Health care-directed screening initiatives and interventions for persons with food insecurity

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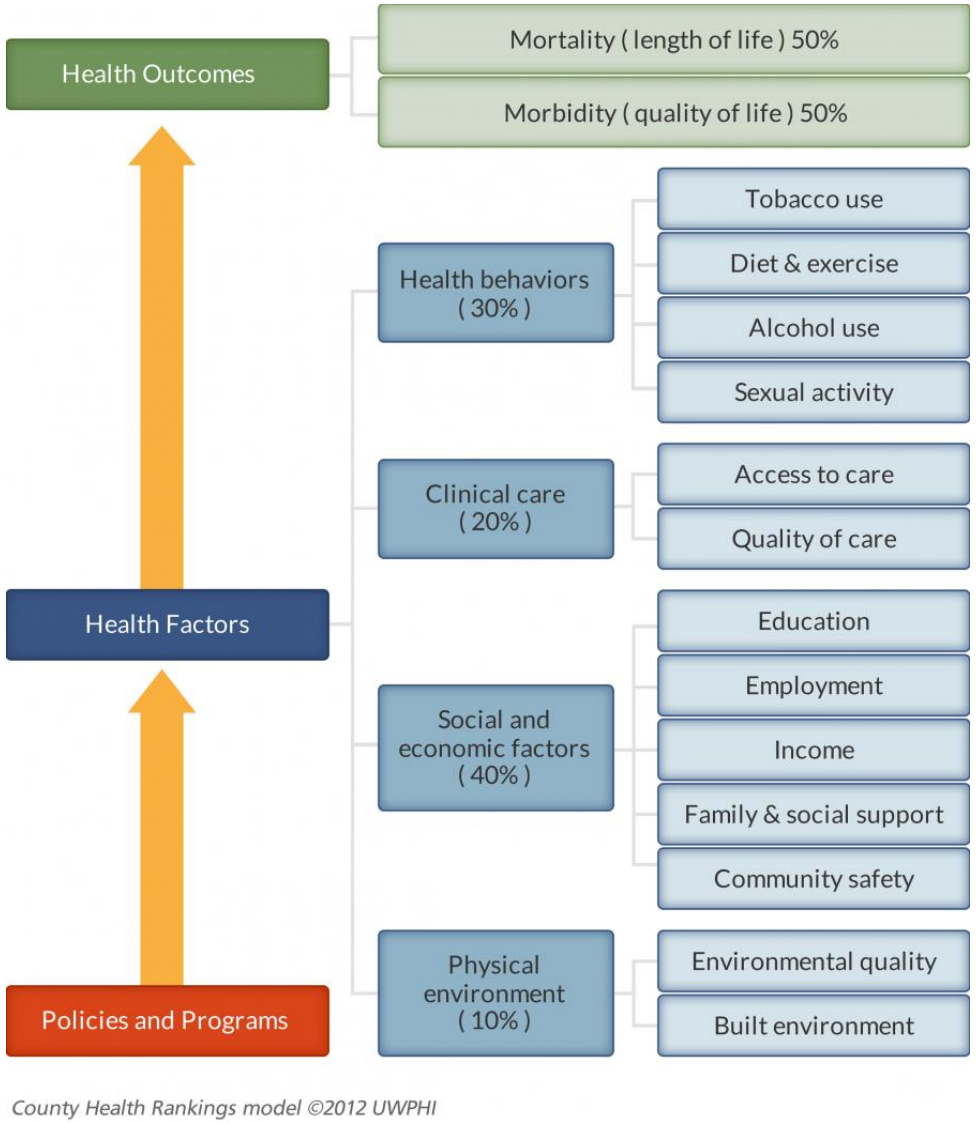


"The question is no longer whether there is an appropriate role for the US health care system in addressing the social determinants of health, but what that role is, how to create the right policy context for innovation and how health care can partner more effectively with providers of social services to meet patient's most pressing needs given the fragmented, typically under resourced nature of the social sector."

Drs. Solomon and Kanter
Kaiser Permanente, Oakland, CA
Permanente Journal(2018)22

Galea S et al. Estimated deaths attributable to social factors in the United States. *AJPH*. 2011 Aug;101(8):1456-65.
McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA*. 1993 Nov 10;270(18):2207-12.


