

Predicting the Price of Hospital Admissions

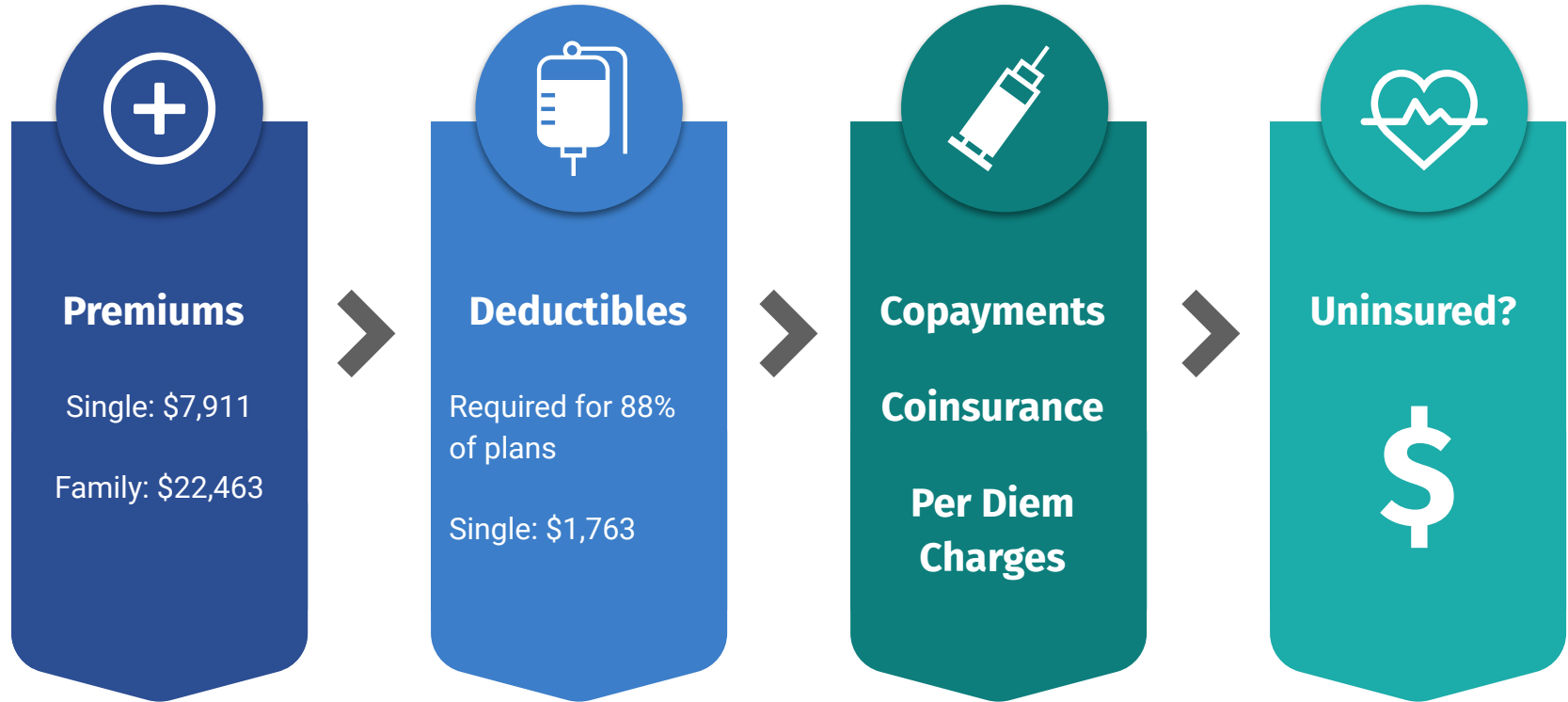
Seamus Walsh

August, 3, 2023

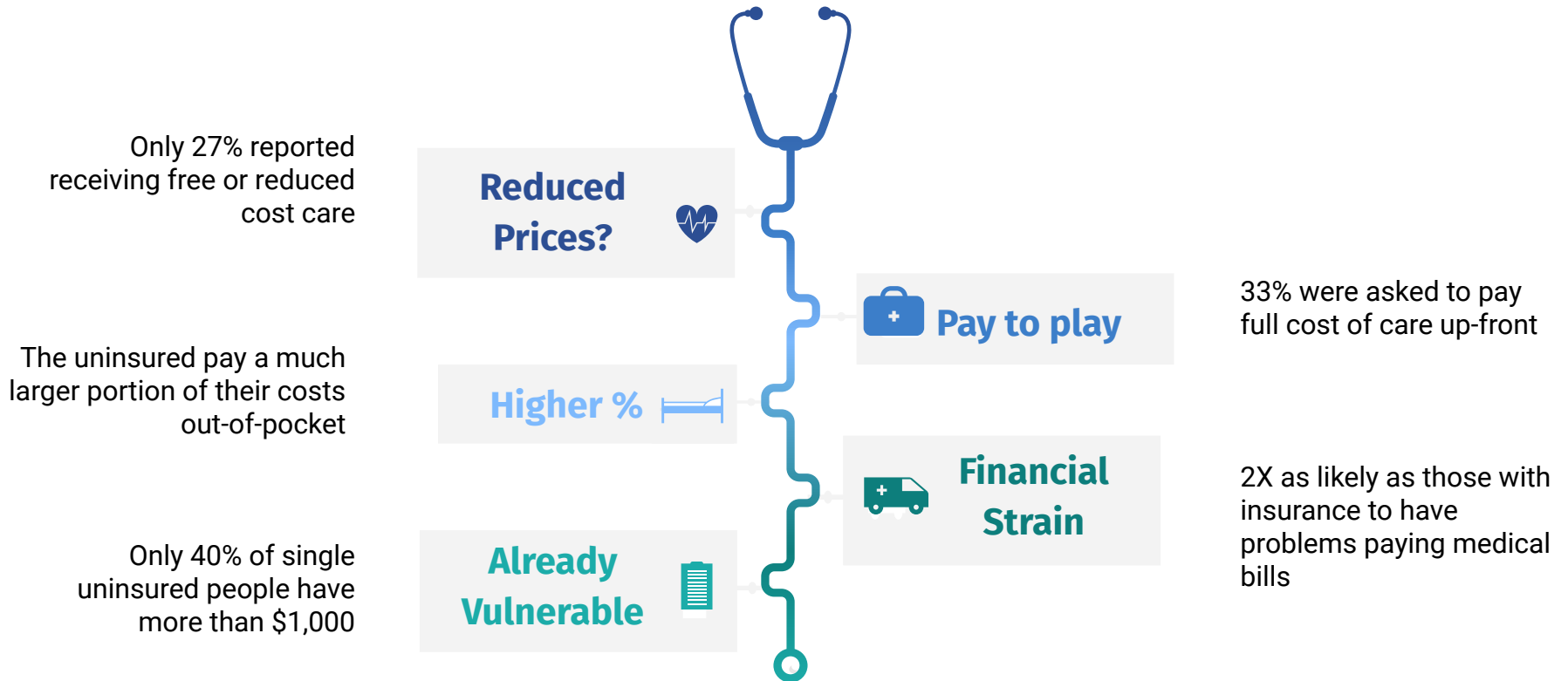




US Healthcare Costs (in a nutshell)



