Hunger and Health: The Impact of Food Insecurity on Chronic Disease and Health Care

Jillian Barber, MPH
Manager Community Benefit and Health Improvement
Sharp HealthCare
Learning Objectives

• Define the term food insecurity

• Describe the local and national profile of food insecurity

• Describe research discussing the impact of food insecurity on health outcomes, specifically obesity

• Describe tools and resources to address food insecurity in patients
What Goes Into Your Health?

2016 Collaborative San Diego Community Health Needs Assessment

**Top Health Needs**

- **Behavioral Health**
  - Alzheimer's disease, Anxiety, Drug & Alcohol Issues, Mood Disorders

- **Cardiovascular Disease**
  - Hypertension

- **Type 2 Diabetes**
  - Uncontrolled diabetes

- **Obesity**
  - Co-occurrence w/ other chronic disease

**Top Social Determinants**

- Food Insecurity & Access to Healthy Food
- Access to Care or Services
- Homeless/Housing issues
- Physical Activity
- Education/Knowledge
- Cultural Competency
- Transportation
- Insurance Issues
- Stigma
- Poverty

Food Insecurity: Definitions

Food security:
• “access by all people at all times to enough food for an active, healthy life.”

Food insecurity:
• “households (who) are uncertain of having, or unable to acquire, at some time during the year, enough food to meet the needs of all their members because they had insufficient money or other resources for food.”

## Food Security: Definitions (cont’d)

<table>
<thead>
<tr>
<th>Food Secure</th>
<th>Food Insecure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Food Security</strong></td>
<td><strong>High Food Security</strong></td>
</tr>
<tr>
<td>+ Always enough</td>
<td>+ Covers meals by eating lower quality foods</td>
</tr>
<tr>
<td><strong>Marginal Food Security</strong></td>
<td><strong>Very Low Food Security</strong></td>
</tr>
<tr>
<td>+ Sometimes Worry</td>
<td>+ Missing meals and experiencing hunger</td>
</tr>
<tr>
<td></td>
<td>+ 30-40% of these people report losing weight within the last year</td>
</tr>
</tbody>
</table>

Source: USDA. San Diego Hunger Coalition.
Food Insecurity in the U.S.

• In 2016, 15.6 million households (12%)
  – 9.4 million (7.4 %) low food security
  – 6.1 million (4.9 %) very low food security

• Highest prevalence
  – Hispanic; Black non-Hispanic
  – HH with children under 6
  – HH headed by a single parent
  – Low-income HH (< 185% FPL)

Food Insecurity in the U.S. (cont’d)

FIGURE 06: COUNTIES WITH THE HIGHEST NUMBER OF FOOD-INSECURE INDIVIDUALS, 2015

- NY, New York (five boroughs, collectively)
- CA, Los Angeles
- TX, Harris (Houston)
- IL, Cook (Chicago)
- Az, Maricopa (Phoenix)
- TX, Dallas
- CA, San Diego
- MI, Wayne (Detroit)
- TX, Tarrant County (Fort Worth)
- PA, Philadelphia County

Source: Feeding America. Map the Meal Gap. 2017
Food Insecurity in San Diego County

504,829 individuals
16% of the population
1 in 6 San Diegans
Food Insecurity and Health: Food Affordability

+ More vegetables = bigger food budget

- Less healthy = less costs¹

40 bags of instant ramen is the same price as one loaf of whole wheat bread

Source: San Diego Hunger Coalition.
Food Insecurity: Hunger and SNAP Myths

- Hunger is for charities; not government
- People in government programs live well
- SNAP includes waste, fraud, abuse
- Can’t be overweight and food insecure

Profile: Feeding San Diego Clients

- 24% of households have a member in poor health
- 32% of households have a member with diabetes

Tough Choices

- 53% choose between food and medicine/medical care
- 54% choose between food and utilities
- 39% choose between food and housing
- 57% choose between food and transportation

