Food Security & Food Access in Relation to Chronic Illness

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Objectives

By the end of this presentation attendees will be able to:

- ✓ Explain the relationship between food access, food security, and chronic disease risk.
- ✓ Describe best practices for evaluating individual and community risk for food insecurity.
- ✓ Identify evidence-based interventions to promote food security and nutrition equity.

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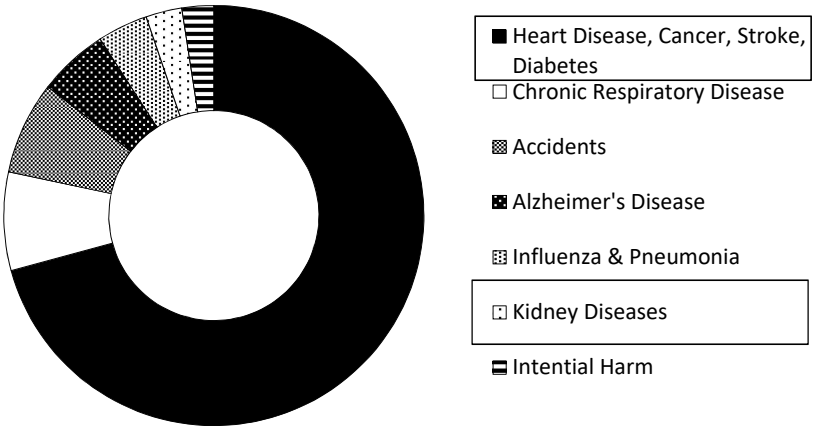
Why focus on food security and food access?

10 Leading Causes of Death in United States, 2015



U.S. Department of Health and Human Services. (2017) Health, United States, 2016. National Center for Health Statistics, Hyattsville, MD.

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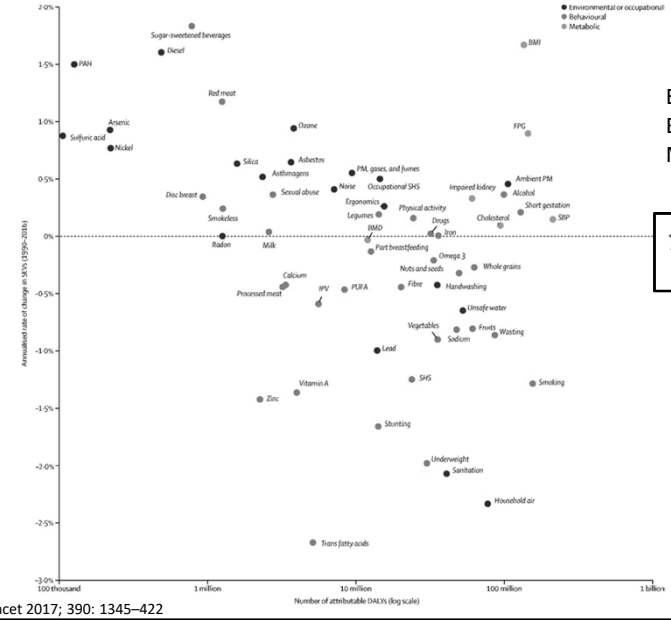
Relationship between attributable DALYs in 2016 & annualized rate of change in SEV (globally), both sexes combined, 1990–2016