Uninsured Healthcare Costs

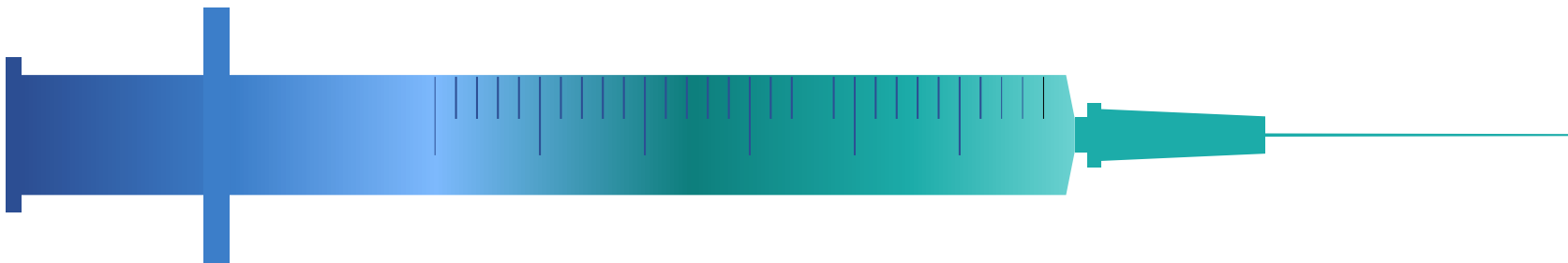




"Yes, it is a very large bill. Unfortunately, the doctor who gave you a second opinion charges ten times what I do."

Hospital Price Transparency Law

- Began 1/1/2021
- Fewer than 6% comply with the rule (JAMA, 2022)
- As of June, NYC signed it's own law on healthcare transparency (nothing to show yet)



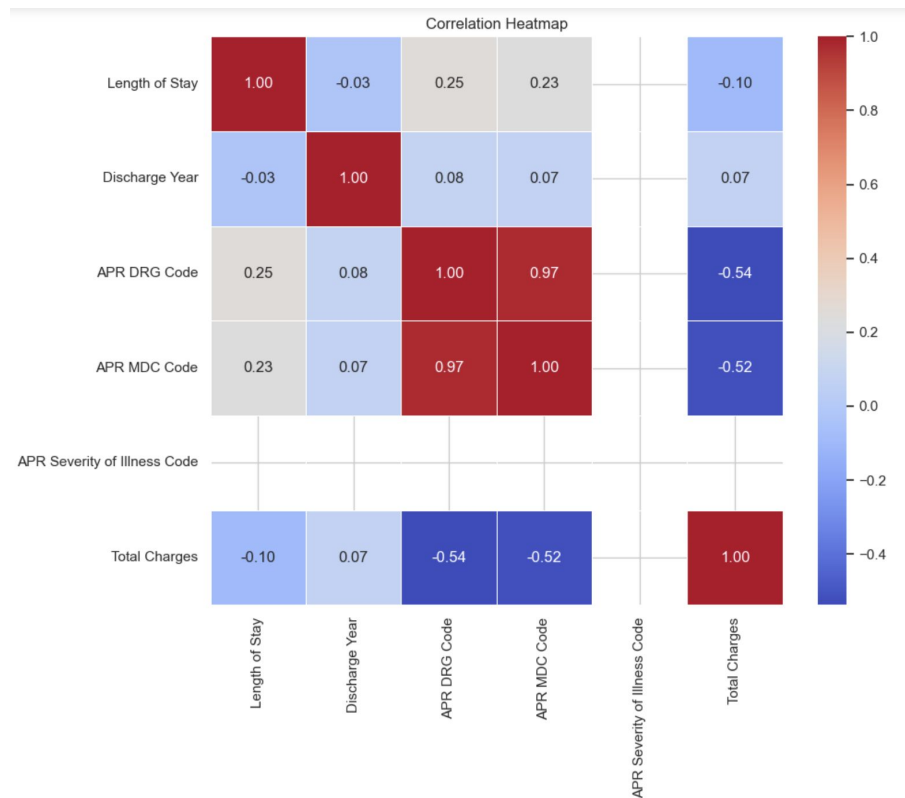
Data Analysis

Data Source: New York State Department of Health Hospital Admissions Data

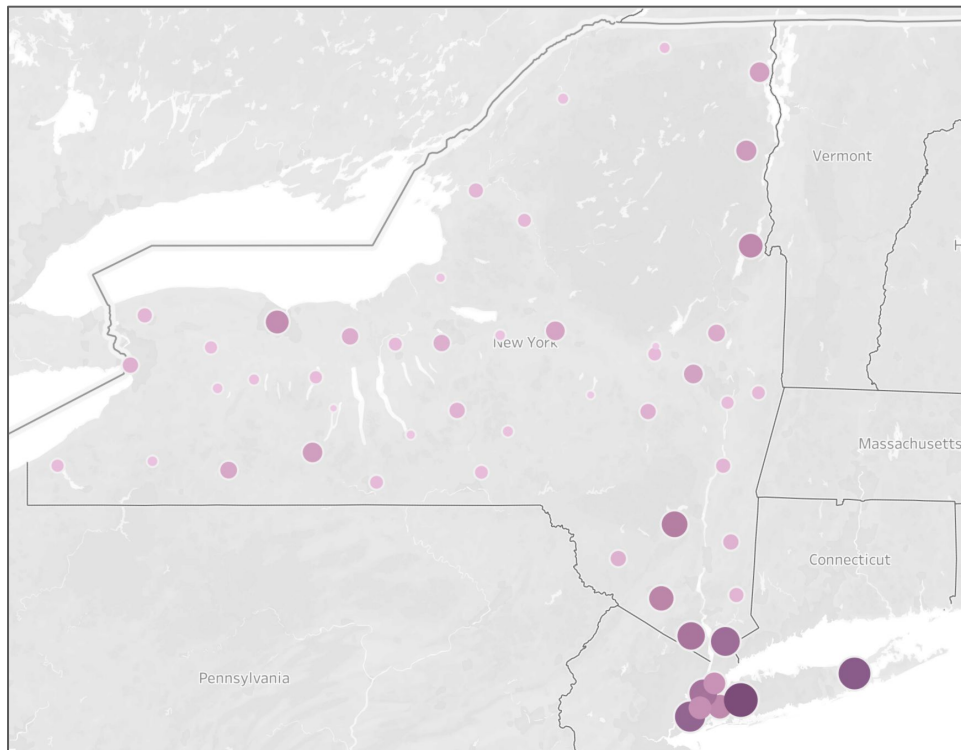
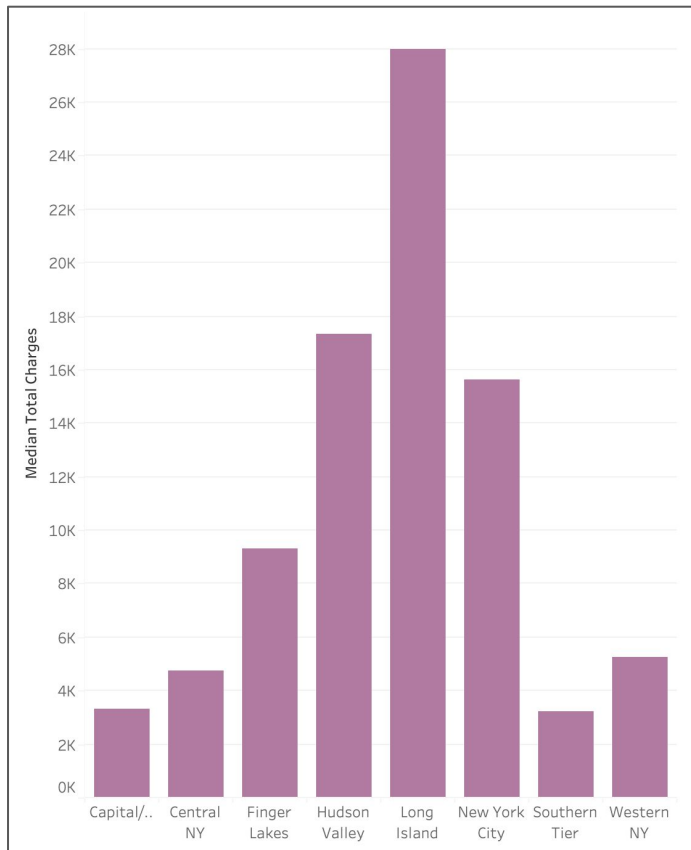
- 178 Hospitals
- 27,000+ patient visits
 - Diagnoses, procedures, length of stay, patient disposition, gender, race, ethnicity, age, etc.

