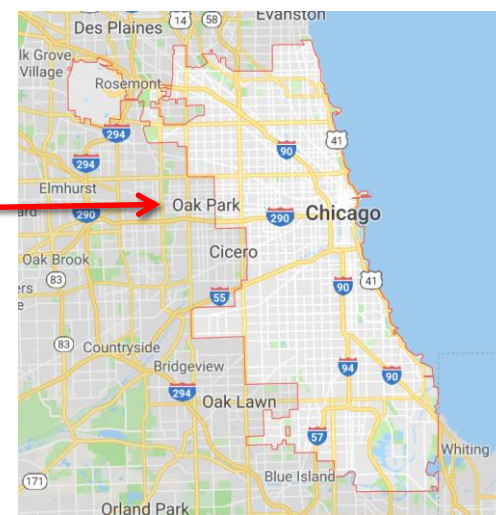
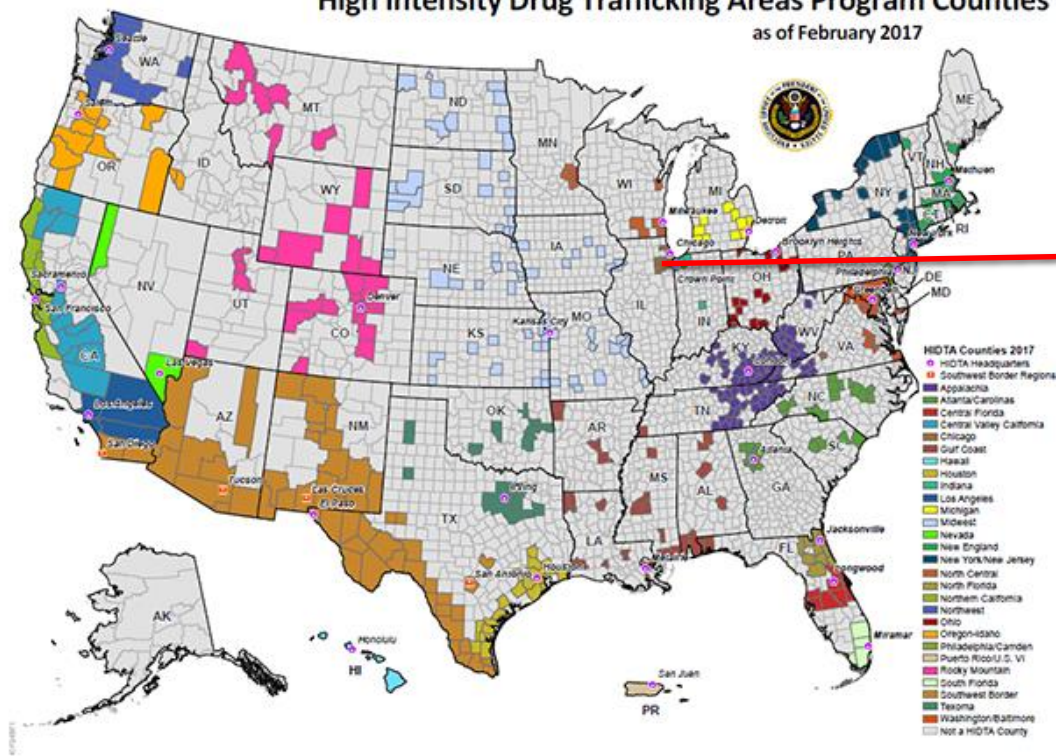


