Preliminary Impact of the *Prescription for Health* Farmers Market Initiative in Rural Upper Michigan

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Portage Health Foundation
Farms, Food, & Health Conference
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Disclosures

• No relevant financial disclosures
Our Story

- Low access, low income community\(^1\)
- Median income below state and national levels\(^1\)
- 68% of adults are overweight/obese\(^1\)

7 out of 10 deaths in the U.S. caused by chronic disease (2)

6 in 10 adults in the U.S. have 1 chronic disease (2)

4 in 10 adults in the U.S. have 2 or more chronic diseases (2)
Nutritional Status & Food Security in the US

• Only 1 in 10 US adults eat the recommended amount of fruits or vegetables \(^3\)

• 1 in 8 people in the U.S. struggle with hunger\(^3\)

• 1 in 6 children in the U.S. struggle with hunger\(^3\)

• 18% population in Houghton County are food insecure\(^3\)

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“Eat Less, Move More”

Cooking Skills
Food Literacy
Access to Food

Limited Training
Time Constraints

EMR
ICD-10 Codes

Reimbursement
Readiness to Make Changes

Provider
Patient

Behavior Modification
Limited Follow-up
Farms, Food & Health

Integrating local farm foods with health care & wellness

Save the date

Friday, January 29, 2016

Grand Traverse Resort & Spa

Registration: 9 am  Conference: 10 am-5 pm
Evening reception & 7:30 pm keynote
Community health initiative aimed at improving fruit and vegetable consumption and supporting healthy behavior change among patients with chronic disease.⁴

Program Details

• Collaboration between Upper Great Lakes Family Health Center (FQHC) + Downtown Houghton Farmer’s Market (DHFM)

• 10-week pilot fruit and vegetable prescription (FV Rx) program

• **Goal**: Increase access to fresh produce in program participants

**Eligibility**

• Adults 18 years or older in Dr. Seguin’s family medicine practice
• Documented chronic disease
  • (Ex: high blood pressure, diabetes, overweight, obesity, etc.)
• Interest in increasing fruit/vegetable consumption (self-reported)
• Ability to attend DHFM weekly for 10-week program (self-reported)

• Pilot program implementation funded by: The Portage Health Foundation

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Intervention:

- **Produce Vouchers**: $10 per week for weeks 1-5 and $20 per week for weeks 6-10.
- **Nutrition Education**: Receive weekly seasonal recipes and educational handouts.
- **Health Coaching**: Personal health goal setting and review with CHW weekly at the market.

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Enrollment & Closing Sessions - Metrics

• Complete free pre- and post- program health screenings:
  • Weight / BMI
  • Blood pressure

• Complete pre- and post- program surveys:
  • Dietary patterns
  • Health status (PROMIS-10)
  • Food & nutrition literacy

PROMIS

PROMIS-10

*Patient-Reported Outcomes Measurement Information System*\(^6\)

NIH Validated tool to assess:

- overall health status
- overall quality of life
- physical health
- mental health
- relationships

- Ability to carry out social activities / roles
- Ability to complete activities of daily living
- Fatigue
- Pain

6. [http://www.healthmeasures.net/explore-measurement-systems/promis/intro-to-promis](http://www.healthmeasures.net/explore-measurement-systems/promis/intro-to-promis)
Results – 2017 Pilot

Funding available for 50 participants total

Criteria for completion: Attended enrollment/closing sessions & at least 1 market visit

Study approved by Michigan Technological University Institutional Review Board (IRB)

33 participants enrolled

21 participants completed

12 participants did not complete

64% program completion rate among enrolled participants

The majority of participants who completed the program attended all 10 market weeks (62%, n=13).

Mean market visits per program participant = 8.2

Total Voucher Redemption Rate = 80%

$3684 in voucher sales at DHFM for 10-week program

Program Demographics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (all participants)</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>90</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>30-39</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>40-49</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>50-59</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>60+</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$12,059 or less</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>$12,060 to $24,119</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>$24,120 to $30,149</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>$30,150 to $48,239</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>$48,240 to $61,495</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>$61,500 +</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Did not report</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0-29.9 (Overweight)</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>30+ (Obese)</td>
<td>17</td>
<td>81</td>
</tr>
</tbody>
</table>

No income requirement
70% reported barriers to fresh fruit and vegetable consumption.