Food Insecurity: Coping Strategies

• *Disordered eating patterns*

• Limited, low-cost, filling foods

• Food pantries / soup kitchens

• Nutrition programs (CalFresh, WIC)

• Other: Jail, ED

\(^1\)Seligman, H. JGIM, 2007
Food insecurity impacts health throughout the life cycle.
Health Impacts: FI in Seniors

Percent Difference in Health Outcomes when Comparing Food Insecure Seniors to Food Secure Seniors*

<table>
<thead>
<tr>
<th>Health Outcome</th>
<th>Difference in Health Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Attack</td>
<td>53.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>51.8</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>40.0</td>
</tr>
<tr>
<td>Chest Pain</td>
<td>36.9</td>
</tr>
<tr>
<td>Activities of Daily Living Limitation</td>
<td>21.8</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>21.8</td>
</tr>
</tbody>
</table>

*Spotlight on Senior Health: Adverse Health Outcomes of Food Insecure Older Americans. National Foundation to End Senior Hunger and Feeding America. March, 2014
The Food Insecurity – Obesity Paradox (but not really)

• 1995: first medical case report of hunger-obesity relationship

• Complex findings do not illustrate direct relationships: low vs. very low food security

• Strongest and most consistent evidence is for higher risk of obesity among food insecure women and children/adolescents

Food Insecurity & Obesity: The Research

• FI adults: 32% greater odds of obesity than FS adults; significant association with women\(^1\)

• National survey (n = 7,435): FI young people (12 to 18 years of age) ~ 1.5 times more likely to have central obesity

• Increased risk of major gestational weight gain in obese pregnant women experiencing food insecurity\(^2\)

• Maternal stress in combination with adolescent FI significantly increased probability of adolescent overweight/obesity\(^3\)

---


http://www.cdc.gov/obesity/data/prevalence-maps.html
Food Insecurity & Obesity: The Research (cont’d)

FI, Obesity and Behavioral Health:

- Depression
- Anxiety
- Stress (finances, etc.)\(^1,2,3\)
  - Hormonal/metabolic changes\(^4\)
- Obesogenic child-feeding/parenting practices due to stress, anxiety, depression\(^5\)


Food Insecurity & Obesity: Understanding Why

- Lack of access to healthy, affordable foods
- Limited resources
- Cycles of food deprivation and overeating
- High stress, anxiety, and depression
- Fewer opportunities for physical activity
- Limited access to health care

Increased Health care expenditures leading to further competing demands

Weight gain
Poor control of risk factors

Impaired Self-Management Capacity
+ Reduced ability to afford appropriate diet
+ Depression, poor sleep quality, and fatigue, resulting in decreased physical activity

Competing Demands
+ Medication reduction or non-adherence to regimens
+ Postponement of needed health care

Stress

Constrained Dietary Options
+ Increased proportion of total caloric intake from fats and refined carbohydrates
+ Decreased dietary variety and intake of fruits and vegetables
+ Increased salt load in highly processed foods
+ Increased glycemic load

Compensatory Strategies During Food Inadequacy
+ Avoidance of food waste
+ Systemic overconsumption

Compensatory Strategies During Food Shortage
+ Weight gain and hyperglycemia
+ Weight loss and hyperglycemia

Weight gain + hypoglycemia
Weight loss + hypoglycemia

Obesity
Hypertension
Diabetes

The Cycle of Food Insecurity and Chronic Disease
Food Insecurity and Diabetes

Food Insecurity and Health Care Costs

- Food insecurity costs the U.S. ~$77.5 billion in additional health care costs annually
- Per FI person, each year:
  - Inpatient hospitalizations: 45% higher
  - Prescriptions: 78% higher
  - Diabetes: 51% higher
  - Hypertension: 37% higher
  - Heart disease: 66% higher
Cost of A Health Care Visit for Low Blood Sugar vs. Food

