Addressing the Intersection of Food Insecurity and Early Childhood Development in Springfield, MA

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Our Soon-To-Be New Home, Springfield MA

- Population estimated at 154,758
  - White - 58%
  - Hispanic - 43.2%
  - Black - 21%
  - White, non-Hispanic - 33%
- Foreign-born persons - 10.1%
- Persons over the age of 5 speaking a language other than English at home - 39%
- Median household income - $35,742
- 29.7% of population is living in poverty
  - 44% under 18 years old

Data according to 2017 US Census Bureau: https://www.census.gov/quickfacts/springfieldcitymassachusetts
How does poverty affect children in Springfield?

- The majority of young children live in areas with low household incomes and high crime rates.
- Areas of Springfield that are low-income have low preschool enrollment levels.
- Food deserts - areas where access to fresh produce is limited.
  - Often due to limited transportation and a lack of supermarkets in large areas of Springfield.
- Annual household spending on fruits and vegetables in Springfield is significantly lower than the national average ($1683.99).

Data from the MECCS Community Maps by The Ripples Group.
The western region of the city has higher poverty levels and higher child populations.

The national poverty rate is 12.7%.

Percent of Households Below Poverty Level:
- >36
- 20
- <4

Population Under 5:
- >611
- 500
- 400
- 300
- <206

Large areas of Springfield have limited access to supermarkets, especially in the southern part of the city.

The supermarkets included have annual sales of at least $1 million.

Sources: "USA Tracts" by Esri from U.S. Census, "USA Supermarket Access" by Jim Herries from Demographic data from U.S. Census and Esri Business location from infoUSA

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Enter SquareOne!

- SquareOne is a private, nonprofit organization that offers a range of family-support and education programs
  - Healthy Families - home visiting program to support parents prenatally through the child's third birthday
  - King Street Preschool and Child Care
  - Dr. Yum Nutrition
  - SPARK Physical Fitness Program
  - Mom Squad - job training group for mothers at risk of homelessness
- Supporting early development and strengthening families to break the cycles of poverty, homelessness, poor nutrition and food insecurity, and unemployment
SquareOne’s Efforts to Fight Food Insecurity
Connecting Families to Resources

WELCOME TO WIC!
GOOD FOOD and A WHOLE LOT MORE!

SNAP
Supplemental Nutrition Assistance Program

The Food Bank
of Western Massachusetts

OPEN PANTRY
COMMUNITY SERVICES, INC.
Dr. Yum Project and Classroom Nutrition

- Dr. Yum - a nutrition curriculum designed to introduce healthy foods to children early in development
  - Hands-on engagement with food preparation to encourage kids to try seasonal fruits and vegetables
  - Practiced monthly in preschool classes at SquareOne’s King Street Preschool
  - Preschoolers prepare their own food and rate their snacks on a scale from Yum to Yuck!

- The food service team at King Street Preschool puts great thought and preparation in delivering a healthy breakfast, lunch and snack to all of its preschoolers
  - Substituting in whole grains, veggies, and low sodium options at every opportunity!
SquareOne’s Mobile Market Site

- Hosts a Mobile Food Bank Site through the Food Bank of Western Massachusetts
  - Fresh produce, dairy and meat offered to ANY person who comes
    - No eligibility requirement
    - Each individual is asked for their zip code and household size to gauge the need
  - Various sites throughout the city
  - Staffed by volunteers
Our Project: Assess Need for SNAP Benefits

- Interest in developing tool to assess demographics of who is utilizing the mobile market
  - Age, ethnicity, interest in additional services
- Engagement of individuals in getting or maintaining SNAP benefits
- Potential source of funding for SquareOne
  - Reimbursement of $50 to SquareOne for each person they help apply to SNAP benefits
- Created a survey to be distributed at the Mobile Market
- Designed an algorithm to identify need for and referral to SNAP benefits
Algorithm Goal: To determine whether there is a need for a Square One service aimed at helping families enroll in SNAP benefits.

SNAP Algorithm

Would you like free fresh produce?

- No
- Yes

Does your household currently receive SNAP benefits?

- I don’t know
  - No
  - Yes

Are you interested in learning more?

- No
- Yes

Would you like help renewing?