"People are fed by
the FOOD industry, which
pays no attention to HEALTH...
And are treated by
the HEALTH industry,
which pays no attention to FOOD."
Wendell Berry

Rapid adoption of food insecurity screening in healthcare settings

Policy-Affordable Care Act

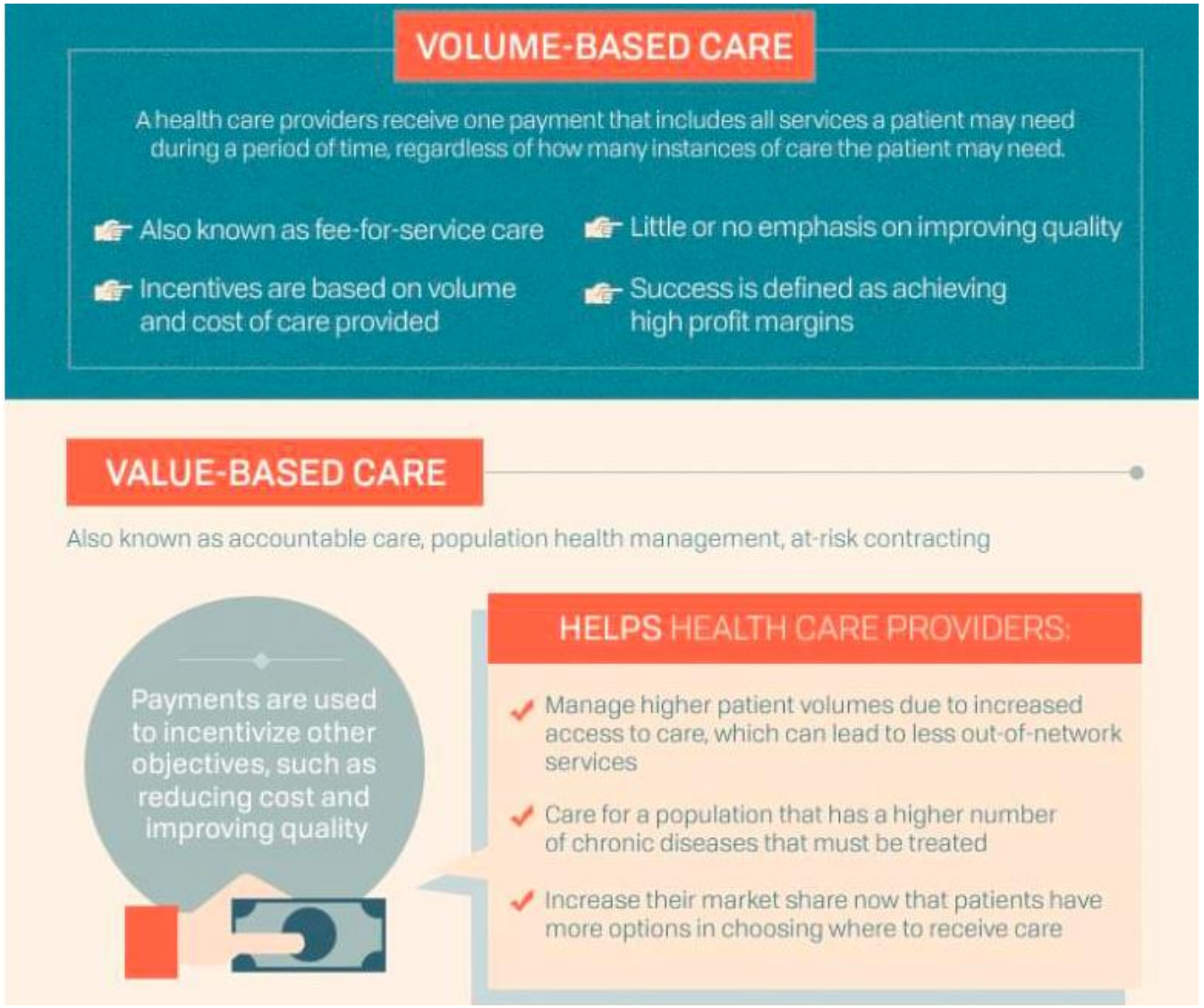
Community-Referrals, Vouchers, Direct Provision

