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 measures\(^1\)
- Ranks 42nd in standard public health measures, including the prevalence of obesity, heart disease, and diabetes\(^2\)
- Ranks 4th in the nation for adult population with diabetes and 3rd for African American adults with diabetes\(^3\)
- Spends $1.2 billion on care of patients with conditions related to obesity\(^3\)

If South Carolina could halt the increase in obesity and simply maintain today’s levels, it would save the state approximately $3B by 2018\(^3\)

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\(^3\) 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 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 (SCAEED), 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

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

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

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
Scenario 2: Predictor Modeling Help Drive Long-Term Programming
Scenario 3: Identify and Mobilize Local Capacity
Show Capacity in an Area & Inform Investments

Monticello-Salem Crossroads

- Population: 2,209
- Population Density: 16 people per sq. mi.
- Area: 139 sq. mi.
- Healthy Food Retailers: Average distance: 52.1 mi
  - Grocers/Supermarkets: 0
- Junk Food Retailers: Average distance: 7.6 mi
  - Count: 6.9
- 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, Churches: 24, Credit Unions: 0, Farmer’s Markets: 0
- Certified Organizations: no area

Health Insights South Carolina

USDA Food Desert Overlay

Diabetes Prevalence Predicted by Household Income
SCACED and MITRE at RWJF