

Data for Healthy Insights

South Carolina Association for Community Economic Development (SCACED) and MITRE Partnership Funded by the Robert Wood Johnson Foundation

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MITRE

Introductions

Background

- The South Carolina Association for Economic Development (SCACED) and MITRE, supported by the Robert Wood Johnson Foundation, partnered to demonstrate how public data sources, “big data”, and advanced analytics can transform knowledge and accelerate progress towards creating a Culture of Health
- Identified an initial use case:
 - Apply data analytics over publically accessible data sources from multiple sectors to support SCACED’s initiative, *Data for Healthy Food Access* in South Carolina
 - Utilize predictive modeling and data visualization to inform investment and collaboration decisions

Data for Healthy Insights

- To contribute to a solution, SCACED & MITRE launched the *Data for Healthy Insights* initiative in South Carolina
 - Designed to increase access to a healthy lifestyle in economically underserved, low-access communities
- Unconventional partnership
 - MITRE – data analytics firm primarily involved in research
 - Built the initial analytic capability, *Healthy Insights*, to enhance impact in South Carolina and beyond
 - SCACED – statewide trade association, primarily involved in program administration, advocacy
 - Health = non-traditional CED area in SC
 - Tool, helping make connections b/w community development and health

Problems in South Carolina

- 7th most obese state in the country and lags behind the rest of the nation in overall health measures¹
- Ranks 42nd in standard public health measures, including the prevalence of obesity, heart disease, and diabetes²
- Ranks 4th in the nation for adult population with diabetes and 3rd for African American adults with diabetes³
- Spends \$1.2 billion on care of patients with conditions related to obesity³

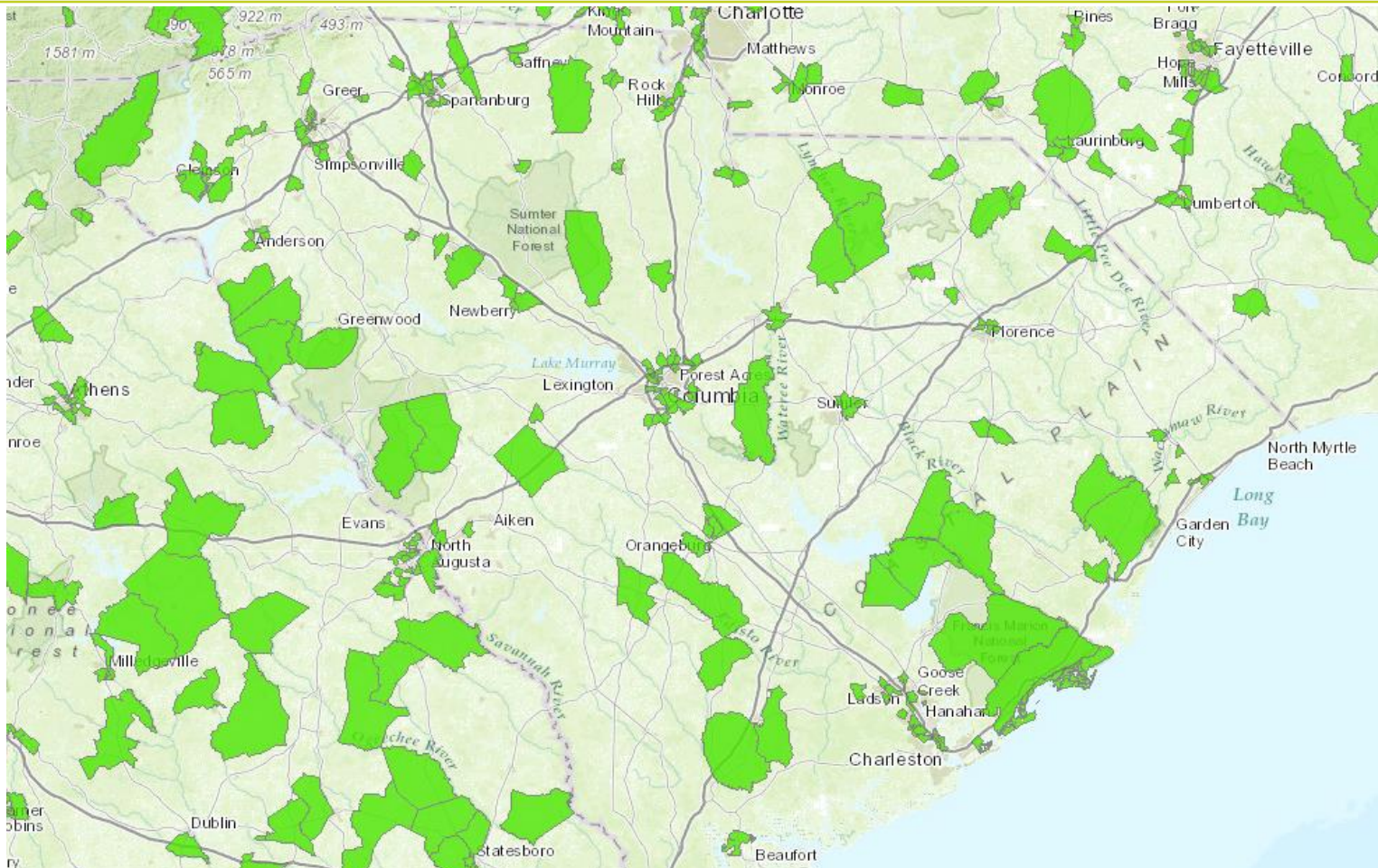
If South Carolina could halt the increase in obesity and simply maintain today's levels, it would save the state approximately \$3B by 2018³