Spatiotemporal patterns of drug activities in U.S. cities

Luna Zhiyue Xia

High Intensity Drug Trafficking Areas Program Counties
as of February 2017

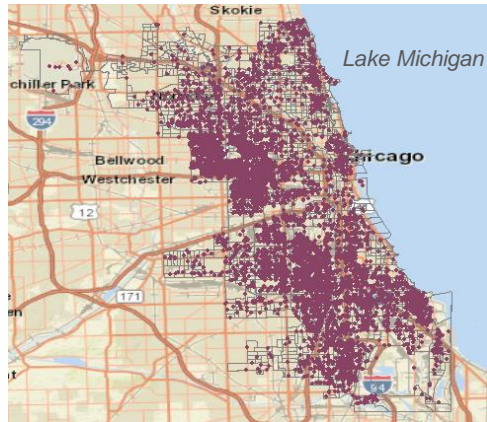


Chicago

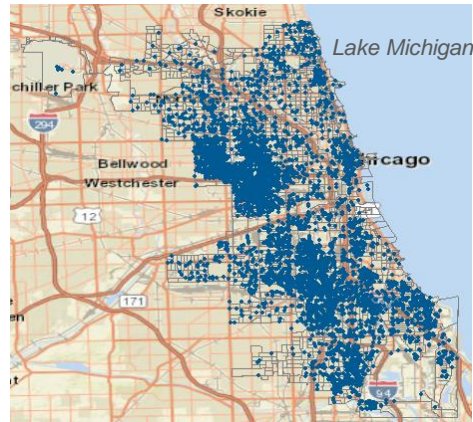
<https://www.dea.gov/hidta>

Background and some accomplished works

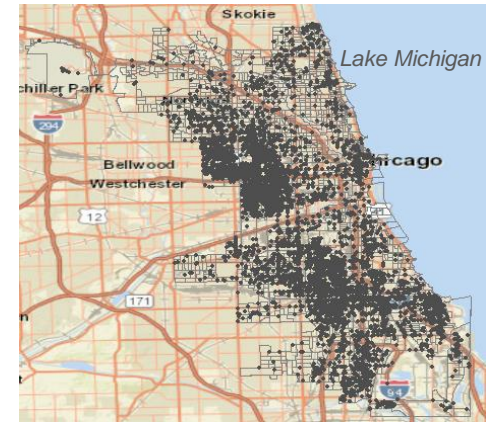
Drug arrests in Chicago for 2016, 2017, and 2018



2016



2017



2018

➤ 37546 drug-related arrests from 2016 – 2018

Year	2016	2017	2018
Drug type			
Total drug arrest	13261	11486	12799

Data sources:

Drug arrest data from Chicago Data Portal

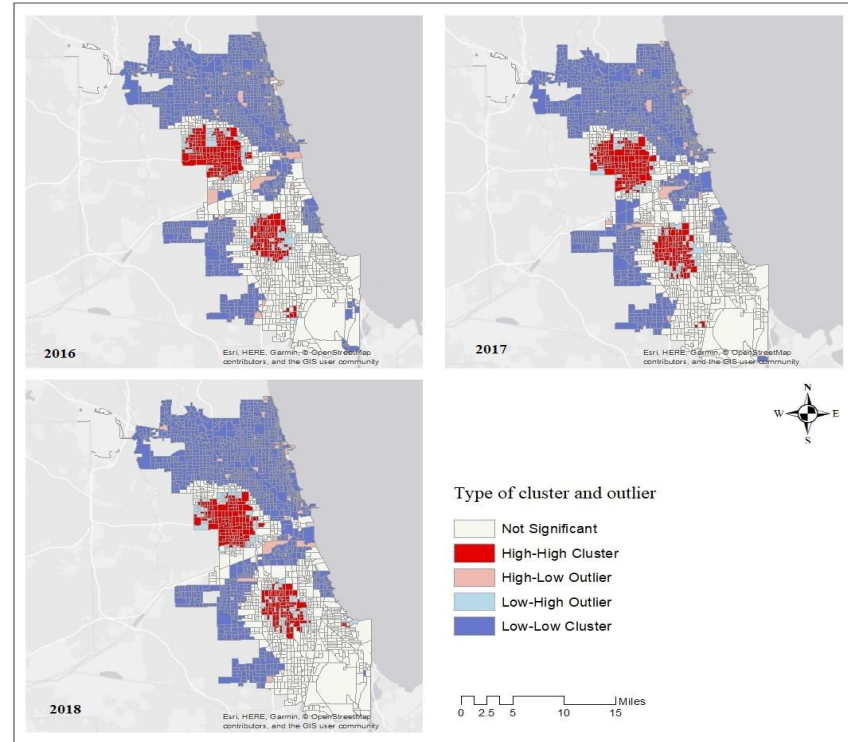
Background and some accomplished works

Hotspots of drug arrests in Chicago for 2016, 2017 and 2018

Moran's I spatial clustering

Two major hotspot locations for arrests are revealed in the city

Based on all drug-related arrests

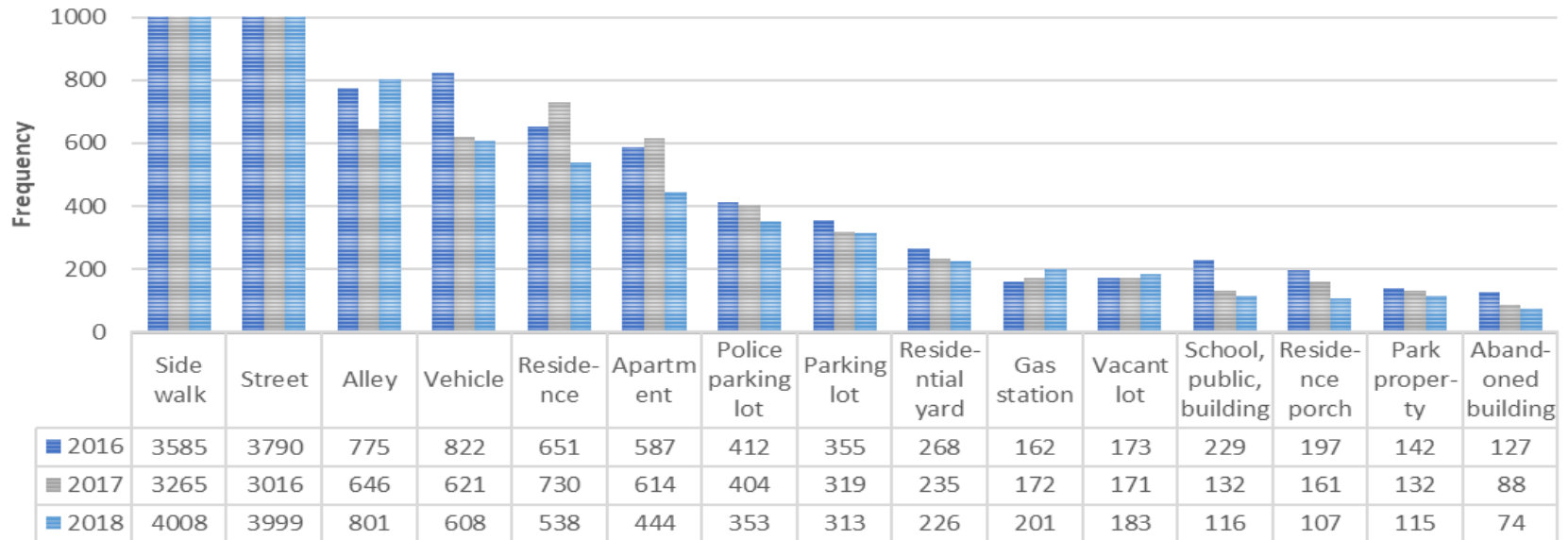


Drug arrest location analysis

Most frequent drug arrest locations (2016, 2017 and 2018) in Chicago

5 key locations: alleys, parking lots, vacant lots, abandoned buildings, and gas stations.

Key Locations of Drug Arrests in Chicago



Background and some accomplished works

Selected variables of analysis

	Variables	Descriptive variables
Economic	Income	Median household income, Number of household with income below poverty level...
	Employment	Total employment, Full time employment, Percent of population that is working aged...
Demographic	Education	Population of Bachelor's degree or higher...
	Race	White population, black population, Asian population, Hispanic or Latino population...
Built environment	Drug activity key location	Vacant building, vacant lot, gas station, alley, parking lot
	Urban design	Road network density, Street intersection density...
Transit	Transit distance	Distance from population weighted centroid to nearest transit stop, Proportion of employment within ¼ mile to transit stop....
	Access to workers	Jobs within 45 minutes auto travel time, Working age population within 45 minutes auto travel time...