Environmental = 35.7%
Behavioral = 48.2%
Metabolic = 16.1%

70% of behavioral are diet related

DALY = disability adjusted life years
SEV = summary exposure value

Lancet 2017; 390: 1345–422

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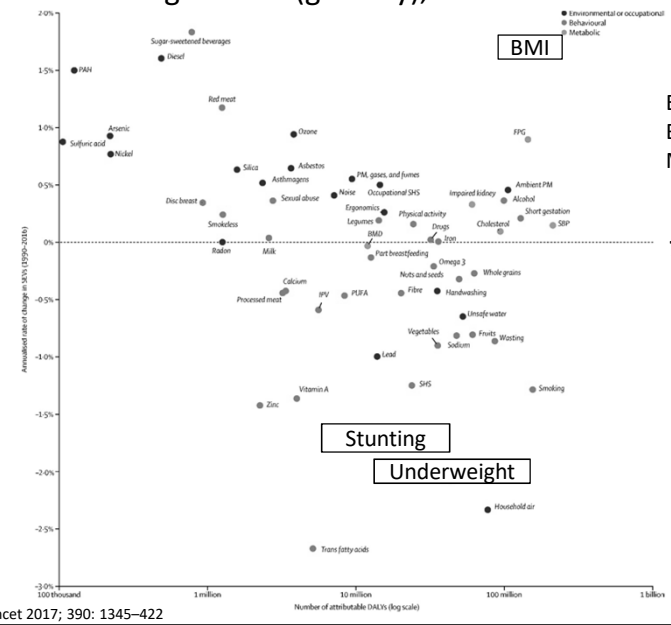
Relationship between attributable DALYs in 2016 & annualized rate of change in SEV (globally), both sexes combined, 1990–2016



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Definitions

Coleman-Jensen et al, 2018

- Food Secure:
  - All household members have access at all times to enough food for an active, healthy life

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Coleman-Jensen et al, 2018

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  - All household members have access at all times to enough food for an active, healthy life
- Food Insecure
  - Households that are unable to acquire adequate food for one or more members because they had insufficient money and other resources for food

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Low Food Secure
Households that avoided substantial reductions or disruptions in food intake, in many cases by relying on a few basic foods and reducing variety in their diets

Very Low Food Secure
Eating patterns of one or more household members were disrupted and their food intake reduced, at least some time during the year, because they could not afford enough food.

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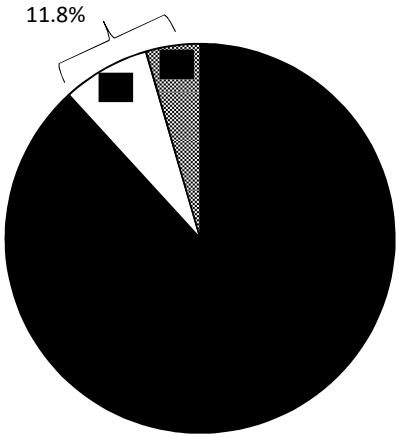
US Food Security Trends, 2017



■ Food Secure □ Low Food Secure ▩ Very Low Food Secure

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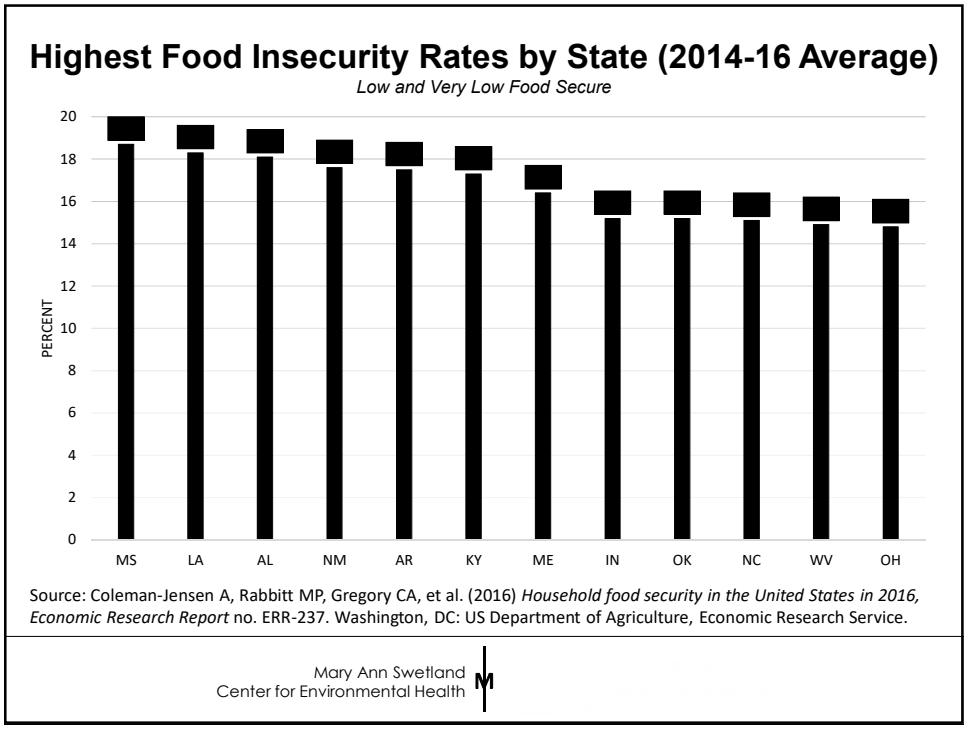

