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AI for Good
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# GeoAI *for* Health Summit

*monday, june 27*

*session time: 10am - 11:30 US EST*

# Agenda

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- Welcome & Introduction
- Panelists
  - Stephen MacFeely, PhD, WHO
  - Jay R Etherton, Data Scientist/Epidemiologist, HSR.*health*
  - Serene Ong, GIS Analyst & Anthony Arce, Data Coordinator, San Bernardino Co Dept of Public Health
- Q&A
- Networking

# How We Help

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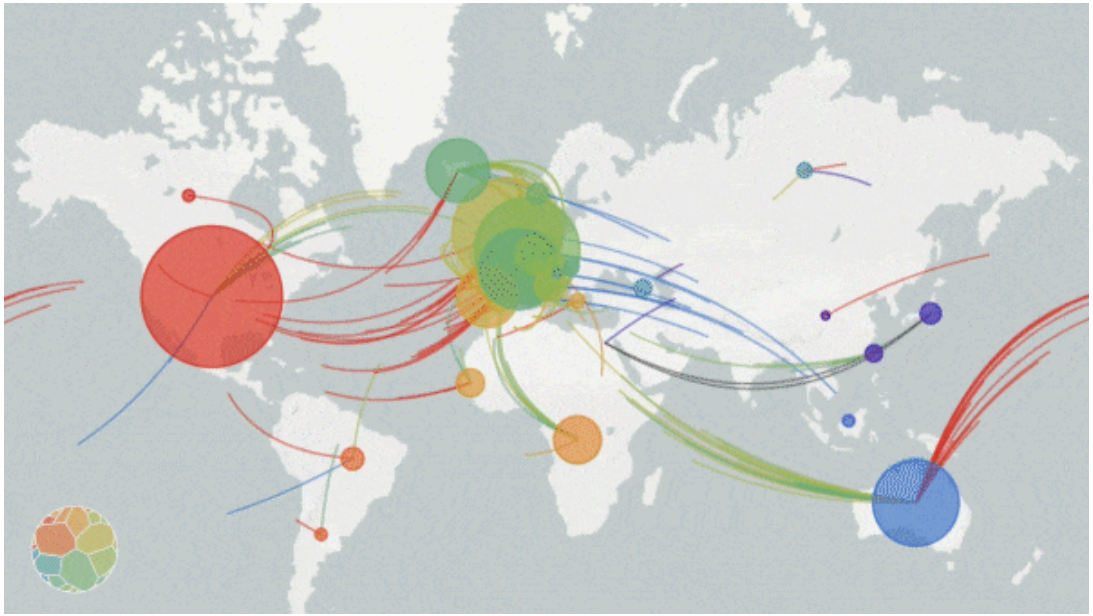
## Leverage Actionable Insights from Health, Social, & Environmental Data to:

| SOLUTION | BENEFITS | CLIENT |
|---|---|---|
| **Disease Surveillance & Intervention Solution** | Guide efforts to safely reopen economies and resume normal activities.<br>Enable effective allocation of resource to combat health disasters.<br>Identify early signals of potential human-to-human transmission. | Global Public Health, WHO<br>Health Departments<br>National CDCs<br>Hedge Funds<br>Airlines<br>Cruise Lines<br>Hotels<br>Real Estate<br>School Systems<br>Logistics |
| **Health Risk Data & Indices** | Enable Organizations to anticipate and take advantage of health risks.<br>Assess the current and future health & medical needs of a population.<br>Stratify patients for risk of adverse outcomes. | Emergency Management<br>Insurers<br>Health Systems |
| **SDOH** | Leverage insights from broad sets of social & environmental determinants of health. | Hospitals<br>Health Departments<br>Community Service Organizations |

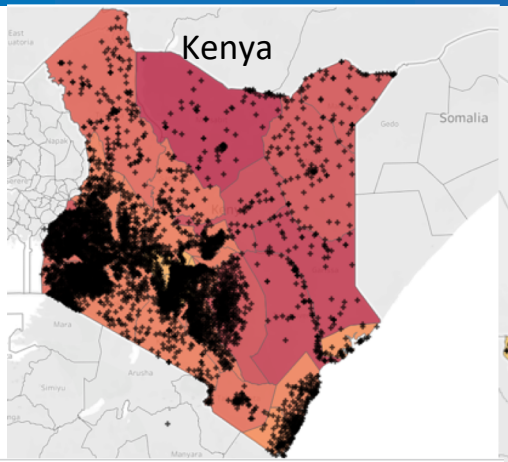
# How We Help

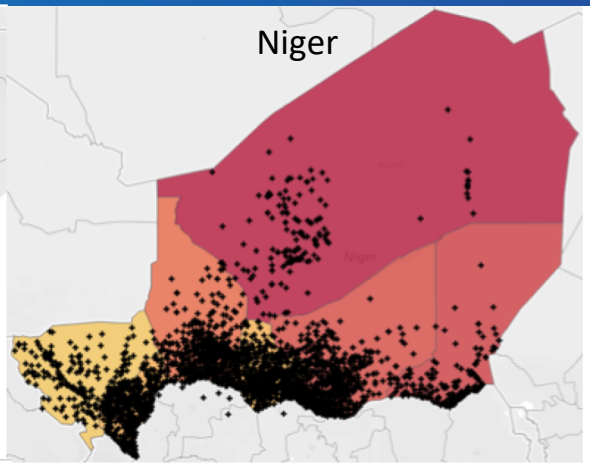
Leverage Actionable Insights from Health, Social, & Environmental Data to:

