a reduction in new COVID-19 cases in nursing home staff in Los Angeles County, California approximately 3 weeks after distribution; succeeded by a reduction in COVID-19 cases and fatalities in nursing home residents approximately 1 week later.

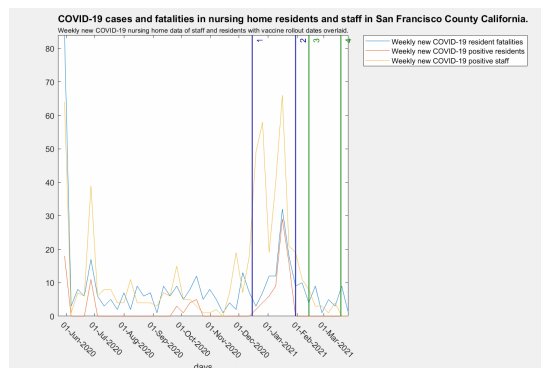


Figure 11: Approximately 4 weeks after the distribution of the first COVID-19 vaccine, new COVID-19 cases in nursing home staff in San Francisco County, California begin to decline, followed by a decline in COVID-19 cases and fatalities in nursing home residents less than one week later.

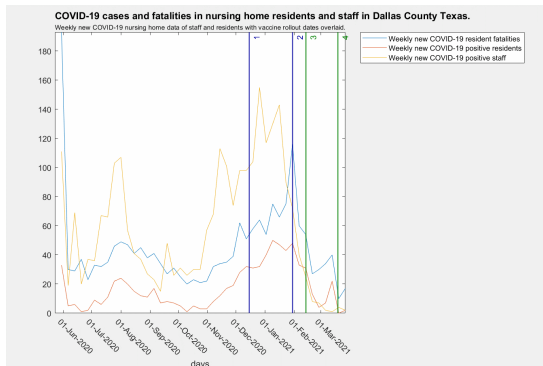


Figure 12: *New COVID-19 cases in nursing home staff in Dallas County, Texas begin to decline approximately 4 weeks after the distribution of the first COVID-19 vaccine, followed by the decline in COVID-19 cases and fatalities in nursing home residents approximately 2 weeks later.*

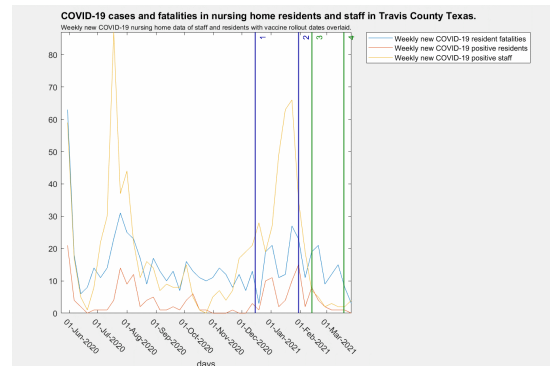


Figure 14: *New COVID-19 cases in nursing home staff in Travis County, Texas begin to decline approximately 5 weeks after the distribution of the first COVID-19 vaccine, followed by the decline in COVID-19 cases and fatalities in nursing home residents approximately 2 weeks later.*

III. Vaccinations in general public 65+ and in assisted living facility residents

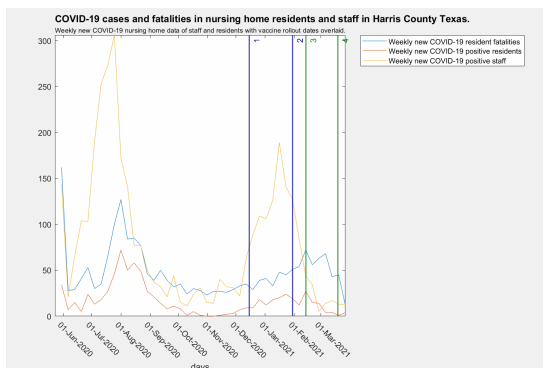


Figure 13: *New COVID-19 cases in nursing home staff in Harris County, Texas begin to decline approximately 5 weeks after the distribution of the first COVID-19 vaccine, followed by the decline in COVID-19 cases and fatalities in nursing home residents approximately 2 weeks later.*

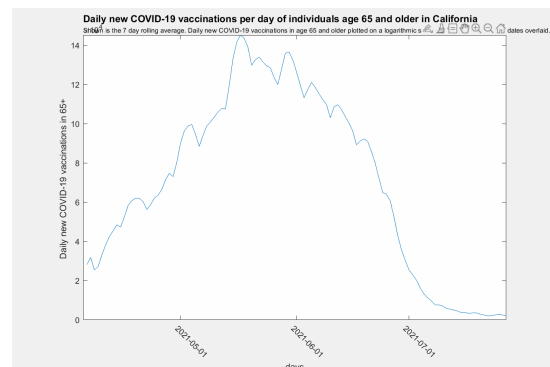


Figure 15

IV. Nursing Home Statistics

1. Histogram w/ scatterplot
2. Pie Chart?
3. Graph chart for comparison?

IV. DISCUSSION

I. Model Discussion

1. Jake's model
2. Ethan's model

II. Event Analysis Discussion

The effectiveness of vaccinating the population against COVID-19 is undeniably positive, and is apparent through the decline in the presence of COVID-19 within the nursing home setting at the National, State, and County level.

1. Nationwide has declined
2. California & Texas have declined; Florida residents remain constant– weird.

3. by the time 80-90% of first dose has been delivered, everyone is at low levels for COVID-19 in nursing home
4. health professionals are vectors
5. vaccinating health professionals first, and earlier saves lives faster
- 6.

REFERENCES

- [Figueredo and Wolf, 2009] Figueredo, A. J. and Wolf, P. S. A. (2009). Assortative pairing and life history strategy - a cross-cultural study. *Human Nature*, 20:317–330.