

Food access and health outcomes

How can a medicare advantage plan best use their resources?

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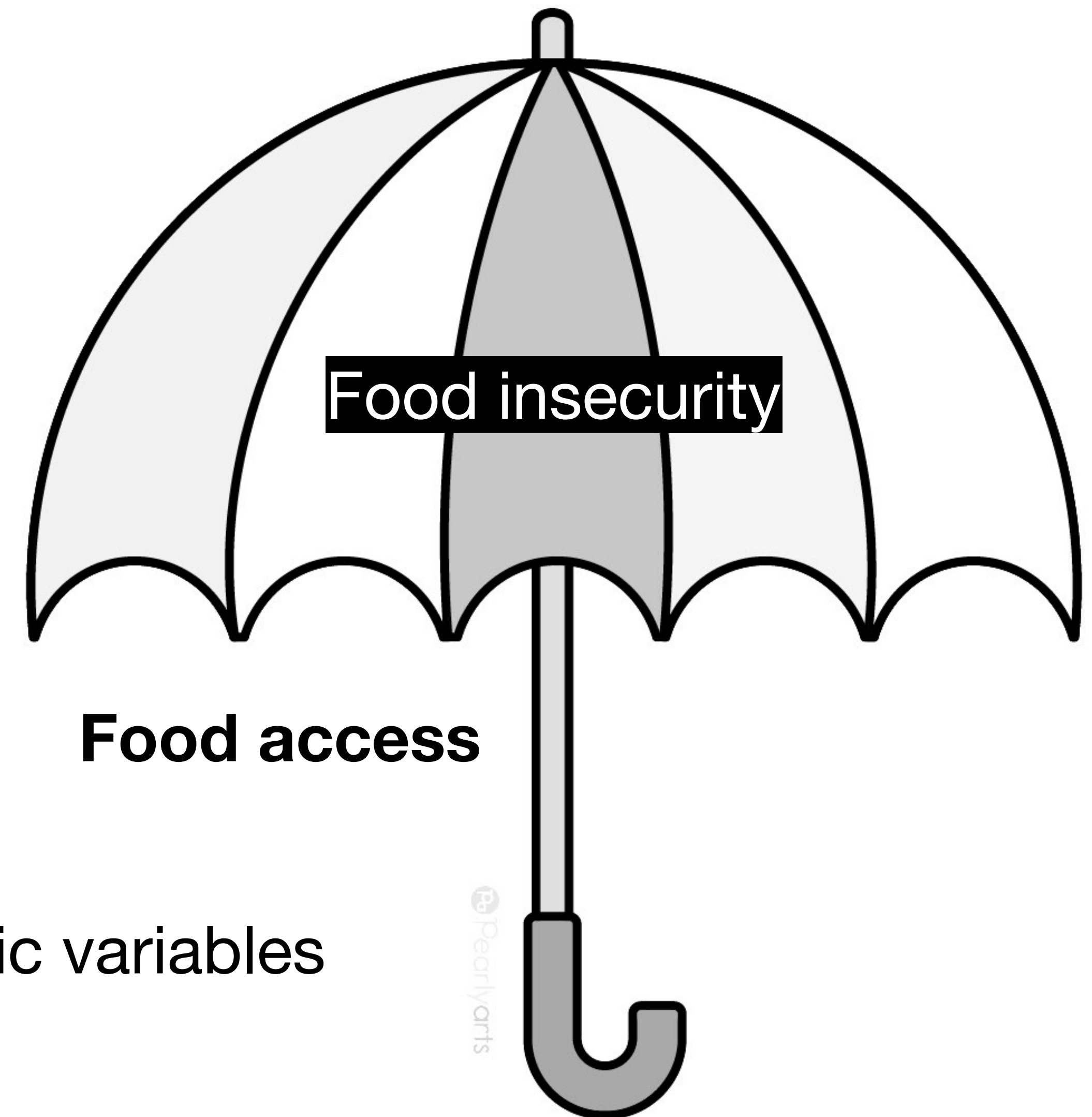
Background

And data overview

- 2017 USDA report
- 10 chronic conditions:
 - PREVALENCE
 - COST
 - MORBIDITY
 - PREVENTABILITY

Food Atlas dataset: only the access specific variables

CDC 500 Cities dataset




Health outcomes

Compare the top quartile of low access counties
vs. remaining counties

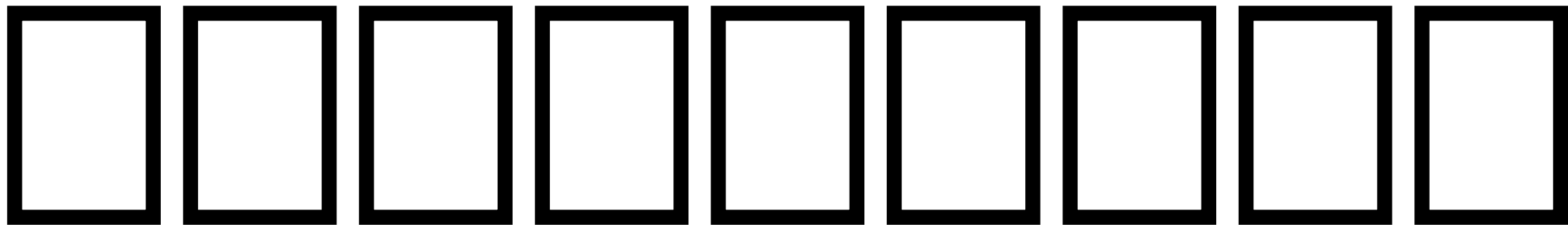
Health outcomes focused on from CDC dataset:

• Arthritis		p<0.001
• Hypertension		p<0.001
• Cancer		p=0.013
• Asthma		p=0.040
• COPD		p<0.001
• Diabetes		p=0.003
• Kidney disease		p=0.009
• Stroke		p=0.002

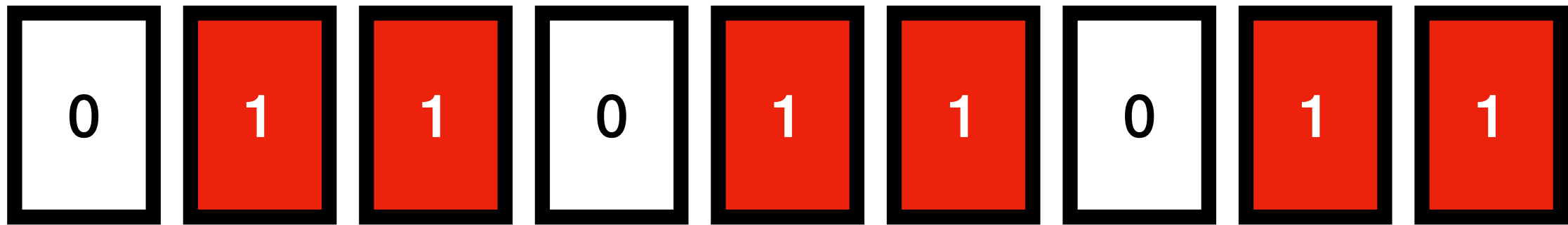


Significantly different health outcomes in high % low access counties

Selected health outcome columns



Above 75th quartile?



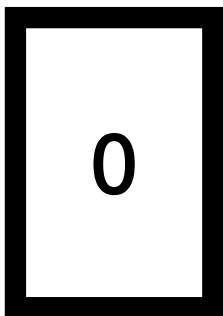
Risk
score:
6

% of population with low access to food, 2015

Above 75th quartile?

