The Intersection of Food Insecurity, Health and Health Care Utilization
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Disclosure

I have no relevant financial disclosures.
Learning Objectives

- Define the term food insecurity
- Describe the local and national profile of food insecurity
- Describe recent research discussing the impact of food insecurity on health
- Describe potential strategies, tools and resources to address food insecurity in patients

What Goes Into Your Health?

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>Low Food Security</strong></td>
</tr>
<tr>
<td>• Always enough</td>
<td>• Cover 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 Arizona

- 15.8%: 1.1 million food insecure individuals
  - Children: 24.0%
- Apache County- 26.6% (highest)
  - 1 out of 4 individuals
  - 1 out of 3 children
- Maricopa County – 15%
  - 1 out of 7 individuals
  - 1 out of 4 children

*Source: Feeding America. Map the Meal Gap. 2017*
Food Insecurity in AZ, cont’d

<table>
<thead>
<tr>
<th>County</th>
<th>Food insecurity rate (full population)</th>
<th>Population under 18 years old</th>
<th>Child food insecurity rate</th>
<th>Estimated number food insecure children (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache</td>
<td>26.6%</td>
<td>21,437</td>
<td>37.6%</td>
<td>8,070</td>
</tr>
<tr>
<td>Cochise</td>
<td>15.0%</td>
<td>29,276</td>
<td>24.3%</td>
<td>7,120</td>
</tr>
<tr>
<td>Coconino</td>
<td>19.9%</td>
<td>30,205</td>
<td>26.4%</td>
<td>7,970</td>
</tr>
<tr>
<td>Gila</td>
<td>18.5%</td>
<td>10,920</td>
<td>30.5%</td>
<td>3,330</td>
</tr>
<tr>
<td>Graham</td>
<td>15.8%</td>
<td>10,403</td>
<td>26.3%</td>
<td>2,740</td>
</tr>
<tr>
<td>Greenlee</td>
<td>13.3%</td>
<td>2,586</td>
<td>22.9%</td>
<td>590</td>
</tr>
<tr>
<td>La Paz</td>
<td>16.0%</td>
<td>3,516</td>
<td>27.4%</td>
<td>960</td>
</tr>
<tr>
<td>Maricopa</td>
<td>15.0%</td>
<td>1,016,404</td>
<td>22.6%</td>
<td>229,460</td>
</tr>
<tr>
<td>Mohave</td>
<td>19.1%</td>
<td>38,966</td>
<td>28.9%</td>
<td>11,270</td>
</tr>
<tr>
<td>Navajo</td>
<td>23.0%</td>
<td>30,438</td>
<td>33.6%</td>
<td>10,230</td>
</tr>
<tr>
<td>Pima</td>
<td>14.6%</td>
<td>220,513</td>
<td>23.1%</td>
<td>51,010</td>
</tr>
<tr>
<td>Pinal</td>
<td>14.7%</td>
<td>96,932</td>
<td>24.0%</td>
<td>23,300</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>8.6%</td>
<td>13,539</td>
<td>24.6%</td>
<td>3,330</td>
</tr>
<tr>
<td>Yavapai</td>
<td>16.8%</td>
<td>38,411</td>
<td>24.7%</td>
<td>9,480</td>
</tr>
<tr>
<td>Yuma</td>
<td>17.5%</td>
<td>53,743</td>
<td>33.0%</td>
<td>17,740</td>
</tr>
<tr>
<td><strong>State Total</strong></td>
<td><strong>15.8%</strong></td>
<td><strong>1,621,528</strong></td>
<td><strong>24.0%</strong></td>
<td><strong>389,850</strong></td>
</tr>
</tbody>
</table>

(Source: Feeding America. Map the Meal Gap. 2017)

Components of Food Security

1. **AVAILABILITY**
   There is a reliable and consistent source of quality food.

2. **ACCESS**
   People have sufficient resources to produce and/or purchase food.

3. **UTILIZATION**
   People have the knowledge and basic sanitary conditions to choose, prepare, and distribute food in a way that results in good nutrition.

4. **STABILITY**
   People's ability to access and utilize food that remains stable and sustained over time.

(Source: Food and Agriculture Organization of the United Nations)
Food Insecurity and Food Affordability

- More vegetables = bigger food budget
- Less healthy = less costs


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

Food Insecurity and Health: Feeding America Profile

24% of households have a member in poor health

Making Tough Choices:

• food and medical care: 53%
• food and utilities: 54%
• food and housing: 39%


Food Insecurity: Coping Strategies

• Disordered eating patterns
• Limited, low-cost, filling foods
• Food pantries / soup kitchens
• Nutrition programs (CalFresh, WIC)
• Other: Jail, ED

1Seligman, H. JGIM, 2007
Nutrition Impacts: FI and Seniors

<table>
<thead>
<tr>
<th>Vitamin A (mg)</th>
<th>Vitamin B9 (mg)</th>
<th>Iron (mg)</th>
<th>Calcium (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>12.0</td>
<td>14.9</td>
<td>15.9</td>
</tr>
<tr>
<td>15.7</td>
<td>12.8</td>
<td>11.9</td>
<td>11.4</td>
</tr>
<tr>
<td>11.2</td>
<td>10.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent Difference in Nutrient Intake when Comparing Food Insecure Seniors to Food Secure Seniors*