1. South Carolina Food Access Task Force, "Access to Healthy Food in South Carolina," 2014.

2. United Health Foundation, "America's Health Rankings," 2014.

3. South Carolina Department of Health and Environmental Control, "Diabetes in South Carolina," 2011.

Problems in South Carolina



According to USDA, 118 Census Tracts in South Carolina - or 11% of the state - are classified as "low-income" and "low access".

Healthy Insights Tenets

- Keep costs low for easy leverage by other communities
 - Open, publicly available data
 - Open source software when possible
- Build intuitive user interface
 - Easy to use without training
- Support modestly sophisticated analyses
 - Selected and pre-set queries

Healthy Insights

Healthy Insights South Carolina

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Healthy Insights for South Carolina

Public health data combined with community resources to provide healthy insights for South Carolina.

[View Healthy Insights Dashboard](#)



Partnership

Healthy Insights for South Carolina is a partnership between the South Carolina Association for Economic Development (SCACED), The MITRE Corporation, and the Robert Wood Johnson Foundation, to demonstrate how public data sources, and data modeling can be used to guide initiatives towards improving the health and promoting a healthy lifestyle in South Carolina's communities. Access to a healthy lifestyle encompasses access to healthy food choices, physical activity, education opportunities and economic development.

Goals for Healthy Insights

- Identify communities that are high-need based on factors like proximity to a food retailer, population burden of dietary related disease, and median income
- Identify opportunities to improve access to a healthy lifestyle by pinpointing the locations of nearby organizations that could improve access to food, physical activity, educational, or economic resources
- Identify high impact interventions by exploring correlations between risk factors and dietary related disease and predicting the health impact of mitigating these factors



MITRE



www.healthyinsight.org

Primary Data Sources

- Census
 - Demographic Profile (DP1)
 - American Community Survey (ACS)
 - Topologically Integrated Geographic Encoding and Referencing (TIGER)
- RWJF County Health Rankings
- Local Resources
 - USDA SNAP retailers (*classification through detailed analysis*)
 - Farmer's Market and Consumer Support Agriculture
 - Let's Go! South Carolina Physical Activity Locations
 - SCACED members and stakeholders
 - Church data

Correlations

Factor	Correlation with Obesity in South Carolina	P-value
Median household income	-0.81	Less than 0.001
High school graduation rate	-0.72	Less than 0.001
Percentage of college graduates	-0.80	Less than 0.001
Percentage of single mothers	0.58	Less than 0.001
Miles to nearest grocery store	0.61	Less than 0.001
Miles to nearest farmer's market	0.38	0.0092
Miles to nearest junk food retailer	0.48	0.0008
Number of nearby junk food retailers	0.22	0.1415

Income and education are more strongly correlated with obesity than distance to nearby retailers.

Healthy Insights: Capabilities

- Identify **communities that are high-need** based on factors such as proximity to a food retailer, population burden of dietary related disease, and median income
- Identify **opportunities to improve access to a healthy lifestyle** by pinpointing the locations of nearby organizations that could improve access to food, physical activity, educational, or economic resources
- Identify **high impact interventions** by exploring correlations between risk factors and dietary related disease and predicting the health impact of mitigating these factors

**Prioritize investment areas, guide intervention design,
measure impact**

Data-Driven Decision-Making

- **Scenario 1: Census County Division Data**
 - Example: Obesity and Distance to a Supermarket
 - Drilling down to the community-scale
- **Scenario 2: Predictor Modeling**
 - Example: Obesity and Income
 - Helping drive local programming in an area
- **Scenario 3: Identify and Mobilize Local Capacity**
 - Example: # of churches and/or CDCs in an area
 - Inform investment decisions based on SCACED's local partnerships

