Tailoring Treatment Plans and DSME for Food Insecure People with Diabetes

Session Objectives

- Define food insecurity (FI)
- Describe linkages to & impact on health
- Introduce FI screening tools and projects
- Discuss resources and strategies to tailor DSME for FI patients

What is “Food Insecurity”?

- Food security = access by all people at all times to enough food for an active, healthy life
- FI = the household-level economic and social condition of limited or uncertain access to adequate food

Disclosure to Participants

Notice of Requirements For Successful Completion

Please refer to learning goals and objectives.

Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours.

Conflict of Interest (COI) and Financial Relationship Disclosures:

Presenter: Morgan Smith, RN, PHN, CNS, CDE – No COI/Financial Relationship to disclose.

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Hunger vs. Food Insecurity

- Hunger = individual, physiological sensation
- FI = household measurement over a longer time frame (chronic, cyclical)

Audience Poll

- What percent of U.S. households are food insecure?
  - A. 6.3%
  - B. 9.4%
  - C. 14.0%
  - D. 17.8%
  - E. I don’t know

Statistics

- 14% of U.S. HH are FI (2014)
  - 8.4%: low food security
    - Impact on quality and food access strategies
  - 5.6%: very low food security
    - Disrupted eating and reduced intake

The Numbers

- 17.4 million households
- 48.1 million people
- 7.9 million children

Prevalence of food insecurity, average 2013-14

Age-adjusted Percentage of U.S. Adults Who Had Diagnosed Diabetes 2013
U.S. Food Insecurity
- Down since 2011
- Unchanged since 2013
- High since “Great Recession”

Source: Household Food Security in the United States in 2014 (USDA ERS);

What drives food insecurity?
- Low wages & poverty
- Unemployment, underemployment
- High housing costs
- High health care costs

Are any of these issues for your patients?

Related, but Not Equal
56% of people struggling with hunger actually have incomes above the federal poverty level, and 59% of people living in poor households are food-secure.

Source: Household Food Security in the United States in 2014 (USDA ERS)

Income Eligibility among the Food-Insecure

- 26% of the food-insecure have incomes that make them likely ineligible for federal nutrition programs

What drives food insecurity?
- Low wages & poverty
- Unemployment, underemployment
- High housing costs
- High health care costs

Are any of these issues for your patients?

Difficult Choices

Feeding America’s clients report that their household income is inadequate to cover their basic household expenses.

69% need to choose between paying for utilities and food
67% need to choose between paying for housing and food
66% need to choose between paying for transportation and food
57% need to choose between paying for medical care and food

Sources: Feeding America, Map the Meal Gap (2014) and Hunger in America (2014).
http://www.feedingamerica.org/hunger-in-america/our-research/

Coping Strategies
55% FA HH report 3+ strategies in last year
- 79% HH report purchasing inexpensive, unhealthy food
- 84% of HH with children report this strategy
- 40% HH water down food or drinks
- 35% sell or pawn personal property
- 53% receive help from family/friends

Sources: Feeding America, Hunger in America 2014 (Executive Summary), Map the Meal Gap 2014, Feeding America's Hungry in America 2015 Report.
Impact of Food Insecurity

- 1 in 7 Americans
- In addition to...
  - Stress / Anxiety
  - Emotional response
  - Shame / stigma
- ...FI impacts health!

Hunger in America 2014

- 47% of clients responded they are in fair or poor health
- 29% of households all members have no health insurance
- 55% of households report some medical debt

Food Insecurity & Diabetes

<table>
<thead>
<tr>
<th>Food Secure</th>
<th>Food Insecure</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.4%</td>
<td>10.2%</td>
</tr>
</tbody>
</table>

Food Insecurity & Diet-Sensitive Chronic Disease

The Cycle of Food Insecurity & Diet-Sensitive Chronic Disease

Food Insecurity & Diabetes

<table>
<thead>
<tr>
<th>Food Insecure</th>
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<tbody>
<tr>
<td>Difficulty Following a Diabetic Diet</td>
<td>65%</td>
</tr>
<tr>
<td>Fruit, Daily Servings</td>
<td>0.8</td>
</tr>
<tr>
<td>Vegetables, Daily Servings</td>
<td>1.8</td>
</tr>
</tbody>
</table>

FI Impacts Health

- Disease risk / prevalence in FI:
  - Cardiovascular disease (HTN 25% more common)
  - Kidney disease (~50% ↑ risk)
  - Osteoporosis (4x ↑ risk)
  - Obesity
- Disease management
  - HIV, Cancer, TB, and all of the above

Diabetes and Dietary Intake

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</tbody>
</table>
Food Insecure Adults with Diabetes Have Higher Average Blood Sugars


Admissions Attributable to Low Blood Sugar Among Patients Ages 19 and Older to Accredited California Hospitals On Each Day of The Month, By Income Level, 2000–08.