Spotlight on Senior Health: Adverse Health Outcomes of Food Insecure Older Americans. National Foundation to End Senior Hunger and Feeding America. March, 2014

Health Impacts: FI and Chronic Disease

- Increased BMI and obesity\(^1,2\)
- Increased hypertension, cardiovascular disease risk
- Increased /more severe diabetes \(^3,4\)
- Increased behavioral health risks across lifespan\(^5\)
- Poor chronic disease management


\(^4\) Seligman Diabetes Care 2012

\(^5\) Increased behavioral health risks across lifespan including poor chronic disease management.
**Health Impacts: FI and Obesity**

- FI adults: 32% greater odds of obesity than FS adults; significant association with women.¹

- 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

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**Food Insecurity and Diabetes**

Health Impacts: FI and Behavioral Health

- FI pregnant women face increased stress, anxiety and depression; also:
  - Reduced ability to provide care
  - Impaired mother-child interaction and attachment

- Effects on health/development of young children
  - Delayed physical and cognitive development
  - Aggression
  - Anxiety
  - Depression

- Increased risk for depression, suicidal thoughts, substance abuse and other mental health conditions in adolescents

- FI significantly more prevalent in adults with mood disorders;
  - Significant association with mania symptoms and nutritional deficiencies

- Significant increase in depression for FI seniors when compared to those who are food secure

Health Impacts: FI in Seniors

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

- Heart Attack: 53.0%
- Asthma: 57.8%
- Congestive Heart Failure: 60.0%
- Chest Pain: 36.9%
- Activities of Daily Living Limitation: 21.0%
- Coronary Heart Disease: 21.0%

Spotlight on Senior Health: Adverse Health Outcomes of Food Insecure Older Americans. National Foundation to End Senior Hunger and Feeding America. March, 2014

FI and Health Care Utilization

- In CA hospitals: 27% increase in hypoglycemia admissions at end of the month for low-income diabetics

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


The Cycle of Food Insecurity and Chronic Disease.
Addressing FI in Health Care Settings: Screening Questions

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

Source: Hager, Pediatrics, 2010
Addressing FI in Health Care Settings: Models from San Diego

Components (2):
• Screening
• Referral to food resources/education
  • CalFresh (Food Stamps), food pantry, direct food assistance
  • Nutrition education, chronic disease self-management education

Examples:
• Sharp Grossmont Hospital Care Transitions Intervention
• Sharp Community Medical Group CARE Program
• Hospital Outstation CalFresh Enrollment

What is the Care Transitions Intervention© (CTI) Program?

The Care Transitions Program

Personal Health Record

(Name)

Care Transitions Coach

Phone number: ______

At Sharp HealthCare, your health is very important to us and we’re committed to helping you make a smooth transition from the hospital to your home.

This personal health record is designed to help you communicate with your physicians and caregivers. Please remember to take this with you to your doctor appointments.
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
14 Domains

- Housing Stability
- Primary Care and Prevention
- Health Management
- Nutrition & Food Security
- Financial Wellness and Benefits
- Activities of Daily Living
- Social & Community Connection
- Legal & Criminal Justice
- Safety & Disaster
- Utility & Technology
- Transportation
- Education & Human Development
- Personal Care & Household Goods
- Employment Development

CTI and 2-1-1 San Diego: Risk Rating Scale

**FOOD & NUTRITION**

- **CRISIS**
  - Less than One Day Supply of Food
  - No Access or Knowledge of Resources
  - Limited Supports and Lack of Transportation, Finance

- **CRITICAL**
  - 1-3 Day Supply of Food
  - Some Access (Food Banks, Food Pantry)
  - Some Barriers (e.g., Lack Access to Grocery Store, and Limited Friends or Family Supports)

- **VULNERABLE**
  - Adequate Food
  - Connected to a Limited Number of Short Term Resources (CalFresh, WIC Supplemental)
  - No Barriers (Supports to Food Preparation and Finance)

- **STABLE**
  - Nutritious Food
  - Knowledge to Buy and Prepare Nutritious Food
  - Practices Healthy Eating and Wellness

- **SAFE**
  - Nutritious Food
  - Knowledge to Buy and Prepare Nutritious Food
  - Practices Healthy Eating and Wellness

- **THRIVIN**
  - Nutritious Food
  - Knowledge to Buy and Prepare Nutritious Food
  - Practices Healthy Eating and Wellness

Legend:

- Red: Mobiles have difficulty
- Orange: Mobiles have moderate difficulty
- Yellow: Mobiles have mild difficulty
- Green: Mobiles have no difficulty

Source: 2-1-1 San Diego
CTI: Outcomes

- Reduced readmissions: 9.7%
- 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
Combine Education with Access to Healthy Food

Provider Education (CME)
Food Insecurity Resources

Thank you!

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