**Title**: Trends and Patterns of Human Papillomavirus Vaccination Rates on Long Island, 2012-2023: An Evaluation of Disparities in Vaccine Uptake

The highlight and contribution of this study can be summarized as follows:

1. We conducted the temporal change of the HPV vaccine coverage among teenagers on Long Island including the COVID-19 pandemic period. The HPV vaccine rate rises from 2012 to 2023 with a slight drop during 2021.
2. We analysis the HPV Vaccine uptake rate and series completeness on Long Island among different demography groups including gender, age, race and ethnicity.
3. We visualized the zip code level geographical spatial patterns of the HPV vaccinated patients on Long Island through 2012 to 2023 and analysis the uneven distribution among different regions.