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# Vaccine Equity Team 2

Sponsor: BU Spark!

Client: Dr. Julia Koehler

Member: Kush Vekerla, Liyu Qu, Jingyi Li, Zhou Ye

# Goals and Background

## **Goals:**

- To understand the impact of grassroots organizations, like La Colaborativa, in the distribution of Covid-19 vaccinations of various age groups
- To discover trends in vaccination rates amongst age groups with a particular focus on pediatric populations.

## **Background:**

- Access to quality healthcare and reputable information remains an issue for underserved communities in the State of Massachusetts
- Our team's primary focus was upon vaccinations by age group with emphasis on understanding the impact of efforts on pediatric vaccinations.
- We have two data sets (Grouped.csv and Zipcode.csv) .

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# Data Collection

## **Grouped Dataset:**

- Split the whole dataset into 36 small dataset by age (0-19, 20-29, 30-49, 50-64, 65-75, 75+) and city (Chelsea, Revere, Springfield, Everett, Newton, Wellesley).
- Used Interpolate method to fill empty data and keep the number of vaccination in an increasing trend

## **Zipcode Dataset:**

- Split the dataset by city (Wellesley, Chelsea, Revere, Springfield, Everett, Newton)
- Used interpolation to fill empty values and maintain a linear trend.

## **Main Challenges:**

- Lots of NaN values results in missing data even after predictive measures (such as interpolation)



## Main Analysis:

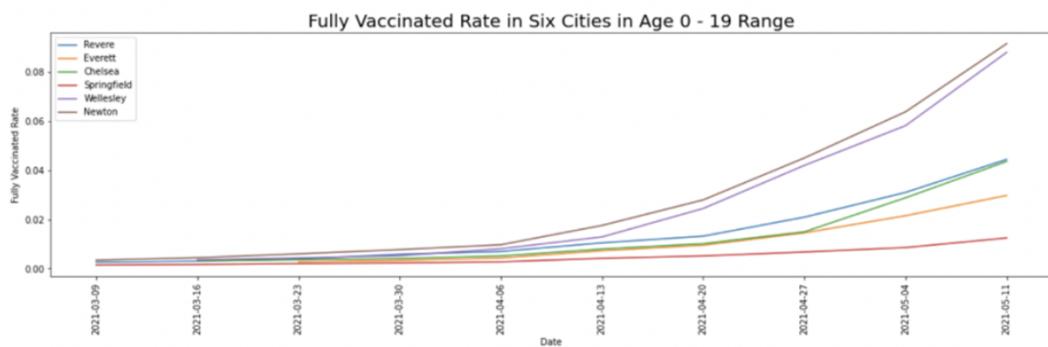
- **Fully Vaccinated Rate vs. Date**

- To see and compare the changes of the fully vaccinated rate in different cities

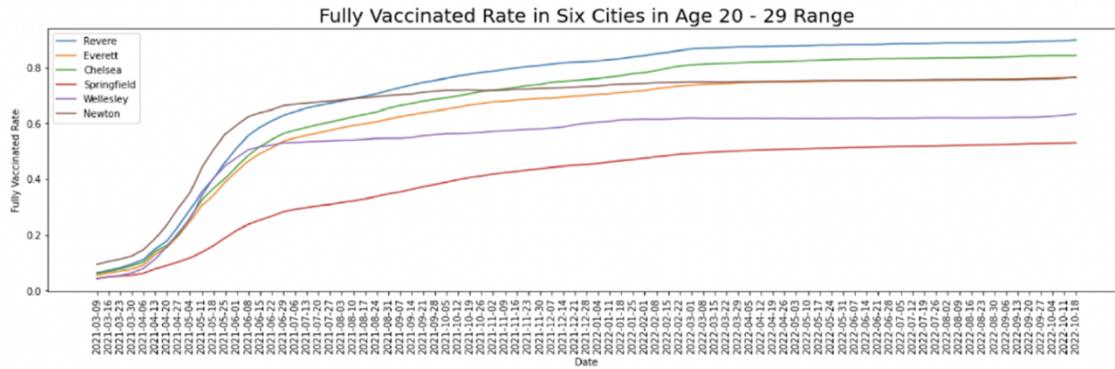
- **At Least One Dose Rate vs. Date**

- To see and compare the changes of the At Least One Dose rate in different cities

