

## BACKGROUND

- Recent efforts have focused on reducing the population duration of fasting for clear fluids prior to surgery
- There is limited knowledge about the social, economic and geographic risk factors that may be associated with prolonged fasting (>4 hours)
- Improving QI success and reducing disparities require an understanding of the social determinants of health (SDOH)
- EHR data are limited in SDOH and socioeconomic (SES) relevant data

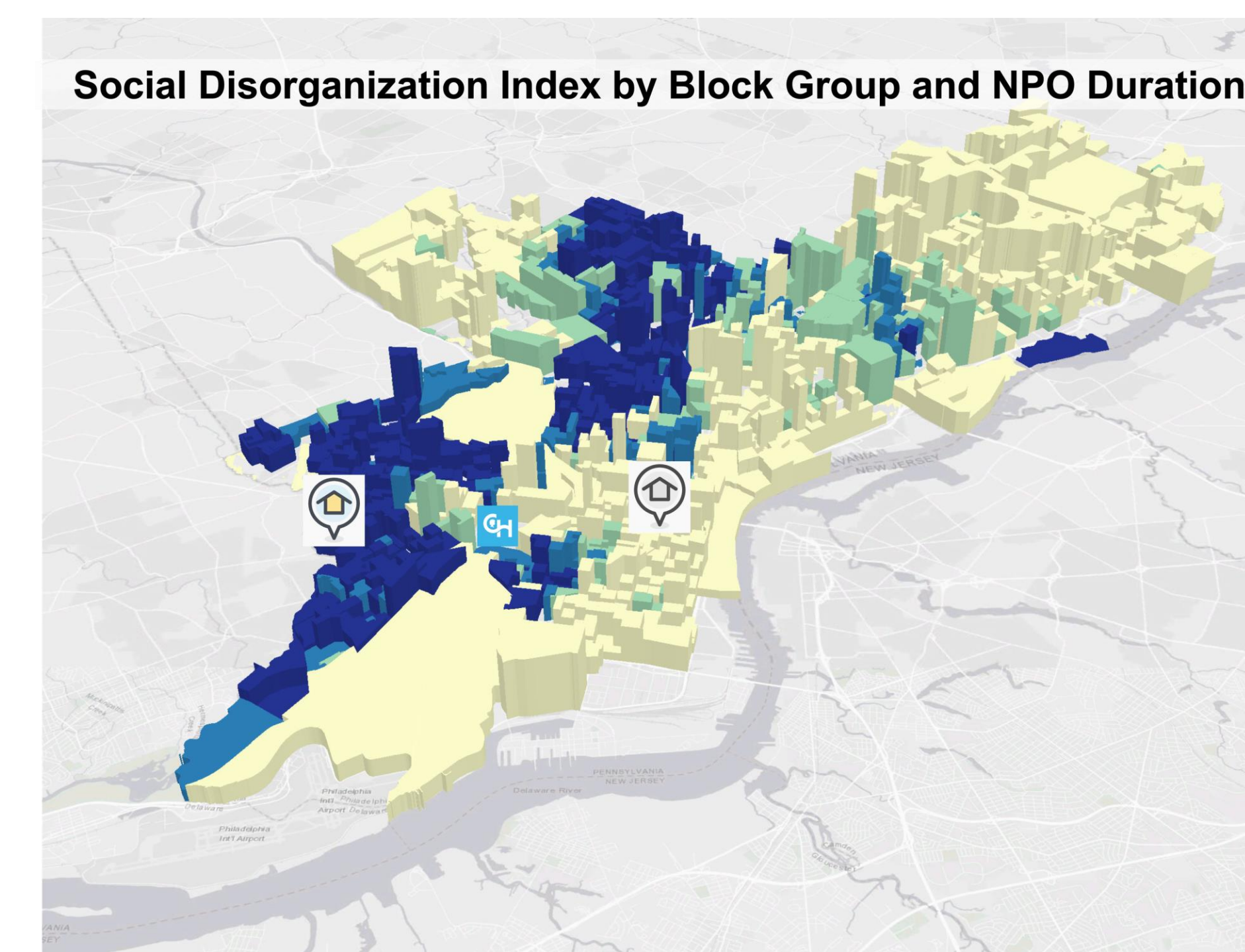
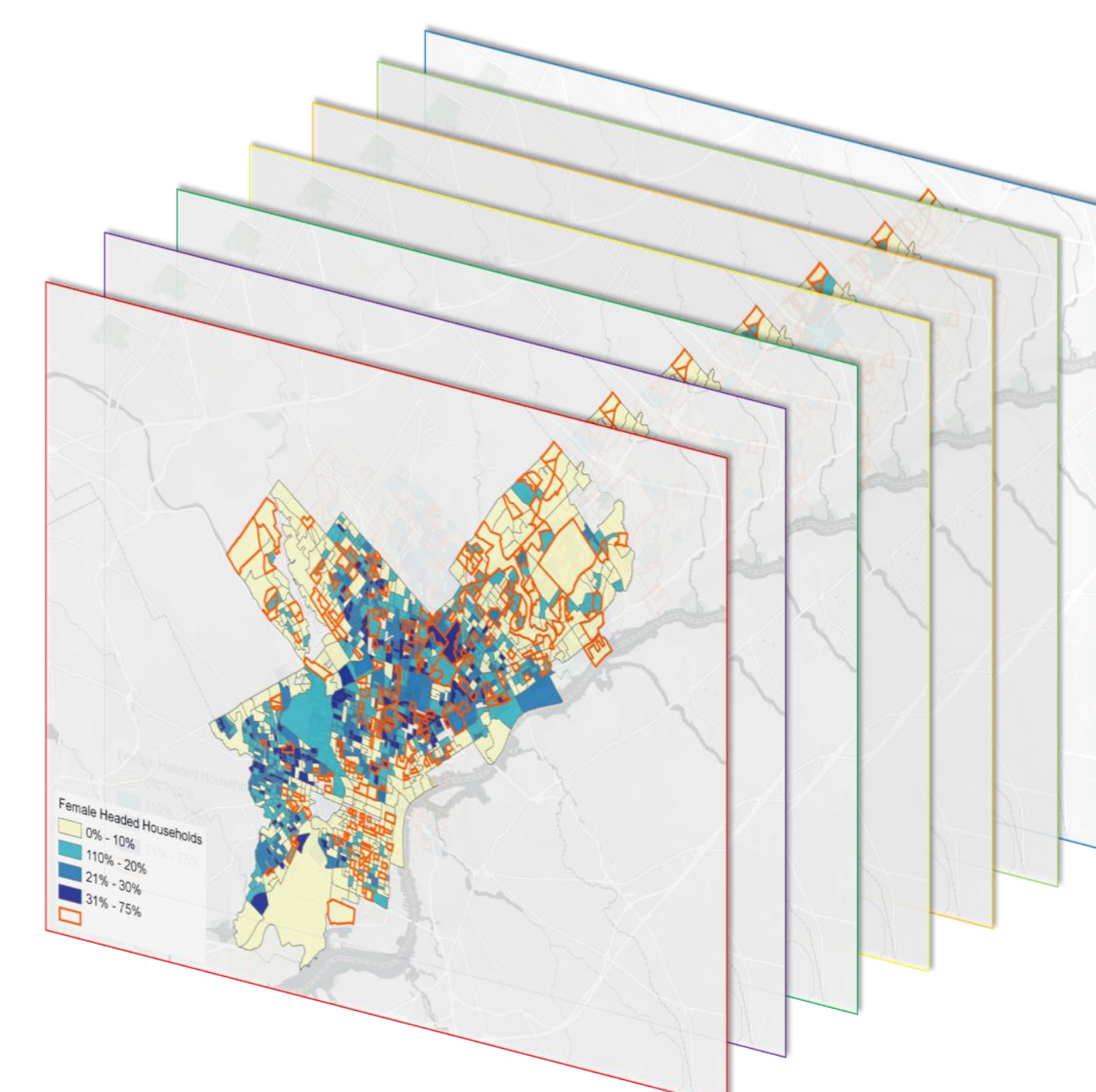
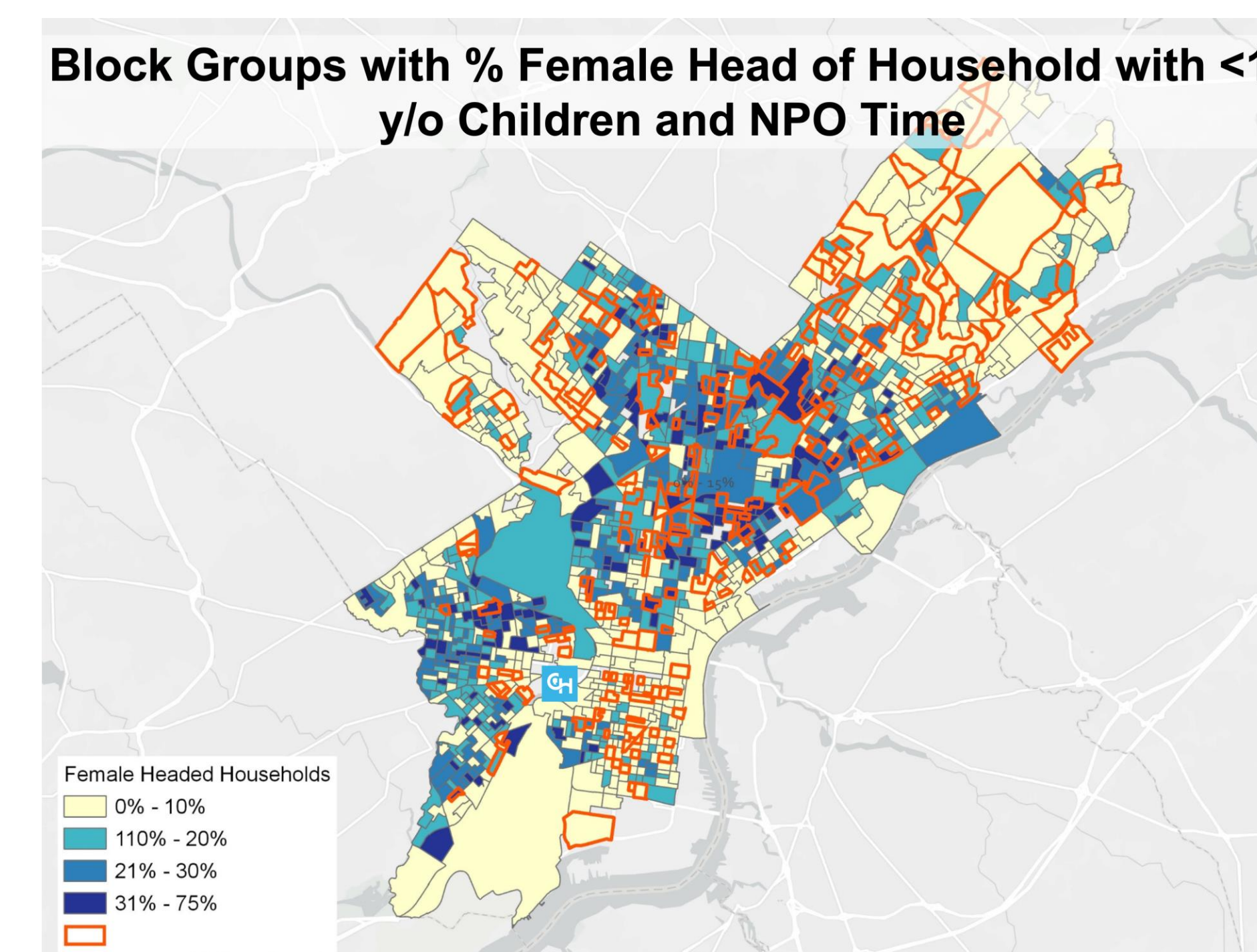