Participant Feedback - Nutrition

“Eating more veggies & fruits”

“I am open to more fruits & vegetables”

“Add more veg into daily diet”

“More vitamins and nutrients from veggies.”

“Less stress about paying for food”

“Cooking with kale...never ate that before”

Participant Feedback – Healthy Behaviors

“Blood pressure much better”

“Eating healthy. More walking.”

“I feel more alert.”

“Looked forward to Tuesday market and socializing”

“I have made an effort to get out and do something every day.”

“Increased metabolism & energy”

“Moderating influence on my mental health conditions”

“Decreased blood sugar”

Preliminary Outcomes - Biometric

Table 2. Biometric data. A statistically significant increase in systolic blood pressure is attributed to issues during the post-program measurements (*p<0.05).

<table>
<thead>
<tr>
<th></th>
<th>Pre-Program Mean</th>
<th>Post-Program Mean</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (lbs.)</strong></td>
<td>245.27</td>
<td>245.44</td>
<td>0.90</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>40.62</td>
<td>40.60</td>
<td>0.95</td>
</tr>
<tr>
<td><strong>Systolic BP (mmHg)</strong></td>
<td>137.29</td>
<td>142.52*</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Diastolic BP (mmHg)</strong></td>
<td>83.81</td>
<td>83.43</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Preliminary Outcomes - Nutrition

Table 3. Fruit/vegetable intake and food literacy. These data indicate a clinically relevant increase in fruit/vegetable intake. A statistically significant increase in knowledge of storing fruits and vegetables was found (*p<0.05).

<table>
<thead>
<tr>
<th></th>
<th>Pre-Program Mean</th>
<th>Post-Program Mean</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruit and Vegetable Intake</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cups/day)</td>
<td>2.19</td>
<td>2.62</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Knowledge of cooking with fruits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and vegetables (scale of 0 to 5)</td>
<td>4.05</td>
<td>4.15</td>
<td>0.58</td>
</tr>
<tr>
<td><strong>Knowledge of storing fruits and</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vegetables (scale of 0 to 5)</td>
<td>3.7</td>
<td>4.05*</td>
<td>0.049</td>
</tr>
</tbody>
</table>

**PROMIS-10 Outcomes**

Table 4. PROMIS-10 metrics. A statistically significant increase in quality of life was found, with no change in other variables (*p<0.05).

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pre-Program Mean</th>
<th>Post-Program Mean</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of Life</strong></td>
<td>2.90</td>
<td>3.19*</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td>3.29</td>
<td>3.10</td>
<td>0.43</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>3.86</td>
<td>3.69</td>
<td>0.329</td>
</tr>
</tbody>
</table>

"I really enjoyed this program. I looked forward to every Tuesday afternoon to go to the market. I also enjoyed doing this program with my daughter. I hope you have this again next year. I’d LOVE to do it again. Thank you!"

Social Relationships: Overall findings from this meta-analysis

Social Relationships: High vs. low social support contrasted

Social Relationships: Complex measures of social integration

Smoking < 15 cigarettes daily

Smoking Cessation: Cease vs. Continue smoking among patients with CHD

Alcohol Consumption: Abstinence vs. Excessive drinking (> 6 drinks/day)

Flu Vaccine: Pneumococcal vaccination in adults (for pneumonia mortality)

Cardiac Rehabilitation (exercise) for patients with CHD

Physical Activity (controlling for adiposity)

BMI: Lean vs. obese

Drug Treatment for Hypertension (vs. controls) in populations > 59 years

Air Pollution: Low vs. high

Where do we go next?

• It starts with YOU!

• Changes to clinical practice

• Know your community

• Engage with local and regional programs
30% Incentive for FV purchases to Medicaid & Medicare Beneficiaries:

- Prevent 1.95 MILLION CV Disease events
- Save $40.9 billion in healthcare costs over lifetime

Broader Incentive for whole grains, nuts, fish, plant-based oils:

- 120,000 cases of diabetes prevented or postponed
- Prevent 3.31 million CV disease events
- Save $102.4 billion in healthcare costs

Cost effective after 5 years

“As or more cost effective than many currently covered medical treatments”
innovation, progress, and transformation
Acknowledgements

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• Health Department Washtenaw Country – Prescription for Health Implementation Guide

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  • Portage Health Foundation
  • Blue Cross Blue Shield Foundation of MI
Thank you!

• Questions?

• mseguin@phfgive.org
References

2. https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#4