

Michigan Cancer and Research in the Environment Study

# MI-CARES



# Our Investigators



Celeste Leigh  
Pearce



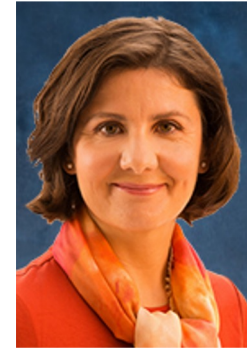
Dana Dolinoy



Bhramar  
Mukherjee



Sara Adar



Ana Baylin



Justin Colacino



Carrie Karvonen-  
Gutierrez



John Meeker



Alison Mondul

# At-a-glance

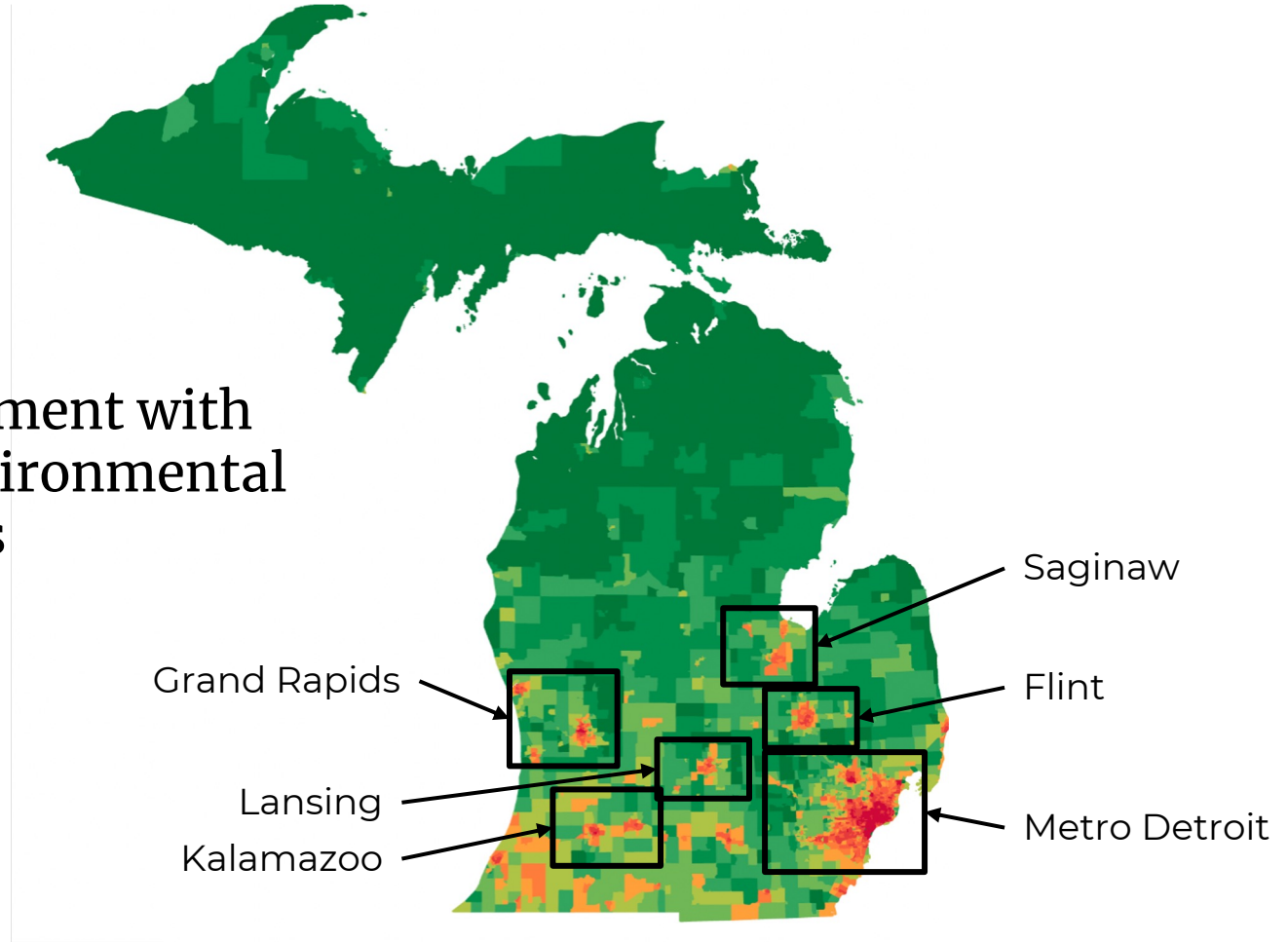
- **Study** To assess the impact of toxic environmental exposures and pollutants on health, primarily cancer and intermediate cancer outcomes
- **Who** Enroll 100,000+ Michiganders ages 25-44, equal parts non-Hispanic Whites, Blacks, Hispanic/Latino, and Middle Eastern or North African (MENA)
- **What** Completion of baseline survey and annual follow-up surveys; subsample of participants will provide blood spot and saliva samples

# Study and funding overview



- Based out of the University of Michigan
- Funded by the National Cancer Institute
  - A UG3/UH3 grant mechanism for establishing new environmental exposures and cancer risk cohorts for six years
- **MI-CARES** is one of five studies involved in this consortium
- Motivated by the history of toxic environmental exposures and pollutants in Michigan
  - [PBBs in 1970s](#), [lead and Flint's water crisis](#), urban [oil refineries](#) and industrial pollution in Detroit, [dioxane plume in Ann Arbor](#), [widespread PFAS exposure](#)