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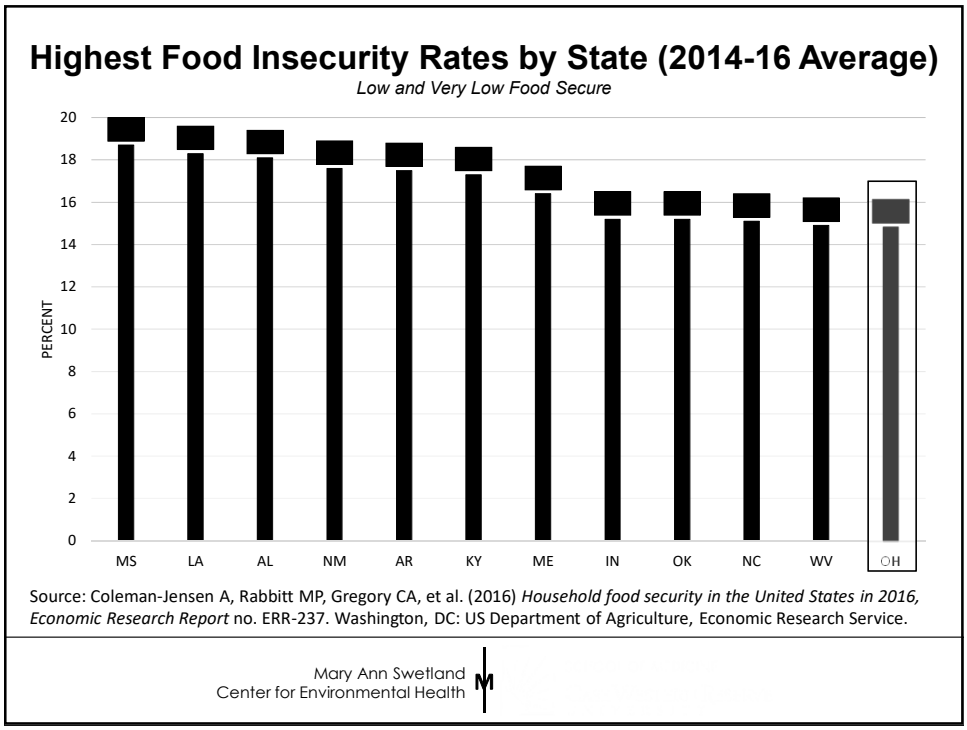

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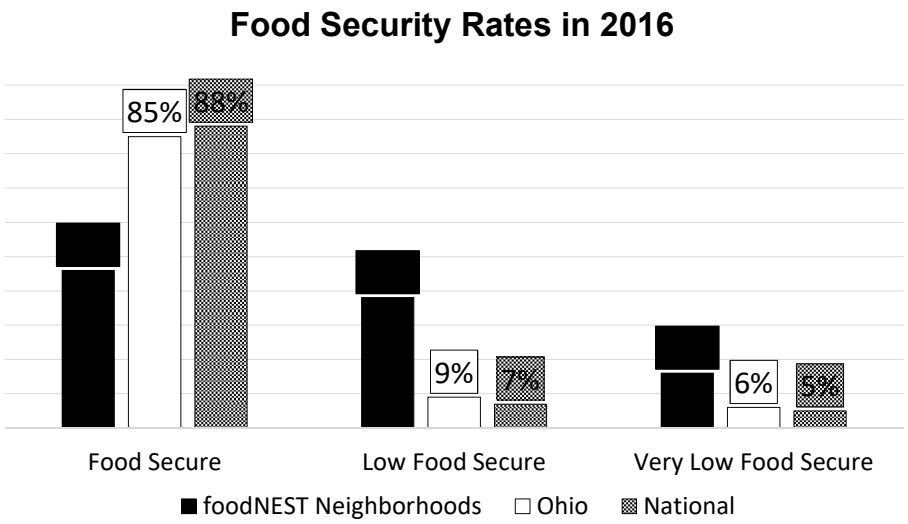

