Food insecurity and its impact on healthcare: the pharmacist’s role

April 12th, 2016

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Speaker Bios

- Vasudha Gupta is an Assistant Professor of Pharmacy Practice at Roseman University of Health Sciences. She completed her Doctor of pharmacy degree at the University of Rhode Island and then completed an ambulatory care residency focused on chronic disease state management at Coastal Medical in Rhode Island. She received her board certification in ambulatory care in 2013. As part of her faculty appointment at Roseman, she is a clinical pharmacist at St. Rose Dominican Hospital in the Center for Ambulatory services, where she also precepts APPE students.

- Susan Nguyen is an Assistant Professor of Pharmacy Practice at Roseman University of Health Sciences. She completed her Doctor of Pharmacy degree and ambulatory care residency at The Ohio State University. As part of her faculty appointment at Roseman, she serves as a clinical pharmacist at Volunteers in Medicine of Southern Nevada (VMSN), a non-profit organization that provides free medical care (primary, acute, specialty care) and medications to patients who fall below 200% of the federal poverty level. VMSN also connects patients to local community partners and social services throughout Southern Nevada.
Poll Question: What is your current clinical practice site?

a) Community/MTM
b) Ambulatory care/outpatient clinic
c) Inpatient
d) Other
e) N/A
Poll Question: How many people in the United States are considered to be food insecure?

a) 16 million  
b) 33 million  
c) 49 million  
d) 319 million
Poll Question: How comfortable do you feel recommending food insecurity resources to patients?

a) Not very comfortable
b) Somewhat comfortable
c) Comfortable
d) Very comfortable
Learning Objectives

• Define food insecurity and discuss its prevalence in America
• Summarize impact of food insecurity on patients’ healthcare
• Summarize management strategies for addressing food insecurity
• Identify role of pharmacists in recognizing and managing patients with food insecurity
Food Insecurity

- Household-level economic or social condition of uncertain or limited access to nutritionally adequate and safe foods
  - **Low food security**: Reduced quality, variety, or desirability of diet without indication of reduced food intake
  - **Very low food security**: Multiple indications of disrupted eating patterns and reduced food intake
The impact of food insecurity and hunger. [www.feedingamerica.org](http://www.feedingamerica.org)
Percentage of households reporting indicators of adult food insecurity, by food security status, 2014

- Food secure
- Low food security
- Very low food security

- Worried food would run out
- Food bought did not last
- Could not afford balanced meal
- Cut size of meal or skipped meal
- Cut or skipped meal in 3+ months
- Ate less than felt should
- Hungry but did not eat
- Lost weight
- Did not eat whole day
- Did not eat whole day, 3+ months

Categories of very low food security

- >95% of patients reported
  - Worrying that their food would run out before they got money to buy more
  - Food didn’t last and didn’t have money to get more
  - Couldn’t afford to eat balanced meals
  - Cut the size of meals or skipped meals because there wasn’t enough money for food
  - Eating less than they felt they should because there wasn’t enough money for food

Prevalence of food insecurity - 2014

2013 Food Insecurity Rates

The impact of food insecurity and hunger. [www.feedingamerica.org](http://www.feedingamerica.org)
Disparity across the US

The impact of food insecurity and hunger. [www.feedingamerica.org](http://www.feedingamerica.org)
Food-Insecurity In Various Counties

The impact of food insecurity and hunger. 2013. [www.feedingamerica.org](http://www.feedingamerica.org)
Health Impact on Patients

• Diabetes (NHANES 1999-2002)
  ▫ 4423 adults >20 y/o with household incomes ≤300% FPL
  ▫ Pts with severe FI were more likely to have diabetes than those without FI (AOR 2.1; 95% CI 1.1-4.0, p=.02)
  ▫ Increased consumption of inexpensive food alternatives may act as a risk factor for diabetes

• Metabolic disorder (NHANES 1999-2008)
  ▫ 2557 diabetic adults
  ▫ Higher proportion of pts with FI had an A1c>9.0% (27.0 vs 13.3%; p<0.001)
  ▫ FI associated with poor LDL control but not BP control
  ▫ FI is significantly associated with poor metabolic control

Chronic diseases

- **Cardiovascular risk factors (NHANES 1999–2004)**
  - 5094 poor adults 18-65 y/o
  - FI associated with HTN (ARR 1.21; 95% CI 1.04–1.41) and diabetes (ARR 1.48; 95% CI 0.94–2.32)