Seligman et al. 2014. Exhaustion of food budgets at month’s end and hospital admissions for hypoglycemia. Health Affairs, 33(1), 116-123.

Growing Response to FI

- Government programs (SNAP, WIC)
- Non-Profit (FA, Feed the Children) and philanthropic agencies
- Policy organizations
- Evolving partnerships (including health care)

Food Insecurity and Health Care Costs


Growing Response to FI

- Government programs (SNAP, WIC)
- Non-Profit (FA, Feed the Children) and philanthropic agencies
- Policy organizations
- Evolving partnerships (including health care)

Cost of A Health Care Visit for Low Blood Sugar vs. Food


Growing Response to FI

- Government programs (SNAP, WIC)
- Non-Profit (FA, Feed the Children) and philanthropic agencies
- Policy organizations
- Evolving partnerships (including health care)
A Pilot Food Bank Intervention Featuring Diabetes-Appropriate Food Improved Glycemic Control Among Clients in Three States

Hilary K. Seligman
Courtney Lyles
Michelle B. Marshall

A collaboration between Feeding America and University of California San Francisco, funded by the Bristol-Myers Squibb Foundation

Published in Health Affairs, 24(11), Nov. 2015.

Results: Baseline HbA1c >7.5%

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Follow-Up</th>
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</thead>
<tbody>
<tr>
<td>HbA1c, %</td>
<td>9.19</td>
<td>9.04***</td>
</tr>
<tr>
<td>HbA1c &gt;9%, %</td>
<td>22</td>
<td>43††††††</td>
</tr>
<tr>
<td>F&amp;V intake, servings/day</td>
<td>2.8</td>
<td>3.1***</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>6.7</td>
<td>3.2††††</td>
</tr>
<tr>
<td>Diabetes distress</td>
<td>3.1</td>
<td>2.5††††</td>
</tr>
<tr>
<td>Medication non-adherence</td>
<td>1.2</td>
<td>1.1*</td>
</tr>
<tr>
<td>Severe hypoglycemic events, %</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Trade-offs between food &amp; medicine/diabetes supplies</td>
<td>35</td>
<td>49††††††</td>
</tr>
</tbody>
</table>

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001. Results similar for all 687 participants, with pre-post HbA1c reduction of 11% to 7.9%.

Conclusions

• Model for leveraging the charitable food system for health promotion
  – Reach into vulnerable communities
  – Food access & distribution capacity
  – Framework for infrastructure development
• Population level benefits
  – Food reaches the entire household
  – Other diet-sensitive chronic conditions (HIV, cancer, CHF, etc.)

Goal

• Assess feasibility of providing a 4-component diabetes intervention at food pantries
  • 2011-2014

Setting & Participants

• Three food banks (CA, TX, OH)
• 687 participants (diverse, food insecure, low education)
Key Points

• FI is a major public health problem
• Particularly problematic for diet-sensitive chronic diseases like **diabetes**
  – † prevalence, † S.M. challenges, † A1Cs, † cost
• Community and clinical responses
  – Many DSME lessons learned

Tailoring Treatment Plans and DMSE for Food Insecure people with Diabetes

• How do you know if people are Food Insecure?
  • Stereotypes?
    • Hunger = thin, malnourished, extreme poverty
  • Reality?