Sources:
National and Ohio: Coleman-Jensen A, Rabbitt MP, Gregory CA, et al. (2016) *Household food security in the United States in 2016, Economic Research Report* no. ERR-237. Washington, DC: US Department of Agriculture, Economic Research Service.
Ohio neighborhoods (St Clair-Superior, Cleveland & Southside, Columbus): Future of Food in Your Neighborhood Study (2016 data). N=450

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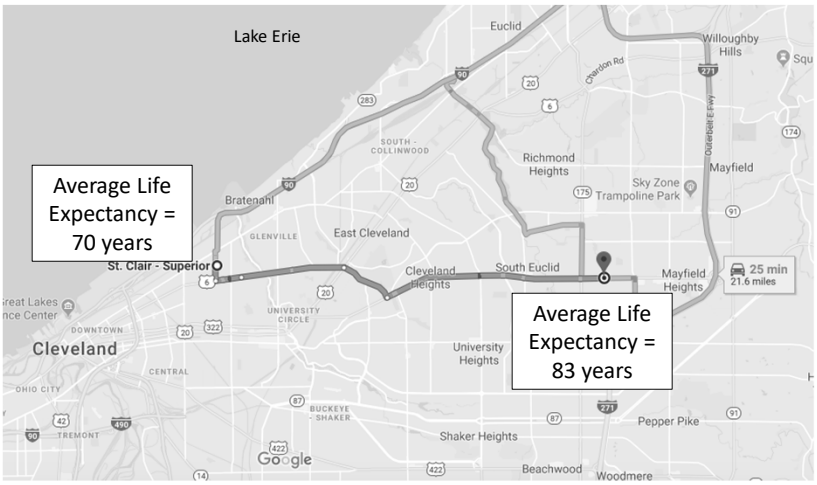
Zip Code > Genetic Code



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Who is at increased risk for food insecurity?

Coleman-Jensen et al, 2018

- Households with incomes below 185% of the **poverty** threshold (30.8%)
- Households with **children headed by a single** woman (30.3%) or a single man (19.7%)
- Households headed by **Black non-Hispanics** (21.8%) and **Hispanics** (18.0%)
- Households with **children under age 6** (16.4%)
- All households with **children** (15.7%)

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What are some of the causes of food insecurity among children?

Individual Factors

- Unemployment or underemployment among caregivers
- Income instability among caregivers
  - Seasonal work
  - Other financial demands (e.g., housing, health care, utilities)
  - Loss of benefits
- Family crisis (e.g., drug use, domestic violence, incarceration)
- Housing instability
- Lack of engagement with childcare
- Immigrant status
- Disability

Gunderson & Ziliak, 2014

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What are some of the causes of food insecurity among children?

Community Factors

- Low-access to stores selling nutritious foods
- Limited or no access to public transportation
- Low access to living wage jobs
- Poor quality education and training programs
- Unstable housing market

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Renal Modified Nutrition Environment Measurement Survey (Renal-NEMS)

Sullivan et al., 2017

- Comply with renal diet standards and recommendations from National Kidney Foundation's (NKF) Dietary Guidelines for Adults Starting on Hemodialysis
  - ≤900 mg of sodium for entrees and ≤300 mg of sodium for side dishes
  - No dry beans, high-potassium fruits, or high-potassium vegetables listed as the first, second, or third ingredient
  - No whole-grain flour listed as the first ingredient
  - Calcium content of ≤20% of the daily value
  - Low potassium fruits and vegetables