Data sources:

EPA Smart Location and U.S. Census 2016 ACS 5-year estimate

Data sources of key locations:

Gas Stations: ESRI Business Analyst Server

Vacant Building and Vacant Lots: Chicago Data Portal

Alley: WBEZ, Chicago

Parking Lots: Open Street Map



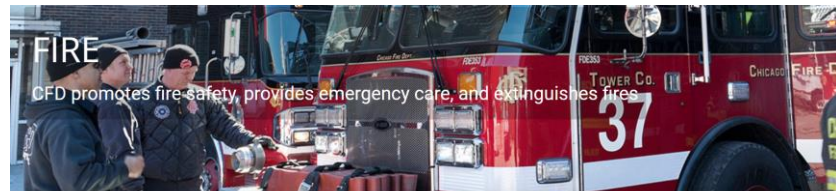
Hypotheses:

- The spatial patterns of drug activities in city areas are significantly clustered
- Drug arrests (which record times and locations) can be used as a proxy of drug activities
- The spatial patterns of drug activities are correlated with built environment, demographic and socioeconomic.

Hypotheses 2:

- ❑ Drug arrests (which record times and locations) can be used as a proxy of drug activities
- Examine spatial patterns of drug arrests, overdoses related death and drug related emergency medical service (EMS)
- Analyze drug activities from three aspects, possession and delivering (drug arrest), related death (Medical Examiner Case Archive) and medical service (EMS).

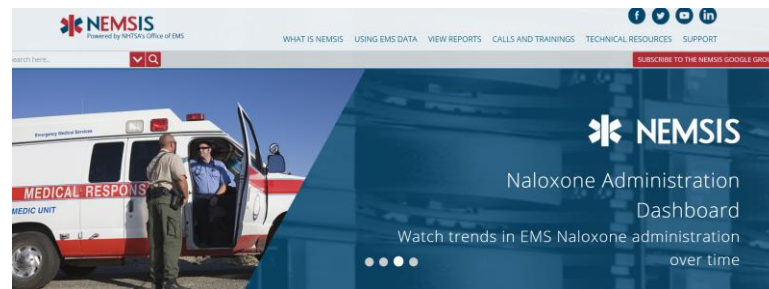
Cook Central Data Applications								
Showing 1 to 10 of 31,102								
OBJECTID	Case Number	Date of Incident	Incident Address	City	Date of Death	Age	Gender	Ra
36603	ME2018-06187	12/30/2018, 6:15 PM	7957 S SOUTH SHORE DR	CHICAGO	12/30/2018, 12:33 PM	61	Male	Black
38379	ME2018-06178		437 N Orleans	CHICAGO	12/29/2018, 10:14 AM			
48783	ME2014-00627	9/21/2014, 6:00 AM	499 E. North Water St.		9/21/2014, 9:50 AM	25	Male	Black
48784	ME2014-00649	9/22/2014, 12:40 PM	1317 PORTLAND		9/22/2014, 12:55 PM	61	Male	Black
48785	ME2014-00712	9/27/2014, 12:58 PM	8759 PELKIN		9/27/2014, 1:10 PM	51	Male	White
48786	ME2014-00792	10/1/2014, 8:00 PM	7750 South Emerald		10/2/2014, 10:15 AM	55	Male	Black
48787	ME2014-00869	10/8/2014, 6:30 AM	11514 south harvard		10/8/2014, 6:35 AM	67	Male	Black
48788	ME2014-00888	10/9/2014, 5:00 AM	2113 WEST 18TH PLACE 2ND FLO...		10/9/2014, 5:33 AM	73	Female	White
48789	ME2014-00890	10/9/2014, 5:00 AM	6826 SOUTH ANTHONY 2ND FLO...		10/9/2014, 7:12 AM	58	Male	Black
48790	ME2014-00894	10/9/2014, 6:25 AM	6632 South Bell		10/9/2014, 7:12 AM	41	Male	Black