- No
- Yes

Does your family income fall under this level (see chart)

- No
- Yes

Here is a list of the other mobile food banks in Springfield

Would you like help filling out the SNAP benefits application?

What is the best way to contact you? (Phone, email, etc.)
# SNAP Enrollment Criteria

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Max. Monthly Income</th>
<th>Max. Benefit Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1,980</td>
<td>$192</td>
</tr>
<tr>
<td>2</td>
<td>$2,670</td>
<td>$352</td>
</tr>
<tr>
<td>3</td>
<td>$3,360</td>
<td>$504</td>
</tr>
<tr>
<td>4</td>
<td>$4,050</td>
<td>$640</td>
</tr>
<tr>
<td>5</td>
<td>$4,740</td>
<td>$760</td>
</tr>
<tr>
<td>6</td>
<td>$5,430</td>
<td>$913</td>
</tr>
<tr>
<td>7</td>
<td>$6,122</td>
<td>$1,009</td>
</tr>
<tr>
<td>8</td>
<td>$6,815</td>
<td>$1,152</td>
</tr>
</tbody>
</table>
Opportunities for Integration with Baystate ACO?

- Some ACO networks are already investing heavily in extending services in housing, transportation and food security.
- For Geisinger Health System in Pennsylvania this looks like an expansion in their Fresh Food Farmacy initiative.

Biometric Outcomes for Fresh Food Farmacy Enrollees

Patients included below are those who enrolled and received food as part of the Fresh Food Farmacy program AND had both a baseline and follow-up reading for the applicable biometric.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percent Decrease from Baseline to Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1c</td>
<td>17.8%</td>
</tr>
<tr>
<td>Glucose</td>
<td>26.9%</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>9.8%</td>
</tr>
<tr>
<td>LDL</td>
<td>12.2%</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>16.4%</td>
</tr>
</tbody>
</table>

Baseline Reading: biometric value at time of enrolled in FFF
Current Reading: most recent biometric value
Data as of 3/01/2018

Providing Free Food as a Treatment for Diabetes Yields Improved Outcomes for Patients While Reducing the Cost of Care

- Meals: 175,000 meals per year, $60 per meal, $2,400 per patient per year.
- Clinical Results: ≥40% decrease in the risk of death or serious complications.
  - Meals: HbA1c levels dropped an average 2.1 percentage points with attendance of the Diabetes Self-Management Class.
  - Medication: HbA1c levels using medication drop an average 0.5 to 1.2 percentage points.
- Financial Results: 80% drop in costs for our pilot patients. $240,000 per member to $48,000 per member per year.

Source: Authors and Geisinger Clinical Informatics
NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society
Opportunities for Integration with Baystate ACO?

A 2017 study explored the idea that “standardizing SDH data collection and presentation could lead to improved patient and population health outcomes in CHCs and other care settings” (Gold et. al)

Is there a way to incorporate notes from home-visitors through the Square One program into the electronic medical record used by medical providers to allow them to get a better sense of their patient’s home environment?

○ Is there a screening tool that could be implemented by home visitors to capture data about the domains that are not routinely captured in the EHRs by clinicians?

Table 1
IOM Phase 2 Report
Summary of Candidate Domains for Inclusion in all EHRs

<table>
<thead>
<tr>
<th>Domain</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Race / ethnicity</td>
<td>*</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Financial resource strain</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>*</td>
</tr>
<tr>
<td>Physical activity</td>
<td></td>
</tr>
<tr>
<td>Nicotine use / exposure</td>
<td>*</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>*</td>
</tr>
<tr>
<td>Social connections / social isolation</td>
<td></td>
</tr>
<tr>
<td>Exposure to violence: Intimate partner violence</td>
<td></td>
</tr>
<tr>
<td>Neighborhood characteristics (e.g., census-tract median income)</td>
<td></td>
</tr>
</tbody>
</table>

* Already routinely captured in EHRs

Thank you to SquareOne for a great two weeks!
Special thank you to:
- Justin Ayala
- Dr. Sarah McAdoo
- Jenise Katalina
- Dr. Molly Senn-McNally
- Dawn Distefano
- Cindy Recoulie
- Will (the parking attendant)