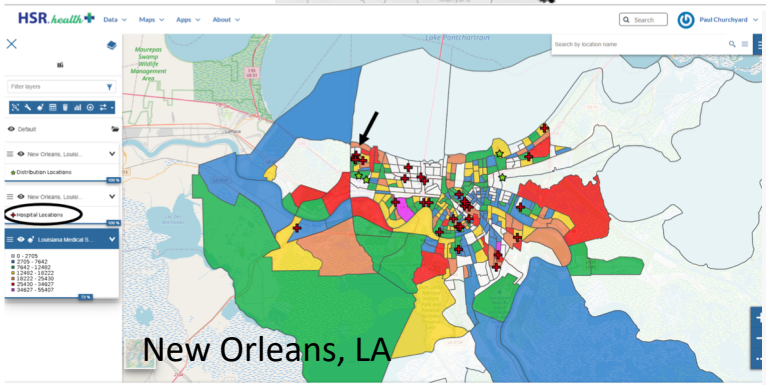


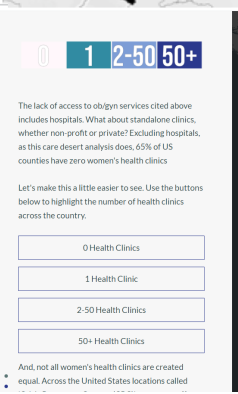
# GeoAI At Work In Healthcare

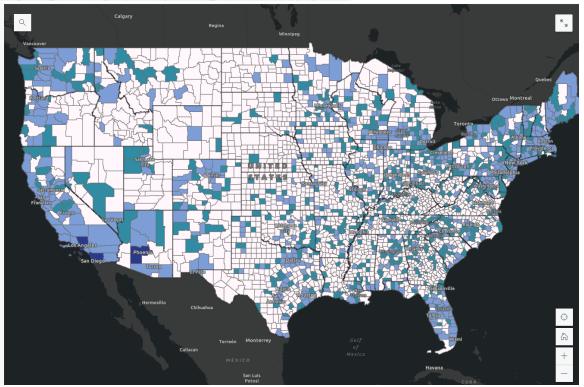
# Healthcare Access: Facility Location



# Novel Data Sources

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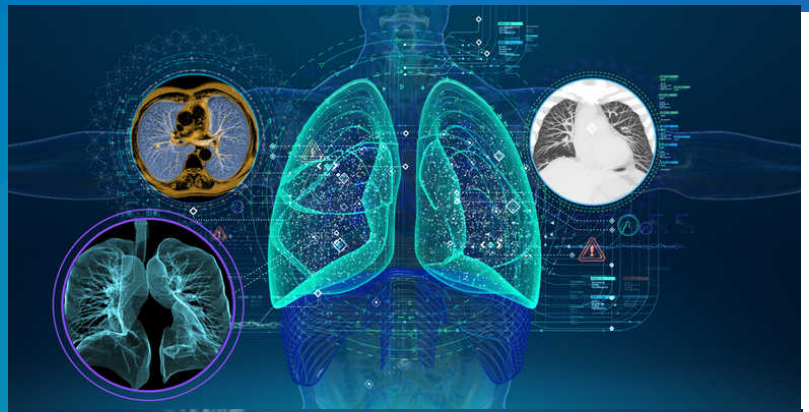
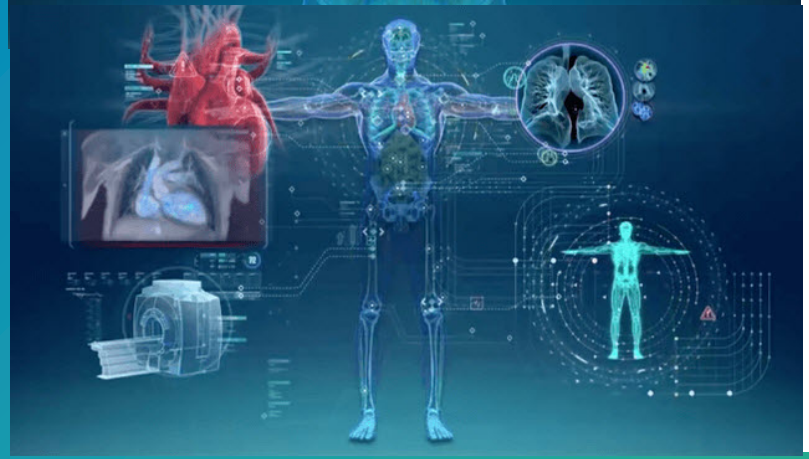
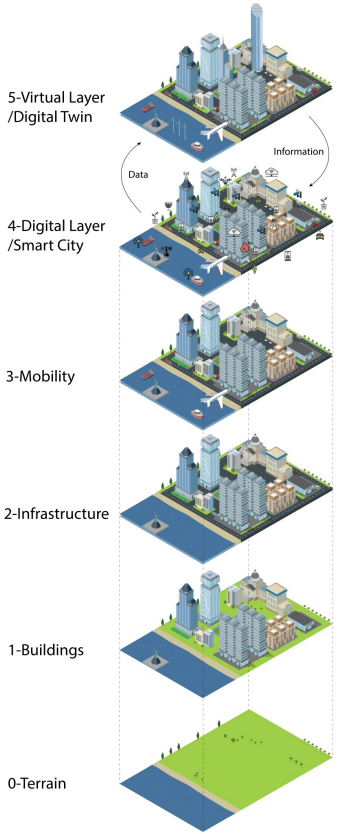
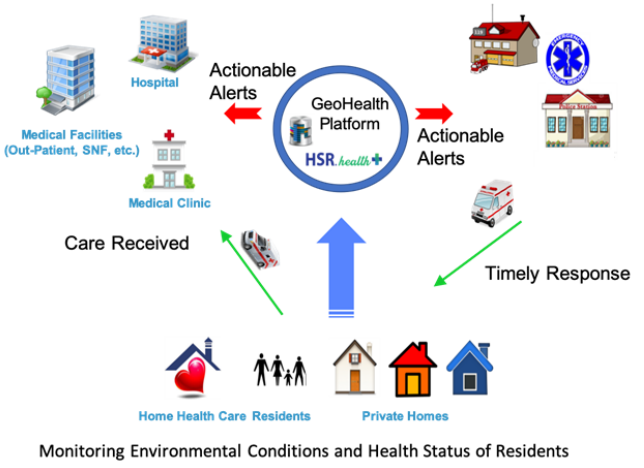