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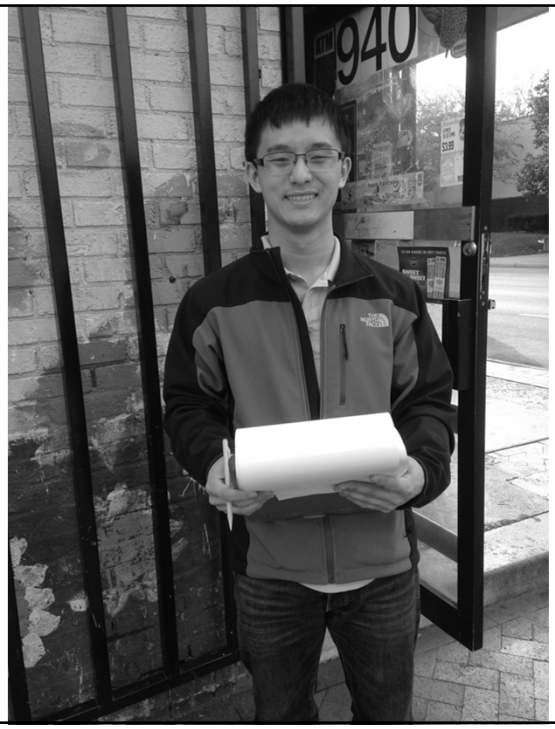

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Access to Renal Diet in Greater Cleveland Sample of Stores

Table 1. Comparison of the Availability of Foods Compatible With a Renal Diet Versus an Unrestricted Diet Using the Nutrition Environment Measures Survey (NEMS)

Category	Mean Number of Items for Unrestricted Diet	Mean Number of Items for Renal Diet	Difference Unrestricted Minus Renal	*P* Value
Milk	3.9 (0.3)	0.7 (0.5)	3.2	<.001
Fruit	8.7 (1.6)	9.0 (1.2)	−0.3	.04
Vegetables	10.0 (0.0)	9.8 (0.5)	0.2	.08
Ground beef	1.8 (0.6)	1.8 (0.6)	0.0	1.00
Hot dog	2.0 (0.0)	1.6 (0.5)	0.4	.02
Frozen dinners	2.7 (2.6)	0.8 (1.0)	1.9	.005
Baked goods	2.0 (0.0)	1.8 (0.4)	0.2	.17
Beverages	4.0 (0.0)	3.5 (0.8)	0.5	.05
Bread	2.0 (0.0)	1.8 (0.5)	0.3	.08
Chips	1.8 (0.4)	1.4 (0.5)	0.4	.02
Total	38.9 (4.5)	32.2 (4.7)	6.7	<.001

Results are shown as means (standard deviations).

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Cost of Renal Diet in Greater Cleveland Sample of Stores

Table 2. Comparison of the Cost per Serving of Foods Compatible With a Renal Diet Versus an Unrestricted Diet Using the Nutrition Environment Measures Survey (NEMS)

Category	Mean Cost Per Serving, $ for Unrestricted Diet	Mean Cost Per Serving, $ for Renal Diet	Difference, $ Unrestricted Minus Renal	*P* Value
Milk	0.20 (0.02)	0.47 (0.05)	−0.27	<.001
Fruit	0.70 (0.25)	0.75 (0.29)	−0.05	.04
Vegetables	0.43 (0.10)	0.38 (0.09)	0.05	<.001
Ground beef	1.37 (0.40)	1.37 (0.40)	0.00	1.00
Hot dog	0.33 (0.17)	0.48 (0.27)	−0.15	.004
Frozen dinners	3.43 (0.15)	3.18 (0.15)	0.25	.05
Baked goods	0.52 (0.10)	0.52 (0.12)	0.00	.81
Beverages	0.29 (0.08)	0.28 (0.10)	0.01	.71
Bread	0.14 (0.04)	0.16 (0.05)	−0.02	.009
Chips	0.38 (0.11)	0.31 (0.12)	0.07	.002
Total	5.67 (2.50)	5.76 (2.74)	−0.09	.48

Results are shown as means (standard deviations).
Negative numbers in the difference column reflect a higher cost for renal diet food items.