- **Osteoporosis (NHANES 2007-2008)**
  - 2403 adults ≥ 50 y/o
  - Higher risk of osteoporosis in low-income (OR 1.90; 95% CI 1.07-3.37) and FI populations (OR 3.48; 95% CI 1.43-8.48)
  - FI may have significant implications on development of osteoporosis
Others

• HIV
  ▫ 2353 HIV-infected patients receiving antiretrovirals
  ▫ FL pts more likely to have an unsuppressed HIV-1 RNA viral load
    (AOR 1.37; 95% CI 1.09-1.73)
Others

• Depression
  ▫ RCT with type 2 diabetics, 30-70 y/o with household income <250% of FPL
  ▫ Patients with FI were more likely to be depressed (40.7% vs. 15.4%, \( p<0.001 \)), had significantly higher A1c levels (\( p=0.02 \)) and low medication adherence (52.9% vs 37.2 %, \( p=0.02 \))

• Children (NHANES 2007-2012)
  ▫ 1,853 adolescents 12-17 y/o to examine the association between FI and CV risk
  ▫ FI adolescents significantly more likely to be exposed to tobacco (odds of attaining ideal levels of tobacco smoke exposure (OR 0.54; 95% CI 0.31-0.94) and have lower levels of physical activity
Medication non-adherence

- Herman, Afulani et al. 2015
  - 67,539 nonelderly US adults 18-64 y/o
  - Increasing severity of FI increases likelihood of cost-related medication underuse (p<.001)

- Afulani, Herman et al. 2015
  - 10,401 patients ≥65 y/o
  - Increasing severity of FI increases likelihood of cost-related medication underuse (p<.001)
Poll Question: How do you currently identify patients at risk of food insecurity?

a) Validated survey tool
b) Non-validated survey tool
c) Red flags based on patient interviews
d) Currently do not identify
Survey Instrument

- Used by USDA to assess household food security
- 10-item questionnaire
  - Additional 8 questions if the household included children 0-17 years old
- 6-item questionnaire
- Questionnaire for children >12 years old
6-item questionnaire

1. In the last 12 months, the food that (I/we) bought just didn’t last, and (I/we) didn’t have money to get more?
   a. Often true (1 point)
   b. Sometimes true (1 point)
   c. Never true
   d. Don’t know or Refused

2. In the last 12 months, (I/we) couldn’t afford to eat balanced meals.
   a. Often true (1 point)
   b. Sometimes true (1 point)
   c. Never true
   d. Don’t know or Refused

3. In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?
   a. Yes (1 point)
   b. No (Skip 4)
   c. Don’t know (Skip 4)
6-item questionnaire

4. [IF YES ABOVE] How often did this happen?
   a. Almost every month (1 point)
   b. Some months but not every month (1 pt)
   c. Only 1 or 2 months
   d. Don’t know

5. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
   a. Yes (1 point)
   b. No
   c. Don’t know

6. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?
   a. Yes (1 point)
   b. No
   c. Don’t know
Scoring

<table>
<thead>
<tr>
<th>Scoring</th>
<th>Food security status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw score 0-1</td>
<td>High or marginal food security (raw score 1 may be considered marginal food security)</td>
</tr>
<tr>
<td>Raw score 2-4</td>
<td>Low food security</td>
</tr>
<tr>
<td>Raw score 5-6</td>
<td>Very low food security</td>
</tr>
</tbody>
</table>

Poll Question: Are you aware of resources for patients who are food insecure?

a) Yes
b) No
Poll Question: What resources are you currently using for patients with food insecurity?

• Open-ended Question
Patient Case

- RS is a 45 yo Hispanic female who presents to the clinic for DM management.
- PMH: Diabetes x 10 years, hypertension, hyperlipidemia, CKD stage 3
- Social history: Married, has two children
  - 2 and 4 years old
- Unemployed. Husband works as a employee of a local restaurant
  - Income: $22,500
Patient Case

- **Patient interview:**
  - **Current meals**
    - Breakfast: cereal 2 cups with 1 cup of milk
    - Lunch: Canned soup with crackers
    - Dinner: 2 tortillas and eggs or ground beef
  - **Food Insecurity questionnaire:** 5

  “I understand that this diet can help my diabetes, but I can barely afford the meals I am making now. I don’t know what to do. Can you help me?”
Federal Poverty Level

• Determined by the Department of Health and Human Services
• Used to determine eligibility for services and programs

What does it mean to live in poverty?

Poverty rates are provided as supplemental information to the food insecurity rates. Poverty rates are determined by the number of members in a household and their annual income.

