



Improving Healthcare using Data

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74%

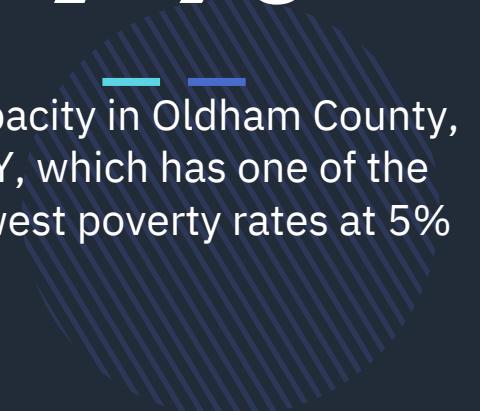
Percent of hospital beds
occupied nationwide during
dark winter

236%

Capacity in Bell County, KY,
which has one of the highest
poverty rates at 30%

7%

Capacity in Oldham County,
KY, which has one of the
lowest poverty rates at 5%



Goal

- Pinpoint areas with limited resources and an extraordinary need for healthcare
- DHHS to invest more resources in staff, supplies, education, and infrastructure

Impact Hypothesis

- Reduce COVID hospitalizations in short term
- Increase life expectancy and lower obesity rates in long term

Proposed Solutions

- Simplified Solution: Use EDA to locate general pockets of areas in need
- Premium Solution: Utilize geospatial clustering to determine optimal locations for resource allocation

Methodology



Data Collection

COVID Hospital Data
Population Density
Poverty Rate
Obesity
Life Expectancy

EDA

Clean data and
perform EDA
Map by county

Insights

Leverage Tableau
for visualization
Identify trends

Future Work

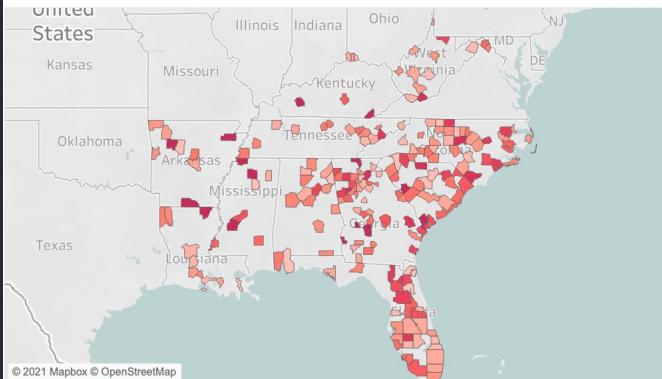
Clustering

Assumptions/Risks

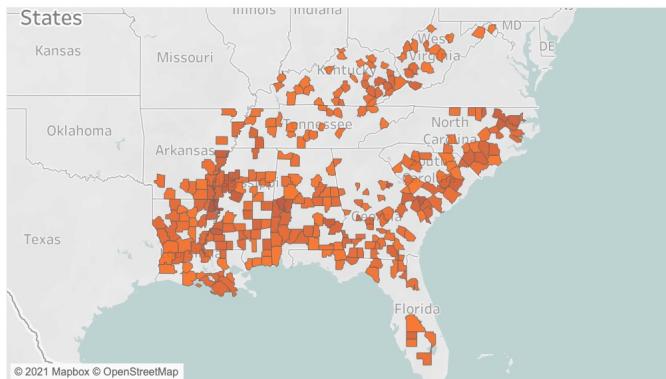
Assumptions	Risks
COVID bed capacity is a reliable indicator for resource allocation	Geopolitical forces such as mask mandates (or lack thereof) can skew results
Obesity and life expectancy are reliable proxies for overall health	Other factors that are important may be missed