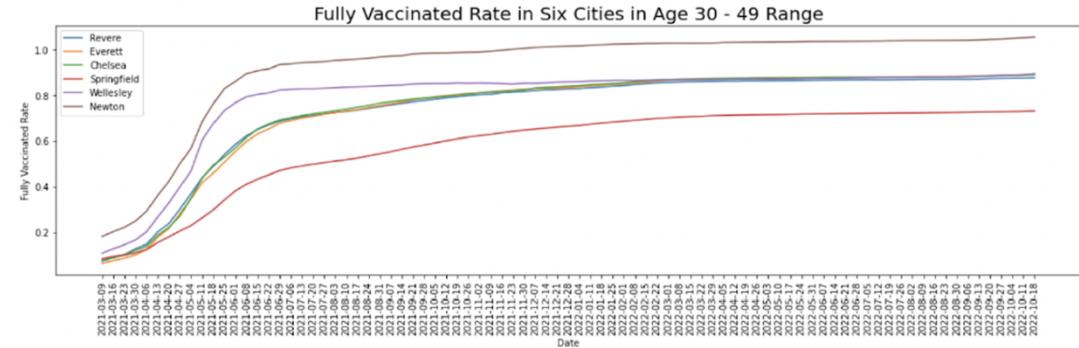
### Fully Vaccinated Rate vs. Date



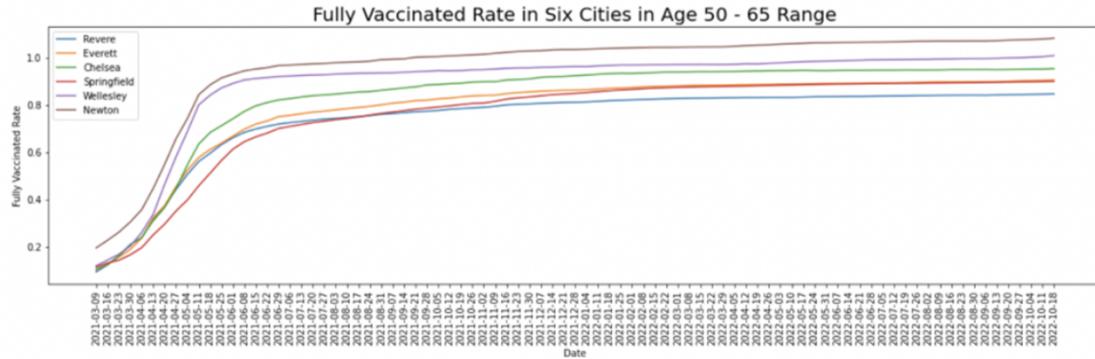
## Fully Vaccinated Rate vs. Date



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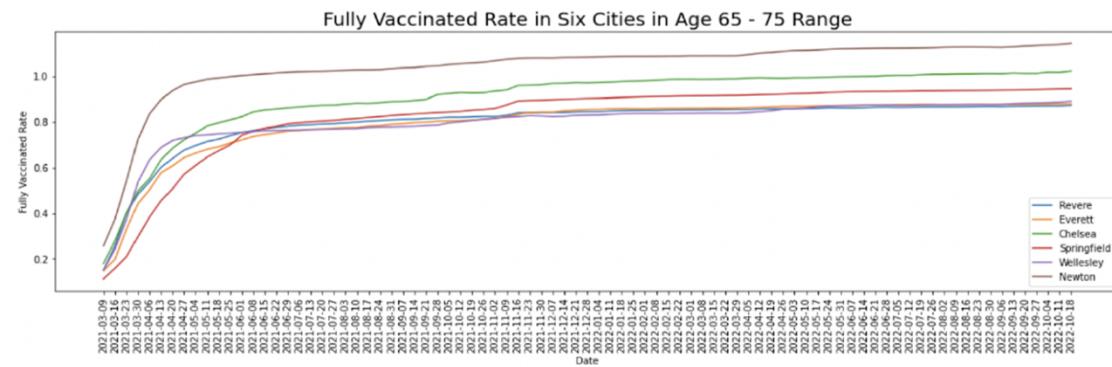


