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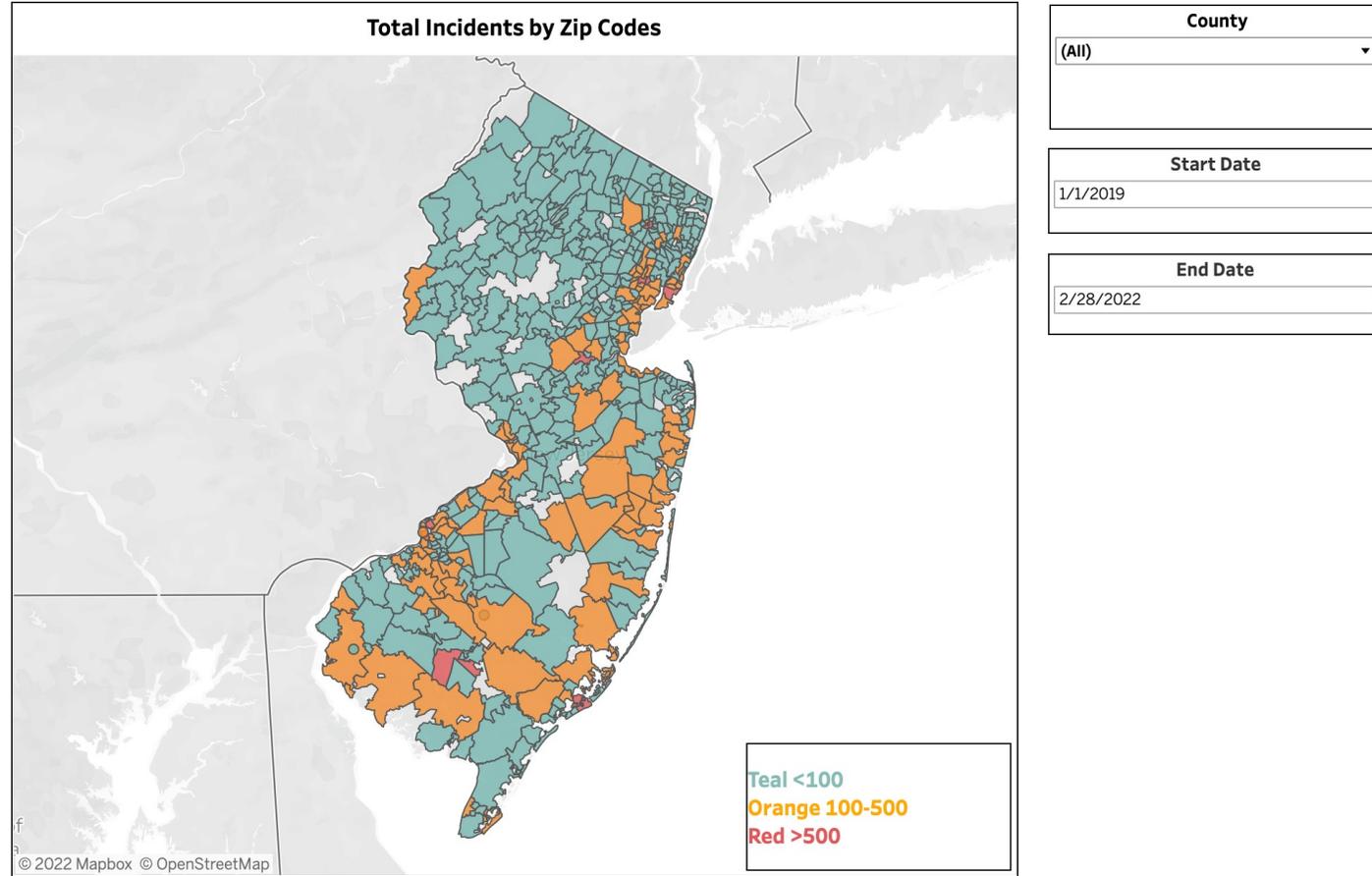
PREDICTING THE VULNERABILITY OF  
NEW JERSEY COMMUNITIES TO  
OPIATE OVERDOSES USING  
**PEOPLE, PLACES & THINGS:**  
A SPATIAL RISK MODELING APPROACH

