A National Vision To Improve Diabetes Health Outcomes Using Food As Medicine
Disclosures

• Notice of Requirements for Successful Completion:
  For successful completion, participants are required to be in attendance in the full activity, complete and submit the program evaluation at the conclusion of the educational event.

• Presenter Conflicts Of Interest and Financial Relationships Disclosures
  • Allison Hess: None
  • Michelle Passaretti: None

• Disclosure of Relevant Financial Relationships and Mechanism to Identify and Resolve Conflicts of Interest:
  No conflicts of Interest

• Non-Endorsement Of Products: Accredited status does not imply endorsement by AADE, ANCC, or ACPE of any commercial products displayed in conjunction with this educational activity.

• Off-Label Use: Participants will be notified by speakers to any product used for a purpose other than that for which it was approved by the Food and Drug Administration.
Objectives

• 1. Recognize the prevalence and impact that food insecurity has on our patients

• 2. Propose that food insecurity can be addressed through a “Food As Medicine” approach

• 3. Recognize the importance of community partnerships
Multiple Factors Impact Health

Health Outcomes:
- Socioeconomic Factors: 40%
  - Education
  - Job status
  - Family/social support
  - Income
  - Community safety
- Health behaviors: 30%
  - Tobacco use
  - Diet and exercise
  - Alcohol use
  - Sexual activity
- Health Care and Access: 20%
- Physical environment/Genetics 10%
Diabetes – A national call for help

Population Health Impacts

2018
1 in 10 Adults With Type II Diabetes

2050
1 in 3 Adults With Type II Diabetes

HBA1c of 6.5-9
1 in 5 are food insecure

HBA1c >9
1 in 4 are food insecure

Financial Impacts

Diabetes has highest healthcare spend

$327 billion/year
Diagnosed diabetes cost to America

2.3 times greater
Cost of healthcare with diabetes compared to without diabetes

1Diabetes Statistics Report, 2014
3ADA Website
Feeding America’s clients report that their household income is inadequate to cover their basic household expenses.

- 69% have had to choose between paying for utilities and food
- 67% have had to choose between paying for transportation and food
- 66% have had to choose between paying for medicine and food
- 57% have had to choose between paying for housing and food

Sources: Map the Meal Gap (2014) and Hunger in America (2014)
Food Insecurity

• Within the past 12 months, we worried whether our food would run out before we got money to buy more (Y/N).

• Within the past 12 months, the food bought just didn’t last and we didn’t have money to get more (Y/N).

• Defined as “…the inability to afford nutritionally adequate and safe foods.”

• Food insecurity is evident when families or individuals:
  o Lack access to food
  o Depend on food assistance programs
  o Skip meals
  o Substitute nutritious foods with less expensive alternatives
  o Seek assistance from soup kitchens and food pantries

Innovative collaboration between clinical care and community based organizations – New processes driving impactful change
How did we rethink our processes

A new model with 5 basic elements.

1. Identification
2. Food as medicine
3. Education/Clinical support
4. Care beyond health
5. Community partnerships
### Shamokin, PA – Partnership with the Central Pennsylvania Food Bank

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds of Food -</td>
<td>87,231</td>
<td>191,266</td>
<td>278,497</td>
</tr>
<tr>
<td>Meals Provided -</td>
<td>72,693</td>
<td>159,388</td>
<td>232,081</td>
</tr>
</tbody>
</table>
The Current Patient Experience - Meet Rita

Rita

**Age** 55

**Condition(s)** Diabetes

**About Rita**
- Married
- Raising her 3 grandchildren
- Has been underinsured and uninsured over the last few years

Enrolled in Fresh Food Farmacy

Worked with Case Manager on diet & exercise management

Began regularly checking sugars, watching diet, & walking for exercise

13.8 A1C
181 lbs.
209 LDL
312 Triglycerides

6.9 A1C
165 lbs.

5.4 A1C
135 lbs.
47 LDL
76 Triglycerides
The Current Patient Experience – Meet Tom

Enrolled in Fresh Food Farmacy

Worked with Case Manager on diet, exercise, & proper diabetes management

Began regularly checking sugars, watching diet, & walking for exercise.
Began teaching classes for the program.

Age 57
Condition(s) Diabetes

About Tom:
• Single
• Lives alone
• Multiple ED visits / admissions related to poor diabetes care
• Doesn’t know how to cook
• Reported feeling alone & depressed

9.1 A1C
450 lbs.
355 Triglycerides

6.6 A1C
425 lbs.
152 Triglycerides

About Tom: • Single • Lives alone • Multiple ED visits / admissions related to poor diabetes care • Doesn’t know how to cook • Reported feeling alone & depressed
Clinical measures

- Hemoglobin A1c measures improved:
  -- Average 2.0 Improved A1c for FFF patients
- $16,000-$24,000 medical expense savings
- Glucose measures improved
- Cholesterol
- LDL lowered
- Triglycerides lowered

Compliance against care plan

- Improved compliance rates of adult prevention and diabetes quality measures:
  - Annual eye exams increased
  - Annual foot exams increased
  - Mammograms increased
FOOD AS MEDICINE IS HAVING A REAL FINANCIAL IMPACT

- ~40% difference in admission rates
- ~11% difference in PCP visits
- ~20% difference in Endo visits

Non-enrollees vs. Enrollees
### Overall health and mental/emotional health

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall health before starting FFF (n = 106)</strong></td>
<td>5.7%</td>
<td>5.7%</td>
<td>21.7%</td>
<td>50.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td><strong>Overall health currently in FFF (n = 106)</strong></td>
<td>10.5%</td>
<td>30.5%</td>
<td>49.5%</td>
<td>8.6%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Overall mental/emotional health before starting FFF (n = 106)</strong></td>
<td>7.5%</td>
<td>9.4%</td>
<td>26.4%</td>
<td>46.2%</td>
<td>10.4%</td>
</tr>
<tr>
<td><strong>Overall mental/emotional health currently in FFF (n = 105)</strong></td>
<td>11.4%</td>
<td>43.8%</td>
<td>34.3%</td>
<td>10.5%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

### Diet

<table>
<thead>
<tr>
<th>Frequency of fruits or vegetables (not including juice) eaten before FFF (n = 106)</th>
<th>More than once a day</th>
<th>Once a day</th>
<th>Once every few days</th>
<th>Once a week</th>
<th>Less than once a week</th>
<th>I didn’t eat fruits/vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.4%</td>
<td>17.9%</td>
<td>19.8%</td>
<td>20.8%</td>
<td>27.4%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Frequency of fruits or vegetables (not including juice) eaten currently in FFF (n= 106)</td>
<td>47.2%</td>
<td>34.9%</td>
<td>11.3%</td>
<td>5.7%</td>
<td>0.9%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
### Fresh Food Farmacy - Patient reported outcomes

<table>
<thead>
<tr>
<th>Activity</th>
<th>Purposely exercise</th>
<th>Housework / yardwork</th>
<th>Not active / sedentary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>before FFF</strong> (n = 102)</td>
<td>12.7%</td>
<td>53.9%</td>
<td>33.3%</td>
</tr>
<tr>
<td><strong>currently in FFF</strong> (n = 95)</td>
<td>45.3%</td>
<td>48.4%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>
Patient expression of impact
Patient expression of impact
Patient expression of impact