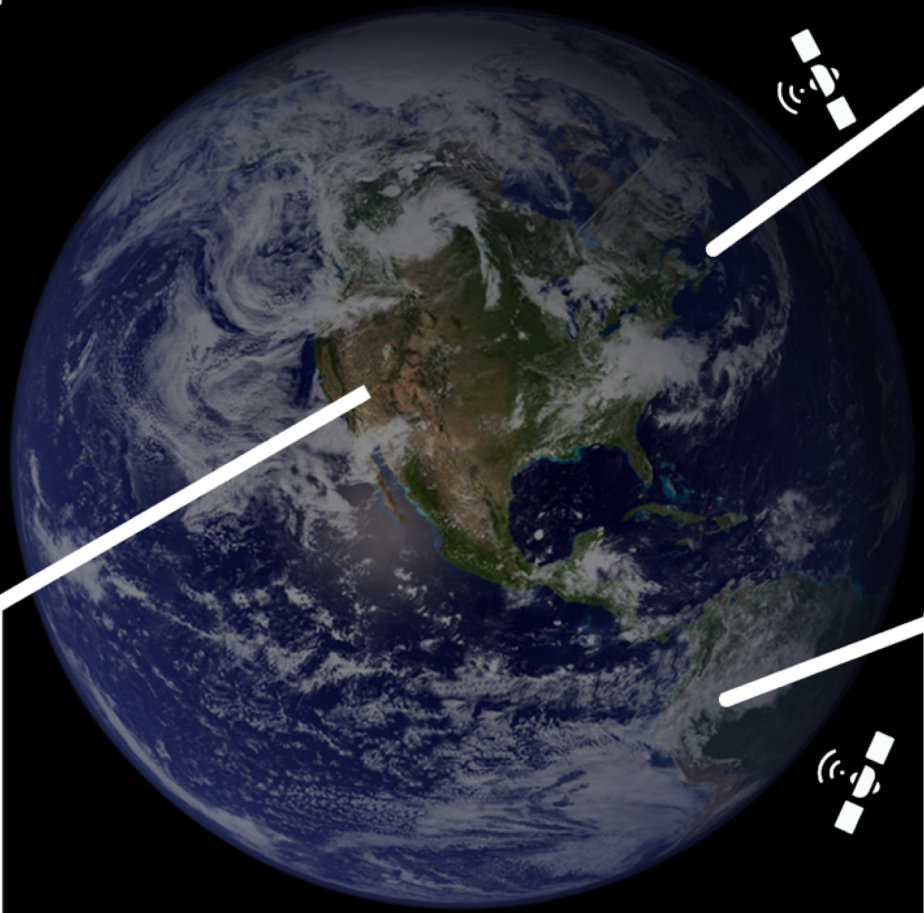




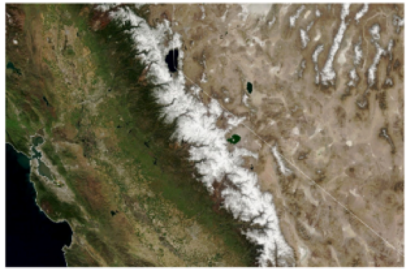

Monitoring Environmental Conditions and Health Status of Residents

# EARTH OBSERVATION

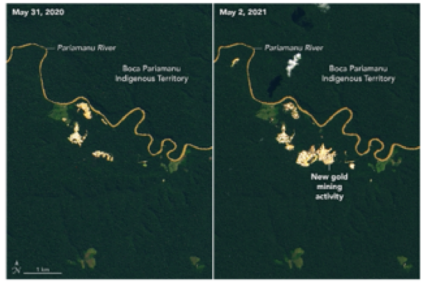


## FLASH FLOODS FROM HURRICANE IN NORTHEAST

## CLIMATE-CHANGE INDUCED MOUNTAIN ICE MELTING IN ROCKIES



## GOLD-MINING RELATED FOREST LOSS IN PERU




*IMAGES FROM EARTHOBSERVATORY.NASA.GOV

# Informing Policy Makers

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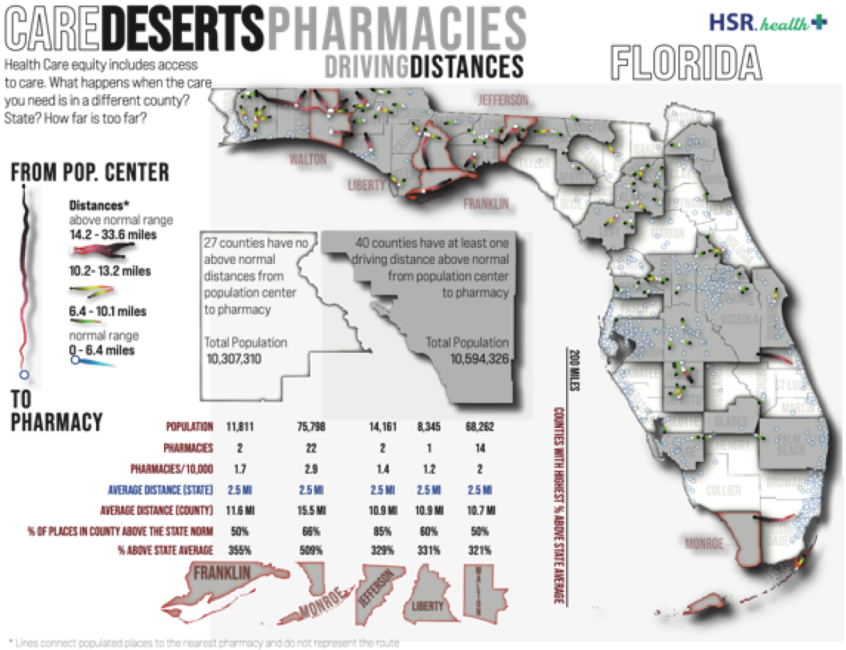