Initial Correlations

- DRG Codes and MDC Codes most highly correlated with target variable



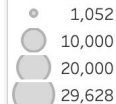
Median Total Charges By Region



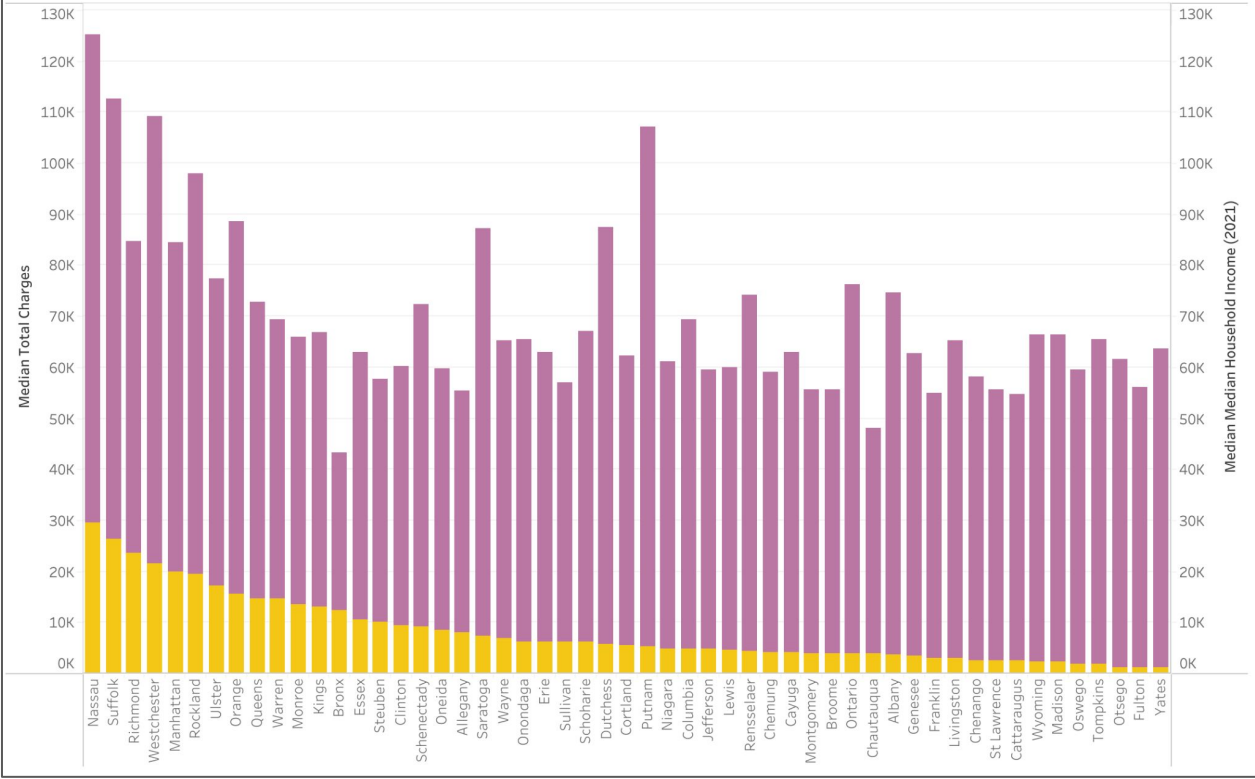
MEDIAN(Total Charges)



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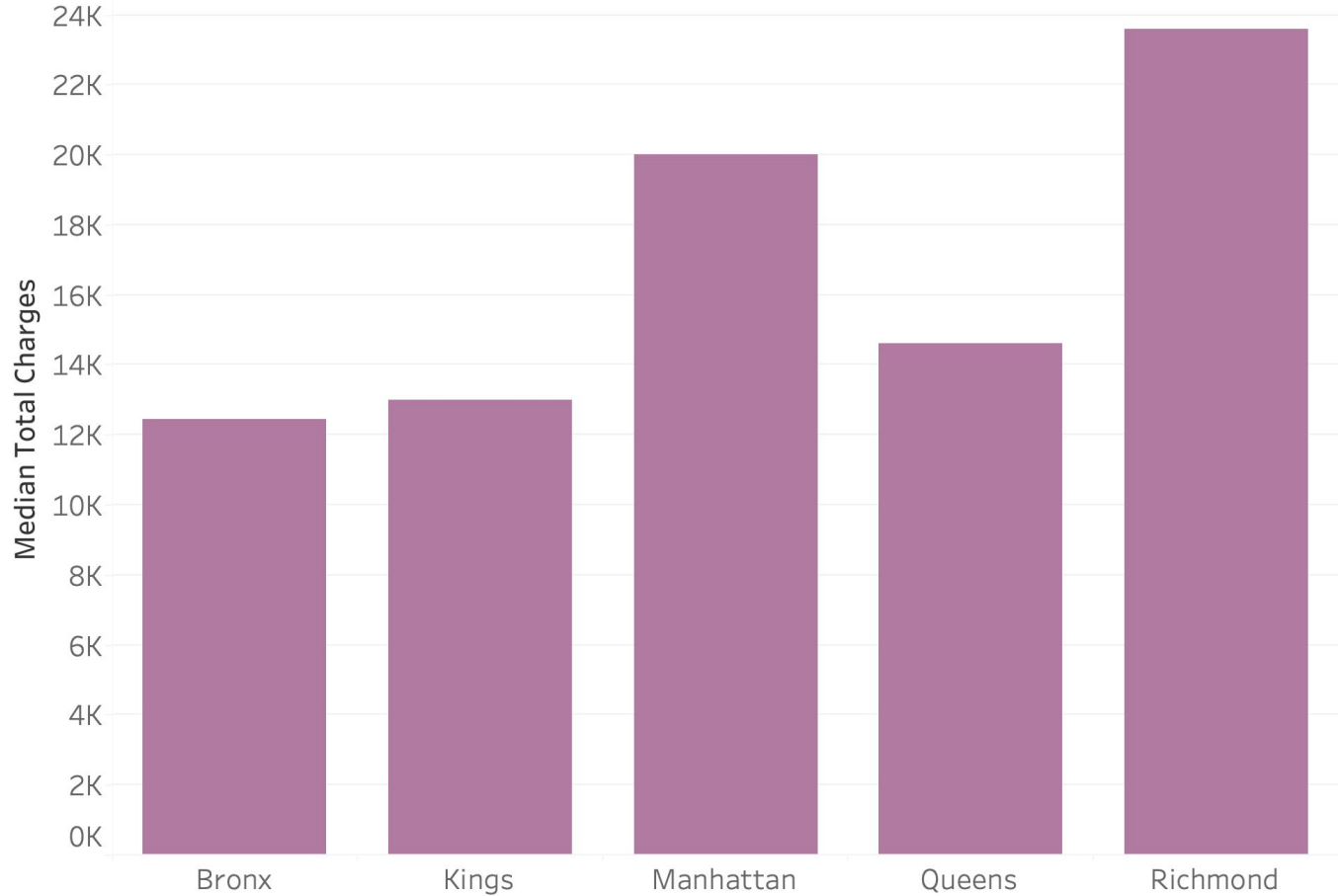
Total Charges by Region and Median Income