DOF Home History of Fire Department

Home / Departments / Fire

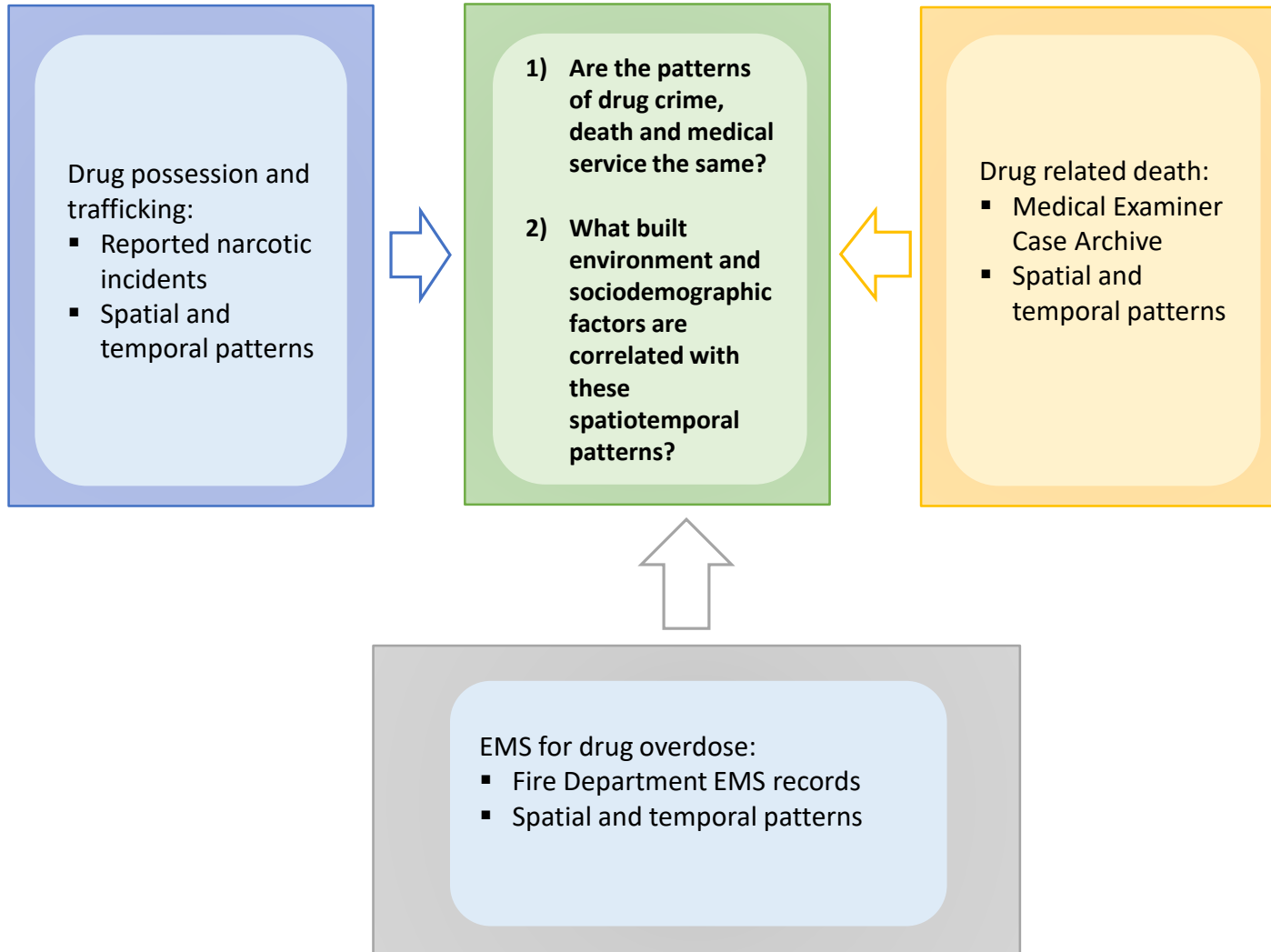
The Chicago Fire Department (CFD) promotes fire safety, provides emergency care, and extinguishes fires. This month, we are highlighting the importance of having a working smoke detector in your home or business. Click on the smoke detector below to learn more.



https://hub-cookcountyil.opendata.arcgis.com/datasets/4f7cc9f13542463c89b2055afd4a6dc1_0/data



Framework of final project



Packages will be used:

Access data:
sodapy (a python client for the Socrata Open Data API)
osmnx
cenpy

Data analysis:
numpy
pandas
geopandas
PySAL
scikit-learn
.....