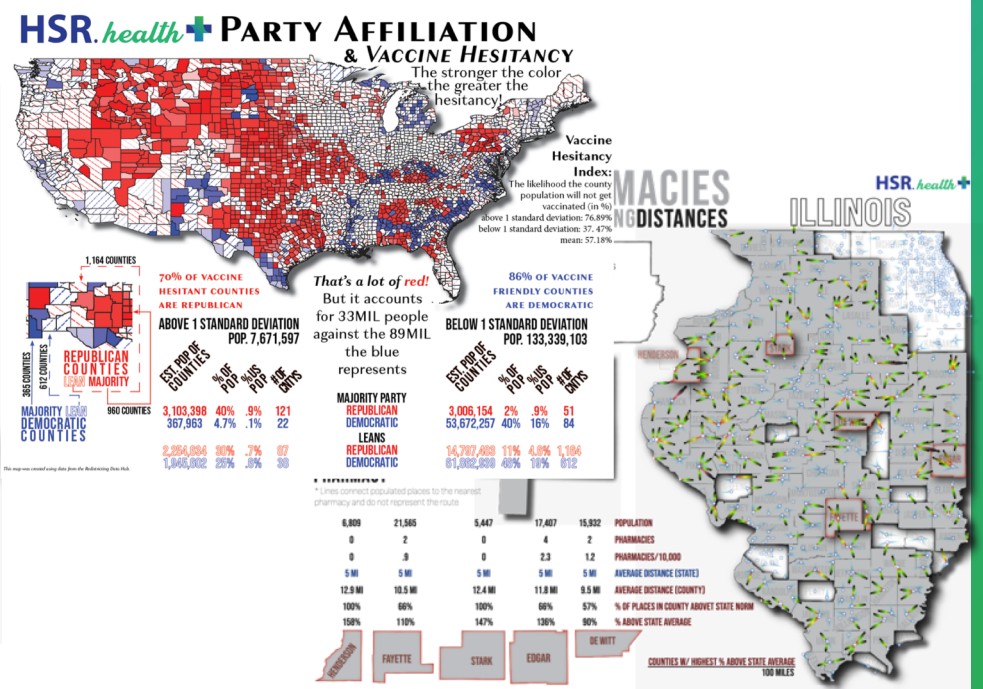

# Informing Policy Makers

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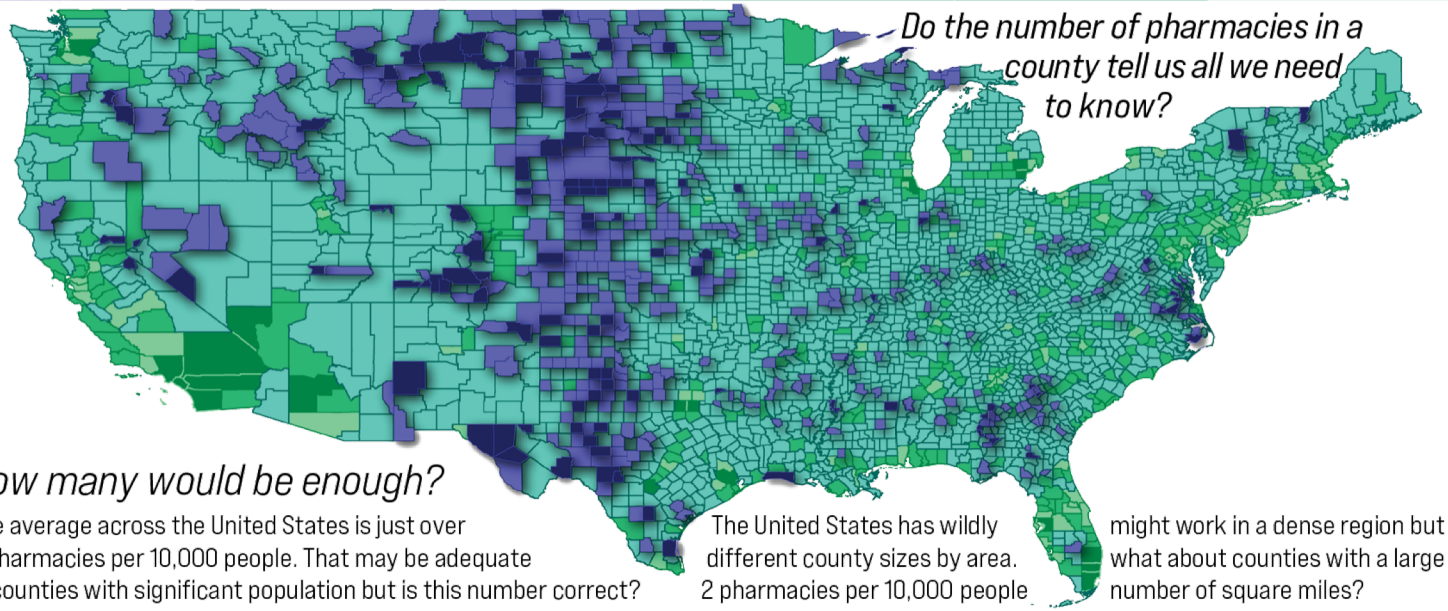
## PHARMACY DESERTS

**Number of Pharmacies per County**

| 0 | 1 | 2-25 | 26-100 | 101-300 | 300+ |
|---|---|---|---|---|---|
| (143 Counties) | (377 Counties) | (2,700 Counties) | (353 Counties) | (103 Counties) | (24 Counties) |



*Do the number of pharmacies in a county tell us all we need to know?*

*How many would be enough?*

The average across the United States is just over 2 pharmacies per 10,000 people. That may be adequate in counties with significant population but is this number correct?

The United States has wildly different county sizes by area. 2 pharmacies per 10,000 people might work in a dense region but what about counties with a large number of square miles?

**Pharmacies per 10,000 people**

| < 1 (245) | 1 - 3 (2,581) | > 3 (527) |
|---|---|---|

**Pharmacies per 100 sq. miles**

| 0 (143) | < 1 (1,517) | 1-10 (1,247) | >10 (313) |
|---|---|---|---|

# Identifying Solutions to Health Challenges

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1. Who/which populations & communities are at greater risk of a specific health issue?

2. What are the underlying factors that contribute to this risk?

3. How can those populations best be served / treated to overcome those risks?

4. Where should interventions be launched to have the greatest impact at lowering the risk?

# Health Risk Insights

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## Opioid Abuse Related Mortality (OARM)

An Analysis of the Significant Social Determinants of Health in the USA as well as the effect of those determinants on the OARM.

Select a Social Determinant of Health (SDoH) in the Variable drop down menu to learn the impact it has on opioid mortality.

or

Select a county(ies) from the County menu to see how one, or multiple, counties compare.

The bar chart below displays the OMI for each county (black bar) and how that county's SDoH value compares to the rest of the state.