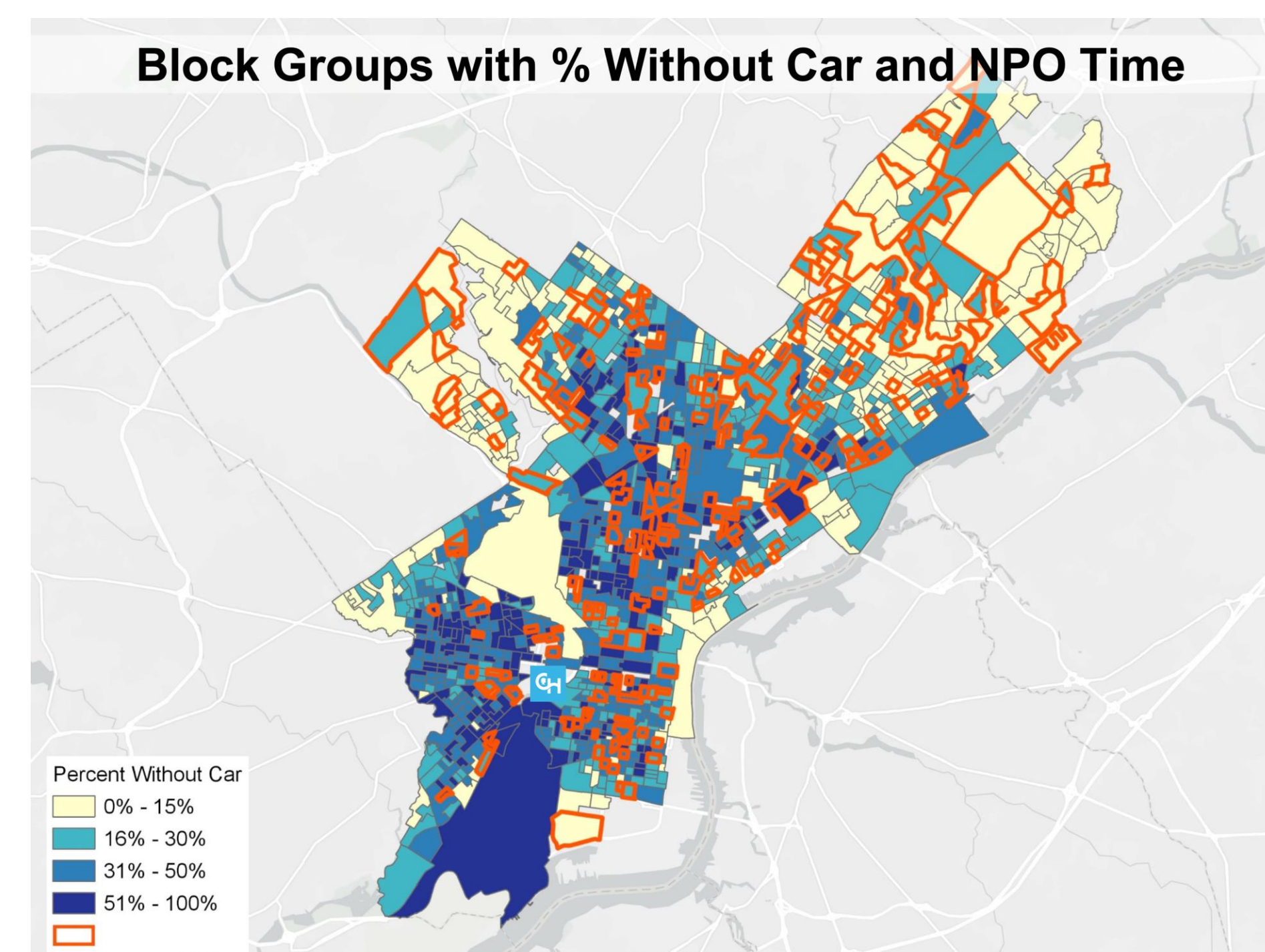
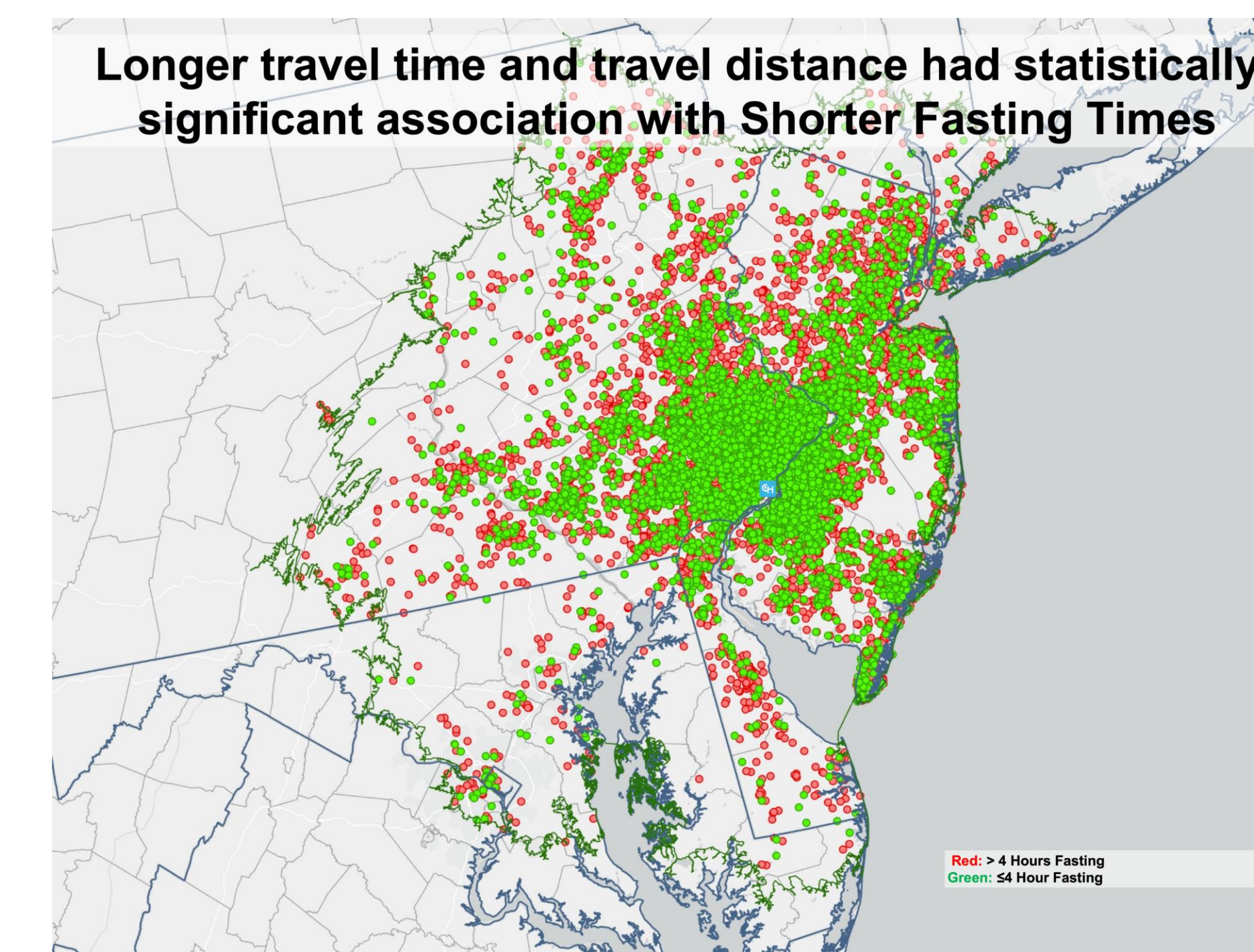
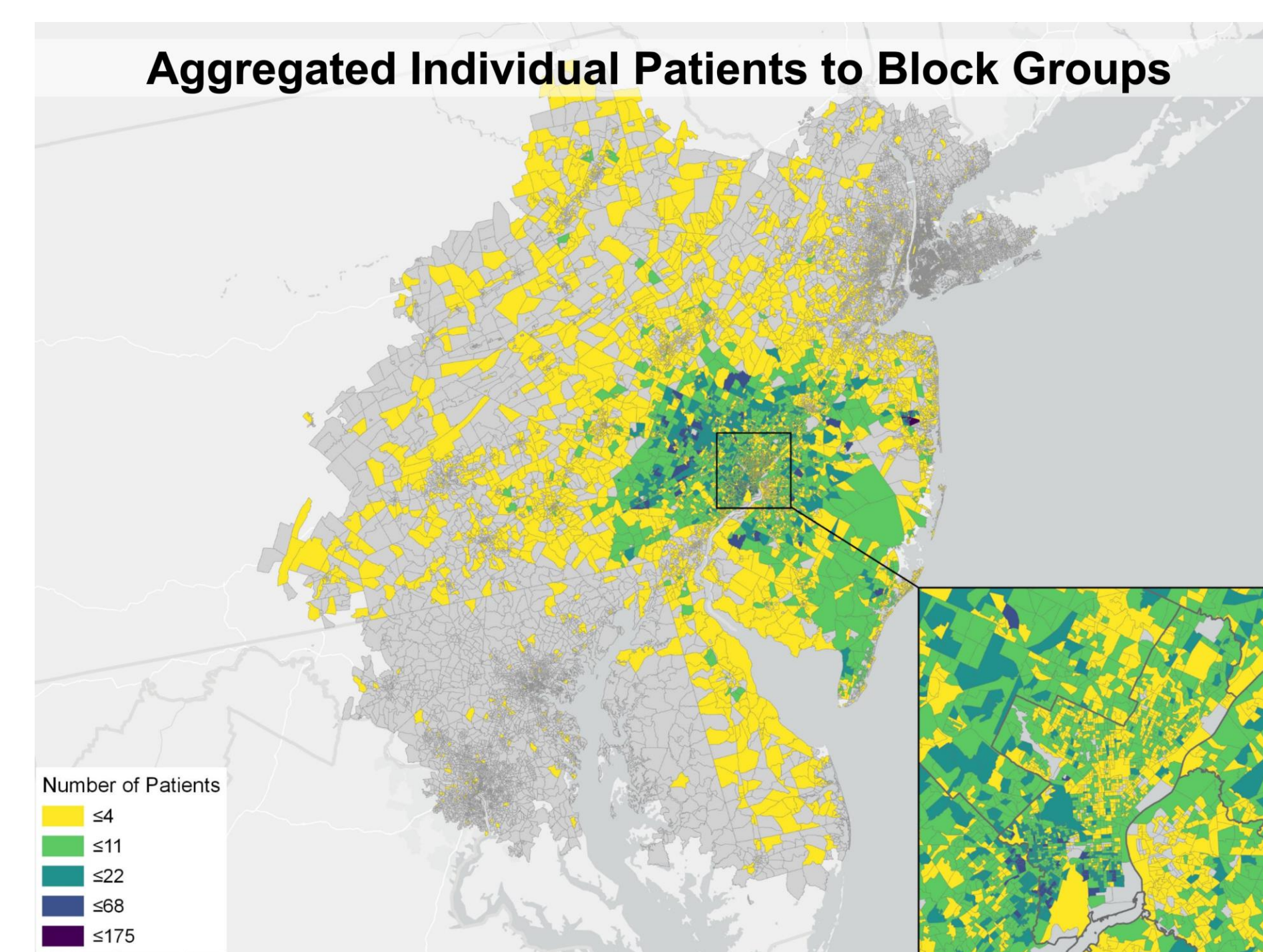
## OBJECTIVE