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Sunny Smith MD– No COI/Financial Relationship to disclose

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Food insecurity is common

• May be more common in your practice than you realized
  – 40% of patients in safety-net clinics
• Likely affected many in this room & people we know
How to identify FI?
- Ask!
- Consider using screening tool
- Sunday, 8/14
- Session D18 Healthy Eating for All: Use of Food Insecurity Screening Tools to Improve Diabetes Outcomes
  - Kim Prendergast, RD, MPP

Screening for FI – a very timely issue
- In addition to ADA incorporating food security in Standards of Medical care 2016
  - "it is important to consider screening for FI"
- AAP policy statement December 2015
  - Promoting Food Security For All Children
  - Recommends incorporating a screening tool into practice

Screening Tools
- USDA uses an 18-item tool
  - Also has a 6-item abbreviated tool
- 2-item screen useful in clinical practice
  - 97% sensitivity & 83% specificity compared w 18-items

Screening for FI
- AAP
  - Screen all patients
  - not just underserved communities or poverty level
  - Small changes in income can result in FI
  - Many FI households are above poverty level

2-item FI screening tool
Within the past 12 months…
1. We worried whether our food would run out before we got money to buy more
2. The food we bought just didn’t last and we didn’t have money to get more

Normalize
- This is something I ask all my patients…
- The more you talk about it
  - The more you & your patients will be comfortable
- If you don’t talk about it
  - It doesn’t go away, patients just don’t talk about it
Be ready for what you hear

- Emotional subject matter
- Eating is one of the most basic human needs
  - Inability to provide this is often embarrassing, shameful
  - Particularly when patient’s children or family members are affected
- Patients aren’t used to providers asking yet

Screening in my clinical practice

- UCSD Student-run Free Clinic Project
  - Since 1997
  - Never systematically addressed FI until 2015
- Used 6-item USDA survey
  - In collaboration w Feeding America San Diego
  - As this allows you to classify low vs very low FI

Decrease stigma / shame

President Obama
got food stamps as a kid – and look where he is now.

Screening results

- 93% of pts screened (430/463)
  - Feasible to implement screening
- 74% patients were FI (318/430)
- 83% of patients **with diabetes** were FI
  - Vs 66% on patients without DM (p<0.0001)
- 36% of DM had very low food security
  - Skipping meals

Clinically relevant?

- Isn’t this in the realm of Social Work?
  - Is food relevant in diabetes care?
  - How can you make clinical decisions or advise on diet changes, set SMG without knowing if patient has resources to implement change?
  - Constant access to food? Types of food? Healthy food?

DM more FI than non-DM

<table>
<thead>
<tr>
<th></th>
<th>All patients N=430</th>
<th>Patients with Diabetes N=222</th>
</tr>
</thead>
<tbody>
<tr>
<td>USDA 6 item score, mean (SD)</td>
<td>2.99 (2.05)</td>
<td>3.37 (1.99)</td>
</tr>
<tr>
<td>Food secure (score 0-3), n (%)</td>
<td>312 (72.9%)</td>
<td>50 (22.4%)</td>
</tr>
<tr>
<td>Food insecure (score 4-6), n (%)</td>
<td>118 (29.4%)</td>
<td>122 (54.7%)</td>
</tr>
<tr>
<td>Low Food security (score 2-4), n (%)</td>
<td>106 (47.3%)</td>
<td>34 (47.1%)</td>
</tr>
<tr>
<td>Very low food security (score 5-6), n (%)</td>
<td>132 (30.7%)</td>
<td>58 (26.1%)</td>
</tr>
</tbody>
</table>

p<0.0001 for all comparing DM w non-DM
Screen positive – what next?

• Make this a part of your medical notes
  – Not just “subjective”
  – Assessment/Plan
    • Treatment
    • DSME
    • Referrals
  – Problem List (not just in today’s note)

Plan

• Clinical treatment decisions
  – Medication
  – DSME
    • Affordable, healthy, filling food choices
  – Referrals
    • Social Work
    • SNAP (previously known as food stamps)
    • Food pantries, meal programs
  – Follow up

Assessment: ICD-10?

Educating Health Professionals

Plan

• First do no harm

Systematic changes

• FL screening integrated into EHR
  – Automatic referrals made on site
  – Cal-Fresh applications on site
  – Refer to off site food pantries
  – Flyers, 211, case managers, database/population mgt
• Hospital discharge
• Medicaid (Medi-Cal) annual physical exam form now has food related items
Emergency Dept. utilization

• High% of ED patients are FI
  – Especially the elderly
• Most frequent utilizers (super-users) are often FI

DSME & FI Considerations

• Address AADE7 thinking about:
  – Literacy / Numeracy
  – Challenges faced by vulnerable populations (homelessness, health care access, etc.)
  – Connecting patients to additional resources
  – Food = medicine