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How do you feel when you are hungry?

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Consequences of Food Insecurity

Pediatrics 2015

- Impaired growth and development (e.g., physical, social, emotional)
- Increased risk for chronic disease (e.g., obesity, diabetes)
- Increased risk for mental health concerns
- Decreased adherence to medication and health maintenance
- Higher health care costs
- Missed school or work days --> loss of income

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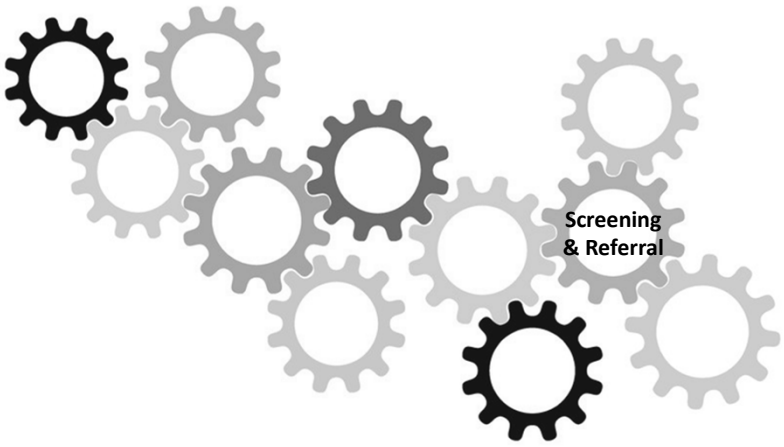
Solutions to Promote Food Security & Nutrition Equity



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Food Security Screening & Referral

Hunger Vital Sign

Hager et al., 2010

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."

Responses options: often true, sometimes true, or never true for our household

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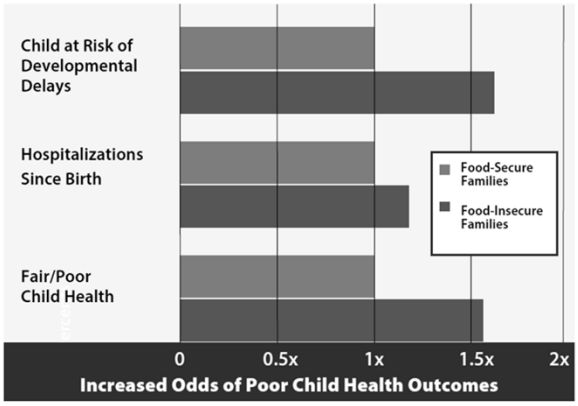
Hunger Vital Sign & Risk for Other Health Concerns

Children at risk of food insecurity had worse health outcomes.



Source: Children's HealthWatch Data, 1998-2005. All increases statistically significant at p<0.05.

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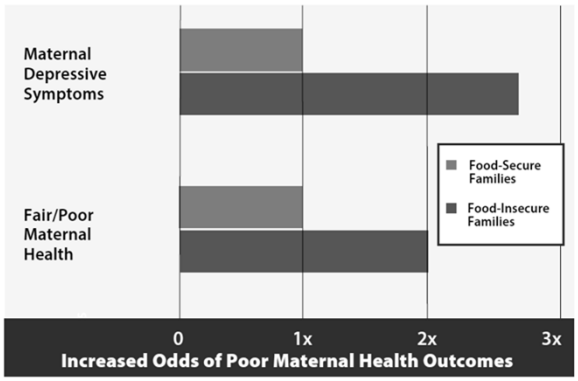
Hunger Vital Sign & Risk for Other Health Concerns

Mothers at risk of food insecurity were in worse mental and physical health.



Source: Children's HealthWatch Data, 1998-2005. All increases statistically significant at p<0.05.

