Neighborhood structural and social determinants of health (SSDoH) predict pregnancy anemia in Chicago

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BACKGROUND

- Anemia is associated with adverse pregnancy outcomes.
- Nationally, anemia affects nearly 2-3 times more pregnant people of color compared with white pregnant people.
- Social determinants of health (SDoH) are place-based characteristics that impair health.
- SDoH may help explain racial and ethnic disparities in prenatal anemia due to psychosocial stress, differences in food environment, and other factors
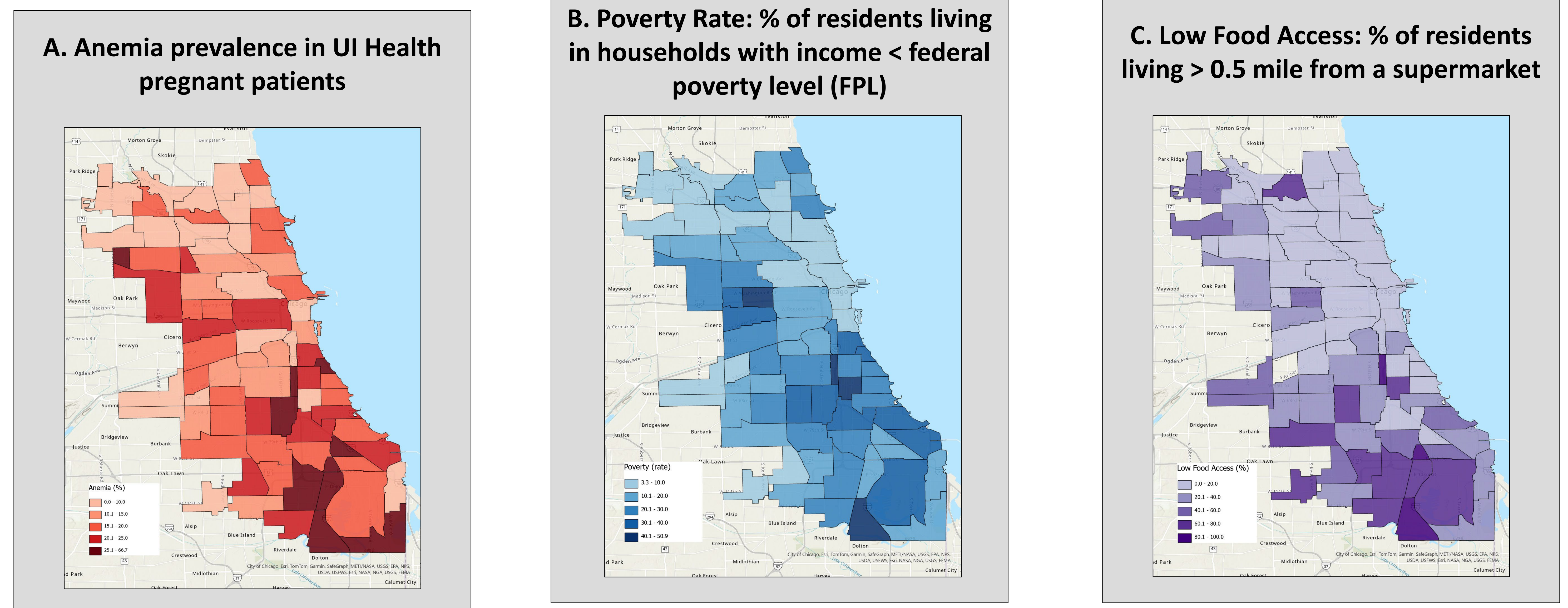
METHODS

- Data sources: UI Health EHR; Chicago Health Atlas.

EHR

CHICAGO HEALTH ATLAS

- Inclusion criteria: pregnant in 2015-2019, 1+ hemoglobin (Hb); 1st pregnancy Hb included.
- Anemia defined with CDC trimester-specific Hb cutoffs.
- ArcGIS and Stata for mapping and log binomial regression models, respectively.

RESULTS

Figure 1. Heatmaps of Chicago Community Areas

A. Anemia prevalence in UI Health pregnant patients

Anemia (%)
0.0 - 10.0
10.1 - 15.0
15.1 - 20.0
20.1 - 25.0
25.1 - 66.7

B. Poverty Rate: % of residents living in households with income < federal poverty level (FPL)

Poverty (rate)
3.3 - 10.0
10.1 - 20.0
20.1 - 30.0
30.1 - 40.0
40.1 - 50.9

C. Low Food Access: % of residents living > 0.5 mile from a supermarket

Low Food Access (%)
0.0 - 20.0
20.1 - 40.0
40.1 - 60.0
60.1 - 80.0
80.1 - 100.0

16.7% had anemia of 6,164 pregnant persons

↑Anemia risk with **Younger Age, Hispanic or Black Race/Ethnicity, Non-private Insurance, and initiation of prenatal care in the 3rd trimester** (RR: 1.3 – 4.2)

↑Anemia %: ↑ community area **poverty, unemployment, homicide** and **low food access** rates

↓Anemia %: ↑ community area **college graduation rate, per-capita income,** and perceived **easy fruit/vegetable access**

Next: Multilevel regression models

- Multiple Hb measures per person
- Model individual and community level effects