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# Mapping The Opiate Crisis in New Jersey

Naloxone (Narcan®) Incidents (2019 - 2022)



Note: Zip codes with less than 5 incidents were suppressed  
Zip codes in grey either have no data or have incidents less than 5

Figure adapted from [https://www.state.nj.us/health/populationhealth/opioid/opioid\\_naloxone.shtml](https://www.state.nj.us/health/populationhealth/opioid/opioid_naloxone.shtml)

# Better Policies Create Better Data

## The OLD paper-based process

(redacted public record, released under OPRA)

NJ Attorney General's Heroin & Opiates Task Force Naloxone Administration Reporting Form Ocean County	
Police Department: Manchester Twp. PD	Case #: M18-17862
Date of Overdose: 08 /01 /2018	Time of Overdose: 12 :36 AM <input type="checkbox"/> PM <input type="checkbox"/>
Location where overdose occurred: (Street address, city, zip)	Victim address: (Street address, city, county, state, zip)
Victim Full Name: [REDACTED]	Victim DOB: [REDACTED] Victim Cell: [REDACTED]
Victim previously administered naloxone: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	If yes, how many times?: 1
Victim Gender: <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown	Victim Age: 33
Victim Race: <input type="checkbox"/> White <input type="checkbox"/> Black <input checked="" type="checkbox"/> Hispanic <input type="checkbox"/> Asian/Indian <input type="checkbox"/> American Indian <input type="checkbox"/> Pacific Islander	
Details of Naloxone Administration	
Administered by: <input checked="" type="checkbox"/> LE / Doses: 1 <input type="checkbox"/> EMS / Doses: 1 <input type="checkbox"/> Fire Dept. / Doses: <input type="checkbox"/> Other / Doses: <input type="checkbox"/>	
Did Naloxone work: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk	Did the person live: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk
If yes, how long did it take to work: <input type="checkbox"/> <1 min <input type="checkbox"/> 1-3 min <input type="checkbox"/> 3-5 min <input checked="" type="checkbox"/> >5 min <input type="checkbox"/> Don't Know	
Suspected Drugs Involved (check all that apply)	
<input checked="" type="checkbox"/> Heroin <input type="checkbox"/> Any other opioid <input type="checkbox"/> Cocaine / Crack <input type="checkbox"/> Suboxone <input type="checkbox"/> Other (specify): <input type="checkbox"/> Alcohol <input type="checkbox"/> Benzos / Barbituates <input type="checkbox"/> Methadone <input type="checkbox"/> Don't Know	
Evidence Information	
Drug 1:	
Drug Form: <input type="checkbox"/> Powder <input type="checkbox"/> Pill <input type="checkbox"/> Liquid <input type="checkbox"/> Other: N/A	Packaging Type: <input type="checkbox"/> Glassine <input type="checkbox"/> Other:
Packaging Color: <input type="checkbox"/> White <input type="checkbox"/> Blue <input type="checkbox"/> Red <input type="checkbox"/> Pink <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Black <input type="checkbox"/> Other:	
Stamp (Text/Color): N/A	Describe Image: N/A
Drug 2:	
Drug Form: <input type="checkbox"/> Powder <input type="checkbox"/> Pill <input type="checkbox"/> Liquid <input type="checkbox"/> Other:	Packaging Type: <input type="checkbox"/> Glassine <input type="checkbox"/> Other:
Packaging Color: <input type="checkbox"/> White <input type="checkbox"/> Blue <input type="checkbox"/> Red <input type="checkbox"/> Pink <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Black <input type="checkbox"/> Other:	
Stamp (Text/Color): N/A	Describe Image: N/A
Pill Brand: N/A	Doctor's Name: N/A
<input type="checkbox"/> Evidence Secured: <input type="checkbox"/> Drugs <input type="checkbox"/> Paraphernalia	Treatment Resources Information Provided: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Notes / Comments: No CDS or paraphernalia recovered.	
Ptl. T. Chant #411	#411
Officer's Name	Badge
	Date of Report

