Context
The COVID-19 pandemic has hit some areas and some groups of people harder than others. New York City was overrepresented among U.S. cities and Staten Island has some of the highest percentage of COVID-19 cases out of the five boroughs.

Using Geographic Information Systems (GIS), I examine some uneven sources of the COVID-19 pandemic in Staten Island. Important questions I ask are:
1) Where are the locations with high-risk transmission?
2) Where are the vulnerable people?
3) Where are the healthcare facilities that can support people with COVID-19?

Data and Methodology
• I examine a set of social, public health, and economic data related to COVID-19 on Staten Island. Building upon my preliminary research[1], I collected, organized, examined, and mapped data based on COVID-19 cases, deaths, hospitalizations, vaccinations, and social workers in Staten Island until May 25th, 2021.
• I used up-to-date open access zip code data as well as geospatial data.
• I developed choropleth maps, a mapping technique that uses graded differences in color to define average values of some quantity. Each map was created with the New York Long Island Projection ESPG: 2263.
• In the Rooms per Home Map, it is assumed that a house with a larger number of rooms more likely has a greater number of residents living in them. Zip codes 10309 and 10312 have the largest density of individuals living in one residence.
• 10312’s large density correlates with the COVID-19 Cases Map; having one of the largest percentages of COVID-19 cases, most likely stemming from the density of homes. 10309 is the discrepancy, having a low percentage of COVID-19 cases and a large density.
• People per Square Mile Map also implies dense zip codes have a greater risk of more COVID-19 cases especially zip codes 10310 and 10301 which have a large density and a high percentage of COVID-19 cases.

COVID-19 cases in Staten Island

Future research
• The Reference Maps demonstrate to us that dense zip codes will more likely have greater percentages of COVID-19 cases such as zip codes 10312.
• Elderly individuals are the most susceptible to COVID-19 and can be protected with an abundance of vaccination centers as seen in zip codes 10314, 10306.
• To encourage residents to receive the vaccine, vaccination distribution centers should make the process as convenient as possible for residents by allowing walk-ins rather than appointments to receive the vaccine.
• Future GIS research should narrow in the zip codes to find which of the potential vaccination centers should have priority to distributing COVID-19 vaccines to assist current zip codes in lowering the percentage of COVID-19 cases.

References