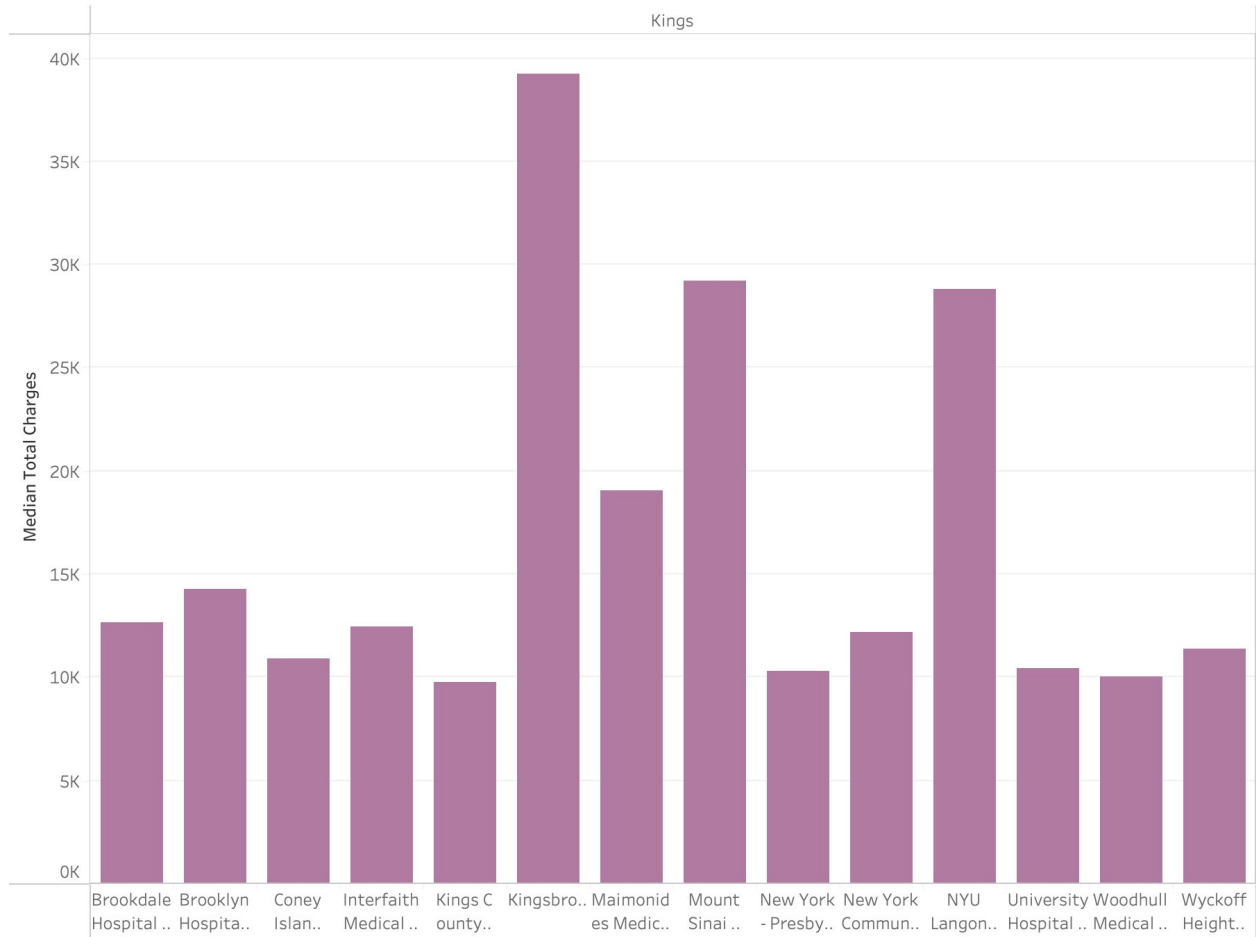
Measure Names

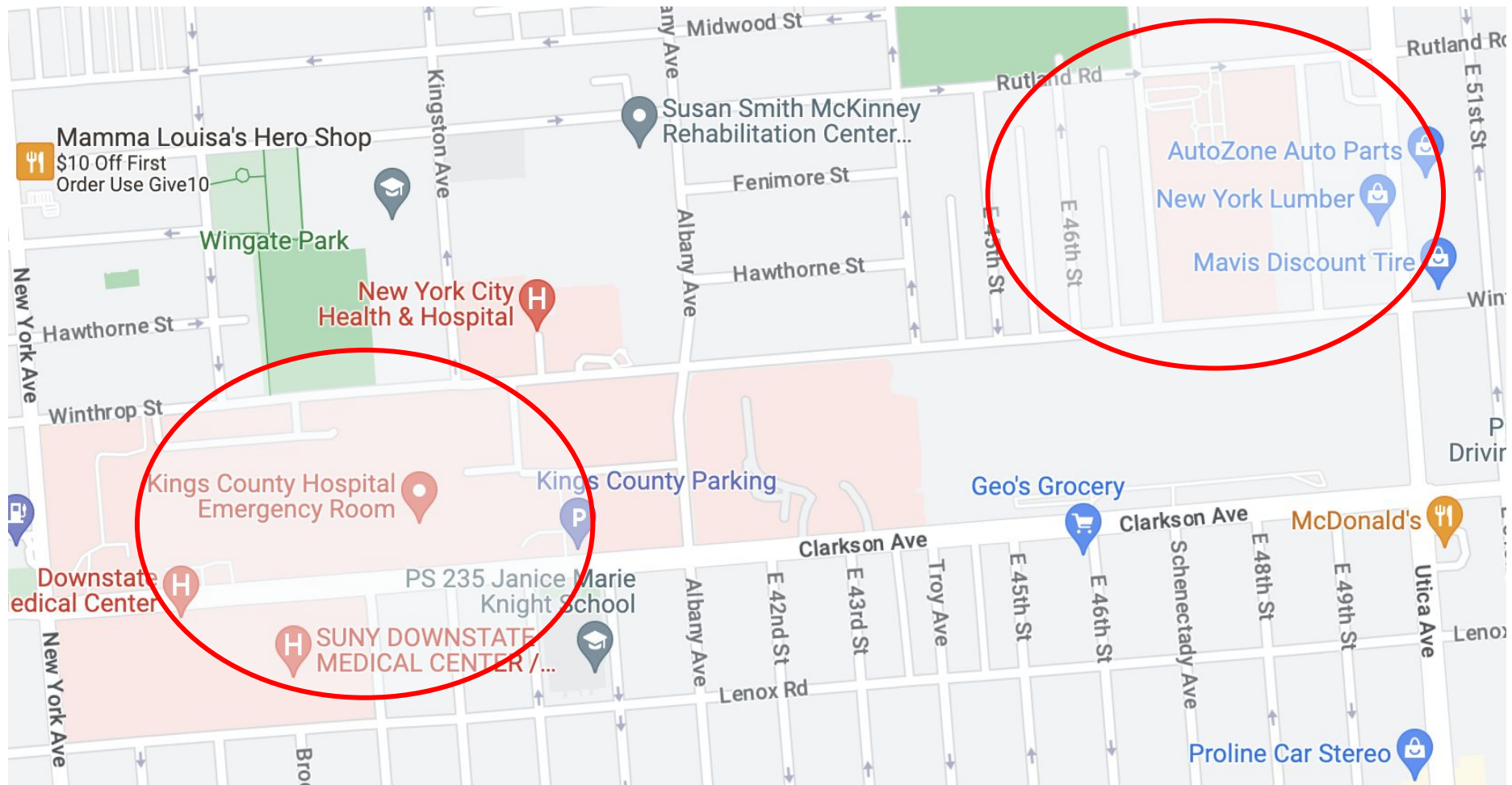
- Median Total Charges
- Median Median Household Income

