

Built environment

Demographic

Socioeconomic

Transit

Spatiotemporal patterns of drug activity in Chicago

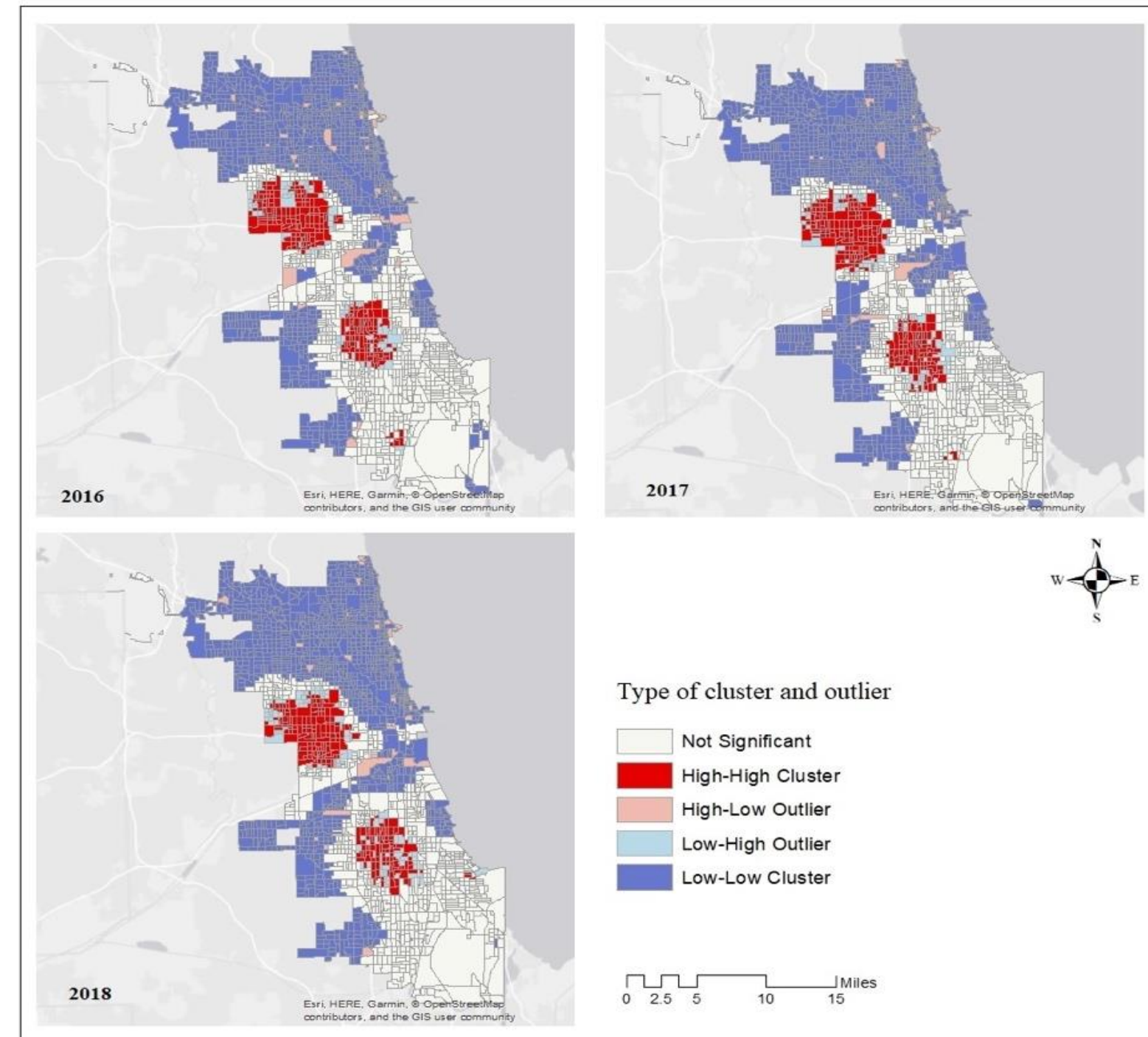
Luna Zhiyue Xia

Background quick go through

Project data overview

Visualization and ESDA

Next steps



Hotspots of drug arrest in Chicago 2016, 2017, 2018

The results from previous research. The spatial patterns of drug arrests will be compared with the spatial patterns of opioid related deaths in this project.