Please email form to [DMI@gw.njsp.org](mailto:DMI@gw.njsp.org) AND [RBorrelli@co.ocean.nj.us](mailto:RBorrelli@co.ocean.nj.us)  
OR fax to NJROIC (609) 530-3650 AND (732) 506-5088.

Revised: 2/20/2017

## NEW structured data

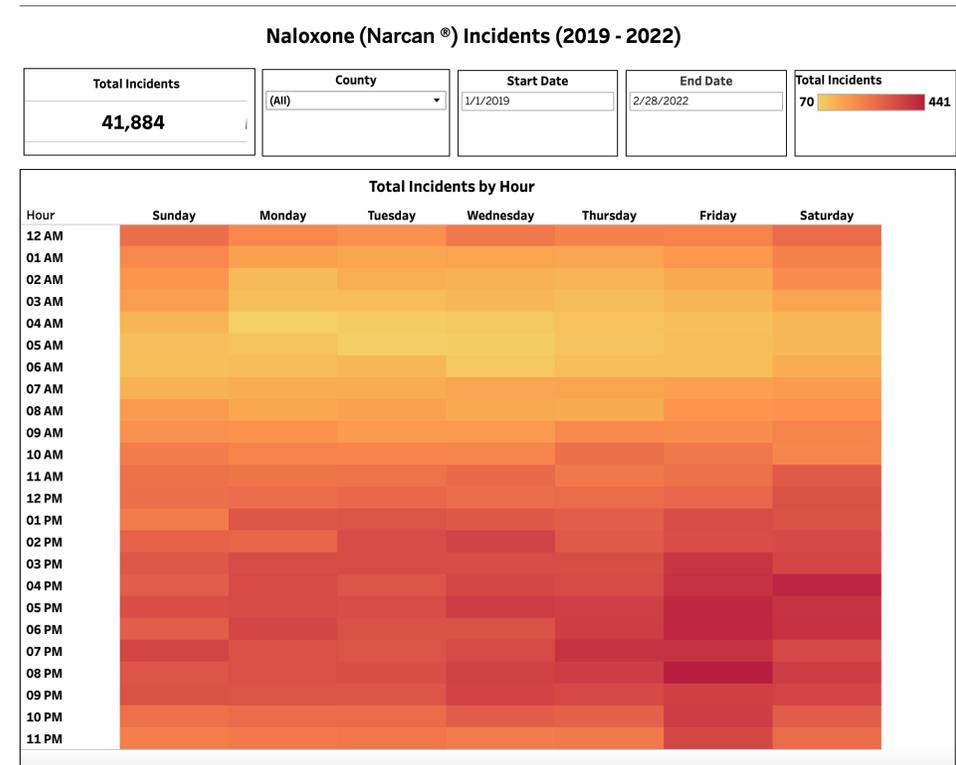
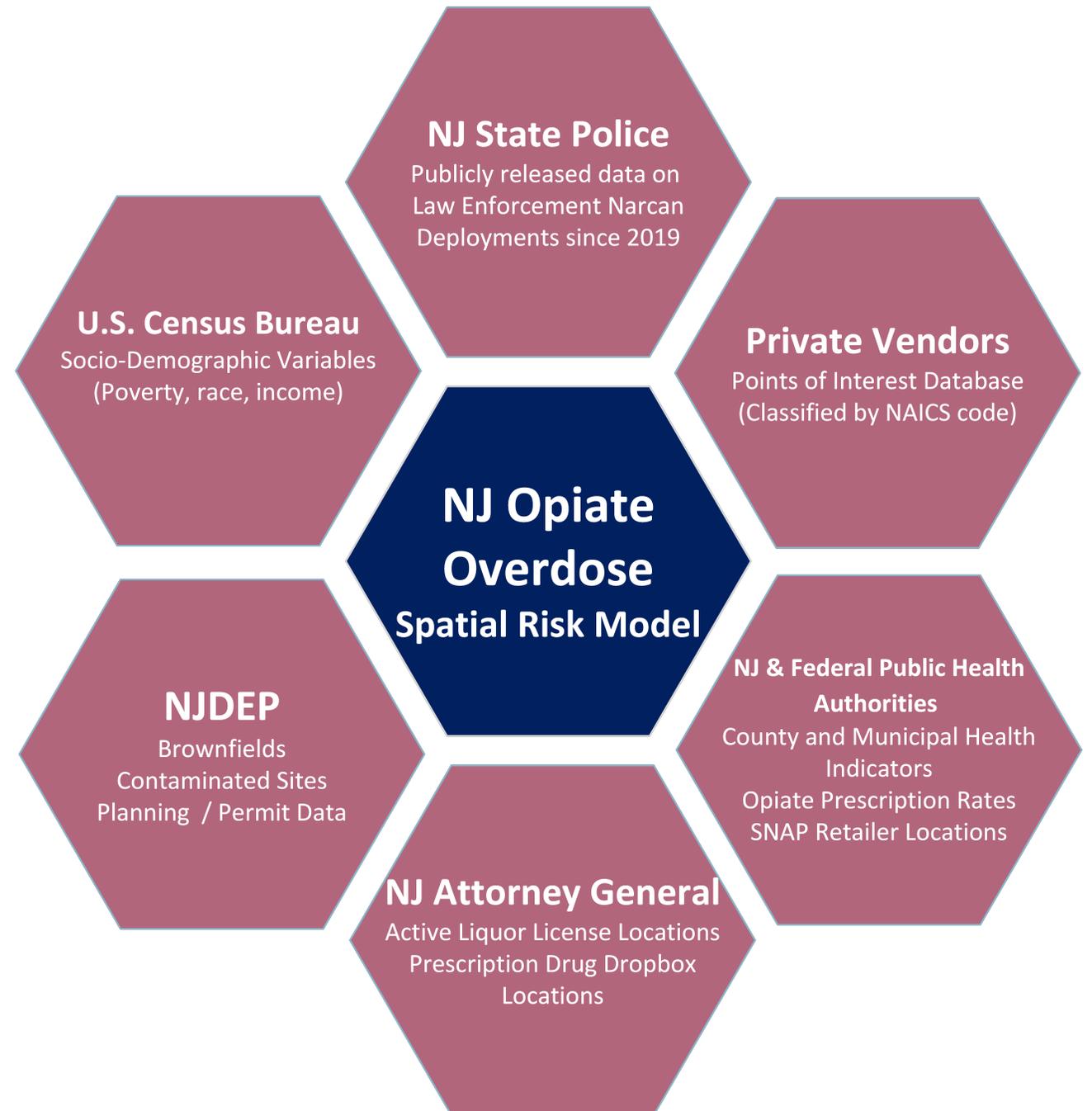
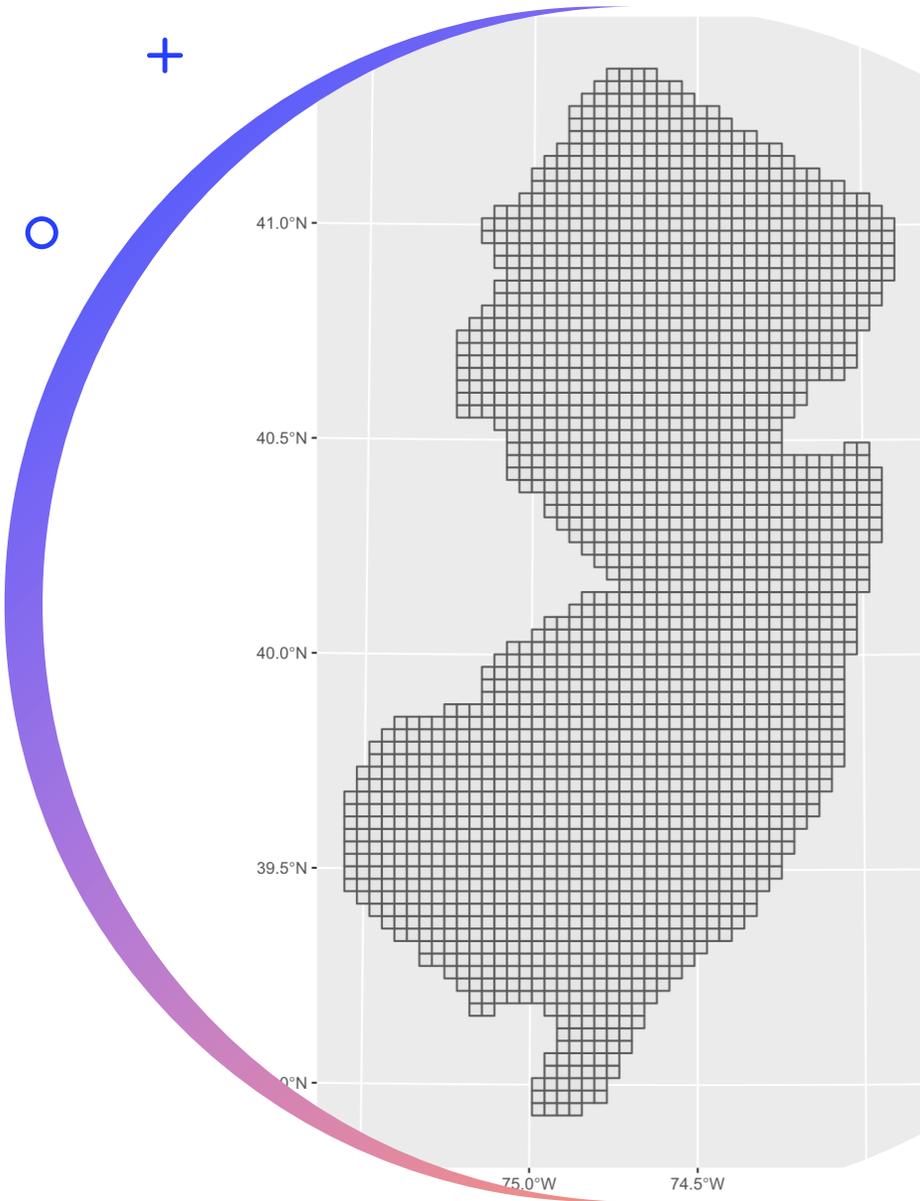


Figure adapted from [https://www.state.nj.us/health/populationhealth/opioid/opioid\\_naloxone.shtml](https://www.state.nj.us/health/populationhealth/opioid/opioid_naloxone.shtml)

# The Planned Data Infrastructure

- Blends together state agency, federal and private-sector data
- Data is spatially joined to each cell in the fishnet and counted.
- Additional feature engineering / cleaning is then performed
- The count of each class of POI / feature in the cell is used to model areas vulnerable to opiate overdoses by predicting the count of law enforcement Naloxone deployments in an area.





# People, Places & Things

- Spatial risk modeling examines the relationship between built environment, Census socio-demographics to model an outcome of interest
- Commonly seen in so-called “predictive policing algorithms
- Limitations include quality / bias of data collection process
- Only accounts for confirmed law enforcement deployments, doesn't differentiate between fatal / nonfatal overdoses or anything not covered by the AG data reporting directive.



# What's Next

- Full integration of data for 2019 – 2021
- Development of final model, feature engineering and parameters
- Release of data with results on an interactive dashboard
- Release of reports detailing findings

# Acknowledgements



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