

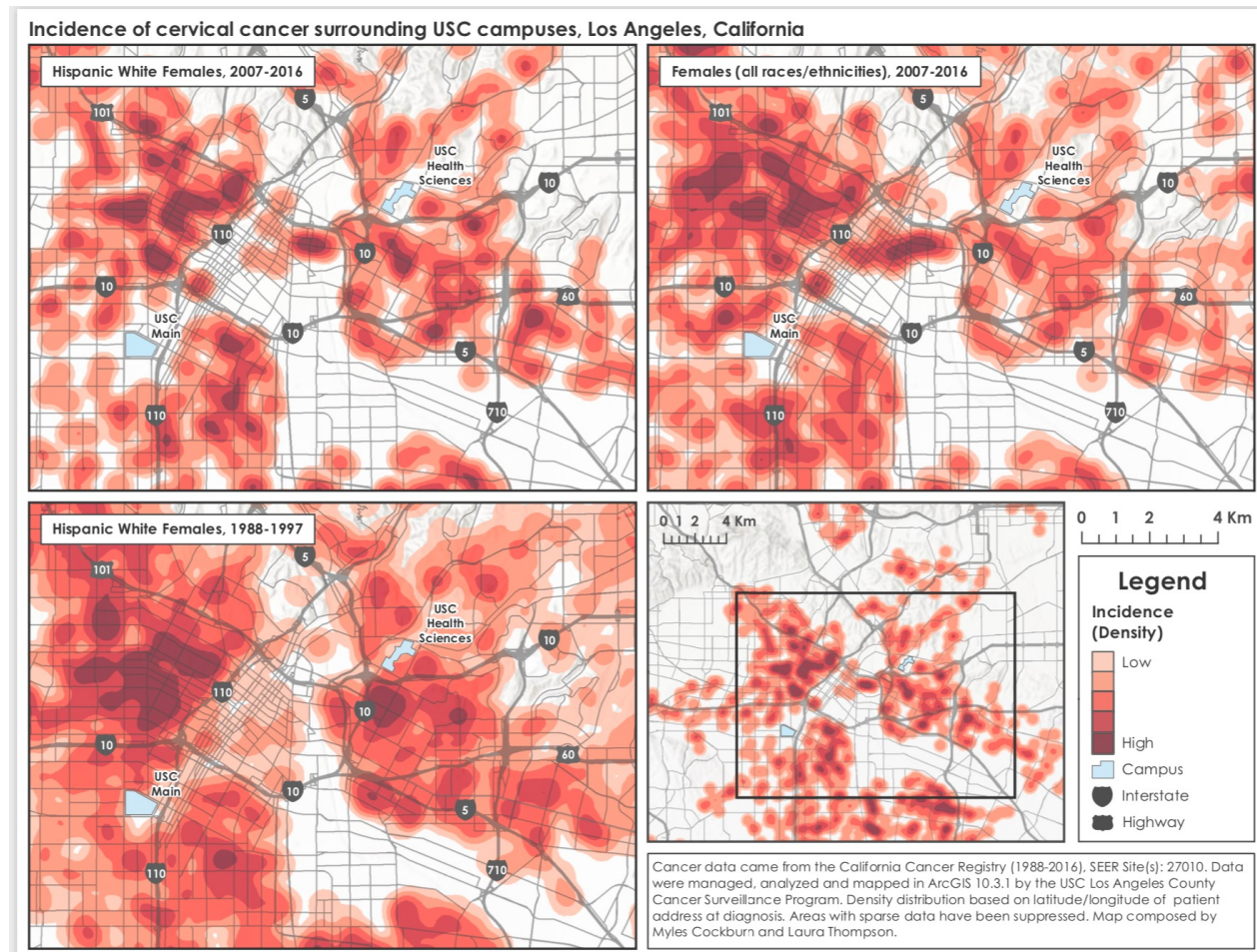
Cool geospatial approaches to cancer control

Myles Cockburn (and many others)

Norris Comprehensive Cancer Center

California Cancer Registry data:

- 1990 – current
- Lat/long of diagnosis address
- Residential histories being “built”
- Expansive tumor and sociodemographic characteristics