Organizational-Health Care Food Insecurity Screening

Interpersonal-Provider training

Individual-Caregivers of children, older adults

Financial rewards for keeping patients healthy

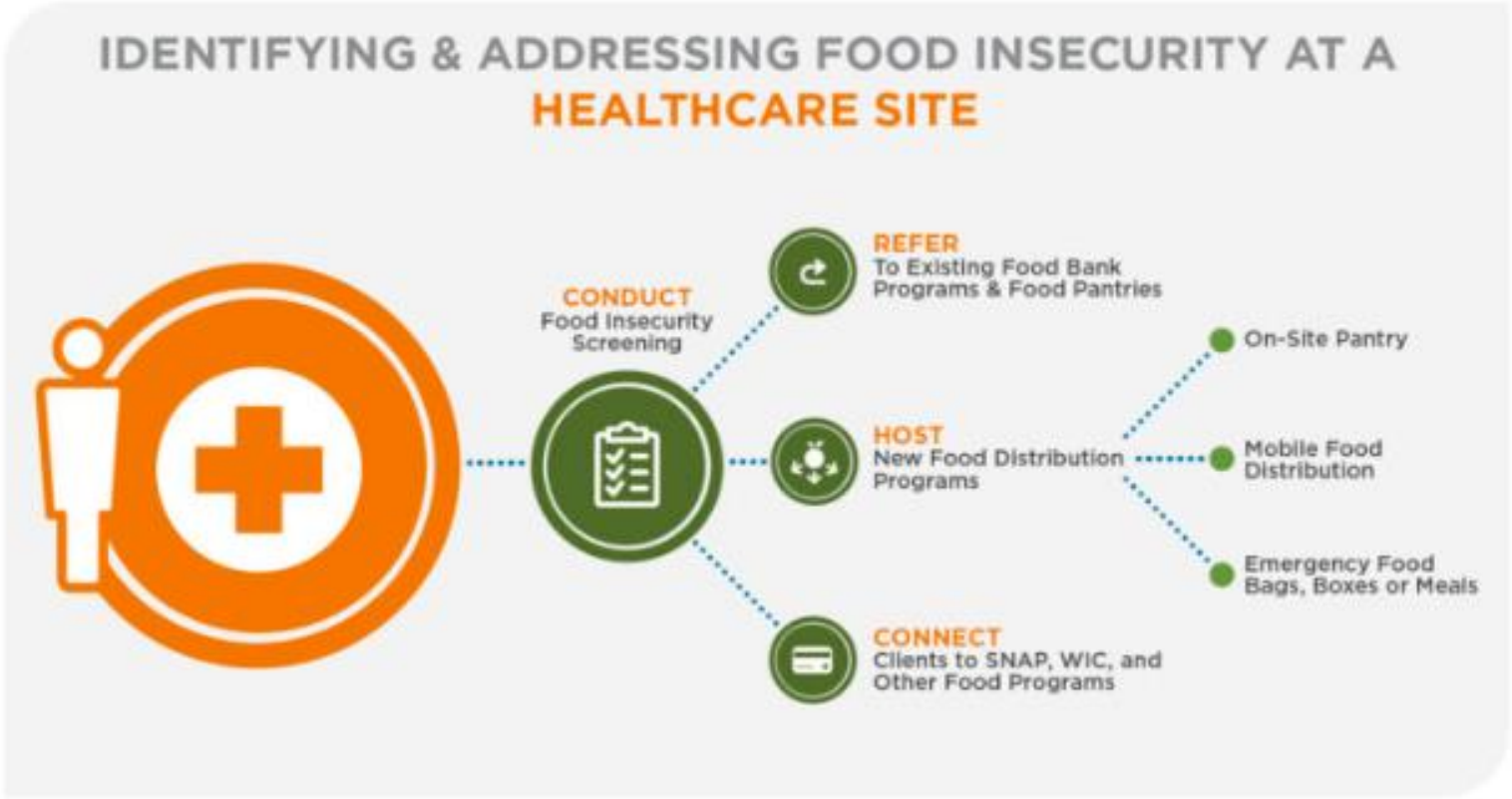


https://healthinformatics.uic.edu/blog/shift-from-volume-based-care-to-value-based-care/