- Inpatient Admission: $17,564
- Emergency Visit: $1,387
- Outpatient Visit: $394
- Monthly Food Cost (Family of 4): $657*

*Thrifty Food Plan

Addressing FI in Health Care Settings: Screening Questions

1. Within the past 12 months we worried whether our food would run out before we got money to buy more.

2. Within the past 12 months the food we bought just didn’t last and we didn’t have money to get more.

   Yes = often or sometimes true;
   No = never true

“Yes” to either question: 97% sensitivity, 83% specificity

Source: Hager, Pediatrics, 2010
Screening for Food Insecurity: Standard of Care

• National Committee for Quality Assurance standard compliance requires addressing populations for food insecurity & linking members with community resources

• Recommended by:
  • American Academy of Pediatrics
  • American Diabetes Association
  • American Dietetic Association
Addressing FI in Health Care Settings: Models

1. Screening

2. Referral to food resources/education
   • CalFresh; food pantry, direct food assistance
   • Nutrition education, chronic disease self-management education

Examples:
• Sharp Community Medical Group CARE Program
• Hospital Outstation CalFresh Enrollment
• Sharp Grossmont Hospital Care Transitions Intervention (CTI)
What is the Care Transitions Intervention© (CTI) Program?
Partnership: CTI and Feeding San Diego
Partnership: CTI and 2-1-1 San Diego

2-1-1 receives fax referral via ECIN and social worker/discharge planner notes

Health Navigator assigned to case and sends e-mail confirmation with Health Navigator assignment to social worker

Health Navigator begins case planning based on social worker/discharge planner case notes and patient information

Health Navigator connects with patient within one business day of referral receipt to complete assessment and identify care plan and schedule follow-up appointment

Health Navigator will follow-up with client on care plan with frequency based on need

Continued communication and outcome information will be provided to social worker/discharge planner via encrypted e-mail, on a bi-monthly to monthly basis
CTI and 2-1-1 San Diego: Risk Rating Scale

**FOOD & NUTRITION**
Long-term and sustainable access to nutritious foods and to support services to maintain access

<table>
<thead>
<tr>
<th>CRISIS</th>
<th>CRITICAL</th>
<th>VULNERABLE</th>
<th>STABLE</th>
<th>SAFE</th>
<th>THRIVIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMEDIACY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than One Day Supply of Food</td>
<td>1-3 Day Supply of Food</td>
<td>Ability to Maintain Food Supply up to 30 Days</td>
<td>Adequate Food</td>
<td>Nutritious Food</td>
<td></td>
</tr>
<tr>
<td>KNOWLEDGE AND UTILIZATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Access or Knowledge of Resources</td>
<td>Some Access (Food Banks &amp; Food Pantry)</td>
<td>Connected to a Limited Number of Short Term Resources (CalFresh, WIC, Supplemental)</td>
<td>Knowledge to Buy and Prepare Nutritious Food</td>
<td>Practices Healthy Eating and Wellness</td>
<td></td>
</tr>
<tr>
<td>BARRIERS AND SUPPORTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited Supports and Lack of Transportation, Finances</td>
<td>Some Barriers (e.g. Lack Access to Grocery Stores) and Limited Friend or Family Supports</td>
<td>No Barriers (Supports to Food Preparation and Finances)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FOOD INSECURE WITH HUNGER**
**FOOD INSECURE WITHOUT HUNGER**
**FOOD SECURE**

Source: 2-1-1 SAN DIEGO
CTI: Outcomes

- Reduced readmissions: 9.6%
- Improved care coordination: 97%
- Improved SDOH vulnerability: 91%
- Improved ability to manage health: 92%
- Improved access to healthy food: >100 food bags
Other Opportunities in Food Insecurity

Policy and Advocacy

Education + Access to Healthy Food

Provider Education (CME)
San Diego Food Insecurity Resources
Thank you!

Jillian Barber, MPH
Manager, Community Benefit and Health Improvement

Jillian.Barber@sharp.com