Insights

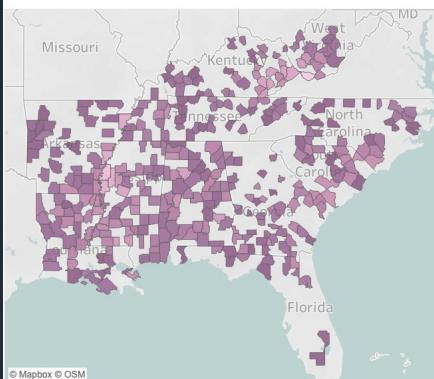
Hospital Bed Capacity



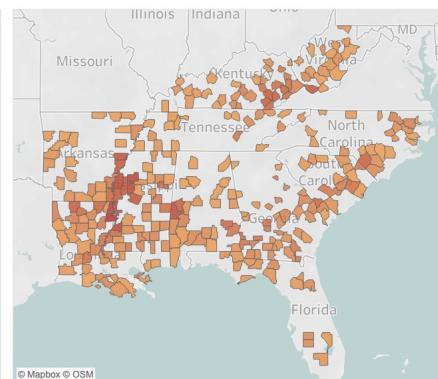
Obesity



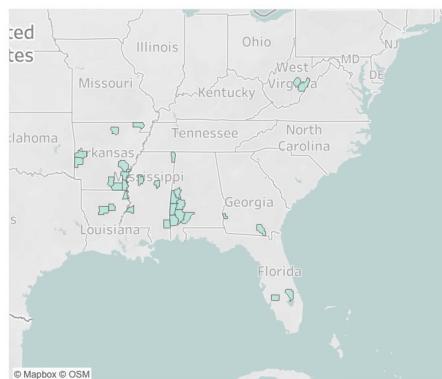
Life Expectancy



Poverty Rate



Population Density



Region

- (All)
- Middle Atlantic
- Midwest
- Mountain
- Northeast
- Pacific
- South
- Southwest

Highest N%

25%

Lowest N% (Pop/Life)

25%

Capacity

0.7676 1.0000
0.2500 0.5300

Obesity

0.2500 0.5300
0.0270 0.4110

Overall Life Expectancy

69.000 76.000

Poverty

0.0270 0.4110

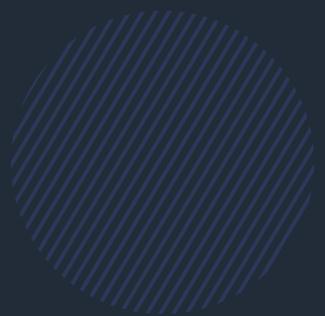
Population Density

6 5,000

Conclusion

- Leveraging data science methodologies can potentially reduce COVID deaths and increase overall health
- The Southeast region hit hardest for COVID hospitalizations, obesity, poverty, and life expectancy
- Invest strategically via clustering

Appendix

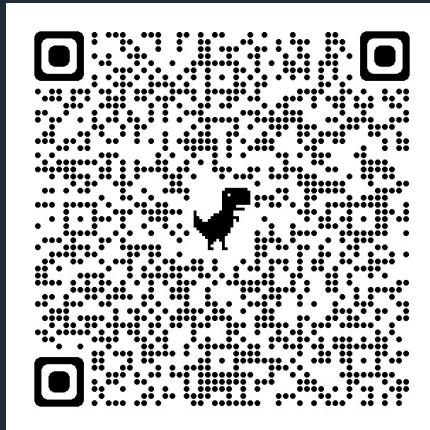


Sources

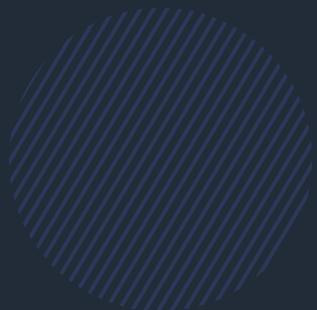
- [COVID Hospitalization Data](#): Department of Health and Human Services
- [Obesity and Life Expectancy by County](#): healthdata.org
- [Population Density by zip code](#): US Census
- [Poverty Rates by County](#): US Census