Community and Healthcare

HUNGER + HEALTH | FEEDING AMERICA

https://hungerandhealth.feedingamerica.org/explore-our-work/community-health-care-partnerships/addressing-food-insecurity-in-health-care-settings/



Conducts Universal SDOH Screening (self-administered)-->
EHR Algorithm Generates In-basket Message to Population Health (clinician finds in SDOH tab)-->
Contacts Patient and **Refers** to Food Pantry and **Connect**s with SNAP, WIC

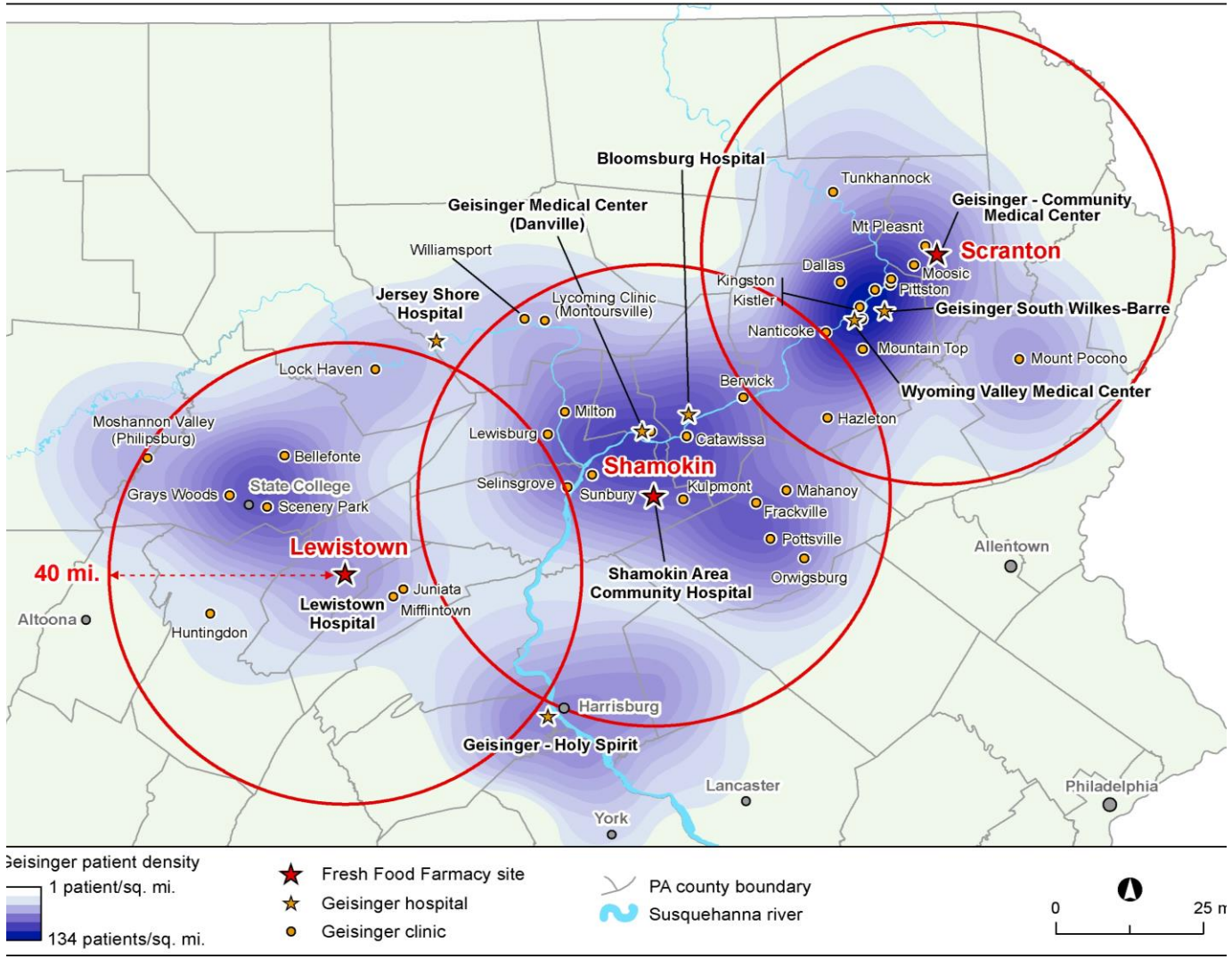
www.freshfoodfarmacy.com

Targeted Screening for **HOST** Response
If Uncontrolled Diabetes->Population Health offers Direct Food Provision from On-Site pantry plus
Diabetes Self-Management Education from RDN

Fresh Food Farmacy Outcomes

Feinberg AT, Hess A, Passaretti M, Coolbaugh S, Lee TH. Prescribing food as a specialty drug. *NEJM Catalyst*. 2018 Apr 10;4(2).