## Fully Vaccinated Rate vs. Date

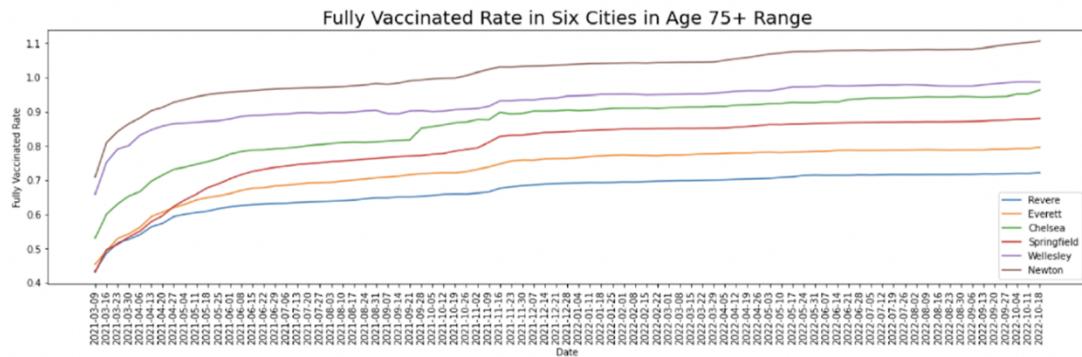


Fully Vaccinated Rate vs. Date

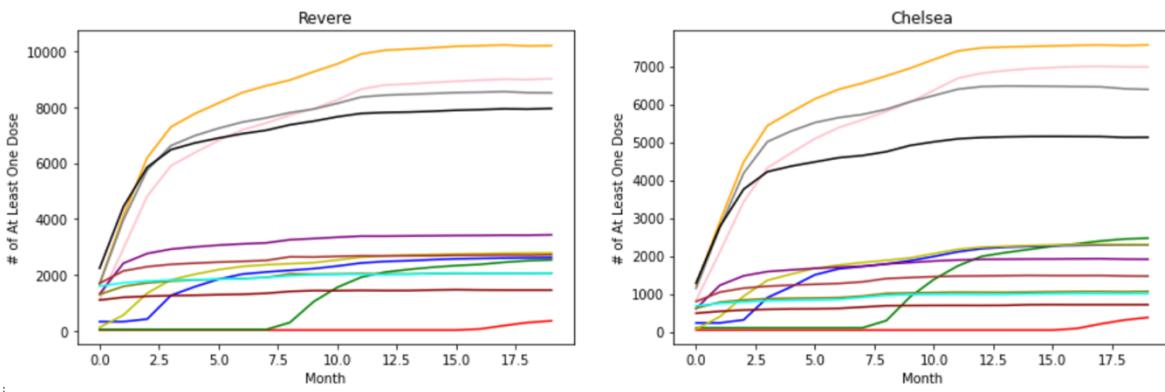
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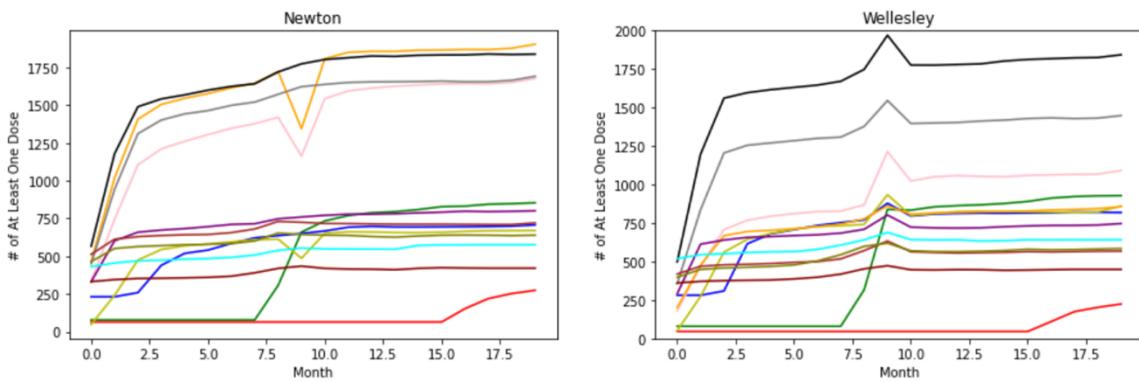
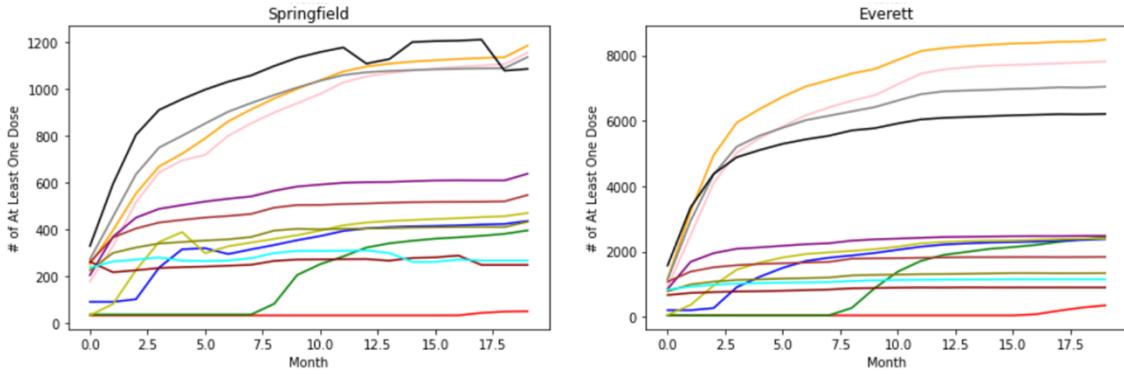