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OUR COMMUNITY

Free Produce Distribution on Our Main Campus

The MetroHealth System | Jun 17 2019

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Other Referrals

- 211
- Local emergency food assistance
- Assess qualification for other benefits
  - Food assistance
  - Medicaid
  - Housing
- Training & employment

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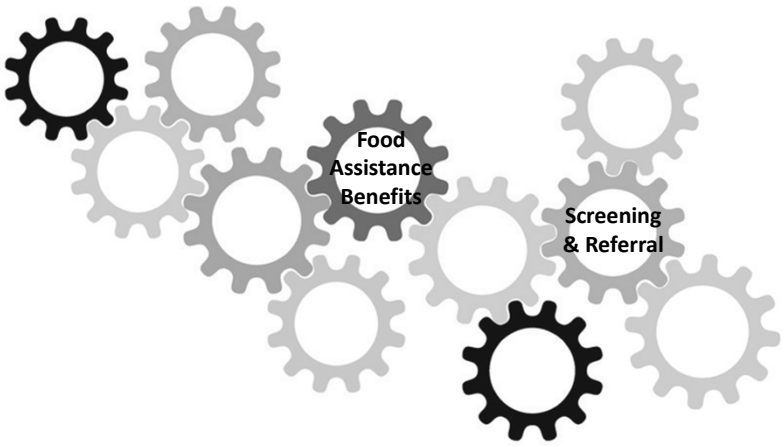

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Federal Food Assistance Benefits

Learn more at https://www.fns.usda.gov/

Benefit	Description
Supplemental Nutrition Assistance Program (SNAP, formerly food stamps)	Money to purchase food. The average benefit is about $127 per month per person.
Special Program for Women, Infants, and Children (WIC)	Money to purchase pre-specified foods for pregnant/postpartum women, infants, and children under the age of 5. Nutrition education and breastfeeding support also provided.
School Breakfast and Lunch Programs	Free or reduced price meals for income-eligible students of all ages.
Summer Meals Program for Children	Free healthy meals during the summer for students 18 and under.

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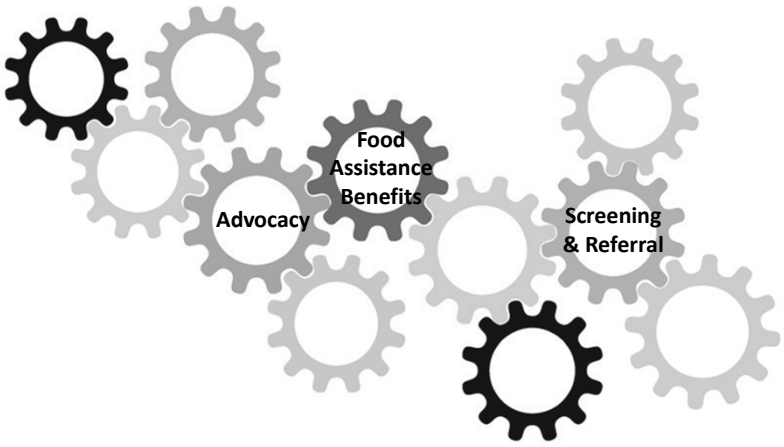

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Farm Bill Advocacy

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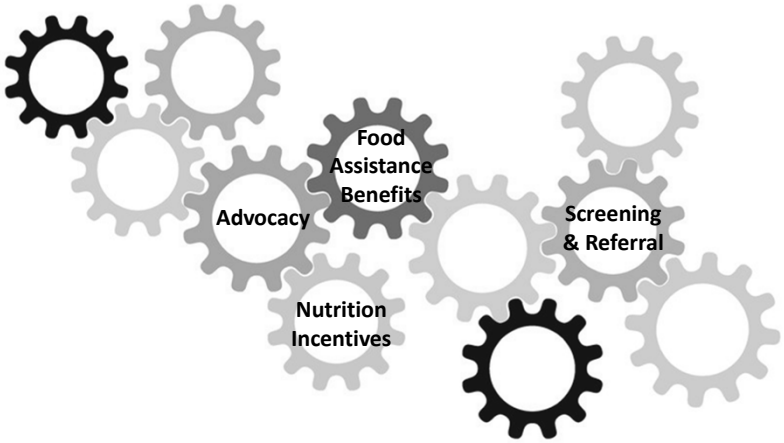
Solutions to Promote Food Security & Nutrition Equity



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What are nutrition incentives?