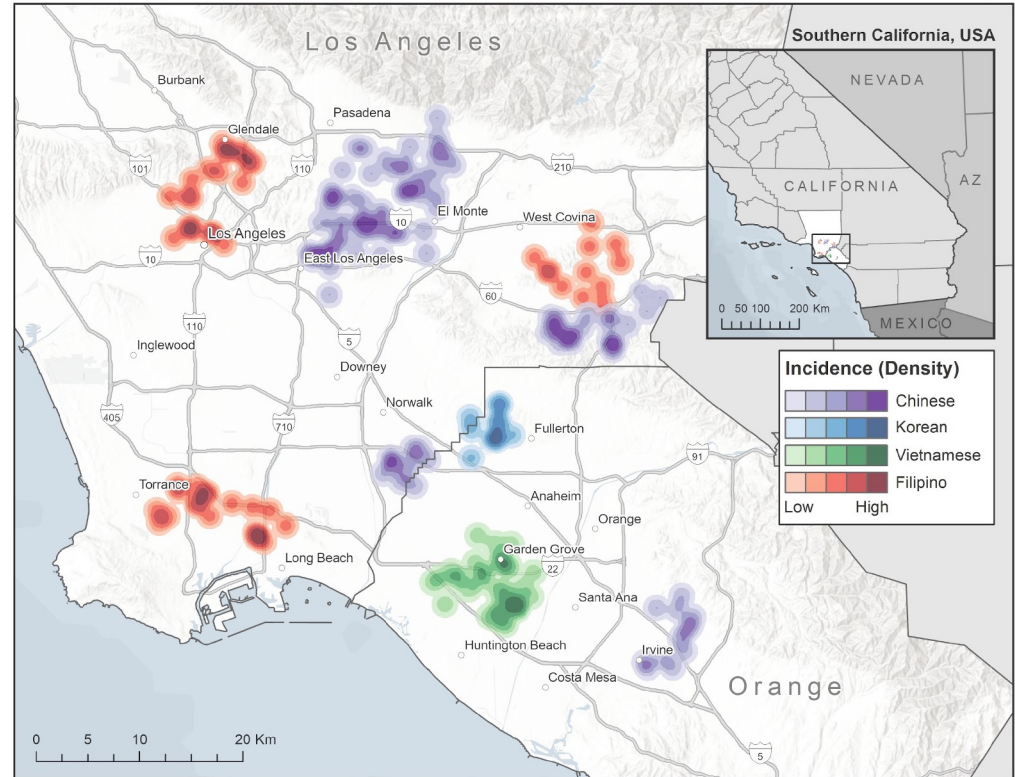
Exploration of the potential impact of “enclave” among Asian/Asian American Childhood Cancer Survivors

Study: Individual, cultural, and area-based factors associated with survivorship care among Asian/Asian American childhood cancer survivors

PI: Kimberly Miller, PhD

Funding: 1R01CA261888-01

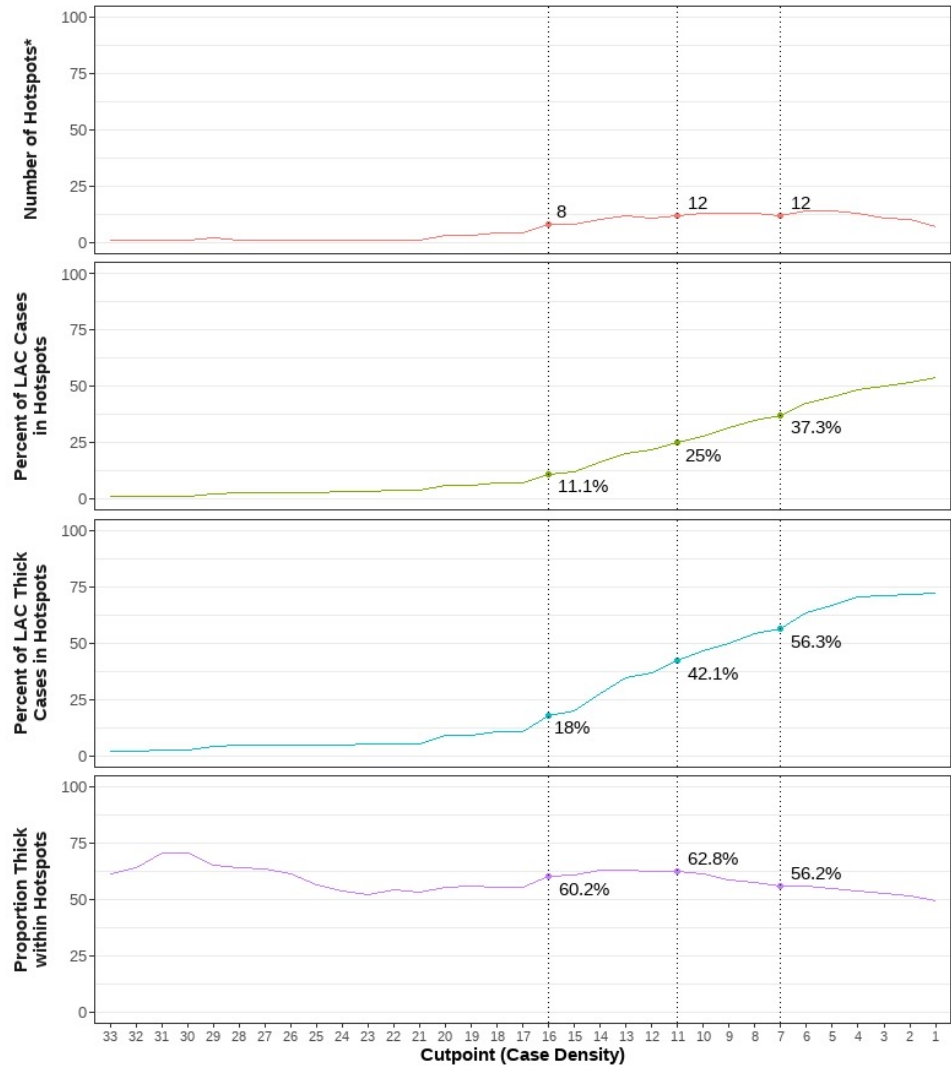
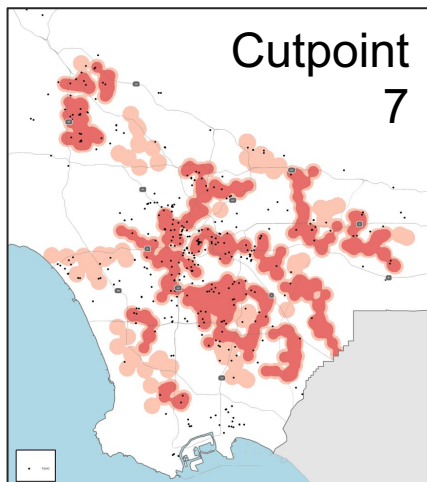
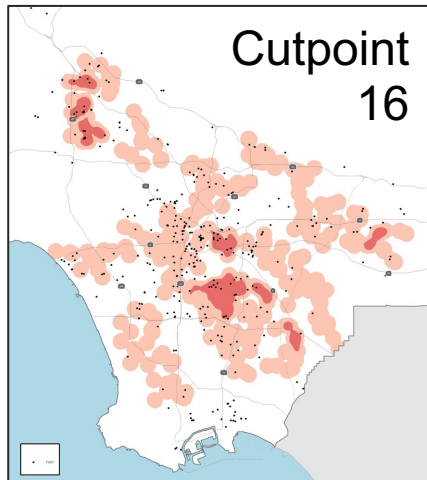
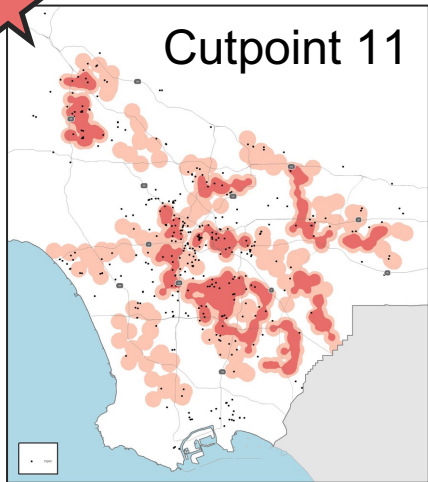
Incidence (density) of CCS cancers among Asian subgroups in Los Angeles and Orange Counties, California (1991-2018)