Variable

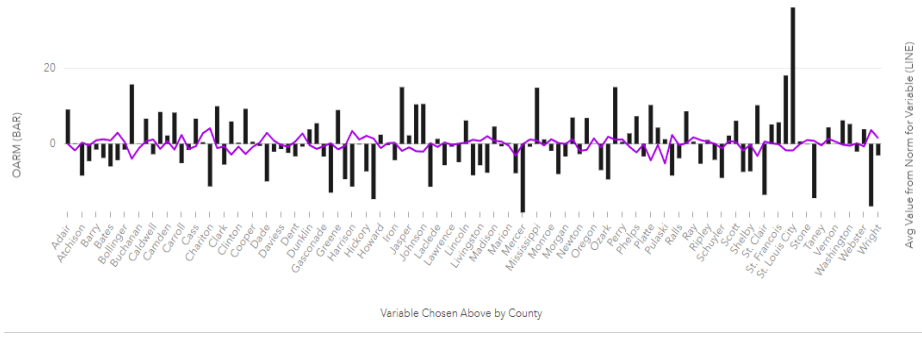
Total

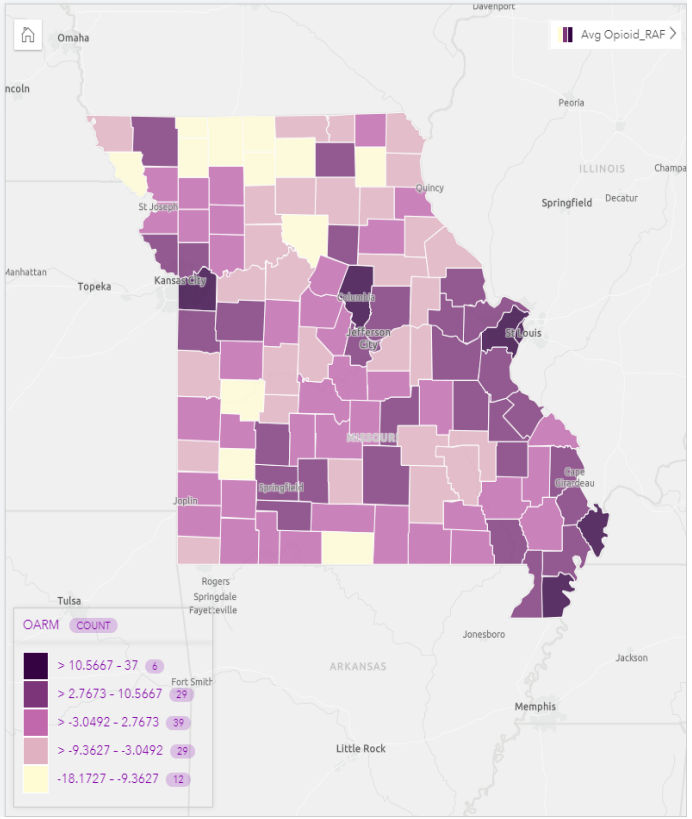
County

Search for a value

- Select All
- Adair
- Andrew
- Atchison
- Audrain
- Barry
- Barton

Card 3



# Health Equity

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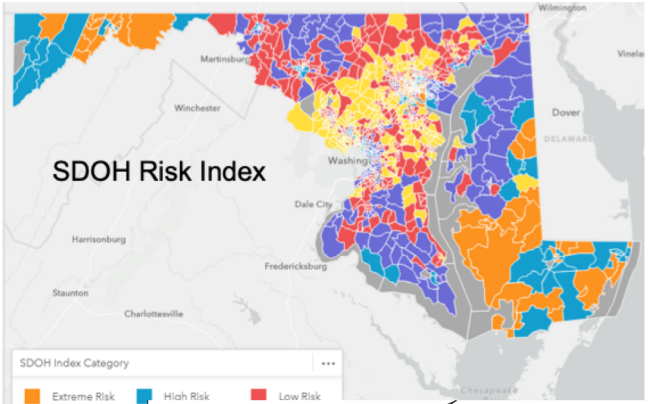