Fresh Food Farmacy



Food Insecurity Screening Tools Used in Health Care

One-Item Hunger Screening Question in Kleinman et al. 2007[13]	One-Item Screening Question Included in SEEK Screener in Lane et al. 2014[12]	Two-Item Hunger* VitalSignTM in Hager et al. 2010[11] & Baer et al. 2015[10]
"In the past month, was there any day when you or anyone went hungry because you did not have enough money for food?" *Yes, No*	"In the last year, did you worry that your food would run out before you got money or food stamps to buy more?" *Yes, No*	"Within the past 12 months, we worried whether our food would run out before we got money to buy more." *Often True, Sometimes True, Never True* "Within the past 12 months, the food we bought just didn't last and we didn't have enough money to get more." *Often True, Sometimes True, Never True*
83% sensitivity 80% specificity	59% sensitivity 87% specificity	89-97% sensitivity 83-84% specificity

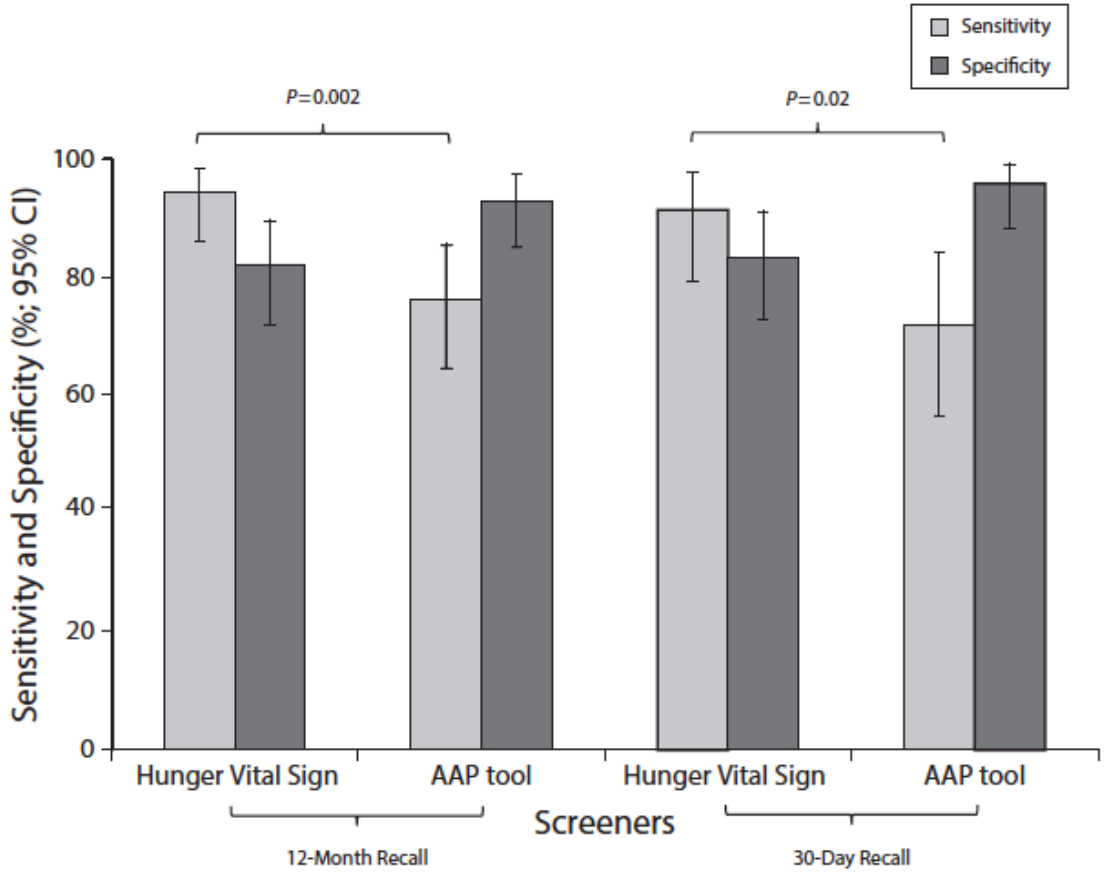
*Individuals are considered at risk for food insecurity if they answer that either or both of these statements are "often true" or "sometimes true".