Cancer data came from the California Cancer Registry (1991-2018). SEER Site(s): All Sites. In situ cases were excluded for all sites and Stage I cases were excluded from all sites except for Brain and Central Nervous System (SEER Sites: 31010 and 31040). Data were managed, analyzed and mapped in ArcPro 2.6 by the USC Norris Comprehensive Cancer Center Population Research Core. Density distribution based on latitude/longitude of patient address at diagnosis. Areas with sparse data have been suppressed. Source: County layer, US Census Tiger Shapefiles.



Population and Household Characteristics by residence within or outside of a "high density area"	Chinese		Filipino		Korean		Vietnamese	
	In HDA	Outside	In HDA	Outside	In HDA	Outside	In HDA	Outside
Nativity: Foreign-born	46.9%	31.4%	45.1%	33.3%	44.7%	38.2%	47.4%	35.4%
Speaks English 'less than very well' (18-64)	30.9%	17.3%	27.9%	22.5%	34.4%	24.1%	40.7%	25.5%
Speaks English 'less than very well' (65+)	47.1%	27.5%	47.7%	31.8%	38.7%	34.2%	54.9%	35.8%
Education: Less than high school graduate	14.3%	11.1%	17.3%	16.7%	9.1%	11.5%	24.9%	17.5%
Owner occupied dwellings	55.4%	58.4%	45.4%	57.5%	65.2%	55.7%	52.1%	58.4%
No vehicles available in housing unit	4.5%	5.8%	10.3%	4.8%	3.3%	6.4%	6.2%	4.7%