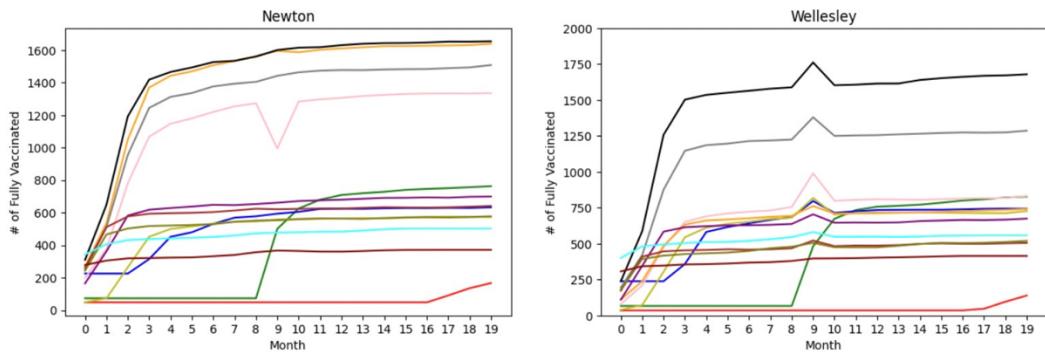
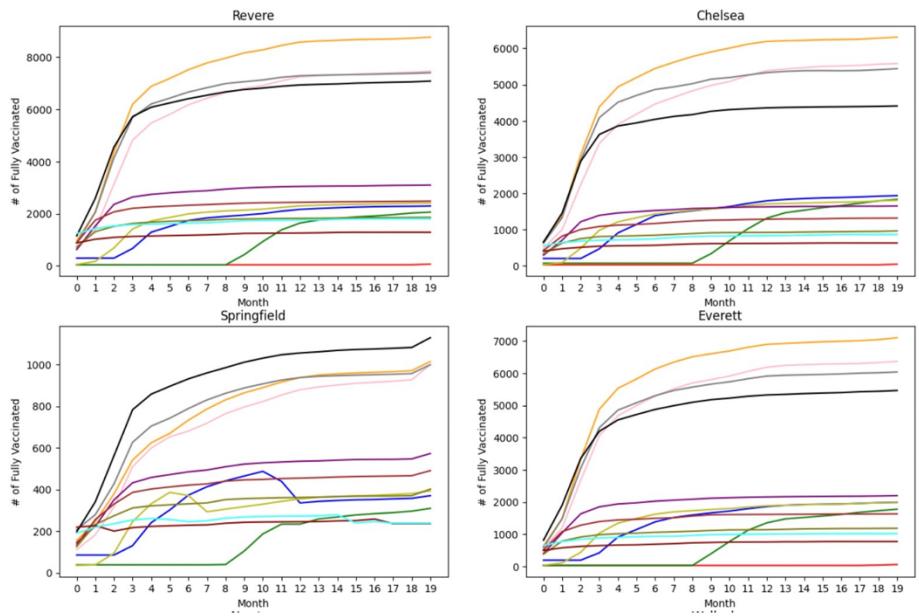
## Fully Vaccinated Rate vs. Date



Number of At Least One Dose Individuals Per Month For Each City







## Conclusion

- The vaccination rate of 50-75+ older people in Springfield is the highest among the six cities.
  - In the 65-75+ age group, Chelsea have higher rates of complete vaccination and growth rates than Revere.
  - Based on the average vaccination rate of each age group, Chelsea had a relatively high vaccination rate in the 20-29, 65-75 and 75+ age groups.
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## Next Step

- Hypothesis Test
  - Regression Model
  - KNN Model
  - More Analysis
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