Torres J, De Marchis E, Fictenberg C, Gottlieb L. Identifying food insecurity in health care settings: A review of the Evidence. San Francisco, CA. Social Interventions Research & Evaluation Network; 2017. Accessed online 1/5/2020 at https://sirenetwork.ucsf.edu/sites/sirenetwork.ucsf.edu/files/SIREN_FI_brief_updated.pdf

AAP (yes/no) vs. **USDA 6 item**

Hunger Vital Sign (3 responses) vs. **USDA 6 item**

12-month and 30-day



Note. AAP = American Academy of Pediatrics; CI = confidence interval.

FIGURE 1—Sensitivity and Specificity of the Hunger Vital Sign and the American Academy of Pediatrics Recommended Tool: South Side Chicago, IL, 2016

Makelarski JA, Abramsohn E, Benjamin JH, Du S, Lindau ST. Diagnostic accuracy of two food insecurity screeners recommended for use in health care settings. *American Journal of Public Health*. 2017 Nov;107(11):1812-7.

Prevalence of Food Insecurity *12-month recall*

- Makelarski et al. 2017
  - 154 Chicago adults (51% living with children under 18y)
  - USDA 6-item: 46% low or very low food insecurity (score 2-6)
  - AAP: 39% (score ≥1)
  - HVS: 53% (score ≥1)
- Poulsen et al. 2019
  - 408 Pennsylvania adolescents by parent self-administered tool
    - USDA 6-item: 21.3% low or very low food insecurity (score 2-6)
  - Geisinger AAP until fall 2018 (self-administered)
    - 610k adults, 107k completed screener (16.8%), 4.66% FI
    - 167k children, 26k completed screener (15.8%), 4.37% FI
  - Geisinger HVS fall 2018-June 2019 (self-administered)
    - 446k adults, 2% FI
    - 115k children, 2.7% FI
- HVS has 94% sensitivity compared to 6-item in adults, so why is prevalence so different at Geisinger?
  - Population – are children different? Are rural families different?
  - FI screening- is this a low completion rate, is it representative, who is not completing?

Poulsen MN, Bailey-Davis L, Pollak J, Hirsch AG, Schwartz BS. Household Food Insecurity and Home Food Availability in Relation to Youth Diet, Body Mass Index, and Adiposity. *Journal of the Academy of Nutrition and Dietetics*. 2019 Mar 8.