- ✓ Provide subsidy to reduce food costs.
- ✓ Often target specific populations.
- ✓ Often restrict use to buy select food products.

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**"I know the food is worth the price.
I just don't have the money to buy it."**

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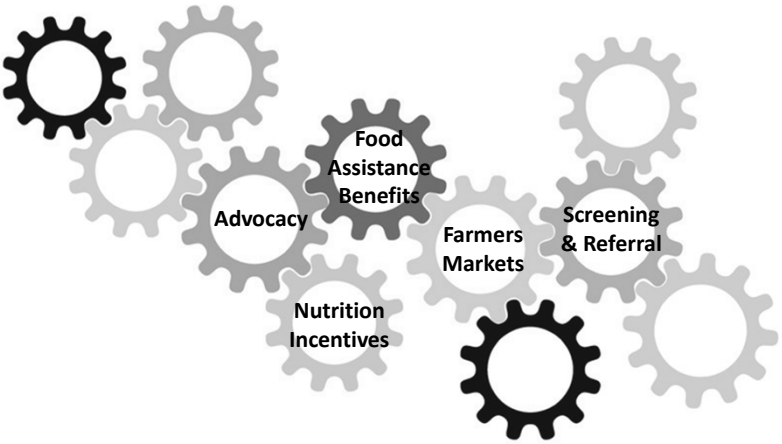
Solutions to Promote Food Security & Nutrition Equity



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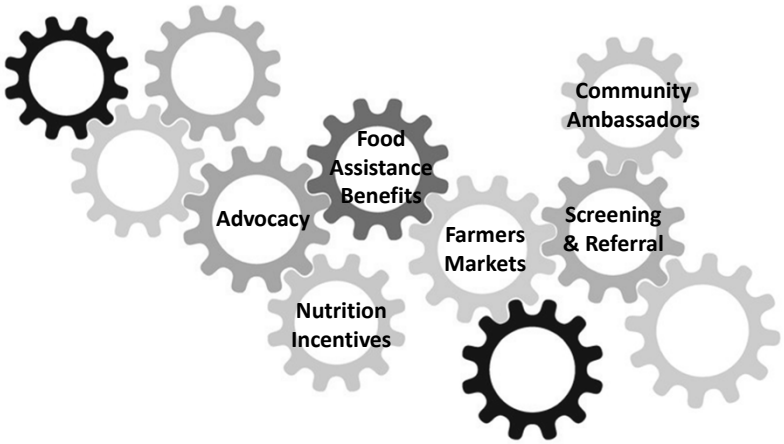

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FreshLink Ambassadors -
Connecting residents to resources to improve public health.
Learn more at: www.prchn.org

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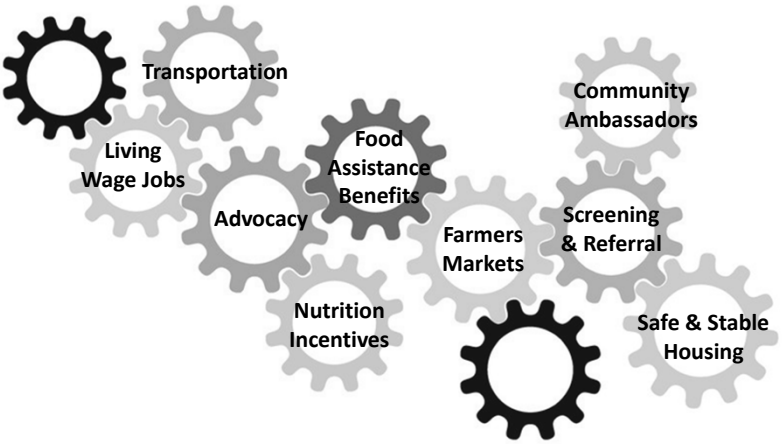
Solutions to Promote Food Security & Nutrition Equity



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Conclusions

- Assume food insecurity exists in your community.
- Develop methods for identifying risk.
- Collaborate with others on solutions.
- Evaluate and share your work so others can learn.

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Thank you! Questions?

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