No

Yes



Adjusting access depending on resources available

Rule sets

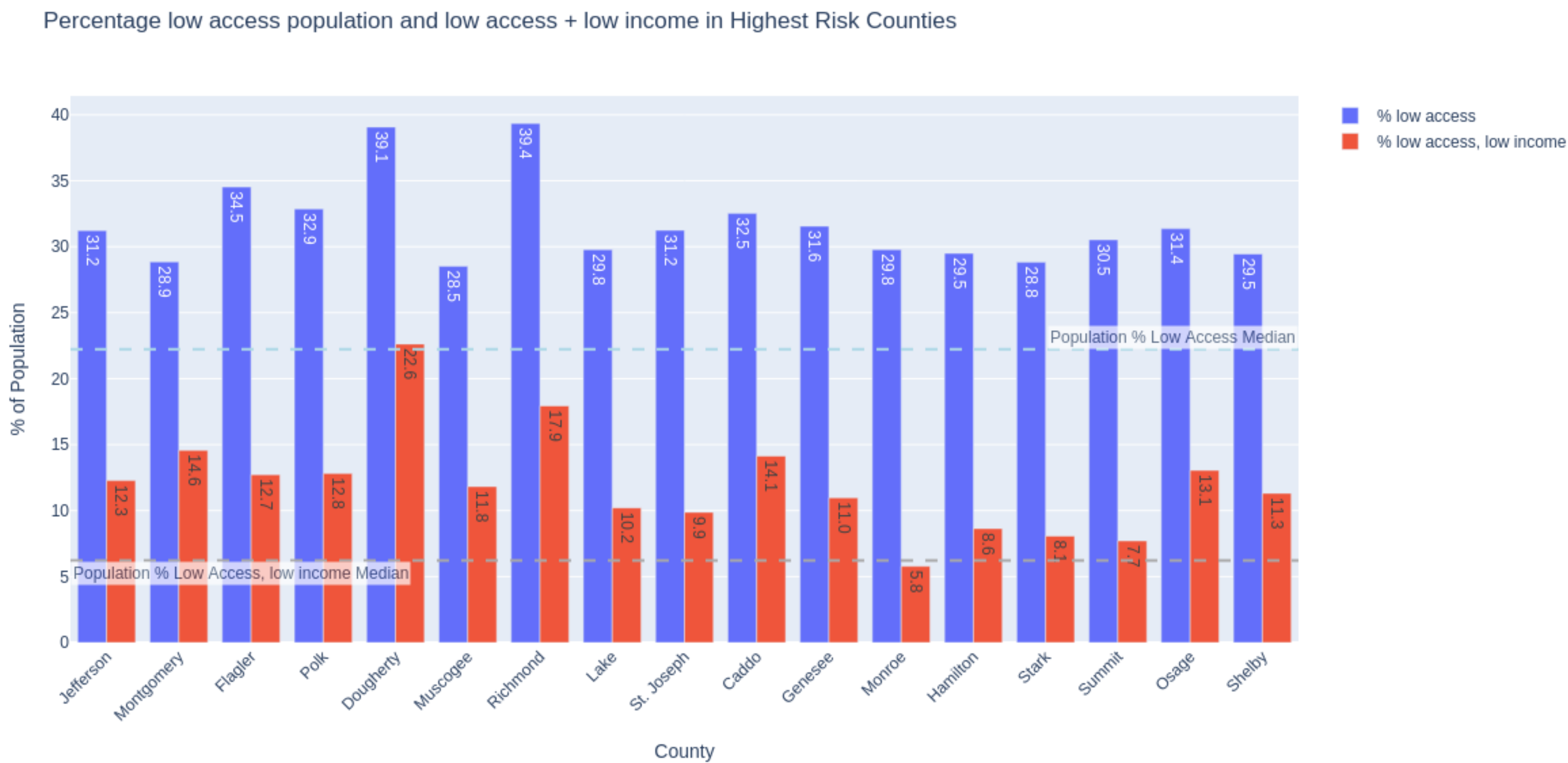
1. Condition 1 - Just access based: county in top 25% of data (**where health data available)
2. Condition 2 - Just health outcome based: risk score above threshold
3. **Either** of these conditions met
4. **Both** conditions need to be met



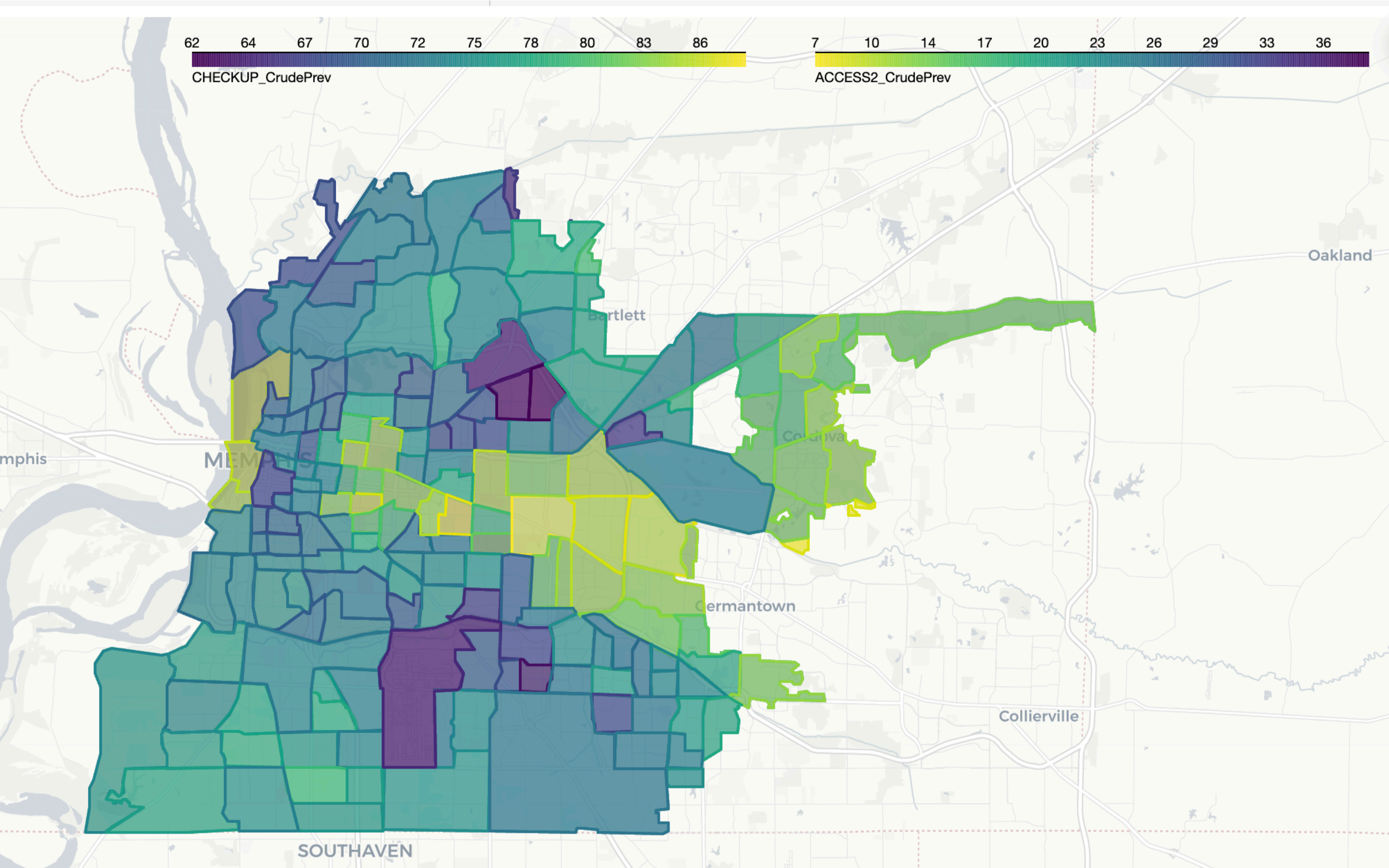
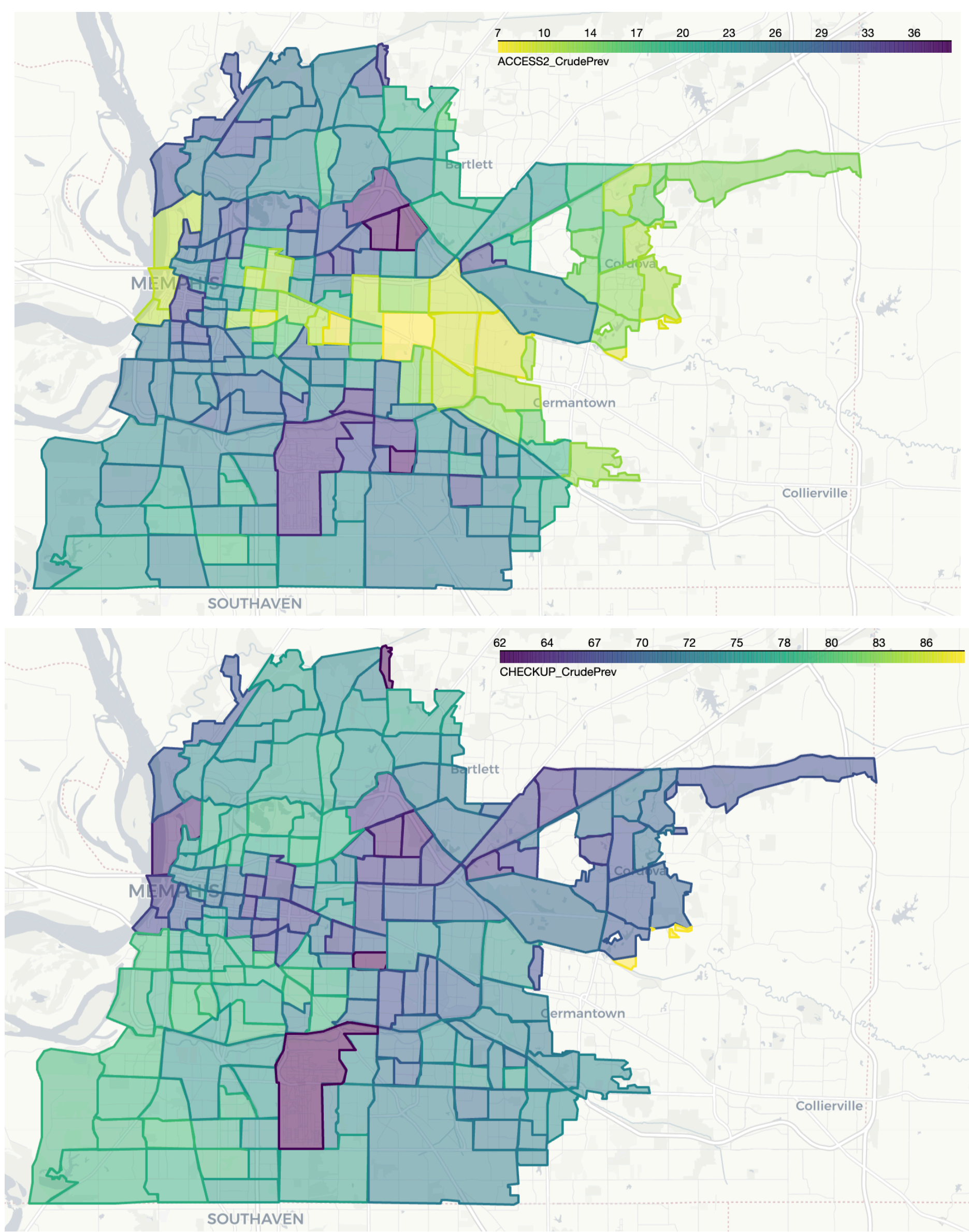
~3 million people, 17 counties