Interpersonal

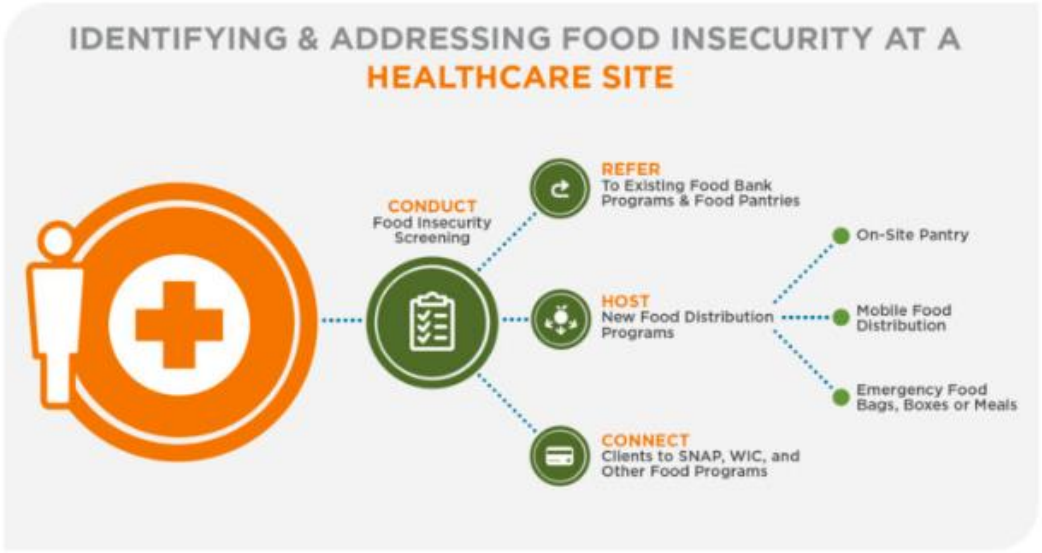
- Patients appear to be receptive to screening for food insecurity, alone or with other SDOH.
  - Most studies report that 10-30% of patients are uncomfortable with screening or do not want to discuss with provider.
  - Some parents feel concerned about how results of food insecurity will be used- reported to Child Protective Services.
  - Families with low food security may be less likely to complete
  - Potentially helpful to complement FI screening with desire for assistance.
- Providers generally report high acceptability of screening as long as they have access to resources to address identified needs.
  - Completion prior to exam room may be preferred to reduce workflow disruption
  - Ongoing provider training supports feelings of competency to address positive screen
  - EHR screening and decision tools, resources, referrals facilitate patient screening and provider engagement.

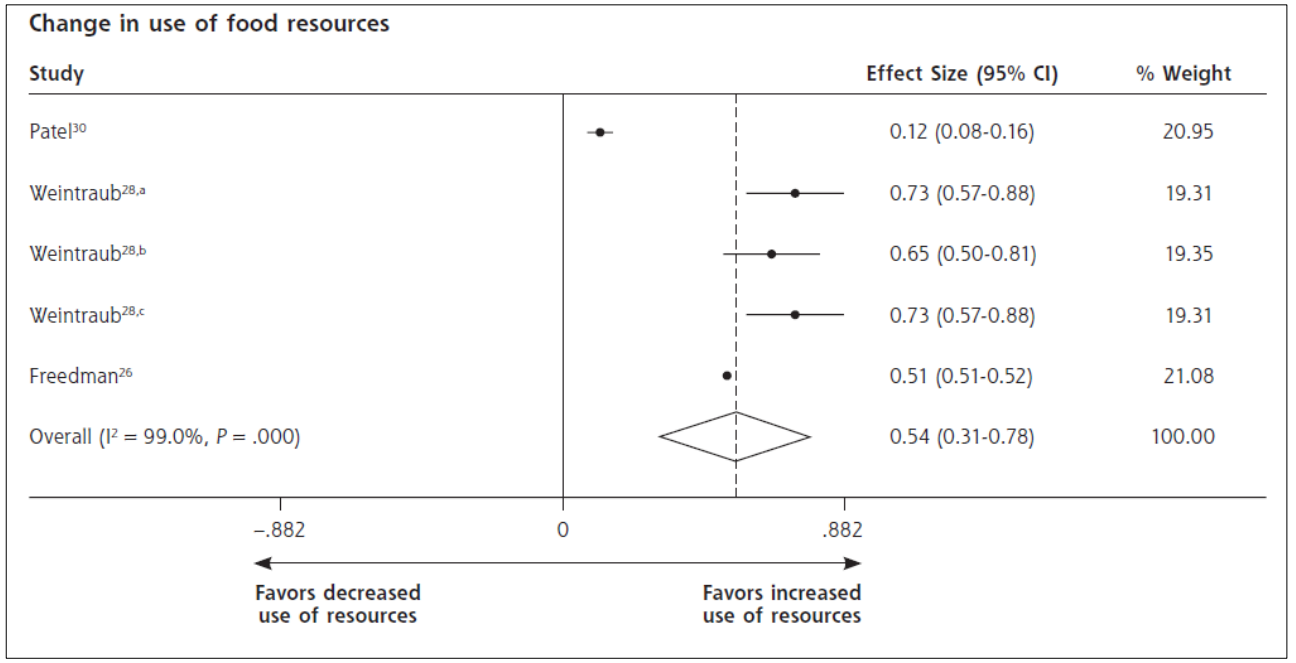
Torres J, De Marchis E, Fictenberg C, Gottlieb L. Identifying food insecurity in health care settings: A review of the Evidence. San Francisco, CA. Social Interventions Research & Evaluation Network; 2017. Accessed online 1/5/2020 at https://sirenetwork.ucsf.edu/sites/sirenetwork.ucsf.edu/files/SIREN_FI_brief_updated.pdf