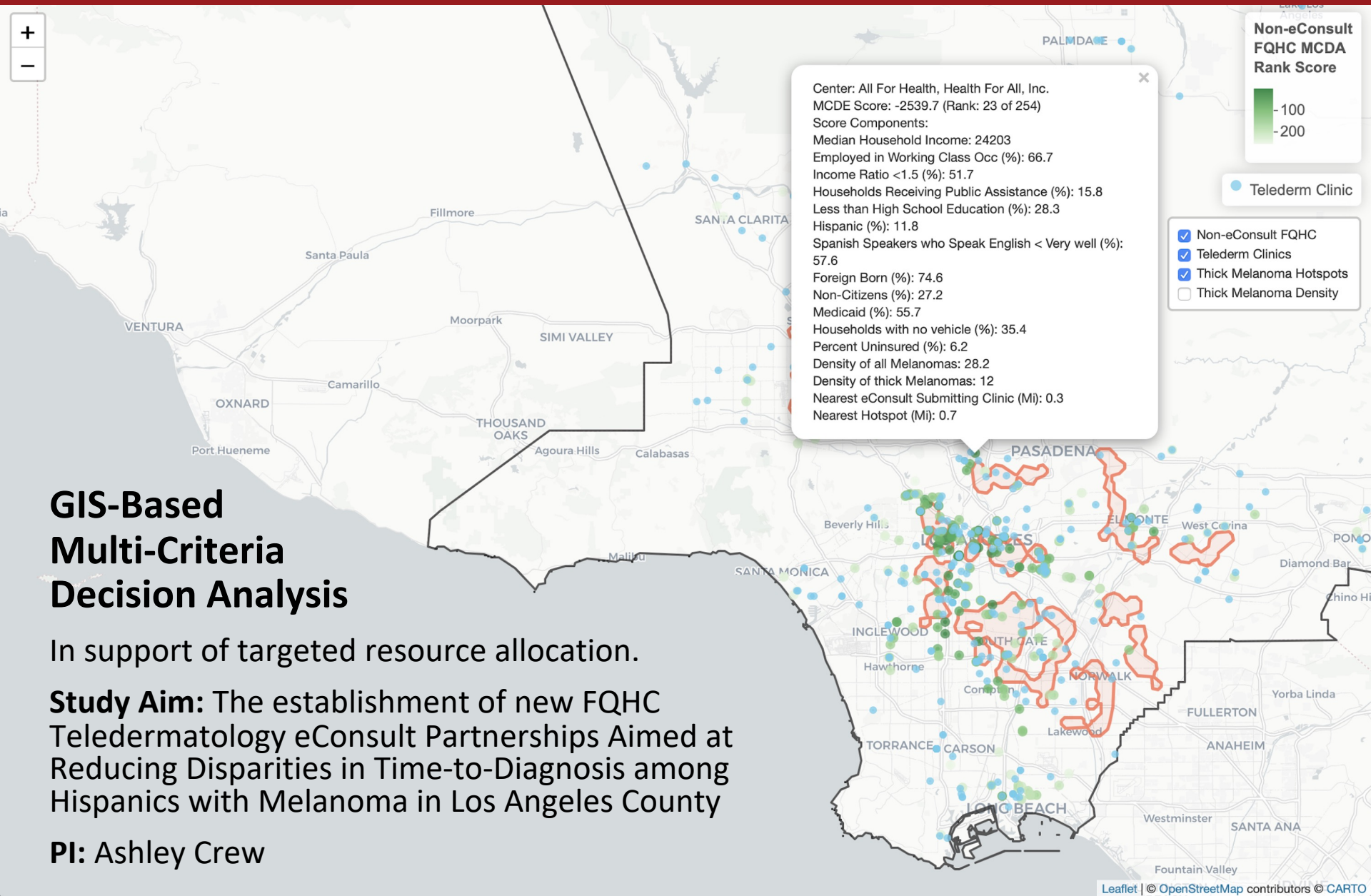


GIS-Based Multi-Criteria Decision Analysis

In support of targeted resource allocation.

Study Aim: The establishment of new FQHC
Teledermatology eConsult Partnerships Aimed at
Reducing Disparities in Time-to-Diagnosis among
Hispanics with Melanoma in Los Angeles County

PI: Ashley Crew



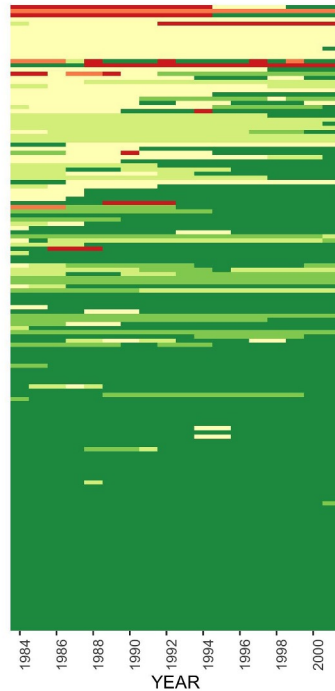
High-Resolution Geocoding (and the implications of getting it wrong)

- Lifetime residential/occupational exposures
- Geocode certainty evaluation

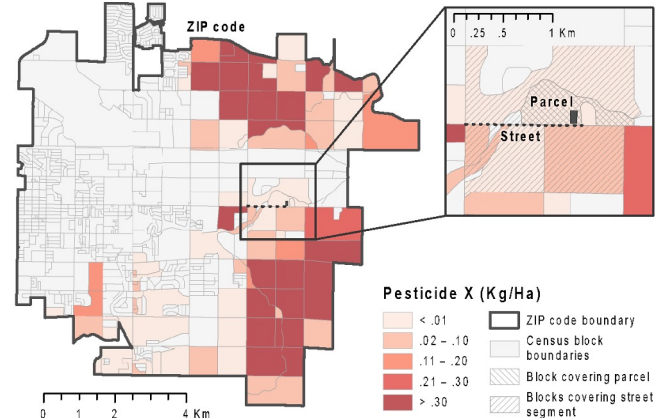
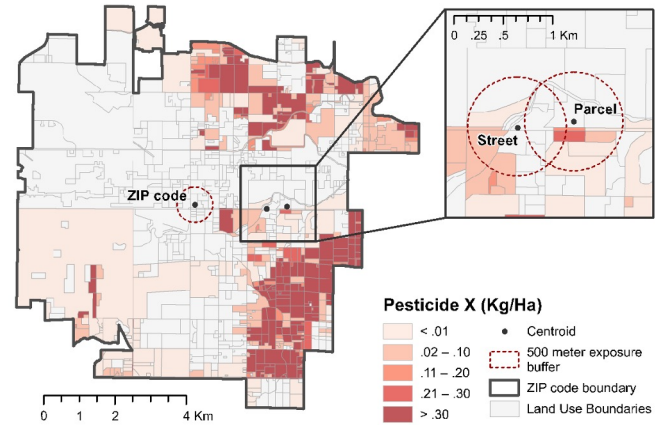
CASES
PARTICIPANT RESIDENTIAL FMGT