Overview of Medical Examiner Case Archive

mecr_gdf.info()

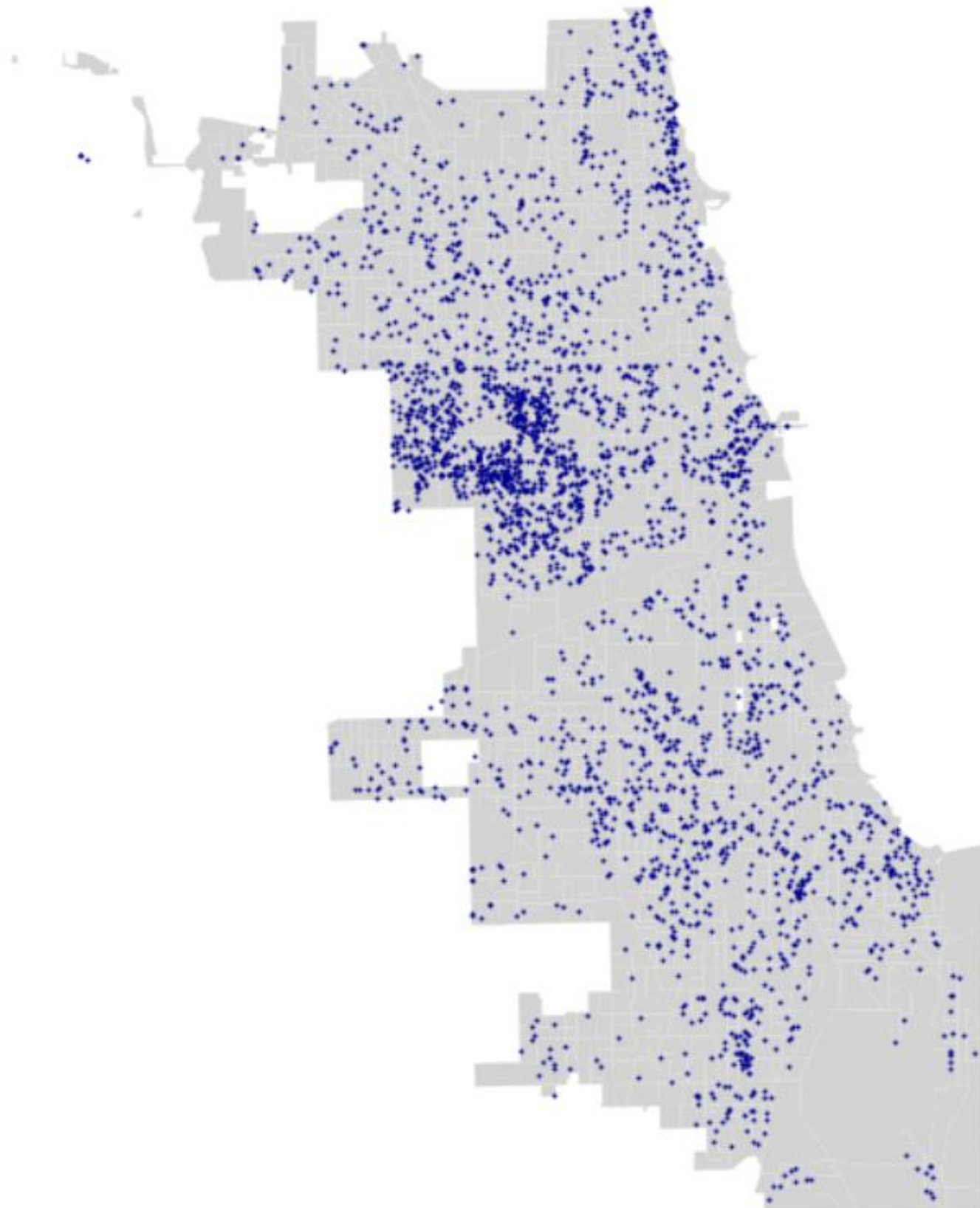
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RangeIndex: 31102 entries, 0 to 31101
Data columns (total 23 columns):
OBJECTID 31102 non-null int64
CASENUMBER 31102 non-null object
INCIDENT_DATE 30887 non-null object
INCIDENT_STREET 30853 non-null object
INCIDENT_CITY 30180 non-null object
DEATH_DATE 31053 non-null object
AGE 30876 non-null float64
GENDER 30958 non-null object
RACE 30915 non-null object
LATINO 31102 non-null object
MANNER 30857 non-null object
PRIMARYCAUSE 31063 non-null object
PRIMARYCAUSE_LINEB 540 non-null object
PRIMARYCAUSE_LINEC 61 non-null object
SECONDARYCAUSE 8397 non-null object
GUNRELATED 4089 non-null object
OPIOIDS 4767 non-null float64
COLD_RELATED 31102 non-null object
HEAT_RELATED 31102 non-null object
INCIDENT_ZIP 30426 non-null object
RESIDENCE_CITY 30024 non-null object
RESIDENCE_ZIP 30119 non-null object
geometry 27668 non-null object
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Primary cause of death