17 high-risk counties identified

Risk score > 6, low access in top quartile



Shelby County: high risk county with largest population

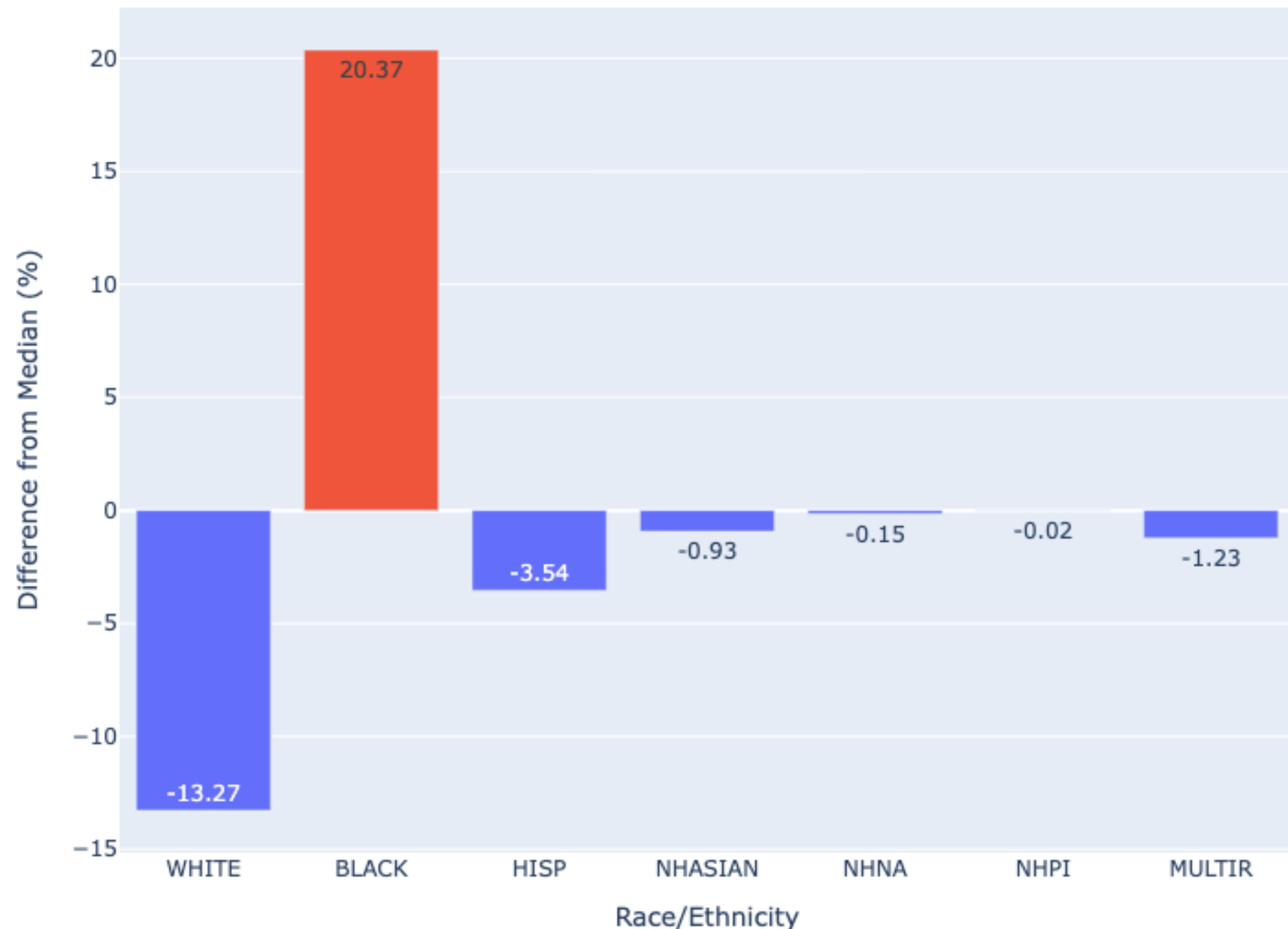


~800,000 26%

Which subgroup of the population?