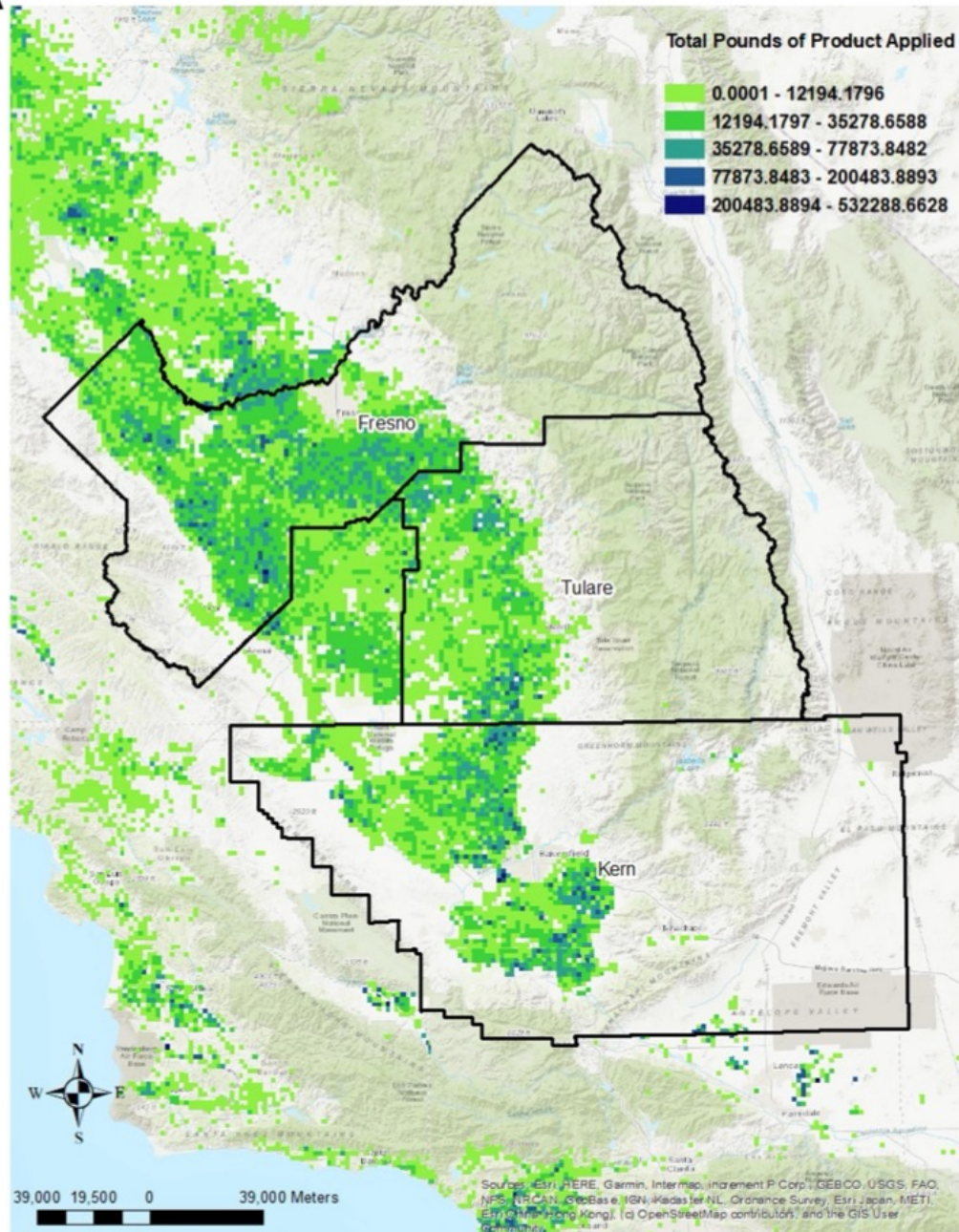


CONTROLS
PARTICIPANT RESIDENTIAL FMGT

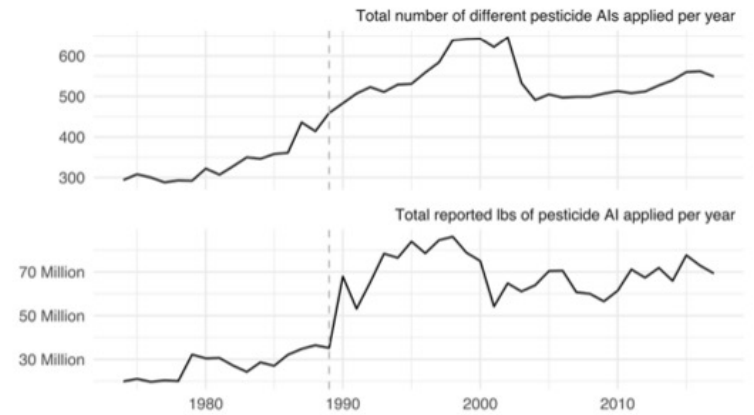


FMGT
Parcel
Street Segment
USPS Zip / ZCTA
City
County SubRegion
County
Unmatchable