<table>
<thead>
<tr>
<th>Household #</th>
<th>100%</th>
<th>130%</th>
<th>185%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$11,770</td>
<td>$15,301</td>
<td>$21,775</td>
</tr>
<tr>
<td>2</td>
<td>$20,090</td>
<td>$26,117</td>
<td>$37,167</td>
</tr>
<tr>
<td>3</td>
<td>$24,250</td>
<td>$31,525</td>
<td>$44,863</td>
</tr>
</tbody>
</table>

2015 Poverty Guidelines.
https://www.medicaid.gov/medicaid-chip-program-information/by-topics/eligibility/downloads/2015-federal-poverty-level-
US Department of Agriculture

- Food Distribution Programs
  - Commodity Supplemental Food Program (CSFP)
  - Food Distribution Program on Indian Reservations (FDPIR)
  - The Emergency Food Assistance Program (TEFAP)
- Supplemental Nutrition Assistance Program (SNAP)
- Women, Infants, Children (WIC)
  - Farmers’ Market Nutrition Program (FMNP)
- Senior Farmers’ Market Nutrition Program (SFMNP)

- Child Nutrition Programs
  - Child and Adult Care Food Program (CACFP)
  - Fresh Fruit and Vegetable Program (FFVP)
  - National School Lunch Program (NSLP)
  - School Breakfast Program (SBP)
  - Special Milk Program (SMP)
  - Summer Food Service Program (SFSP)

Supplemental Nutrition Assistance Program (SNAP)

- Federal/state program
  - Largest food assistance program in the US
  - For low income individuals & families
- Prescreening tool
- State hotlines

Supplemental Nutrition Assistance Program.
Estimates of Participation Rates Varied Widely

2013 Participation Rate for All Eligible People
- Above 93% (top quarter)
- 80% to 93%
- Below 80% (bottom quarter)
National Rate = 85%

SNAP Eligibility

- Resources
  - Allowed to have $2,250 in countable resources
- Employment requirement
  - Must meet work requirements determined by state
- Elderly or disabled
  - Additional household considerations
- Immigrant eligibility
  - Legal immigrants that have lived in US for at least 5 years or receiving disability-related assistance/benefits or children < 18 yo
- Income

SNAP Income Eligibility and Benefits (10/15-9/16)

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Net monthly income (100% poverty level)</th>
<th>Maximum Monthly Allotment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$981</td>
<td>$194</td>
</tr>
<tr>
<td>2</td>
<td>$1,328</td>
<td>$357</td>
</tr>
<tr>
<td>3</td>
<td>$1,675</td>
<td>$511</td>
</tr>
<tr>
<td>4</td>
<td>$2,021</td>
<td>$649</td>
</tr>
<tr>
<td>5</td>
<td>$2,368</td>
<td>$771</td>
</tr>
<tr>
<td>6</td>
<td>$2,715</td>
<td>$925</td>
</tr>
<tr>
<td>7</td>
<td>$3,061</td>
<td>$1,022</td>
</tr>
<tr>
<td>8</td>
<td>$3,408</td>
<td>$1,169</td>
</tr>
<tr>
<td>Each additional member</td>
<td>+$347</td>
<td>+$146</td>
</tr>
</tbody>
</table>

- Net monthly income: monthly gross income – deductions
- Amount of SNAP allotment
  - Maximum monthly allotment - (Net monthly income x 0.3)

How effective is SNAP?

- Ratcliffe, et al.
  - Low income households below 150% poverty level with available assets <$4,000-5,000
  - SNAP reduced likelihood of being food insecure by 31.2%
  - SNAP reduced likelihood of being very food insecure by 20.2%
Women, Infants, Children (WIC) Program

- **Federal/State Program**
  - Provides supplemental food assistance, health care referrals, nutrition education
  - For low income, pregnant, breastfeeding, and non-breastfeeding postpartum woman, infants & children up to 5 years old

- **Prescreening tool**

- **State hotlines**
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
Coverage Rates for All Participants by State, Calendar Year 2013

Eligibility for WIC

- Categorical
  - Women:
    - Pregnant: during and up to 6 weeks after birth of infant/end of pregnancy
    - Postpartum: up to 6 months after birth of infant or end of pregnancy
    - Breastfeeding: up to infant’s 1st birthday
  - Infants
    - Up to the infant’s 1st birthday
  - Children
    - Up to the child’s 5th birthday

Eligibility for WIC

- Residential
  - Must be a resident in the State

- Income
  - Income standard: below 185% of federal poverty level
  - Automatic income eligibility:
    - SNAP, Medicaid, Temporary Assistance for Needy Families (TANF), other state administered programs