**Statewide** recruitment with  
a focus on six environmental  
injustice hotspots



# Study details

- Longitudinal cohort study
  - 100,000+ individuals aged 25-44 residing in Michigan
- Questionnaire upon enrollment
  - Select (~2,000) participants residing in “hotspots” will be asked to provide saliva sample & blood spots
- 6 years follow-up
  - Annual survey
  - Linkage to state and national cancer registries, state and national death indices, and Michigan Department of Health and Human Services
- 100% remote/virtual participation

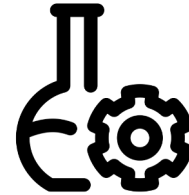
# Questionnaire domains



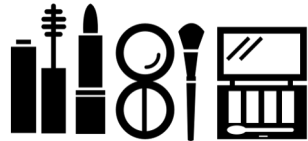
Residential  
history



Employment  
location history



Chemical  
exposures



Personal  
product use



Overall health  
and wellness

# Community Engagement and Recruitment

- Launched June 2022 - 1,700+ enrolled by mid-October
- Collaborate with community advisory boards
- Conduct health fairs at faith-based and community settings
- Content posting and paid advertisement on social media
- Flyering and tabling at local establishments and events



# Benefits

## Partners

**Draft** reports and other work products

**Attend** or co-host events

**Advertise** events and partners

**Volunteer** - team members have helped at community gardens and flyered for mobile health clinics in Detroit



## Participants

**\$50 lottery** for every 50 participants; upcoming change where all participants will receive an incentive

Access to **educational webinars and materials**

## Community

MI-CARES Ambassador program offers volunteer and **paid temporary positions**

Environmental health news and infographics **shared** via website and social media

Long-term, results will be shared with community and lead to **improved health and policy change**

# Thank you for your time!

## Contact us!

Community engagement and recruitment:

- Lilah Khoja ([lkhoja@umich.edu](mailto:lkhoja@umich.edu))
- Maxwell Salvatore ([mmsalva@umich.edu](mailto:mmsalva@umich.edu))

MI-CARES General inquiries: [michigan-cares@umich.edu](mailto:michigan-cares@umich.edu)



[micares.health](https://micares.health)



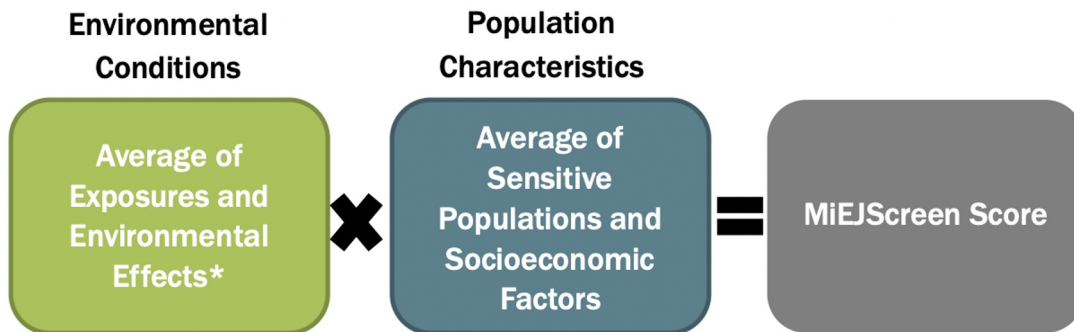
[@uofm\\_micares](https://www.instagram.com/uofm_micares)



# Appendix

# Environmental Injustice – MiEJScreen

- Michigan Environmental Justice Mapping and Screening Tool
- Developed by team of students and Dr Paul Mohai at UM SEAS in partnership with the Michigan Environmental Justice Coalition
- Shows relative environmental risk factors
  - Not overall burden
  - Not actual # impacted



# MiEJScreen Formula inputs

Categories	Environmental Exposure	Environmental Effects	Sensitive Populations	Socioeconomic Factors
Indicators	NATA Air Toxics Cancer Risk NATA Respiratory Hazard Index NATA Diesel Particulate Matter Particulate Matter (PM <sub>2.5</sub> ) Ozone Traffic Density	Proximity to Cleanup Sites Proximity to Hazardous Waste Facilities Impaired Water Bodies Proximity to Solid waste Sites and Facilities Lead Paint Indicator Proximity to RMP Sites Wastewater Discharge Indicator	Asthma Cardiovascular Disease Low Birth Weight Infants Blood Lead Level Life Expectancy	Low Income Population Black, Indigenous, People of Color Population Educational Attainment Linguistic Isolation Population Under Age 5 Population Over Age 64 Unemployment Housing Burden
Sub Scores	<b>Environmental Conditions</b> (Average percentile of Environmental Exposure indicators + 0.5 x average percentile of Environmental Effects indicators) $\frac{\text{Environmental Exposure indicators} + 0.5 \times \text{Environmental Effects indicators}}{1.5}$		<b>Population Characteristics</b> (Average percentile of Sensitive Population indicators + average percentile of Socioeconomic Factor indicators) $\frac{\text{Sensitive Population indicators} + \text{Socioeconomic Factor indicators}}{2}$	
Score	Final Composite Score = Environmental Conditions score x Population Characteristics score <b>MiEJScreen Score</b>			

# List of other CEECR Studies

1. Southern Environmental Health Study (TN)
2. The 10,000 Families Cohort (MN)
3. DREAM: Discovering cancer Risks from Environmental contaminants And Maternal/child health (SF Bay Area-Central CA)
4. Southern Liver Health Cohort (NC, GA)