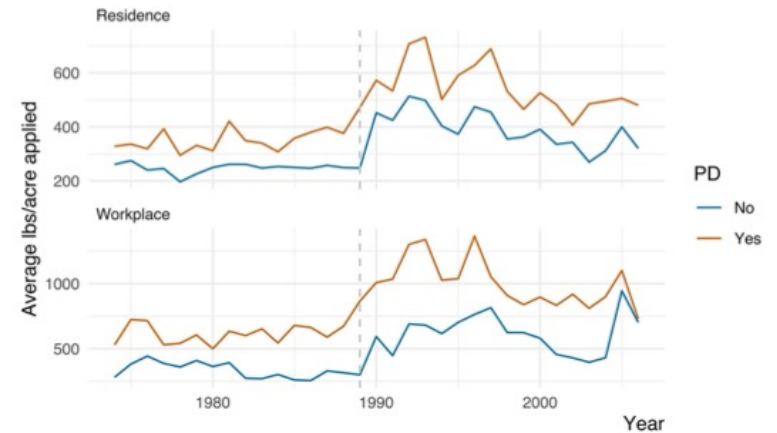


A**B**

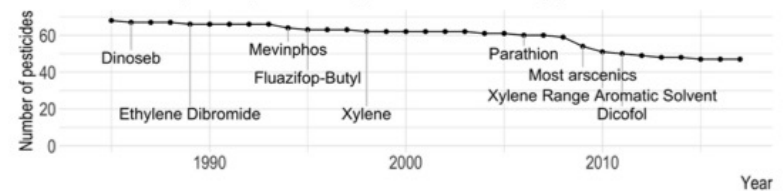
**PUR-Reported Pesticide AI Application Across Tri-Counties
Kern, Fresno, & Tulare; 1974-2017**

**C**

**Average of the total pounds of pesticide AI applied per acre per person
Application within 500m of PEG participants residence and workplace**