Adapted from: De Marchis EH, Torres JM, Benesch T, Fichtenberg C, Allen IE, Whitaker EM, Gottlieb LM. Interventions addressing food insecurity in health care settings: a systematic review. *The Annals of Family Medicine*. 2019 Sep 1;17(5):436-47.

Study	Ed & Passive Referral	Navigation & Active Referral	Food Vouchers	Direct Provision of Food	Grade
Beck, 2014	X			X	Low
Cohen, 2017	X		X		Low
Fleegler, 2007	X				Very Low
Fox, 2016	X	X			Very Low
Freedman, 2013		X	X		Very Low
Freedman, 2014	X		X		Low
Gany, 2015	X	X		X	Very Low
Garg, 2007	X				Moderate
Garg, 2015	X				Moderate
Hassan, 20015	X	X			Low
Knowles, 2018	X	X			Very Low
Martel, 2018	X				Very Low
Morales, 2016	X	X			Moderate
Sege, 2015	X	X			Moderate
Smith, 2017	X	X		X	Very Low

Post-screening Health Care Interventions





Referral interventions were associated with moderate increase in use of food resources

De Marchis EH, Torres JM, Benesch T, Fichtenberg C, Allen IE, Whitaker EM, Gottlieb LM. Interventions addressing food insecurity in health care settings: a systematic review. The Annals of Family Medicine. 2019 Sep 1;17(5):436-47.

RURAL Study

Higginbotham K, Crutcher TD, Karp SM. Screening for Social Determinants of Health at Well-Child Appointments: A Quality Improvement Project. Nursing Clinics of North America. 2019 Mar 1;54(1):141-8.

- Rural health clinic that was naïve to SDOH screening
- Integrated team- pediatricians, CRNP, LSW, child psychologist and support staff
- AAP FI tool, Housing Insecurity screening tool, defined the workflow (self-administered on paper), distributed community resource guides, and developed protocol for referrals.
- 63% of patients (parents children 0-5y) completed screening
  - 37% of children missed because tool not distributed
- Prevalence of Food Insecurity: 16.9% ; higher than state and US rates

Research topics

- Organizational- system alignment, human and electronic resources, workflow, clinical decision support, change in health care utilization, cost related to value
- Implementation: screening frequency (annual), non-English screenings, variability in completion rates, benefits of universal vs. targeted screening, coordinator or navigator roles
- FI screening- representativeness of populations, RURAL, children
- Patient- acceptability by degree of FI and other SDOH; tailored and responsive framing of messages, uptake of referrals, behavior and health outcomes, change in FI status
- Interventions- efficacy of combinations of screen/refer/connect/host; effective and efficient models for coordinating with social services

Geisinger Research

PREVENT- case-matched controlled study. Screen/Refer/Connect/Host with food provision and education (Geisinger Health Plan)

Food Insecure (6-item), parent/child 6-12 yr with overweight or obesity

Hello Fresh- 3 days/week, family 4 X 13 weeks + 2 days/week, family 4 X 7 weeks + $50 grocery card X 6 weeks; Weekly RDN telehealth follows same pattern. Food preparation equipment inventory.

WEE Baby Care- pragmatic RCT that Screened/Connected health care, WIC, parent for 6 months vs. fragmented usual care (HRSA)

Infants 0-6m and mother, WIC-eligible, recruited from clinic

Patient-centered, coordinated and integrated curriculum X 6 mo. vs. usual fragmented care

Desired, feasible, reliable. WIC (90%), PCP (50%), Mom (65%)

Encircle-pragmatic, randomized cluster controlled trial that Screen/Refer/Connect/Host-education (PCORI)

Parents of rural, preschool-age children. Randomization at PCP level, evaluate intent and uptake of screenings and referrals.

3 arms- usual care, screening, screening plus telehealth parent education, Cooking Matters® grocery store tour