Total Charges in NYC Counties

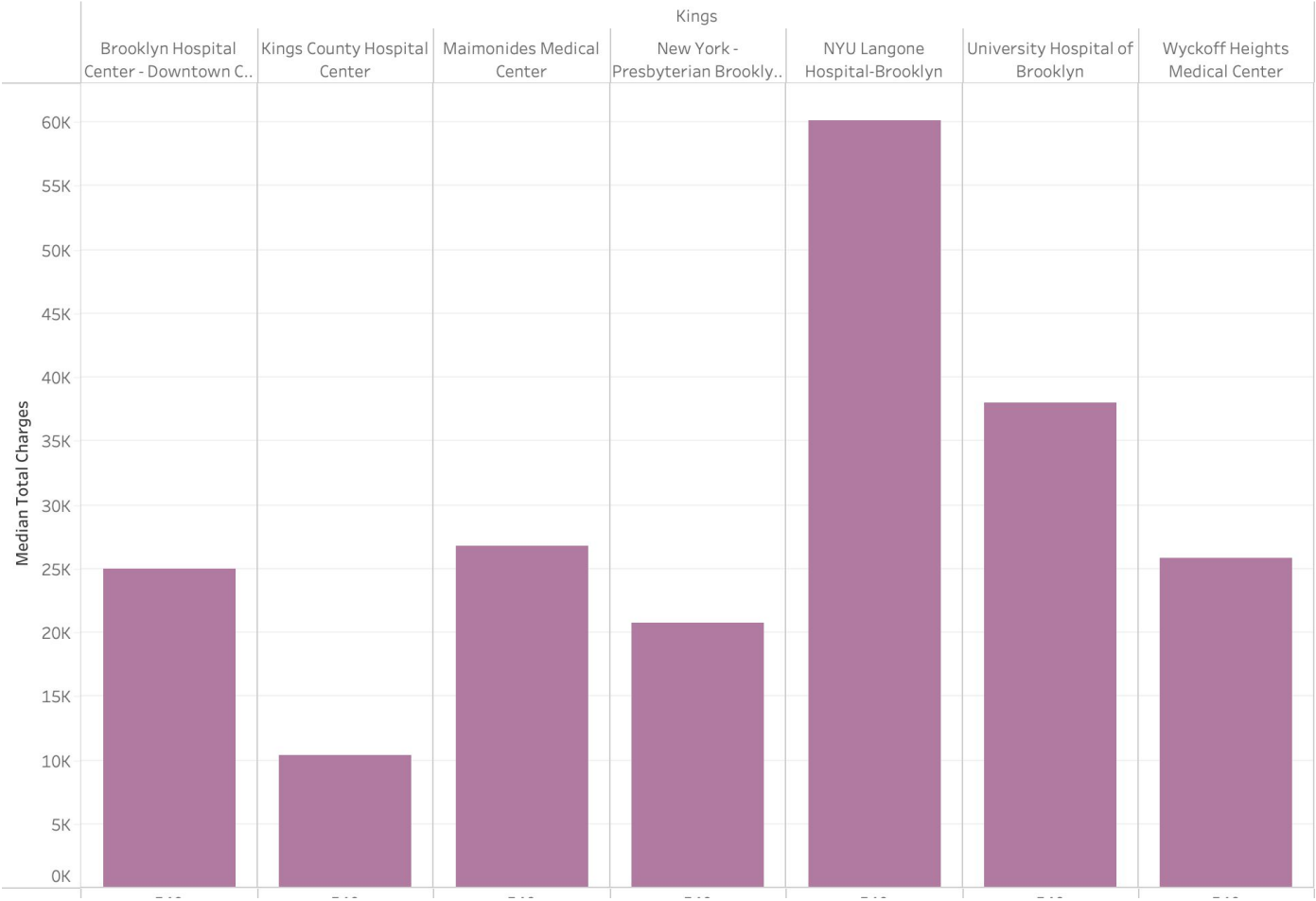


Median Total Charges in Brooklyn Hospitals