Tailoring Treatment Plans and DSME

For the 1st time, advises providers to:

• "Evaluate hyper- and hypoglycemia in the context of food insecurity" (Grade A)
• "Appropriate resources should be made available” (Grade A)

Literacy

• Average adult reads at 8th-9th grade level
  – Many don’t read or can’t see
  – Language barriers
• Health literacy
  – Ex.: Insulin usage
• Use appropriate ed. materials

For the 1st time, advises providers to:

• "Evaluate hyper- and hypoglycemia in the context of food insecurity" (Grade A)
• "Appropriate resources should be made available” (Grade A)
**Numeracy**

- Ability to use numbers in daily life
  - Ability to determine when / what math is needed
  - Calculations
    - Sliding scale vs. fixed dose
    - Nutrition facts labels
    - Carb counting

**Healthy Eating**

- **Food = Medicine!**
  - FI is episodic, making meal planning a challenge
  - Set manageable (SMART) goals together
  - CHO identification & portion control
  - Healthier choice vs. healthiest choice (harm reduction)

**Hands-on works!**

- **What** can I eat?
- **How** do I make that?
- **What** is the cost?

Food models are great, but...

...Cooking classes, demos, and tastings are even better!

**“Affordability” of Healthy Foods**

- Time & knowledge for preparation
- Equipment, storage, & preparation
- Cost & time to travel to full-service store
- Variety
- Poor quality
- Poor variety

**Food affordability**

- Following USDA recommended food plan would require a low-income family to spend 43%-70% of food budget on fruits and vegetables
- Consider waste, travel time to store, equipment to store/prep, time to prep, etc.
- “Reducing food expenditures below a certain amount virtually ensures an energy-dense diet with low nutrient content.”
Cheap foods

- Are often filling, high in carbs, low nutrition
- People with FI shop on the inside of the store
  - Packaged processed foods
  - Can’t afford outside fresh fruits, veggies, dairy

Cheap foods

- Oil, shortening, margarine, sugar, bread, pasta, rice

Cheapest foods


Healthy foods cost more

- Average monthly SNAP benefit in California per person: $147.12
- Carrots, 2 lbs: $1.99 at Safeway
  - 49¢ per day
- Keebler Fudge Stripes, 11.5 oz: $2.00 at Safeway
  - 56¢ per day

Strategy: Connect to Food Resources

- SNAP, WIC, and other federal nutrition programs
- Food banks & pantries

Food pantry

- We brought food to the clinic
  - Thank you to Feeding America San Diego
  - RCT
  - Patients incredibly grateful
  - Food prescription model
- Brought Cal Fresh (SNAP) sign up to the clinic
  - Including same day enrollment

Healthy Eating

- Realistic messages
- “Simple” eating plans
  - Based on accurate assessment
- Recipes: practical short, easy, and without “exotic” ingredients
- Useful education materials
Food

• How do you instruct your patients?

Healthy food on a budget

• Always counsel on **portion control**
• Frozen fruits and vegetables
• Canned fruits and vegetables
• Dried beans, eggs
• Whole grain/whole wheat
• Healthier food vs. healthy food

• Other thoughts?

Dietary counseling

• Is it practical, achievable, affordable?
• Culturally appropriate?
• USDA has four levels of cost of nutritious meal plans
  – Liberal, moderate, low-cost, thrifty
  – Thrifty food plan requires 2x meal prep time

Healthy food on a budget

• Suggestions?

Monitoring Blood Sugar

• Access to meter and strips
• What is a reasonable SMBG plan?
• Clinic access free/low cost?
• Make it relevant!
  – **Why** are you checking your BG?