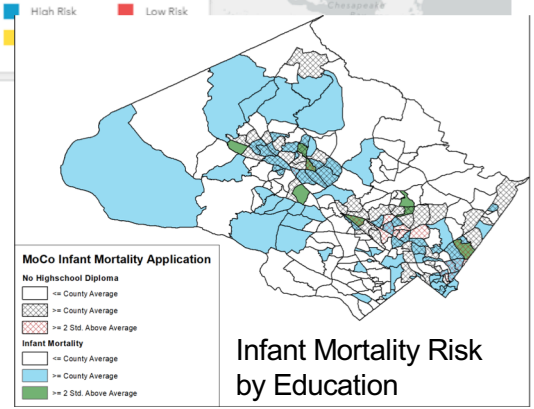


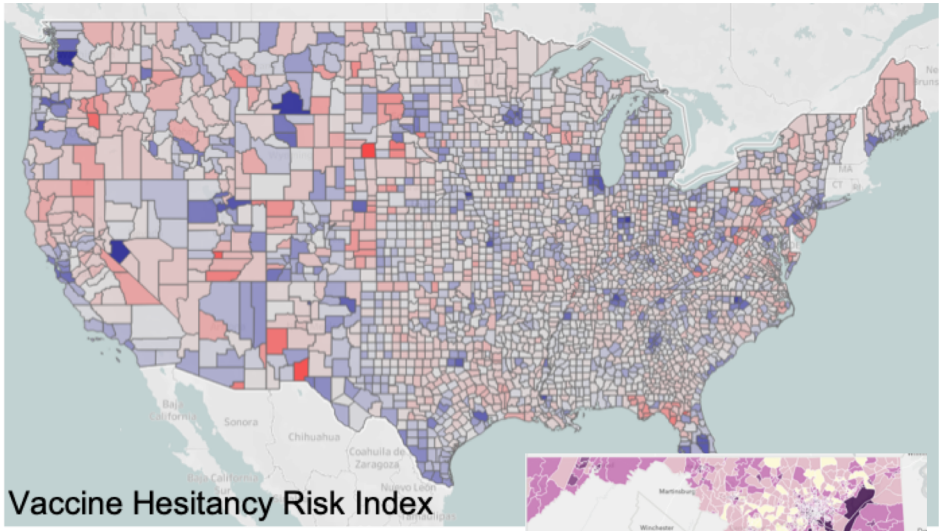


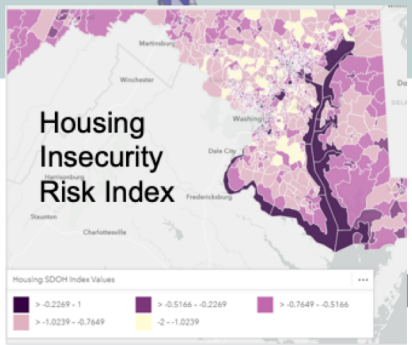

# Analysis of Underlying Factors

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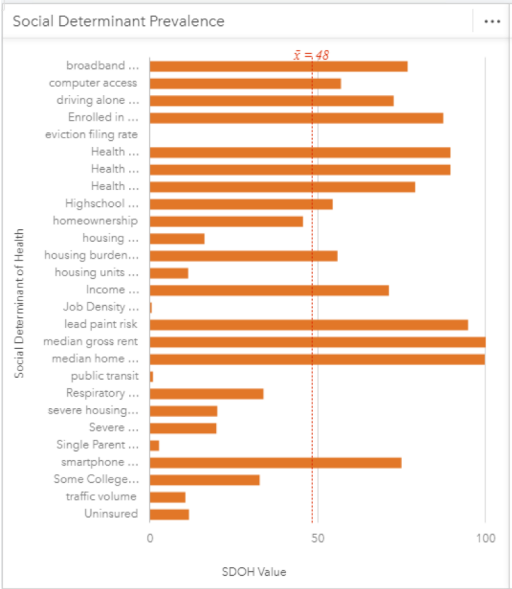
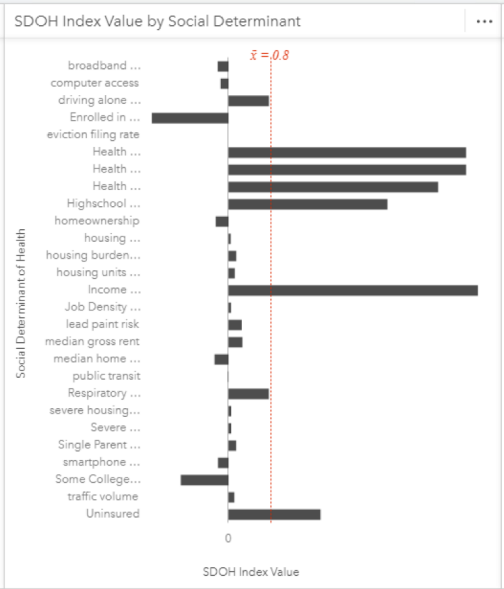
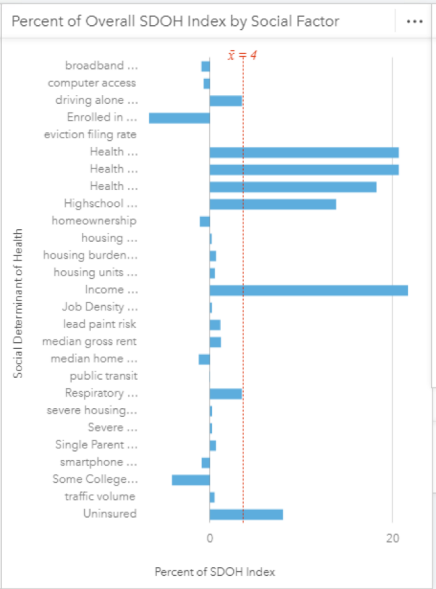
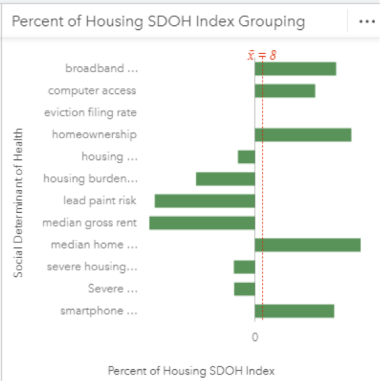
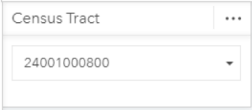