Scenario 1: Census County Division Data Drilling Down to the Community Scale

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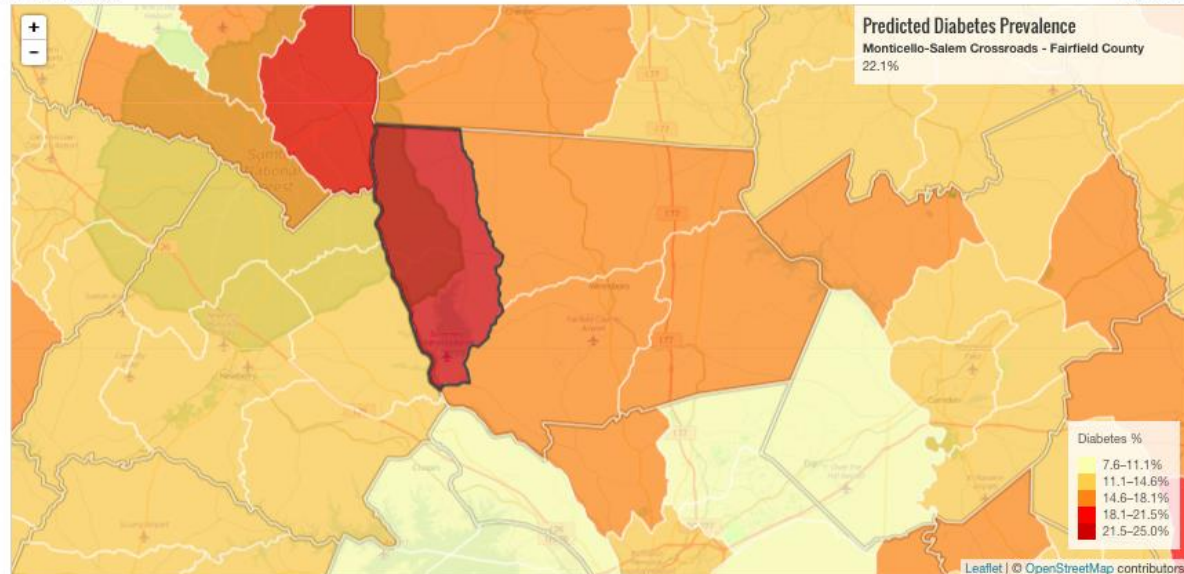
Census County Division ▾ Diabetes Prevalence Predicted by Household Income ▾ USDA Food Desert Overlay

[Zoom to all](#)

Diabetes Prevalence Predicted by Household Income

Predicted percentage of the population with diabetes based on household income, education attainment and commute time

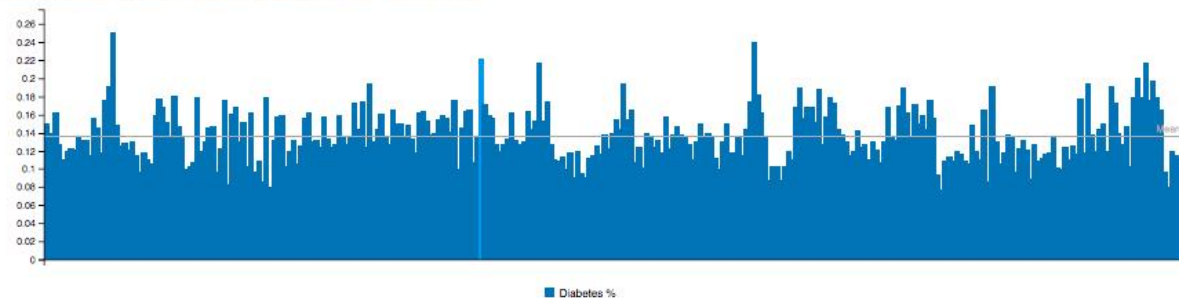
Region Type	Census County Division
Data Set	Computed from MITRE Model
Median	13.2%
Max	Millett Census County Division: 25.0%
Min	Clemson Census County Division: 7.6%
Minimum Household Income	<input type="text" value="\$38,000"/>
Pct. College Graduates %	<input type="text" value="14.3%"/>
Max. Daily Commute Time	<input type="text" value="52 min."/> <input type="button" value="Update"/>