- To use a novel informatics approach to understand the SES and geographic risk factors associated with prolonged (>4 hours) clear fluid fasting duration

## METHODS

- IRB approved retrospective study of pediatric non-cardiac elective surgery within a 3-hour drive time from **2015-2019**.
- Geospatial analytic methods with spatial join of EHR perioperative data and **US Census– American Community Survey (ACS) 2016 data**.
- Neighborhood and SES attributes** were analyzed at the **block group** and **individual** levels.
- Statistical analysis with SAS, JMP (SAS Institute, Inc., Cary, NC), Python and ArcGIS Desktop (ESRI, Redlands, CA).

## Geospatial Analysis of 34,061 Patients and Clear Fluid Fasting Duration



## Results

- Prolonged Fasting Risk Factors (>4 hours)**
  - Neighborhood:**
    - ↑ Percent Without Vehicle
    - ↑ Vacant Homes
    - ↑ Overall Unemployment
    - ↑ Housing Assistance
    - ↑ Low Income (<100% FPL)
    - ↑ Low Income (100-149% FPL)
    - ↑ High School Drop Outs
    - ↑ Female Headed Households with Kids <18 y/o
    - ↑ Renter Occupied Homes
  - Individual:** Younger Age, Afternoon Surgery, Male, Elevated ASA Status, Race

## DISCUSSION

- Patients living closer to the hospital and in economically depressed neighborhoods were more likely to have clear fluid fasting >4 hours.
- Geospatial analytics can augment our understanding of SDOH impacting the delivery and communication of perioperative care.
- QI initiatives should include geographic and socioeconomic factors when trying to improve success rates and address disparities in care delivery.

## References

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