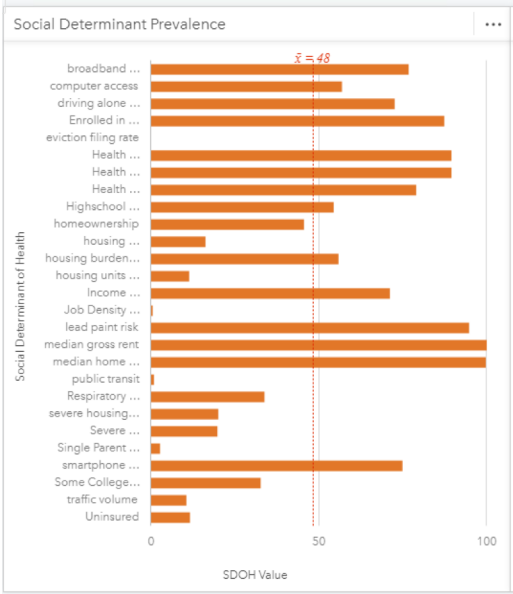



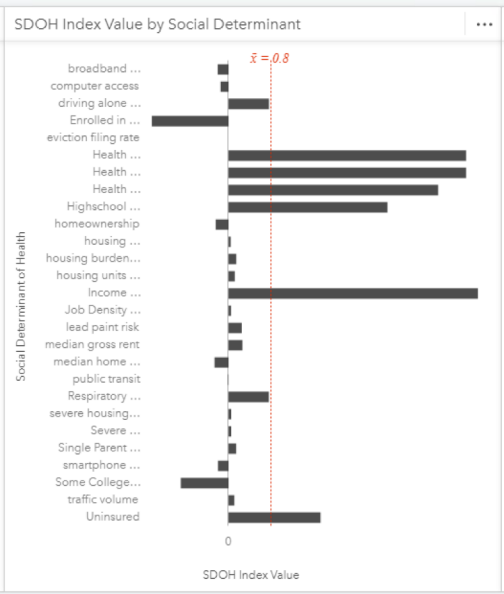



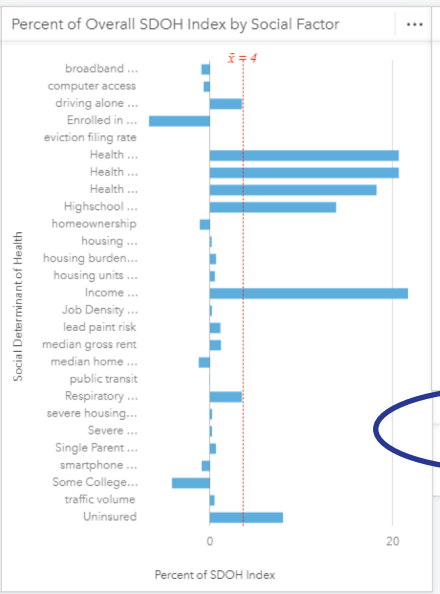



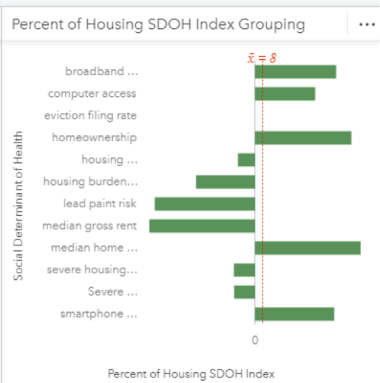



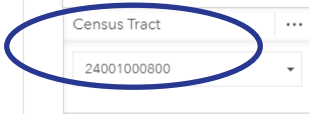
# Analysis of Underlying Factors at a Granular Level



# Identifying Medical Supply Needs

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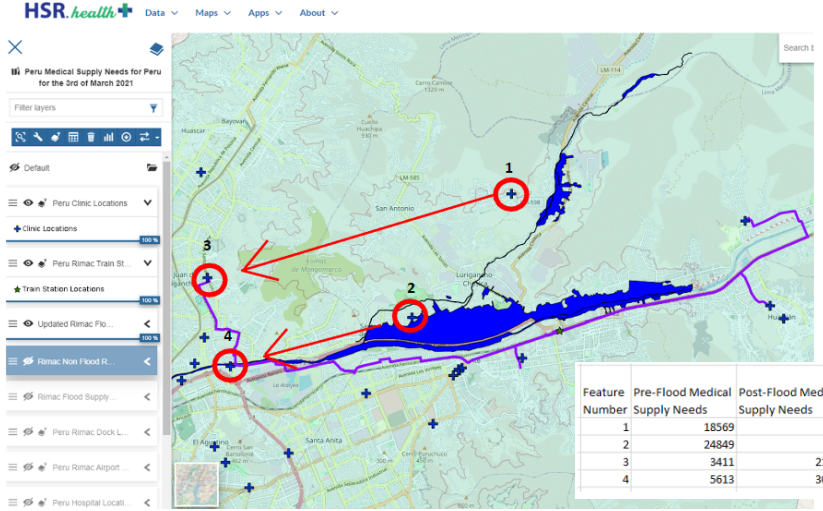