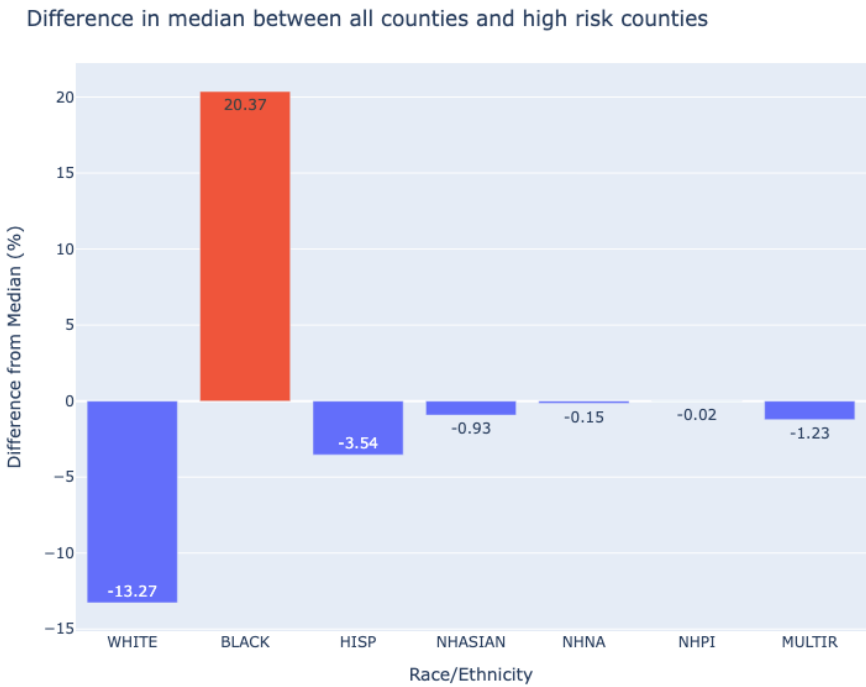
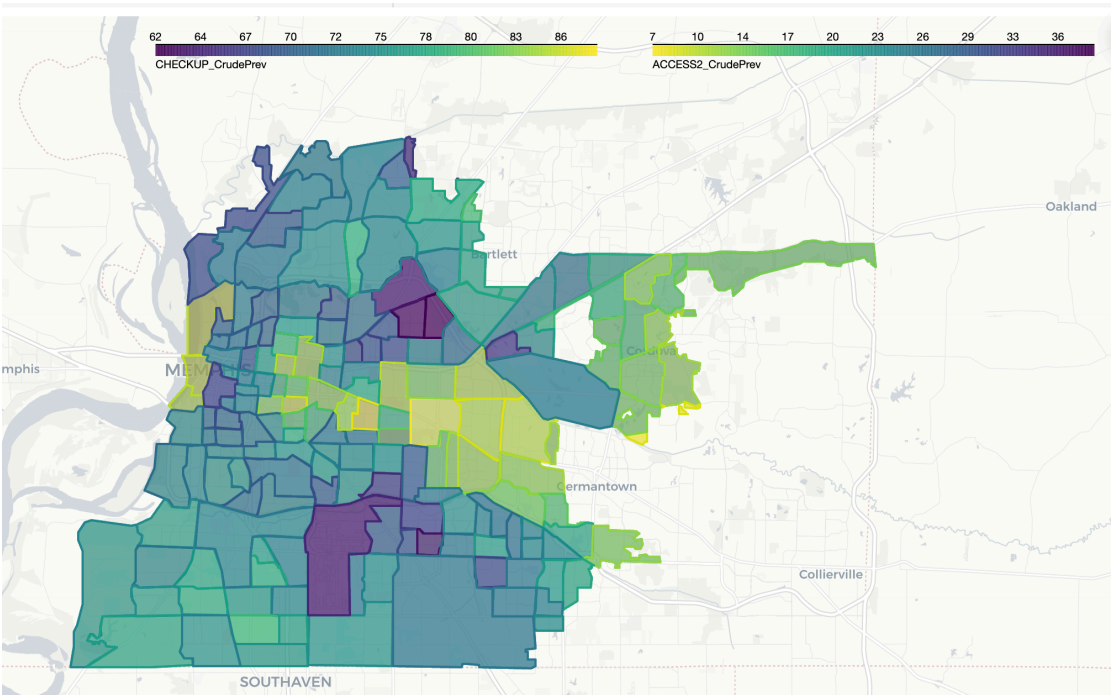
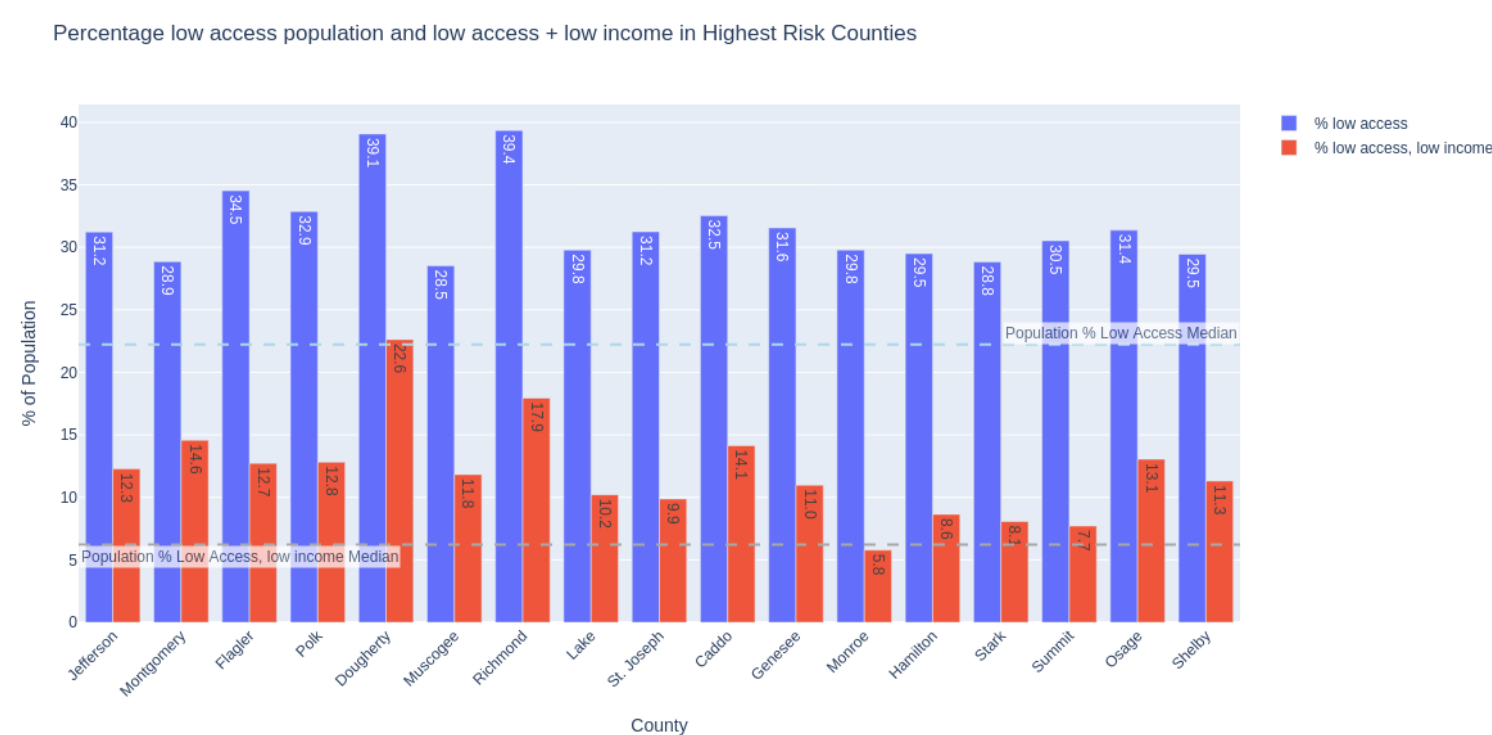
- Correlation analysis between different race/ethnicity groups and selected health outcomes
- Hypertension ~ % low access, Black.
- **0.5** correlation

Difference in median between all counties and high risk counties



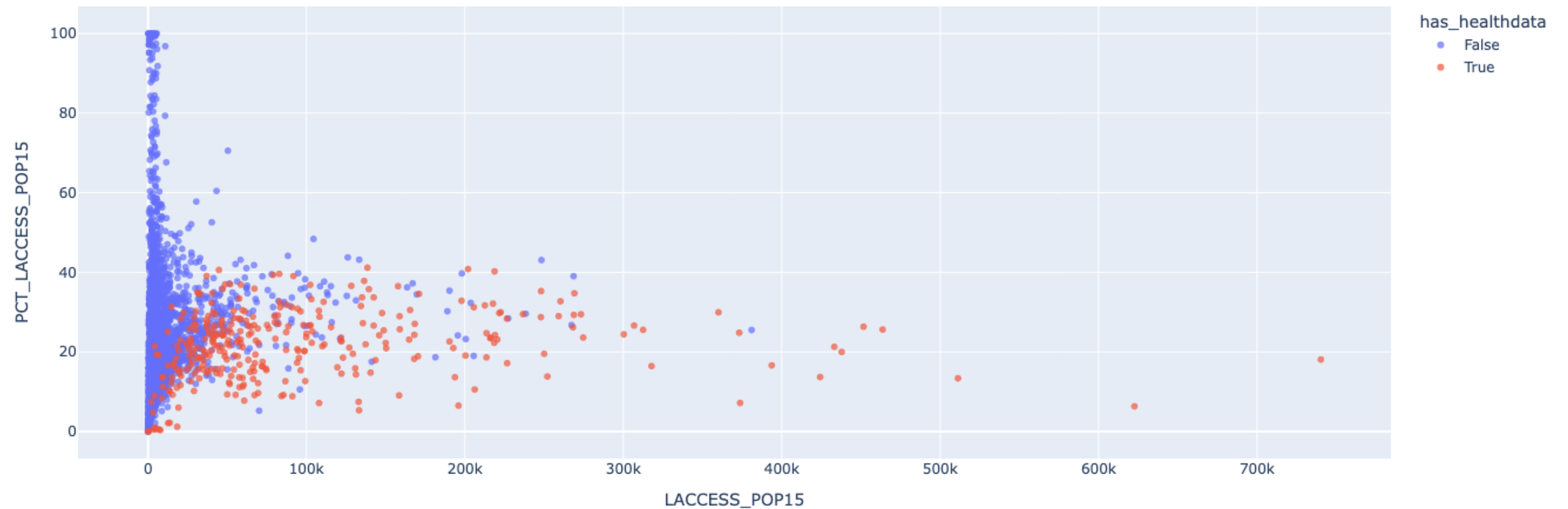
Summary

- Food access ~ health outcomes ~3.1M people
- Identified 17 high risk counties Estimated 800,000 people engaged
- Race/ethnic disparities across counties **26%**
- Expected improvement in hypertension +