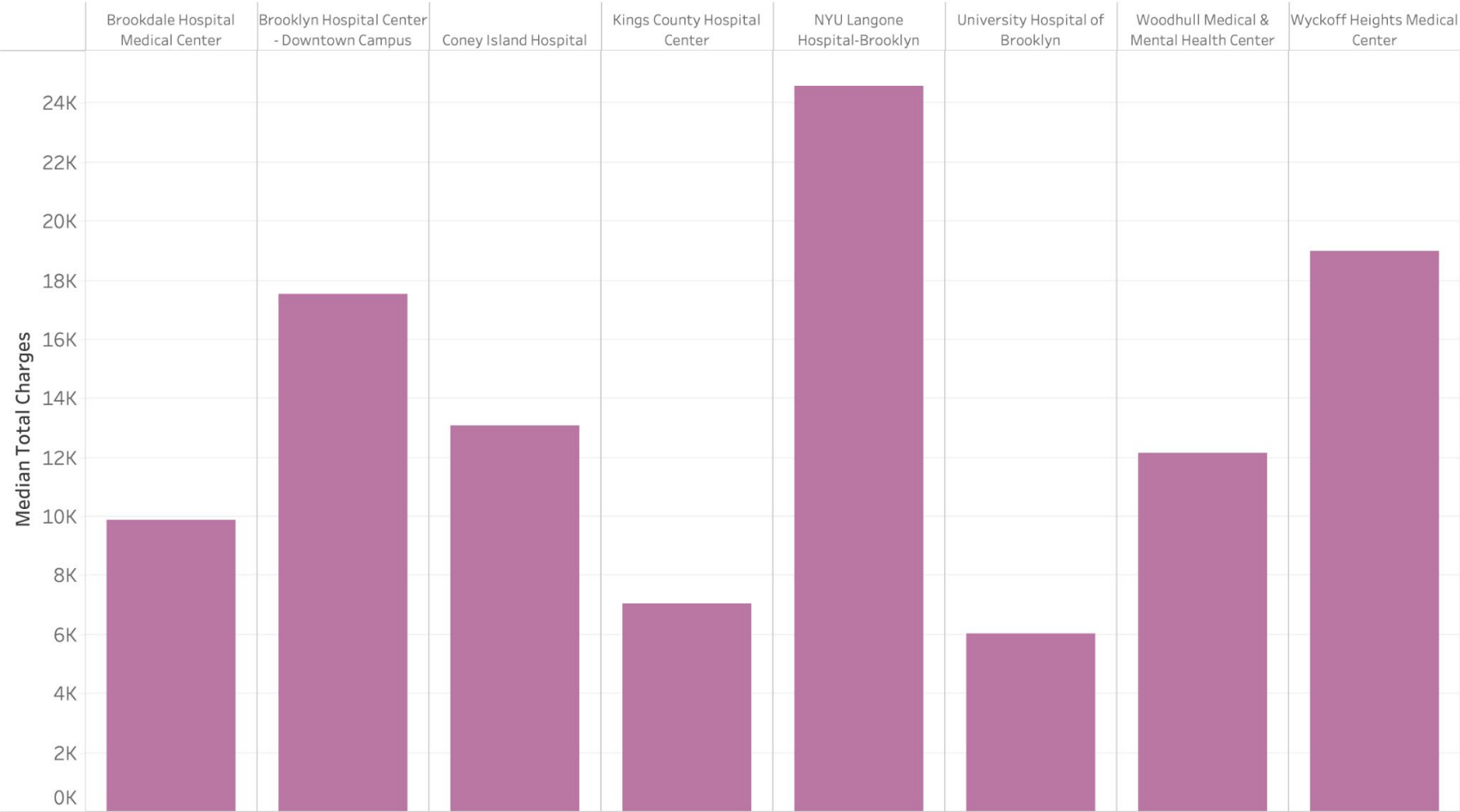




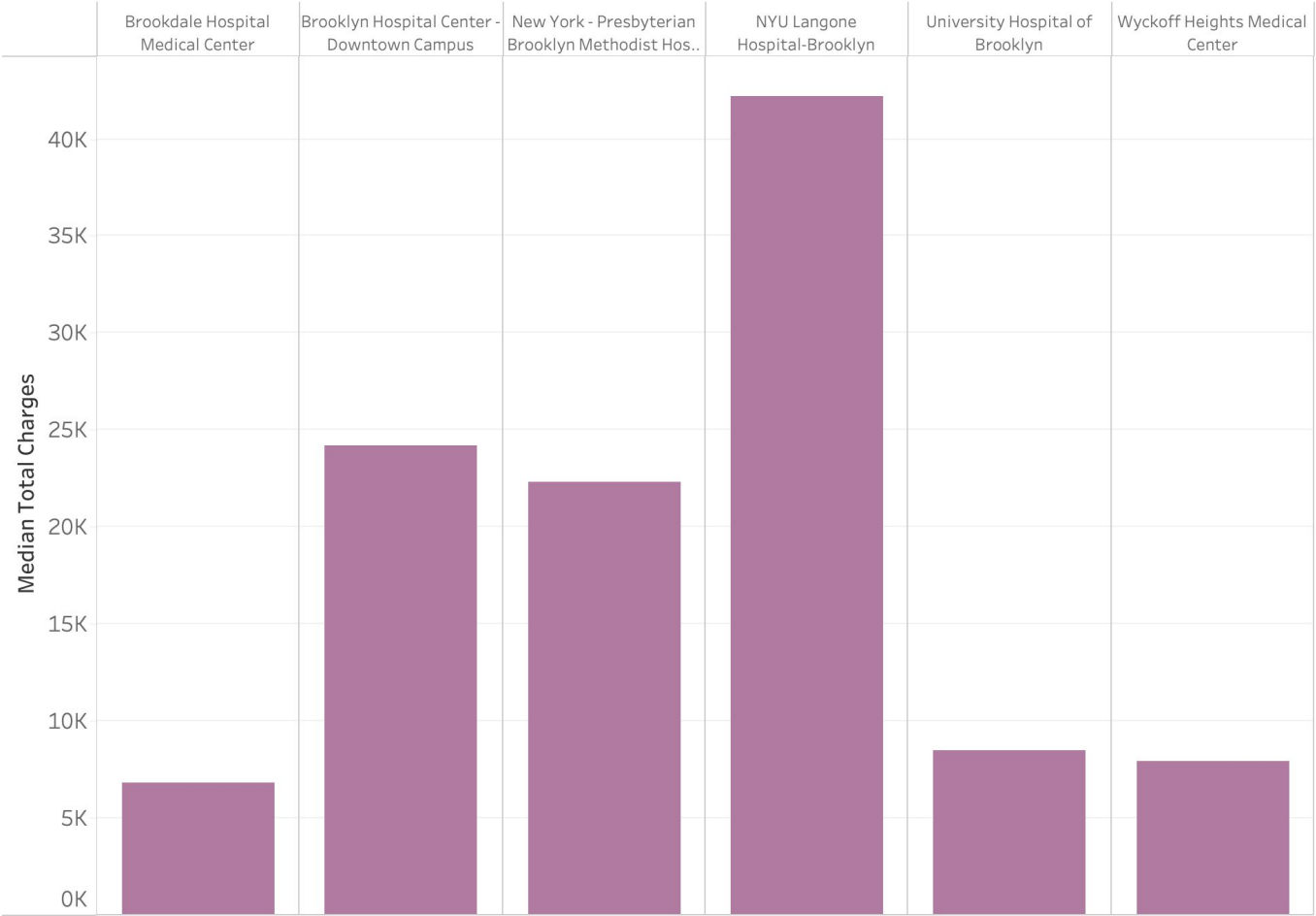
Median Total Charges for Cesarean Delivery in Brooklyn