Tableau Dashboard

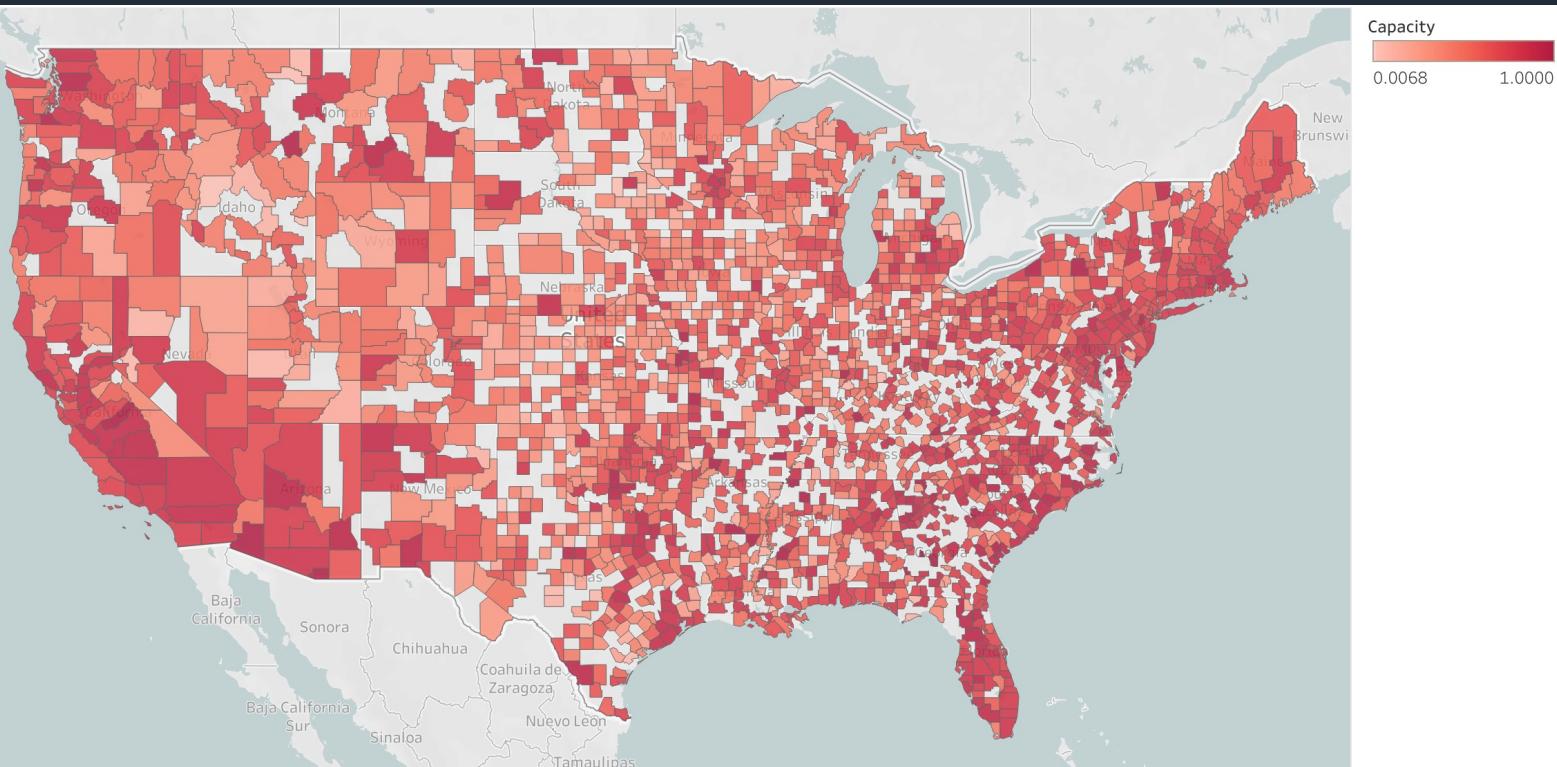
- Interact with Data here:



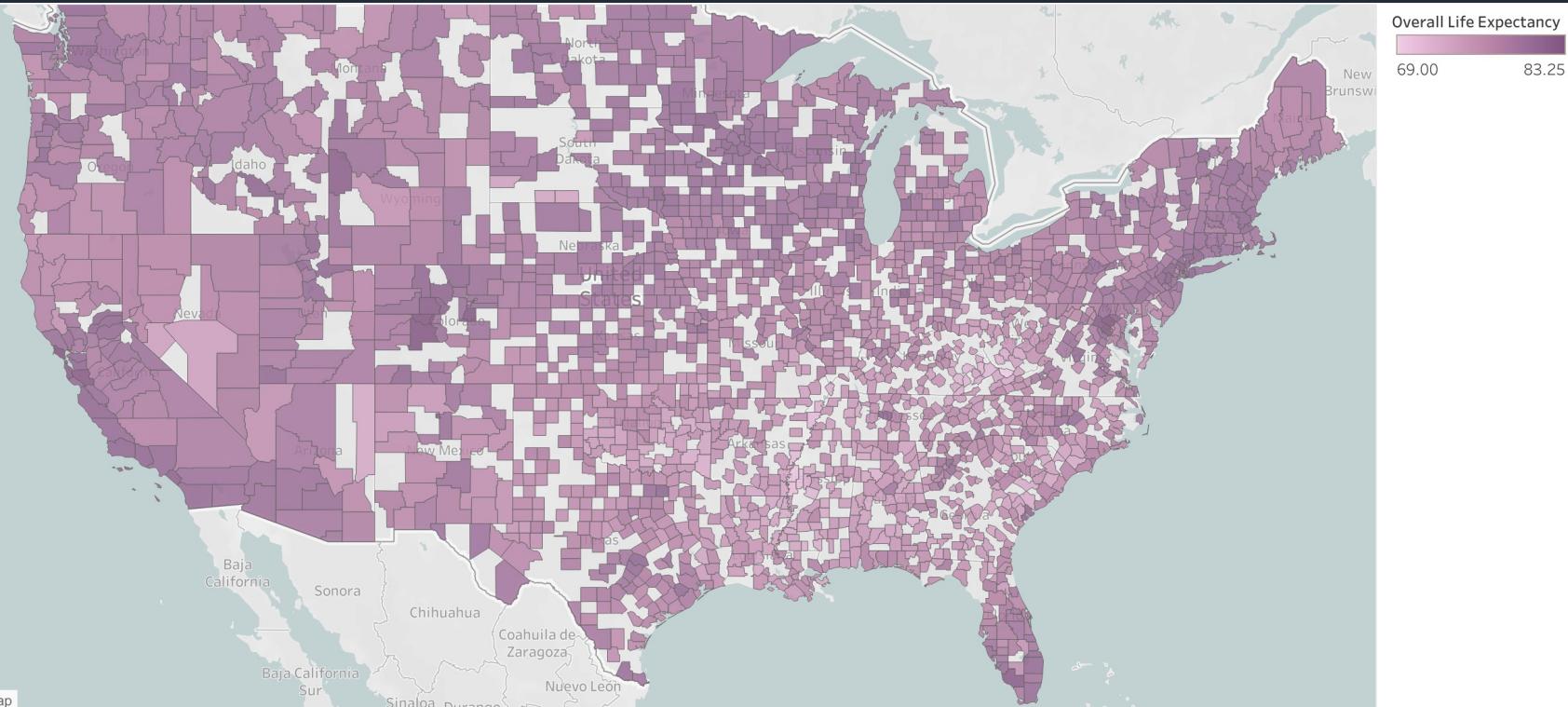
Overall Maps



Hospital Bed Capacity