- Nutrition Risk
  - Evaluation by health professional

### Maximum Monthly Allowances of Supplemental Foods for Children and Women

<table>
<thead>
<tr>
<th>Foods</th>
<th>Children</th>
<th>Food Package V: Pregnant and Partially (Mostly) Breastfeeding (up to 1 year postpartum)</th>
<th>Food Package VI: Postpartum (up to 6 months postpartum)</th>
<th>Food Package VII: Fully Breastfeeding (up to 1 year post-partum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juice, single strength</td>
<td>128 fl oz</td>
<td>144 fl oz</td>
<td>96 fl oz</td>
<td>144 fl oz</td>
</tr>
<tr>
<td>Milk</td>
<td>16 qt</td>
<td>22 qt</td>
<td>16 qt</td>
<td>24 qt</td>
</tr>
<tr>
<td>Breakfast cereal</td>
<td>36 oz</td>
<td>36 oz</td>
<td>36 oz</td>
<td>36 oz</td>
</tr>
<tr>
<td>Cheese</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1 lb</td>
</tr>
<tr>
<td>Eggs</td>
<td>1 dozen</td>
<td>1 dozen</td>
<td>1 dozen</td>
<td>2 dozen</td>
</tr>
<tr>
<td>Fruits and vegetables</td>
<td>$8.00 in cash value vouchers</td>
<td>$11.00 in cash value vouchers</td>
<td>$11.00 in cash value vouchers</td>
<td>$11.00 in cash value vouchers</td>
</tr>
<tr>
<td>Whole wheat bread</td>
<td>2 lb</td>
<td>1 lb</td>
<td>N/A</td>
<td>1 lb</td>
</tr>
<tr>
<td>Fish (canned)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>30 oz</td>
</tr>
<tr>
<td>Legumes, dry or canned and/or</td>
<td>1 lb (64 oz canned)</td>
<td>1 lb (64 ounce canned)</td>
<td>1 lb (64 ounce canned)</td>
<td>1 lb (64 ounce canned)</td>
</tr>
<tr>
<td>Peanut butter</td>
<td>18 oz</td>
<td>18 oz</td>
<td>18 oz</td>
<td>18 oz</td>
</tr>
</tbody>
</table>

1 Refer to the full regulation at [www.fns.usda.gov/wic](http://www.fns.usda.gov/wic) for the complete provisions and requirements for WIC foods.

2 Allowable options for fluid milk substitutions are yogurt, cheese, soy beverage, and tofu.

3 At least one half of the total number of breakfast cereals on State agency food list must be whole grain.

4 Allowable options for whole wheat bread are whole grain bread, brown rice, bulgur, oatmeal, whole-grain barley, whole wheat macaroni products, or soft corn or whole wheat tortillas.

5 Allowable options for canned fish are light tuna, salmon, sardines, and mackerel.
Food Banks

- Non-profit organizations that collect and distribute donated food in the community
- Gets supplies through local donations, food drives, grocery stores, manufacturers, farmers
- Funded by: individual, corporate, and foundation donations and grants

Resources

- Feeding America
  - Largest domestic hunger-relief organization
  - Network of 200 food banks & 60,000 food pantries across the US

Resources

- **FoodPantries.org**
  - Directory of pantries, soup kitchens, and non-profit organizations dedicated to fighting hunger

Foodpantries.org. [www.foodpantries.org](http://www.foodpantries.org)
Do Food Banks Improve Food Insecurity?

- Bazergahi, et al.
  - Ability to address immediate food deprivations
  - Barriers
    - May limit number of visits and quantity of food provided
    - May not be able to provide nutrient dense foods
    - May not be able to meet clienteles’ needs
    - May lack operational funds
  - Food banks clients continue to remain food insecure between visits
Pharmacists’ Role in Food Insecurity

- Discuss food insecurity at your practice setting
- Understanding what programs are available in your state
- Helping patient determine eligibility for food assistance programs and food banks
- Connecting patients to community partners, food assistance programs, and food banks
- Organize and volunteer at food drives, pantries, soup kitchens, etc.
Additional Resources

Roseman University of Health Sciences, Food Insecurity Library Guide. http://infoguides.roseman.edu/foodinsecurity
Poll Question: How comfortable do you feel recommending food insecurity resources to patients?

a) Not very comfortable
b) Somewhat comfortable
c) Comfortable
d) Very comfortable
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Questions?
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