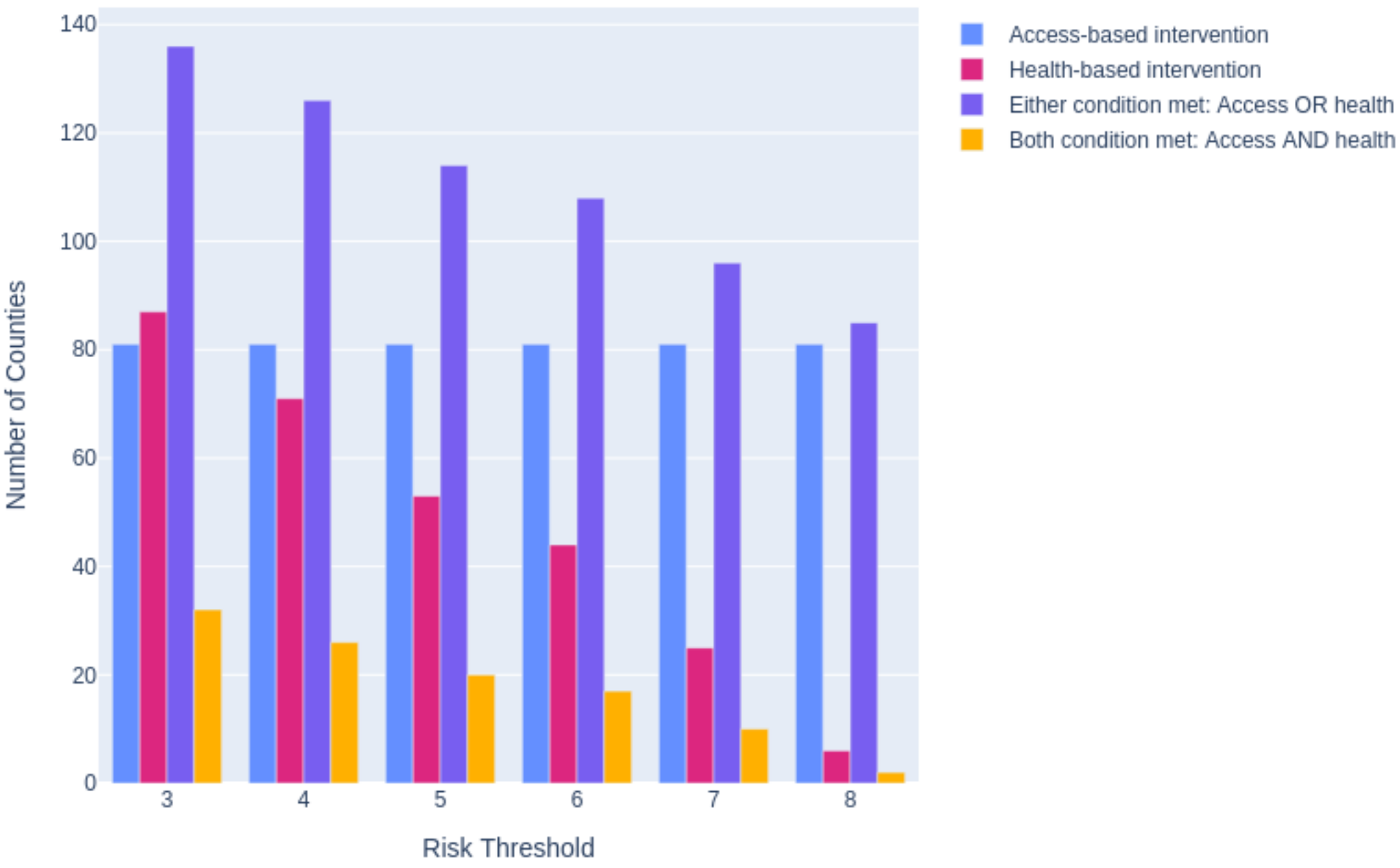
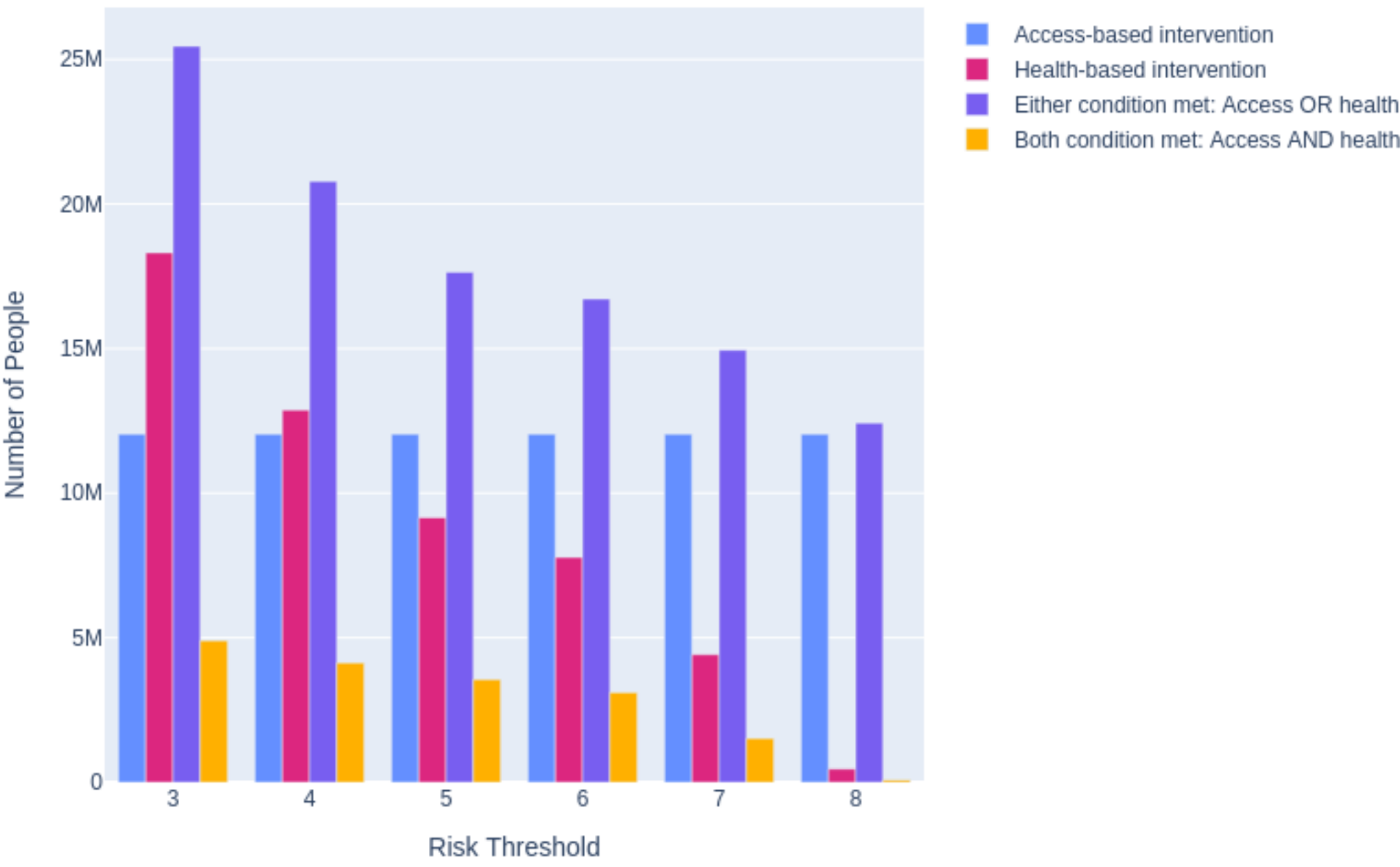