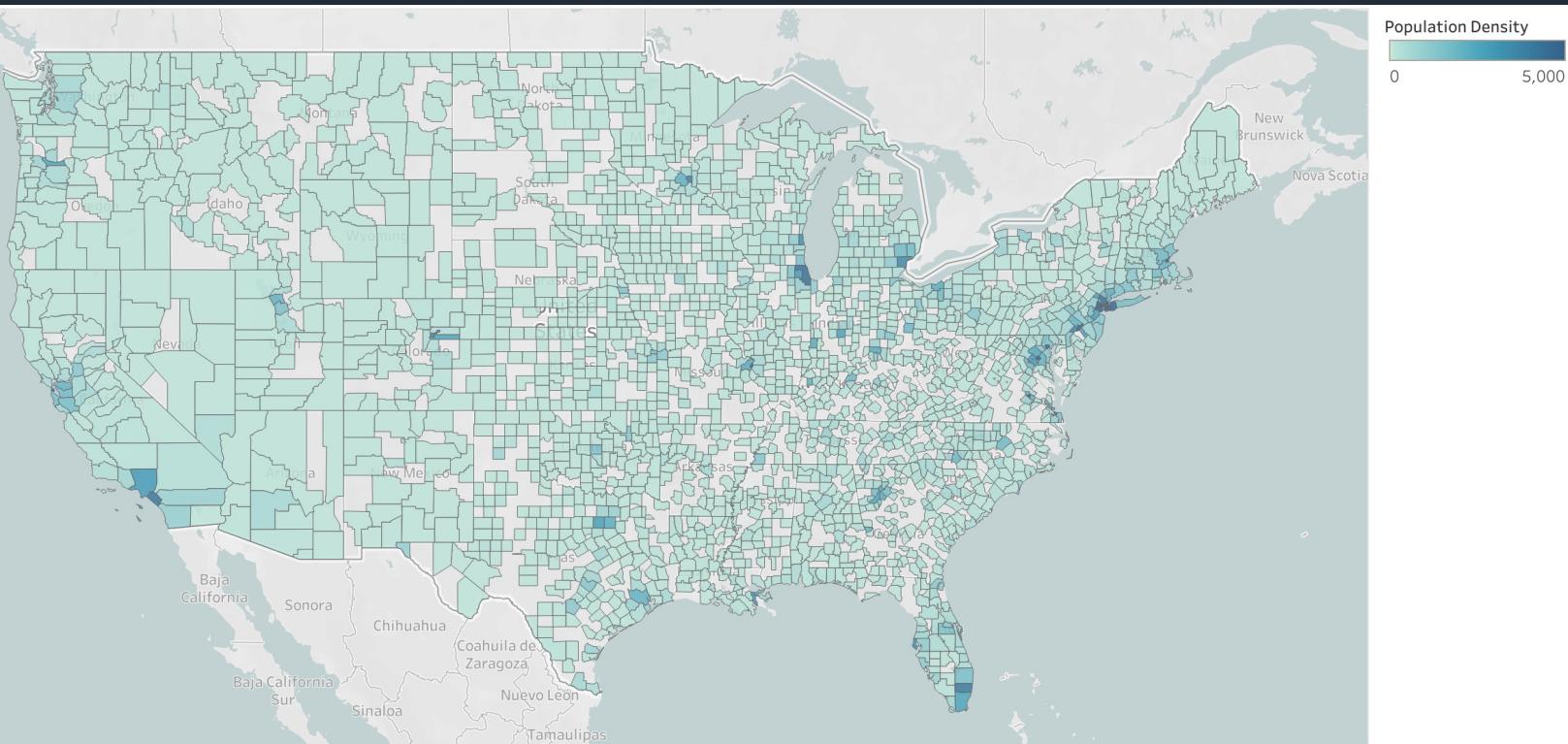
Life Expectancy



Obesity



Population Density



Poverty