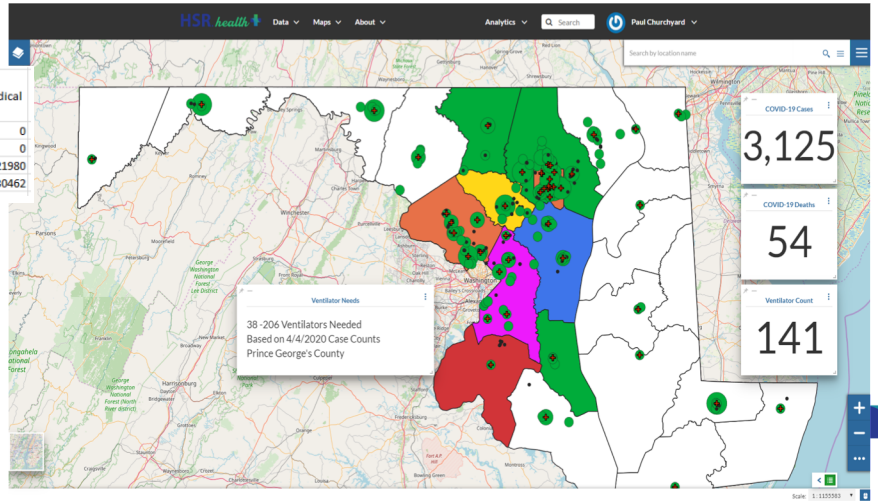
Rimac Post-Flood Medical Supply Routes




| Feature Number | Pre-Flood Medical Supply Needs | Post-Flood Medical Supply Needs |
|---|---|---|
| 1 | 18569 | 0 |
| 2 | 24849 | 0 |
| 3 | 3411 | 21980 |
| 4 | 5613 | 30462 |



# Panel

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