Appendix

500 cities dataset only a portion of the data representing the nation



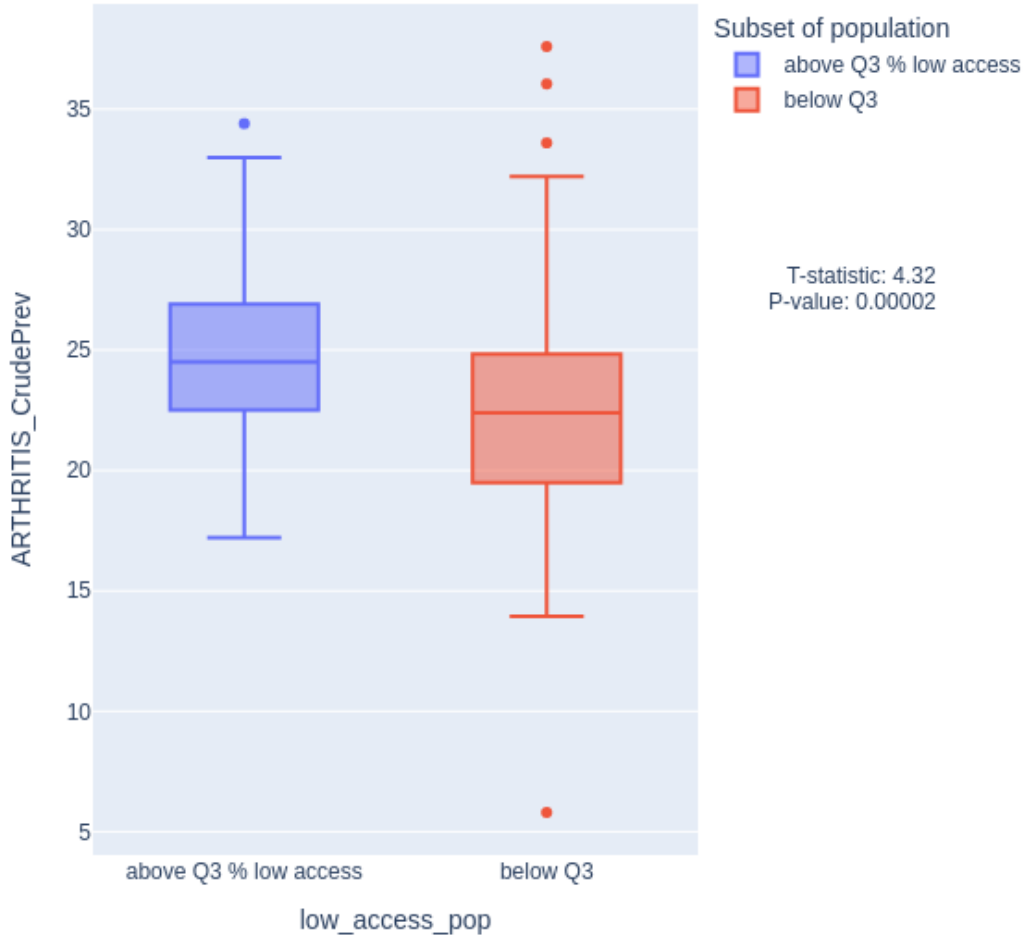
Distribution of risk score



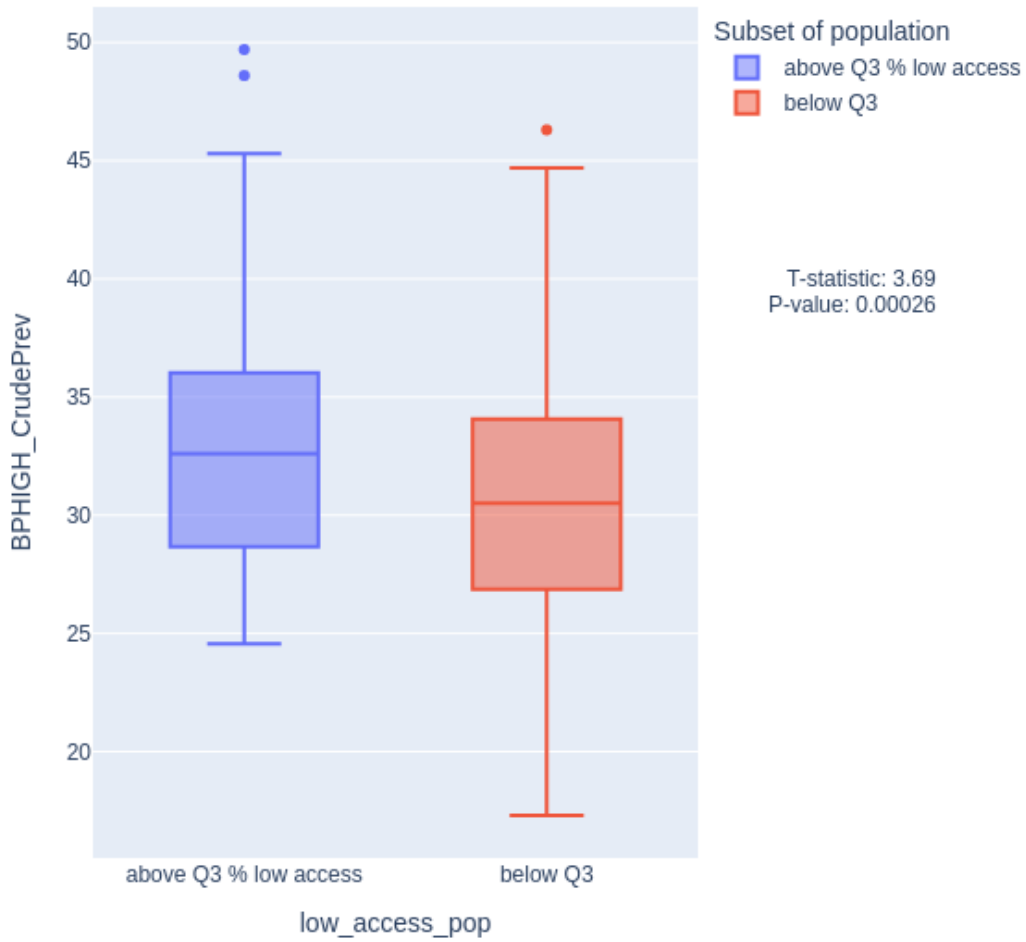
- Future work: add weighting depending on relative importance of different health outcomes

Supporting statistics - health outcomes

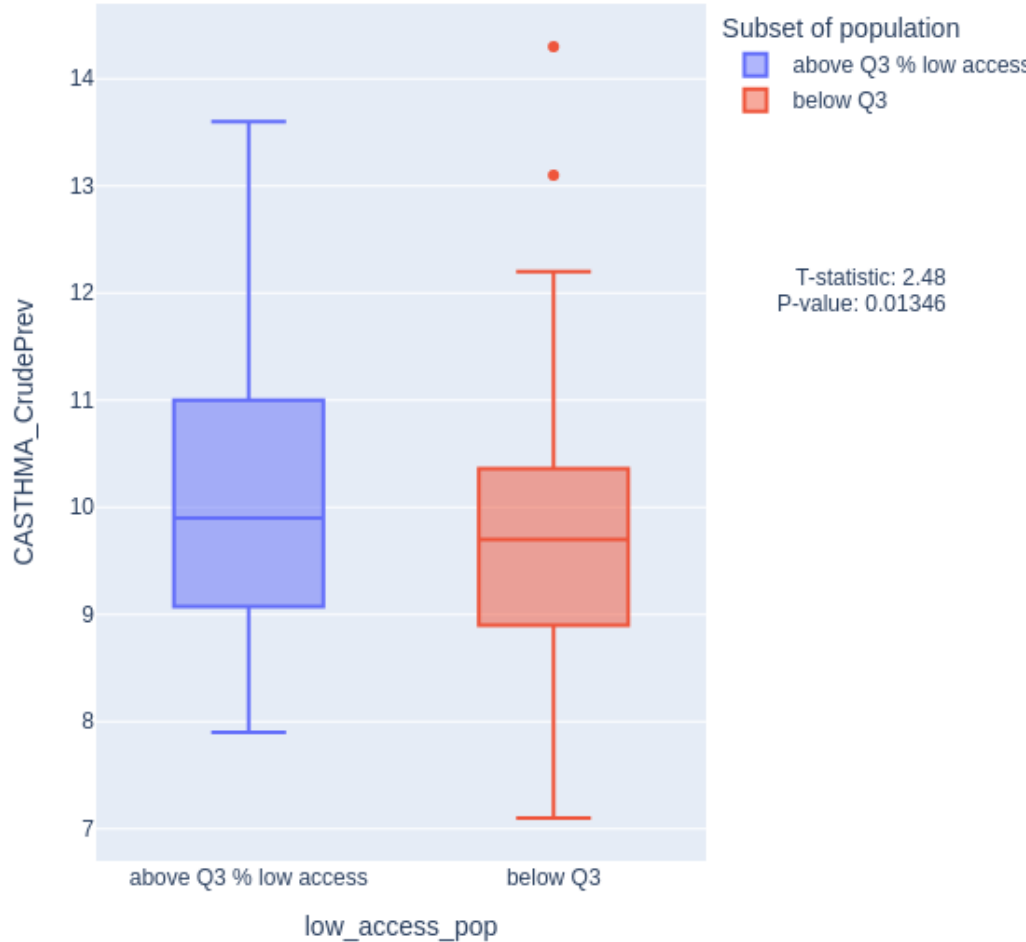
Box plot of ARTHRITIS_CrudePrev by low access population