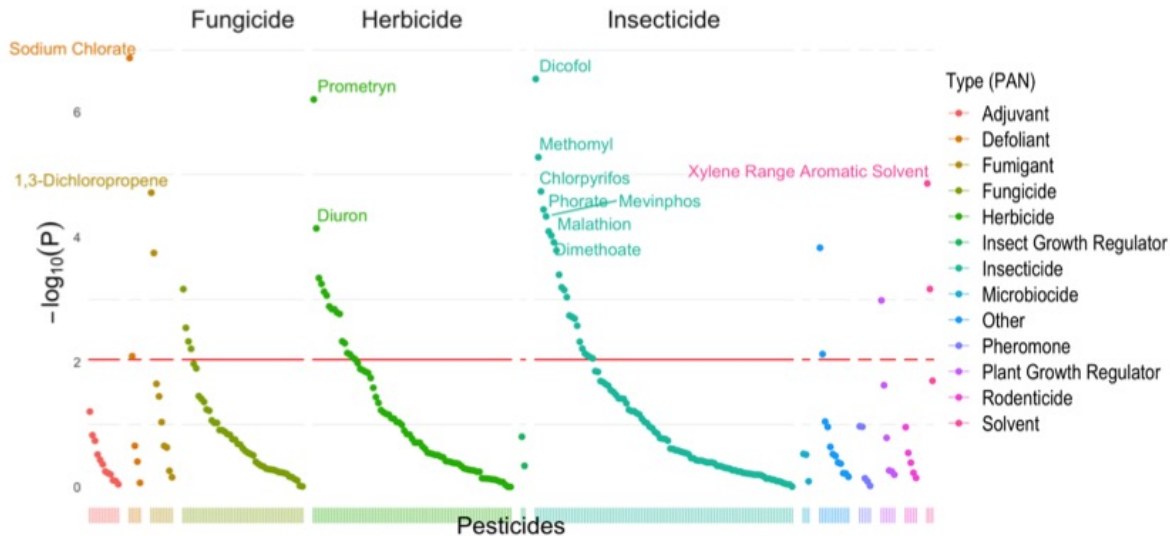
**D**

Number of PWAS-implicated pesticides registered with US EPA by year

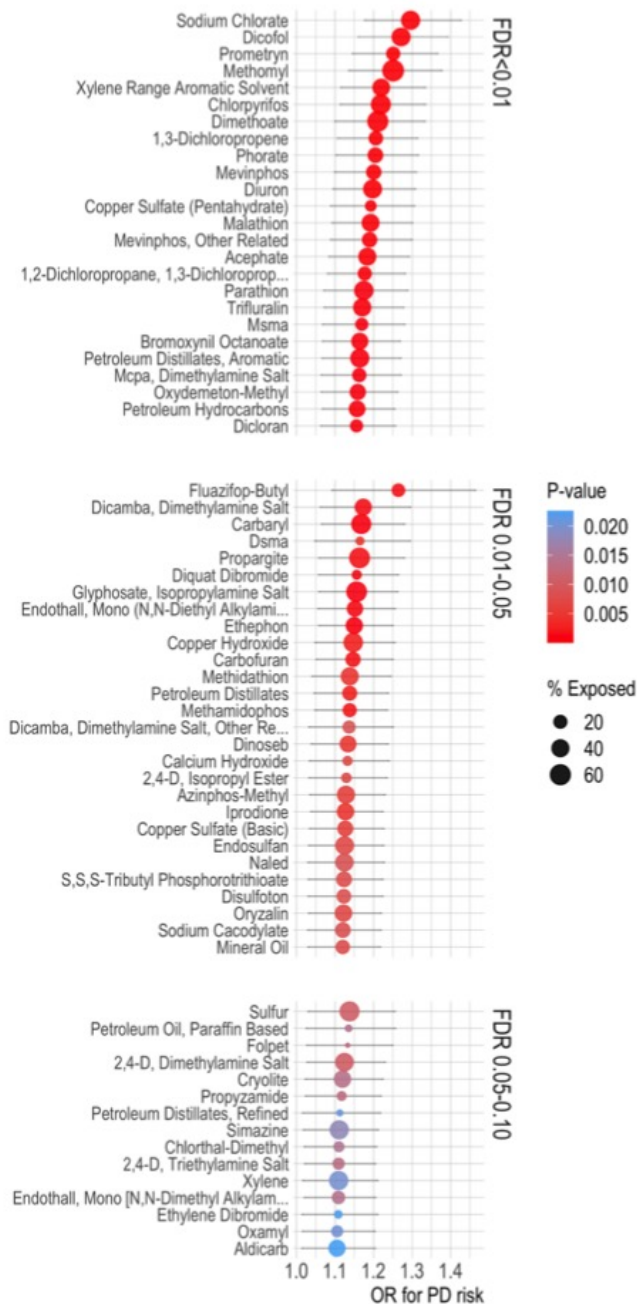


Annotation indicates year the specific pesticide's registration was cancelled or withdrawn
All implicated pesticides were registered prior to 1986

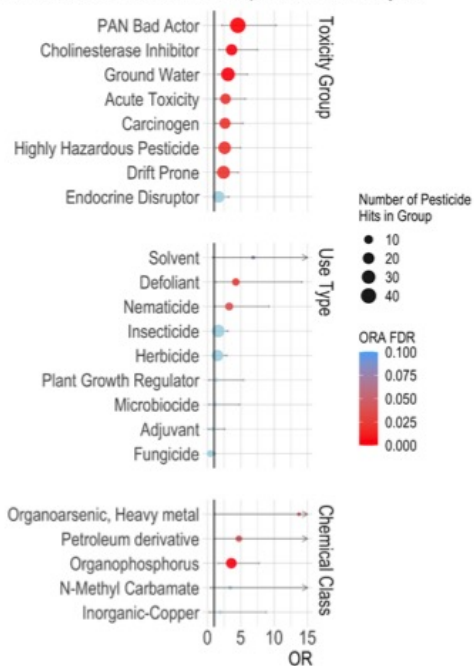
A Pesticides-wide Association Study of PD: Manhattan Plot by Pesticide Type



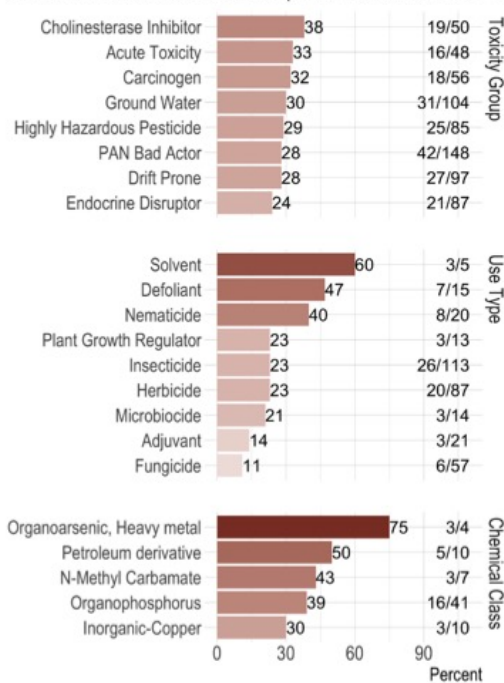
B PWAS: PD and Pesticide Meta Associations