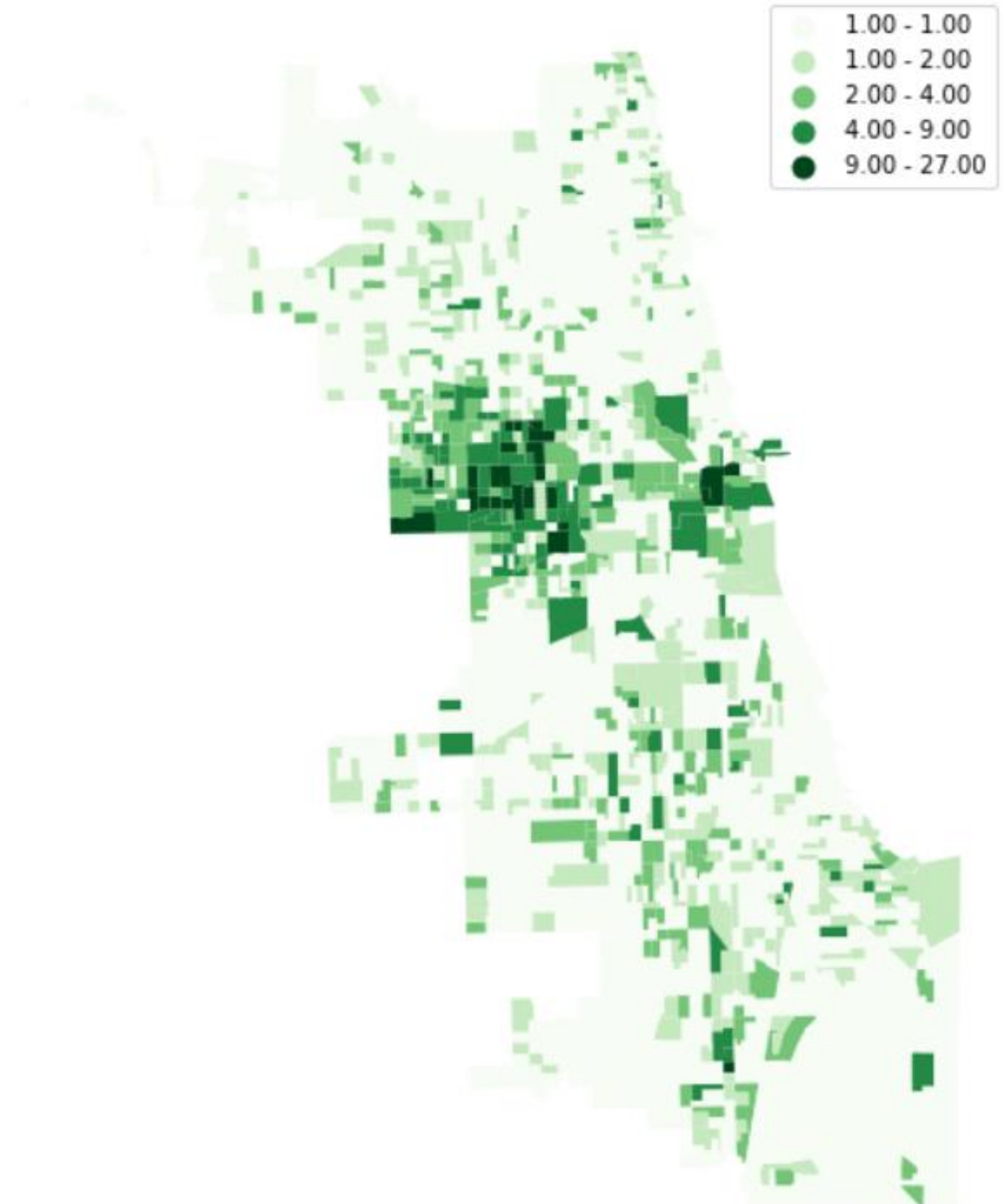
	DEATH_DATE	AGE	GENDER	RACE	LATINO	MANNER	PRIMARYCAUSE
23725	2019-04-08T12:30:00.000Z	57.0	Female	Black	NO	ACCIDENT	FENTANYL AND HEROIN TOXICITY
23204	2016-01-17T20:00:00.000Z	18.0	Female	White	YES	ACCIDENT	ACUTE HEROIN TOXICITY
4558	2015-12-08T10:59:00.000Z	49.0	Male	White	NO	ACCIDENT	HEROIN AND COCAINE INTOXICATION
9233	2017-09-03T14:04:00.000Z	31.0	Male	White	NO	ACCIDENT	COMBINED DRUG (COCAINE, METHAMPHETAMINE, HEROIN, ALPRAZOLAM, N-ETHYL PENTYLONE) TOXICITY
10403	2017-12-09T00:34:00.000Z	52.0	Male	Black	NO	ACCIDENT	COMBINED DRUG (HEROIN, FENTANYL, COCAINE, PSEUDOEPHEDRINE, NORTRIPTYLINE) TOXICITY
27922	2019-01-16T23:27:00.000Z	47.0	Male	White	NO	SUICIDE	ASPHYXIA
7565	2017-02-25T17:21:00.000Z	18.0	Female	White	NO	ACCIDENT	HEROIN AND ALPRAZOLAM TOXICITY
19482	2015-04-06T15:34:00.000Z	45.0	Male	White	NO	ACCIDENT	COMPLICATIONS OF OPIATE INTOXICATION
9023	2017-07-29T11:34:00.000Z	51.0	Male	White	NO	ACCIDENT	COCAINE AND FENTANYL INTOXICATION
24607	2016-03-22T06:50:00.000Z	51.0	Male	Black	NO	ACCIDENT	ACUTE FENTANYL TOXICITY