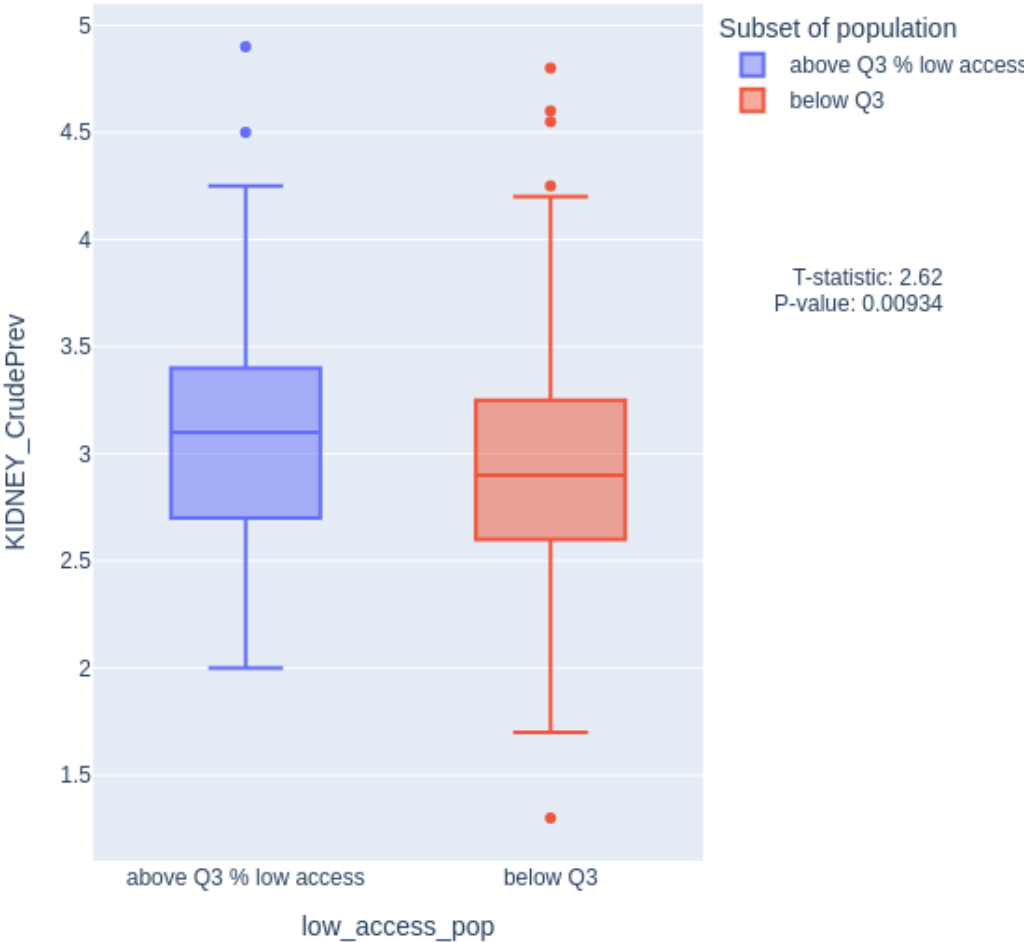
Box plot of BPHIGH_CrudePrev by low access population



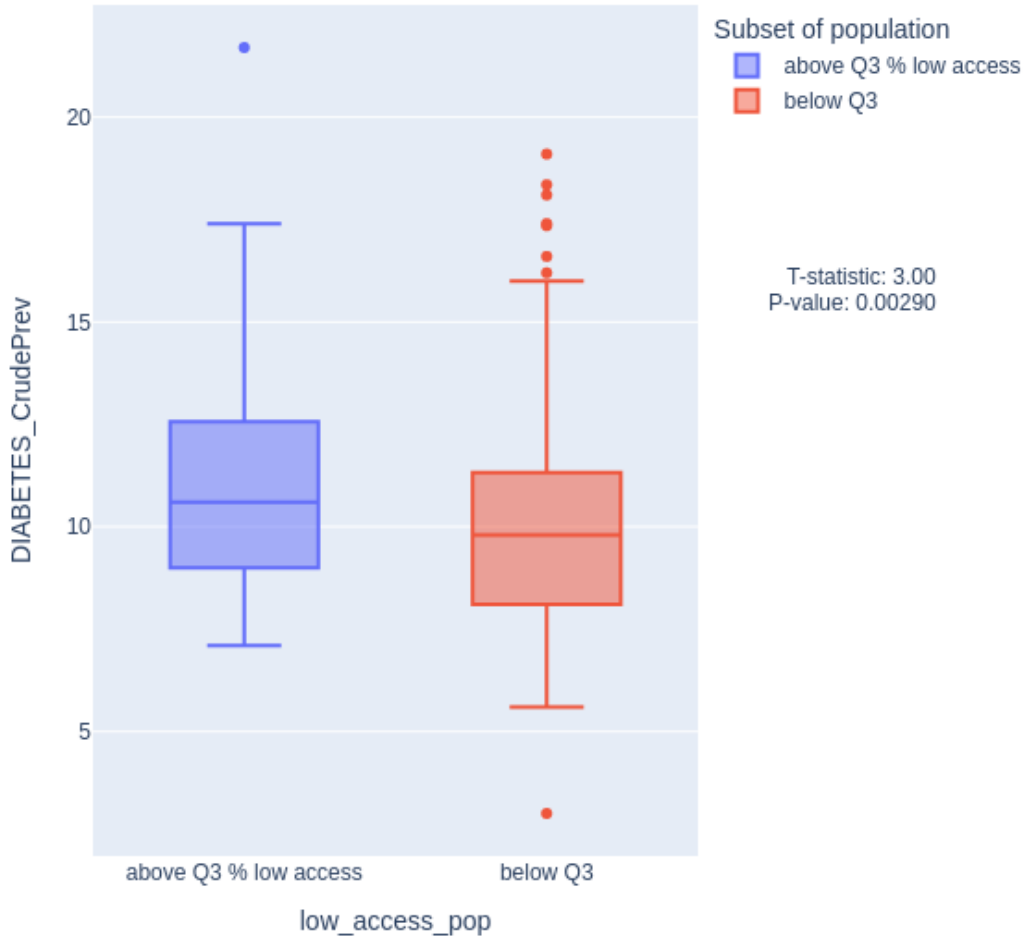
Box plot of CASTHMA_CrudePrev by low access population