Affordability of test strips

• How often do you really need your patient testing?
  – Consider different scenarios
  – Medications, A1c, type 1 or type 2, willingness to test
  – Vision, culture, work, schedule, access to food, $
• Self-testing?
  – Co-pay? Is the # of strips an issue?
Medications

• **THE** cause of hypoglycemia
  – Closely tied to how much food you eat
  – Hypoglycemia = immediately life-threatening
    • Seizure, LOC, driving->accident, brain injury, death
  – Hyperglycemia
    • Bad outcomes over long period of time


Medications

• Hypoglycemia?
  – Metformin?
  – Sulfonylureas?
  – Insulin?
  – TZD:7 glibizide: pioglitazone (Actos), rosiglitazone (Avandia)
  – DPP-4: sitagliptin (Januvia), linagliptin (Tradjenta)
  – GLP-1R agonist: liraglutide (Victoza), dulaglutide (Trulicity)
  – SGLT2? Empagliflozin (Jardiance), canagliflozin (Invokana), dapagliflozin (Farxiga)


Selecting / Adjusting Medications

• Sulfonylureas
  – Glipizide is preferable in FI patients*
  – has shorter half-life
• Insulin
  – Long acting / short acting /beware fixed dose
  – pens vs. vials
  – homeless – dispense 1 pen at a time?


Affordability

<table>
<thead>
<tr>
<th>Medication</th>
<th>Monthly cost</th>
</tr>
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<tbody>
<tr>
<td>metformin</td>
<td>$4</td>
</tr>
<tr>
<td>sulfonylurea</td>
<td>$4</td>
</tr>
<tr>
<td>Insulin</td>
<td>$300/vial</td>
</tr>
<tr>
<td>TZD</td>
<td>$300</td>
</tr>
<tr>
<td>DPP-4</td>
<td>$400 - $500</td>
</tr>
<tr>
<td>GLP-1</td>
<td>$400 - $500</td>
</tr>
<tr>
<td>SGLT2</td>
<td>$400 - $500</td>
</tr>
</tbody>
</table>

Group classes, peer support

• People give suggestions that are most:
  – Culturally appropriate
  – Specific to their neighborhood
• Address retention issues
  – Transportation, childcare, cost, timing
What to do next?

• Consider what is
  – Reasonable
  – Practical
  – Achievable
• Set your own SMG related to FI
  – Individual level or systems level

Problem Solving

Our patients are expert problem-solvers!

• Hypoglycemia and hyperglycemia
  – Strategic SMBG?
• “No food days” and sick days
• Local resources, 211

Physical Activity

• Realistic goal setting
• Physical limitations / disabilities
  – Present “alternative” activities (e.g., chair exercises, canned food as weights)
• Community resources
  – Parks, malls, free / safe areas
  – YMCA (financial aid may be available)

Reducing Risks

• Smoking cessation
  – Huge impact on family food budget
• Connect with health care, insurance, free clinic, Medicaid, Community Health Center
  – Primary doctor
  – MD: blood pressure, cholesterol, etc.
  – Retinal / dental / podiatry / endocrinology?
  – Access issues?

Realistic Physical Activity

Exercise Will Get Easier

Your body needs time to get used to being more active. Be patient. It takes a few months for a new activity to become a habit.

Steps for doing more:

• Aim for at least 30 minutes, two times per week.
• After a couple of weeks, add 2-5 minutes a day.
• What you feel comfortable using today and another day.
• You must work up to 30 minutes of exercise at least 3-4 times a week.

Skill-Building to Reduce Risks

• FAITH-DM
  – Knowledge and skills for self care
  – Emphasis on self-advocacy with care team
    • Pre-appointment prep
    • Role-playing PCP visits
    • Build confidence!
• Use of “teach backs”
  – “How would you describe this to your spouse?”
Healthy Coping

• Peer support groups (group classes)
• Refer for support services
  – Increased risk for depression / anxiety with FI
    (impact on self-care capacity)
  – Social work, counselling, psychiatry

Healthy Food Bank Hub

• Built for by nutrition, hunger, and health professionals
• http://healthyfoodbankhub.feedingamerica.org/

Resources

www.feedingamerica.org

• Local and national data, reports, resources, and information on FI

Map the Meal Gap

http://map.feedingamerica.org/countysurvey

ACP Everyday Guides

“Living With Diabetes”

https://youtu.be/0gbYH7v3Fok
DSME & SMS is challenging

• But…
  – Addressing FI directly
  – Connecting patients & families to resources
  – Addressing barriers
  – Individualizing care

MAKE THE DIFFERENCE

Contact

• Morgan Smith, RN, PHN, CNS, CDE
  – Feeding America
  – mosmith@feedingamerica.org

• Dr. Sunny Smith
  – UCSD Department of Family Medicine and Public Health
  – sdsmit@ucsd.edu

Thank you!

“You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make.”

~ Jane Goodall