C PD-Associated Pesticide Overrepresentation Analysis

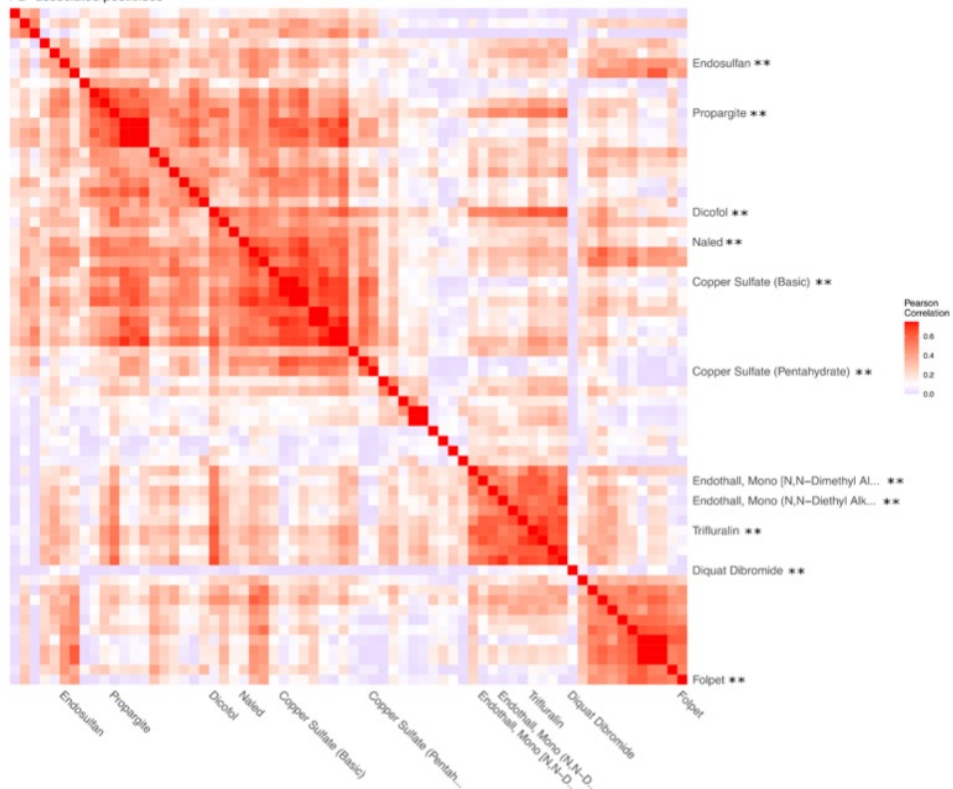


D Percent of Pesticides in Each Group Associated with PD in PWAS

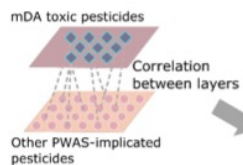


Associated pesticide set includes all PWAS-associated pesticides at FDR<0.05

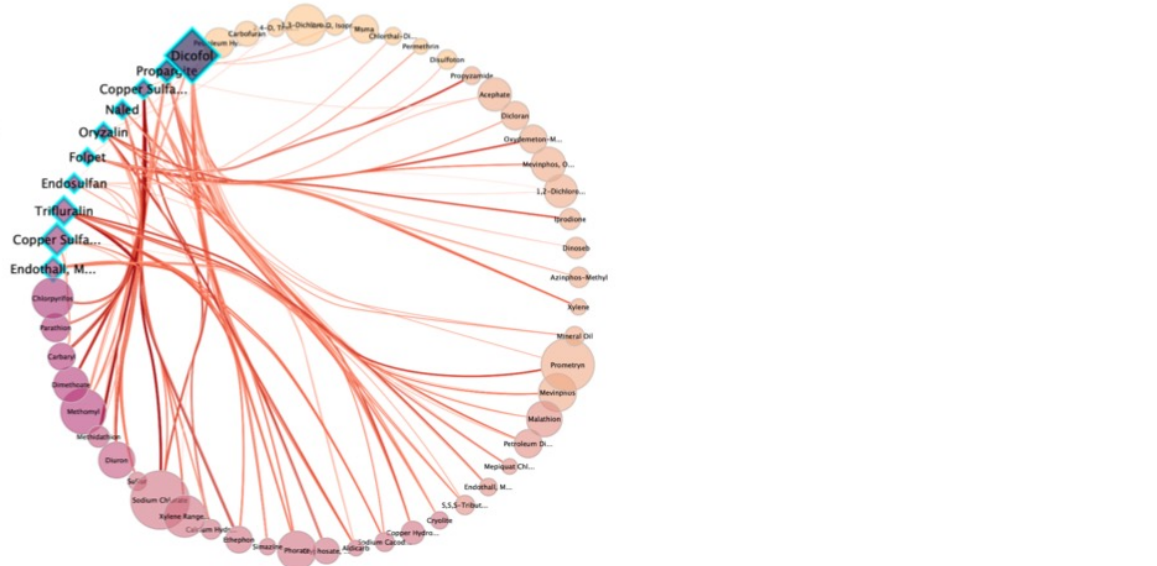
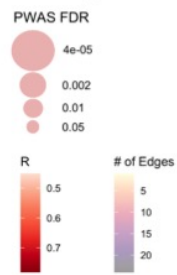
A Residential Pesticide Exposure Correlation Heatmap
PD-associated pesticides



B



Network Legends



Challenges:

- Non-contiguous (spatially) data sources (and MAUP)
- Preserving confidentiality while maintaining detail and meaning
- “on-the-fly” presentation to maximize communication of patterns
- Incorporating biology into spatiotemporal pesticide/herbicide/chemical analysis