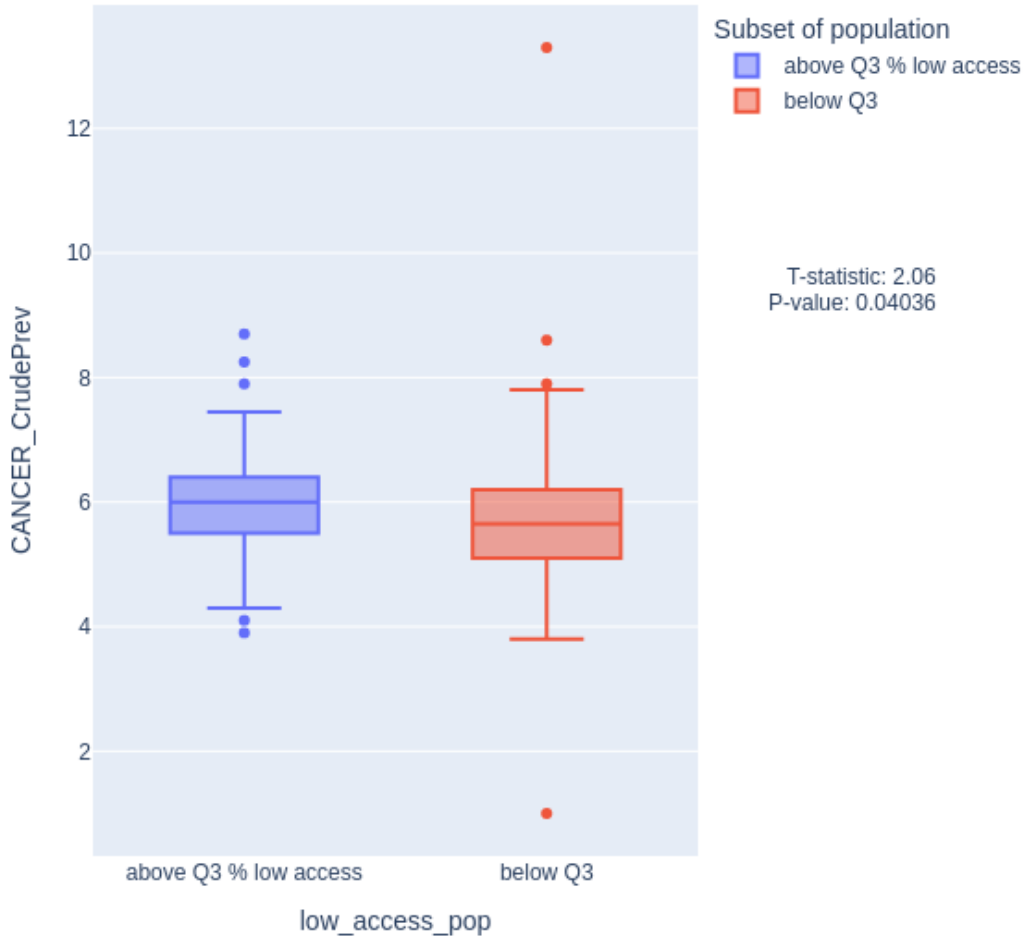
Box plot of KIDNEY_CrudePrev by low access population



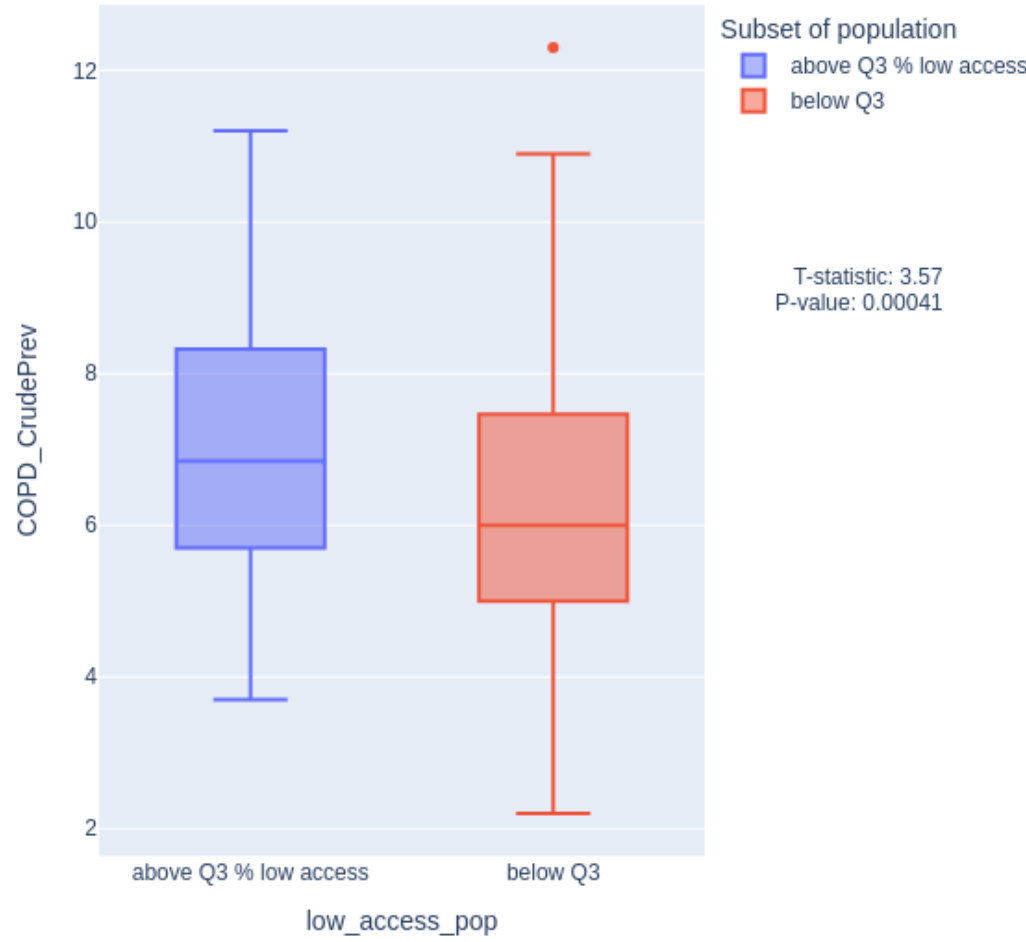
Box plot of DIABETES_CrudePrev by low access population



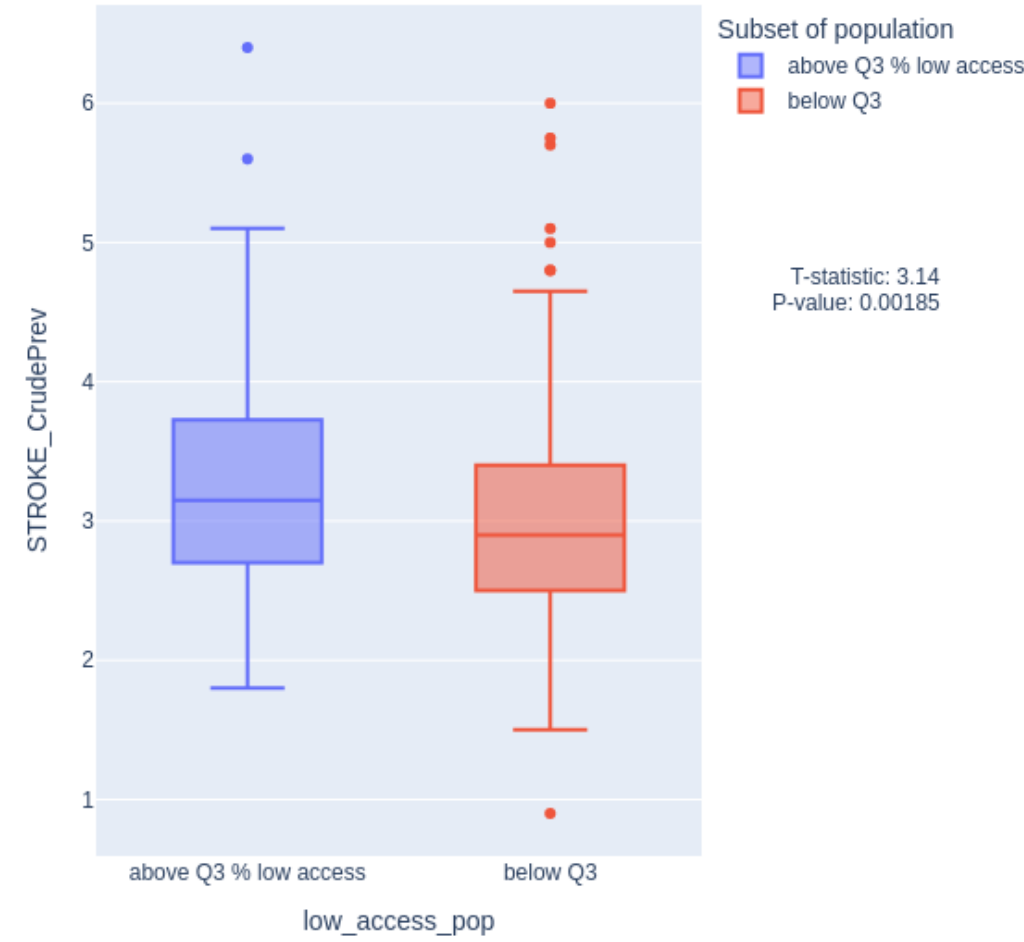
Box plot of CANCER_CrudePrev by low access population



Box plot of COPD_CrudePrev by low access population



Box plot of STROKE_CrudePrev by low access population



More supporting visualizations