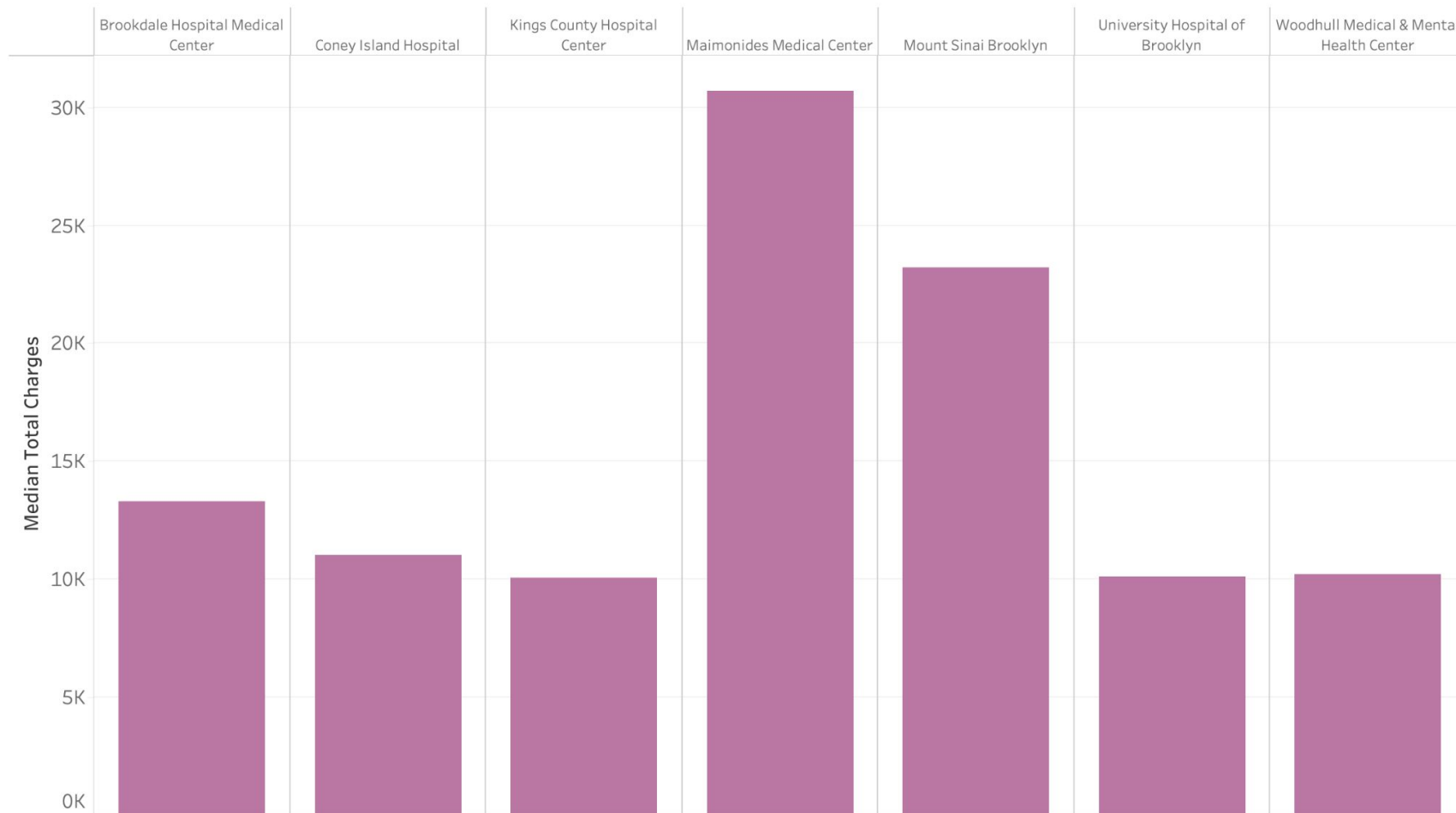
Median Total Charges for Asthma in Brooklyn



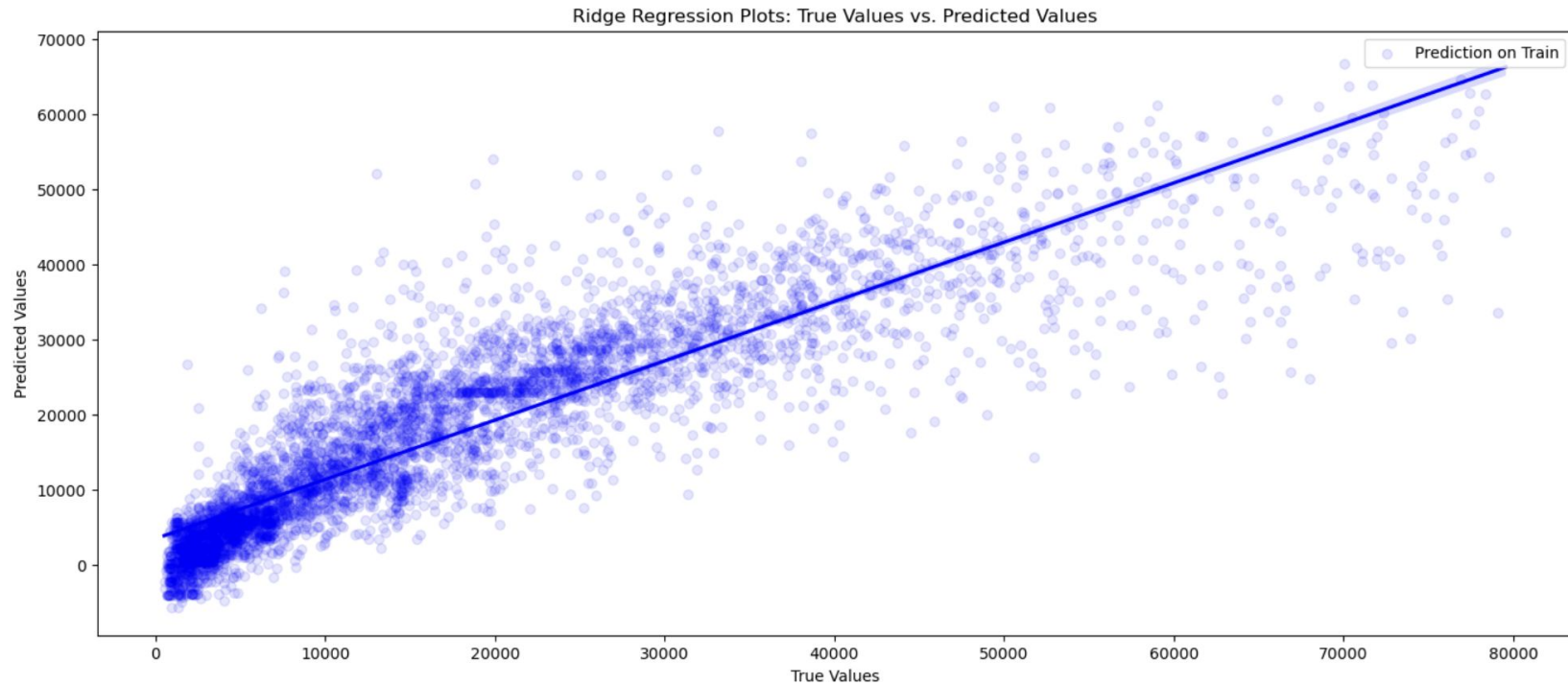
Median Total Charges for URI in Brooklyn



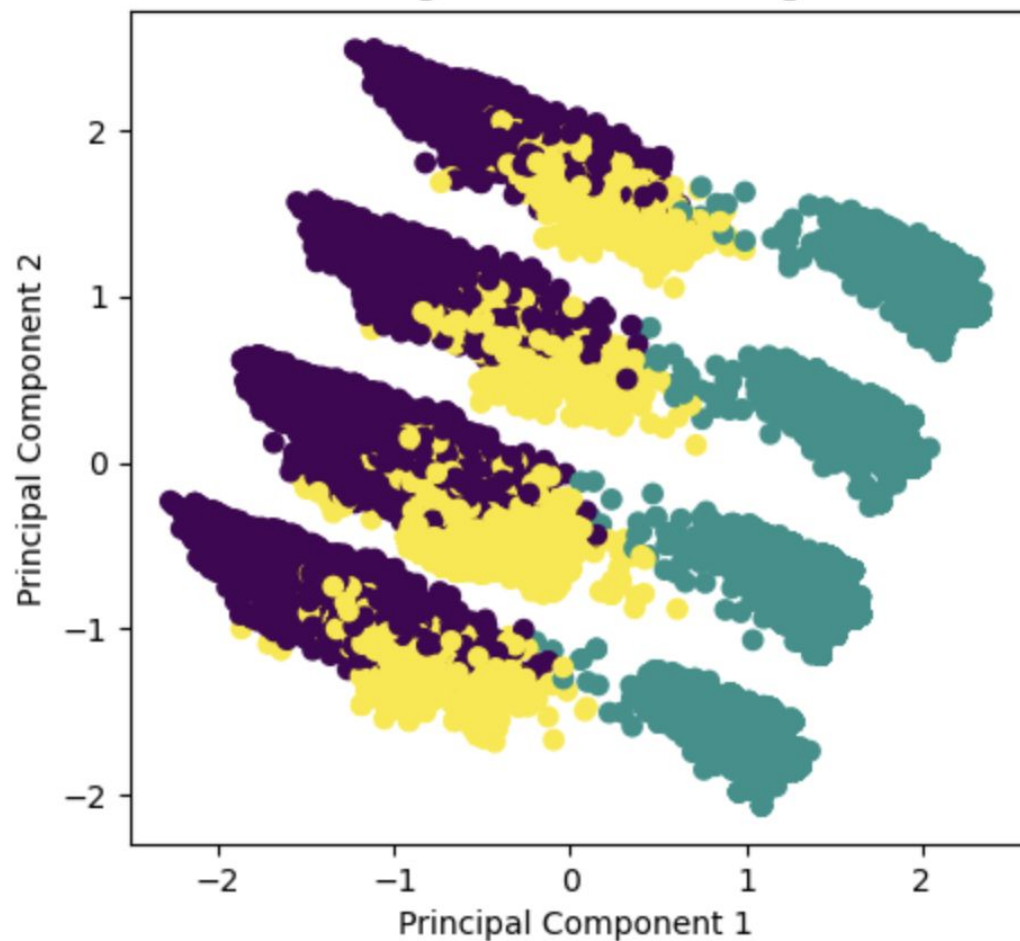
Median Total Charges for Chest Pain in Brooklyn