Obesity % compared to Diabetes Prevalence Predicted by Household Income



Sort by Diabetes Prevalence Predicted by Household Income | Sort by name



Scenario 2: Predictor Modeling Help Drive Long-Term Programming

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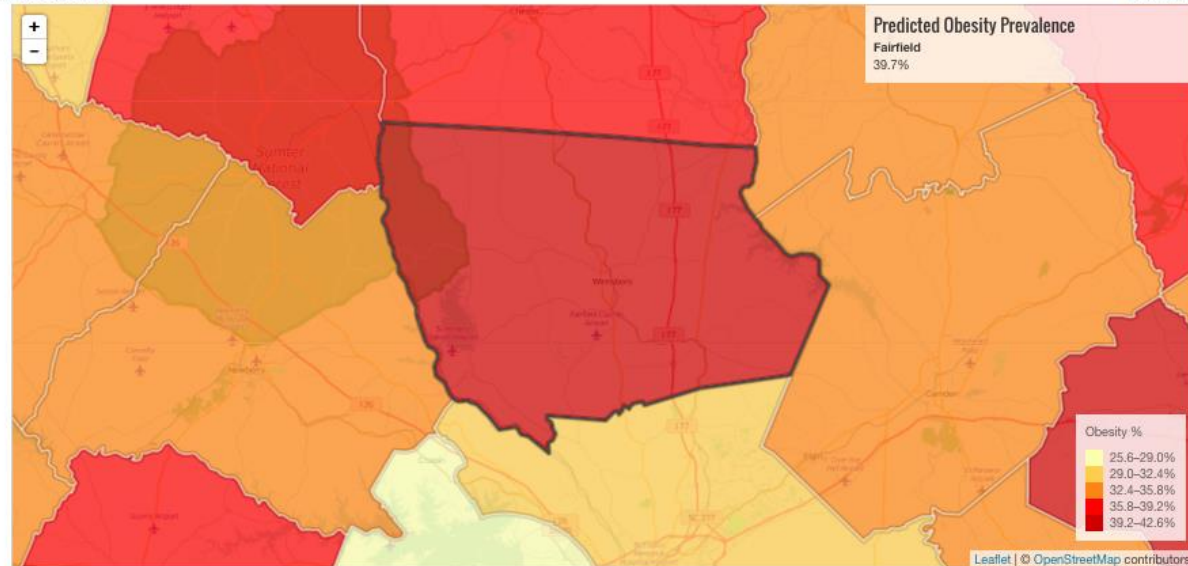
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 County Obesity Prevalence Predicted by Household Income USDA Food Desert Overlay
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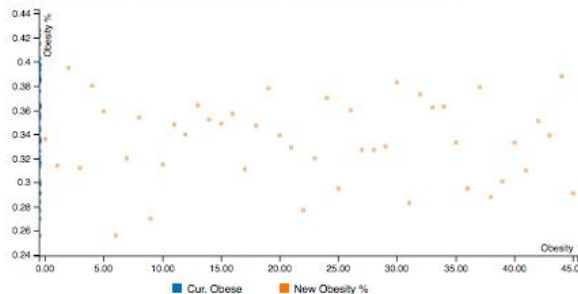
Obesity Prevalence Predicted by Household Income

Predicted percentage of the population with obesity based on household income, education attainment and commute time

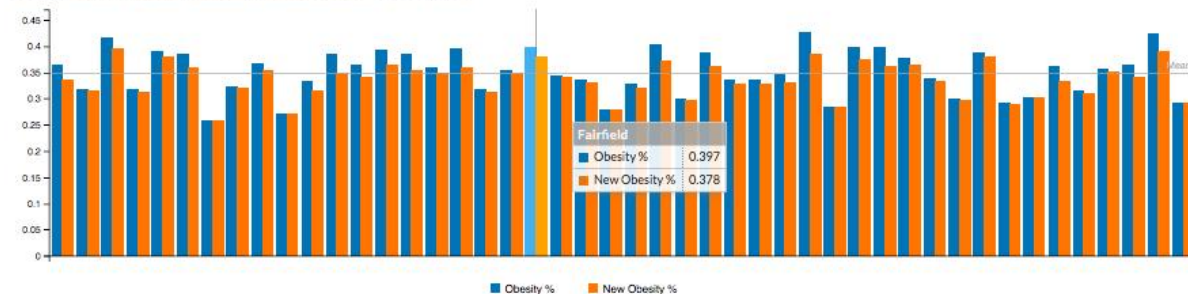
Region Type	County
Data Set	Computed from MITRE Model
Median	35.4%
Max	Lee County: 42.6%
Min	Beaufort County: 25.6%
Minimum Household Income	<input type="text" value="\$49,000"/>
Pct. College Graduates %	<input type="text" value="17.9%"/>
Max. Daily Commute Time	<input type="text" value="50 min."/> <button>Update</button>