Visualization

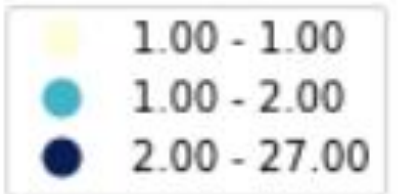
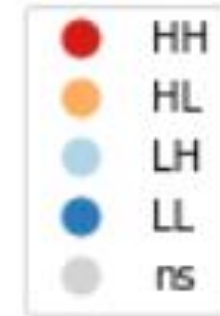
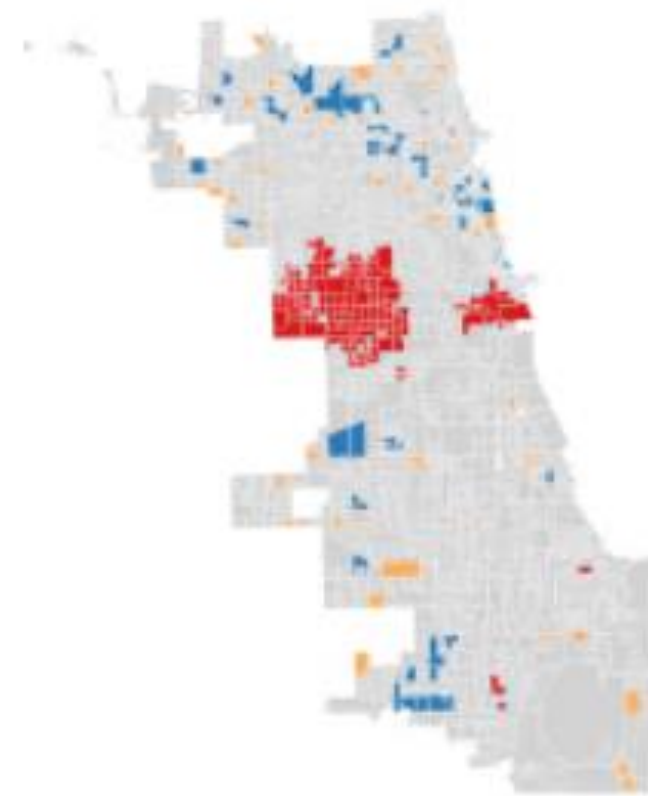
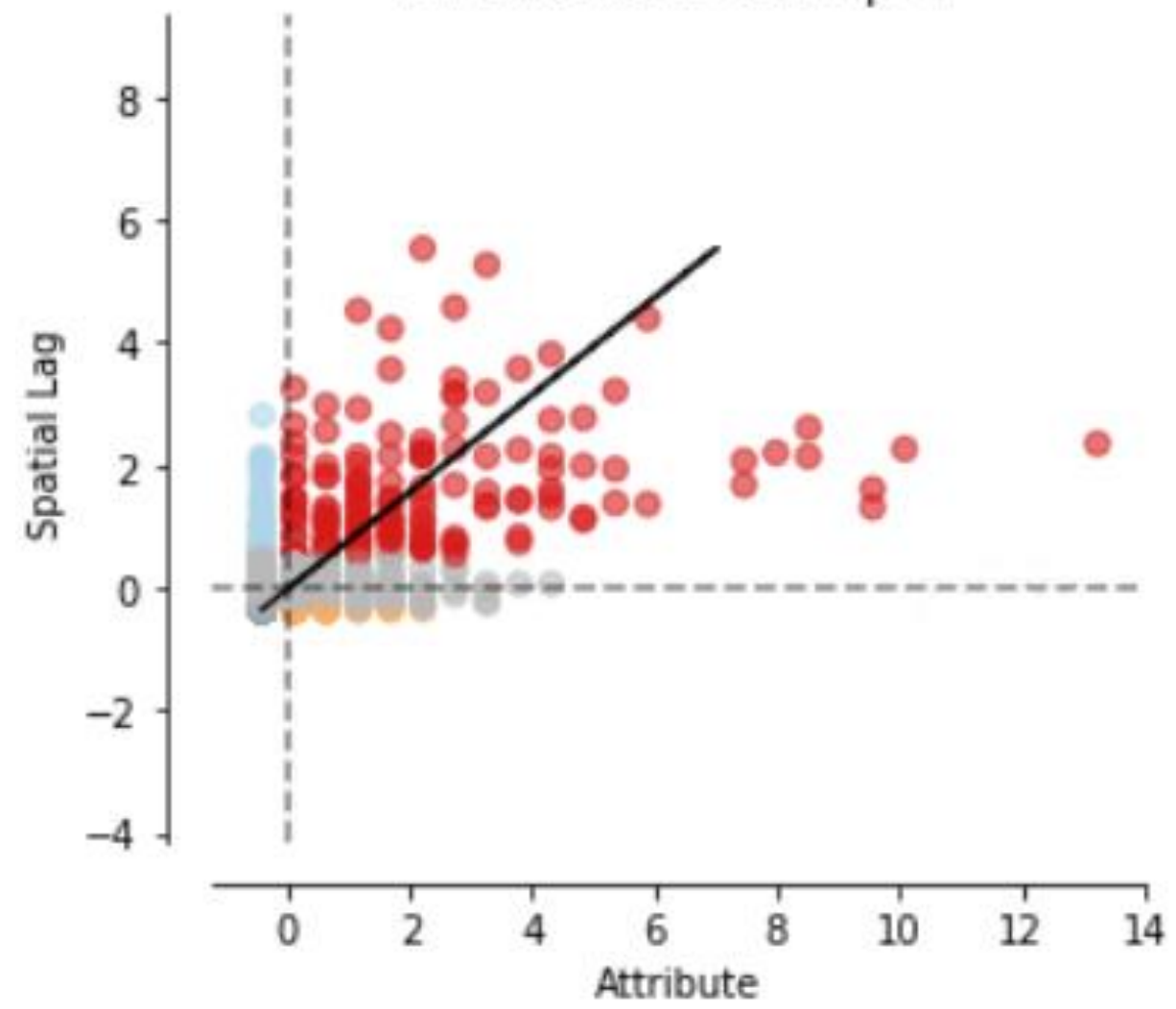
Distribution of opioid related deaths in Chicago from 2014 to present



Choropleth map: number of deaths related to opioids in block groups in Chicago from 2014 to present



Moran Local Scatterplot



Next steps

- Spatial Modeling
- GWR model and MGWR model
- May adding time series analysis
- Investigate the patterns of arrests and death and what drives the differences