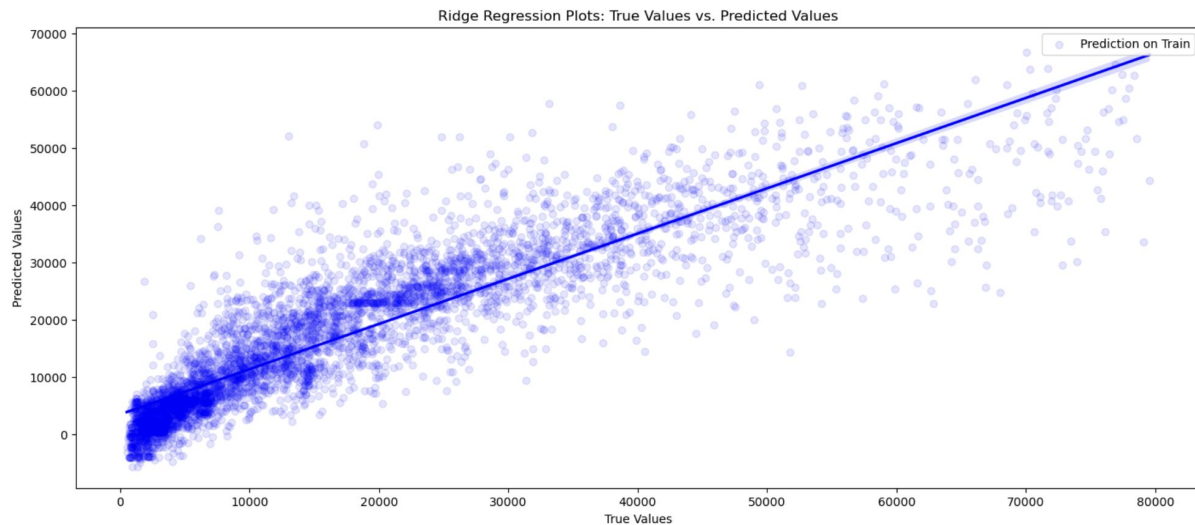
Early Model



Clustering with PCA - Training Data

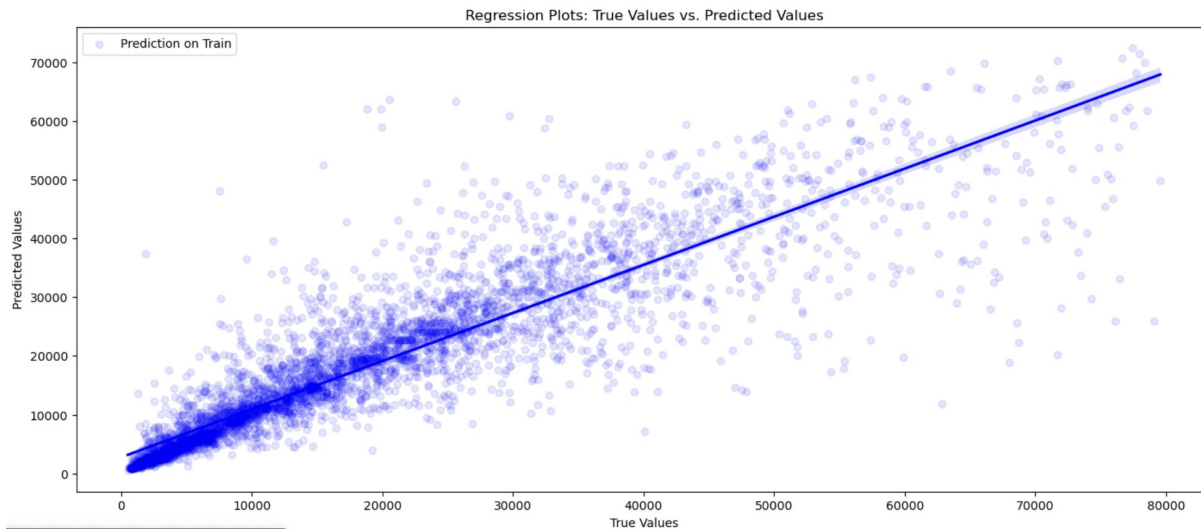


Early Model

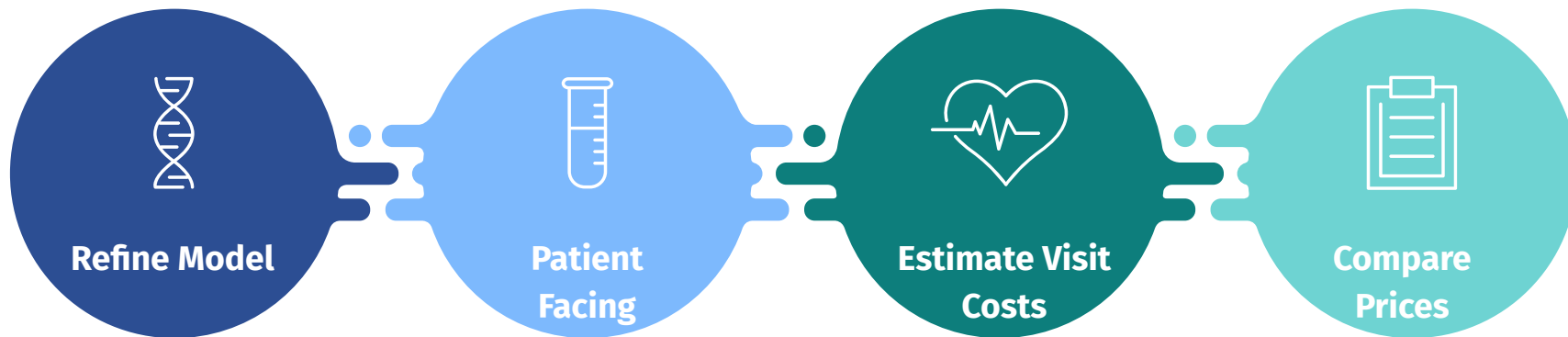


Final Model

R-Square: .82



Next Steps



Questions?