Obesity % compared to Obesity Prevalence Predicted by Household Income



Sort by Obesity Prevalence Predicted by Household Income | Sort by name



Scenario 3: Identify and Mobilize Local Capacity

Show Capacity in an Area & Inform Investments

Healthy Insights South Carolina

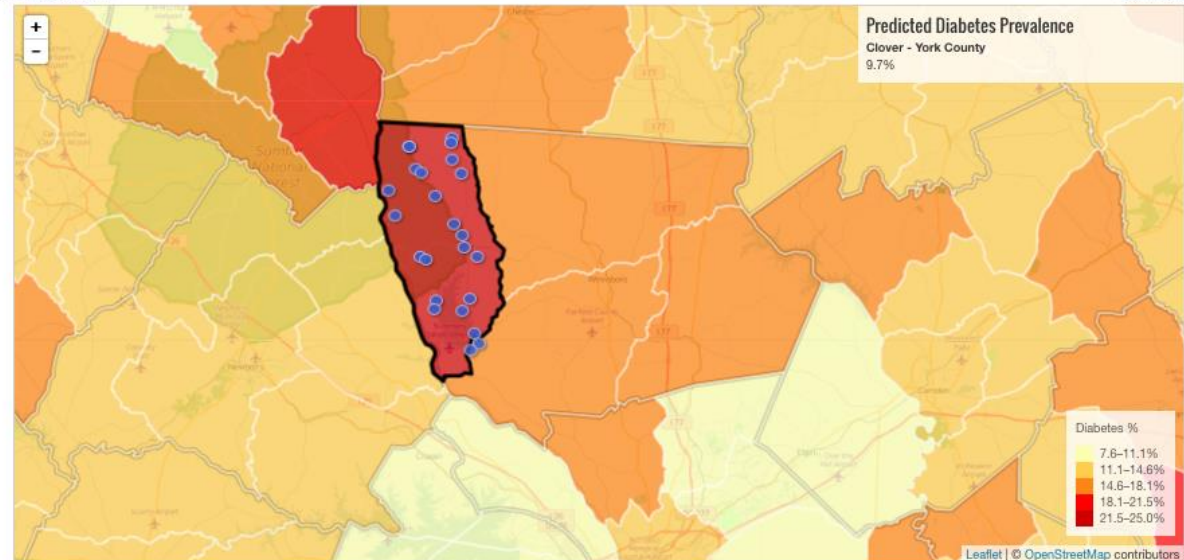
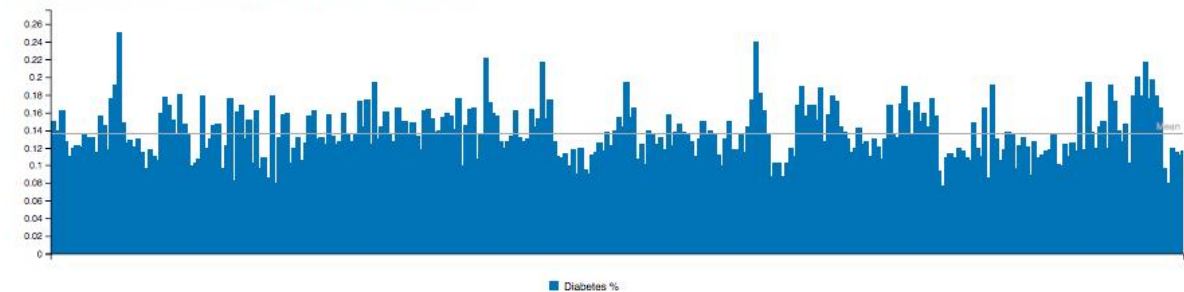
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Monticello-Salem Crossroads

× Close

County	Fairfield
Population	2,209
Population Density	16 people per sq. mi.
Area	139 sq. mi. Zoom
Healthy Food Retailers	Average distance: 12.1 (mi) Grocers/Supermarkets 0
Junk Food Retailers	Average distance: 7.6 (mi) Count: 6.9 0 Junk Food Retailers
Physical Activity Resources	Average distance: 2.5 (mi) Healthy Activity Locations 4
Educational Locations	Public Schools 1 Private Schools 0
Other Community Resources	YMCA Locations 0 <input checked="" type="checkbox"/> Churches 24 Credit Unions 0 Farmer's Markets 0 all none
Certified Organizations	no orgs

Obesity % compared to Diabetes Prevalence Predicted by Household Income


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SCACED and MITRE at RWJF

