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).

RESULTS

- Prolonged Fasting Risk Factors (>4 hours)
  - Neighborhood:
    - % 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