Health Beyond Healthcare: How Food Insecurity Impacts our Patients and What We Can Do About It

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Disclosures

• I have no relevant financial disclosures or conflicts of interest
Objectives

• Justify the importance of addressing the social determinants of health to improve overall health

• Describe the scope of the problem of food insecurity and impact of food insecurity on health outcomes

• Explore models of interventions to address food insecurity

My Background

• Started with a goal to improve care in patients with overweight/obesity
  • 29 patient interviews
  • 34.5% food insecure
  • Staff uncomfortable addressing

• Partnership with Project Bread non-profit

• First phase: >1300 patients in 3 departments and youth afterschool program screened
  • 17% positive for food insecurity
  • 161 patients referred to community partner
    • 71% reached successfully and connected to resources
    • 81% unenrolled in SNAP prescreened for enrollment
The Social Determinants of Health

“The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries.” (WHO)

http://www.who.int/social_determinants/sdh_definition/en/
Addressing Social Determinants to Improve Patient Care and Promote Health Equity: An American College of Physicians Position Paper

Hilary Daniel, BS; Sue S. Bornstein, MD; and Gregory C. Kane, MD; for the Health and Public Policy Committee of the American College of Physicians*

Social determinants of health are nonmedical factors that can affect a person’s overall health and health outcomes. Where a person is born and the social conditions they are born into can affect their risk factors for premature death and their life expectancy. In this position paper, the American College of Physicians acknowledges the role of social determinants in health, examines the complexities associated with them, and offers recommendations on better integration of social determinants into the healthcare system while highlighting the need to address systemic issues hindering health equity.


For author affiliations, see end of text.

The Anatomy of Health Care in the United States

Hamilton Moses III, MD; David H. M. Matheson, MBA, JD; E. Ray Dorsey, MD, MBA; Benjamin P. George, MPH; David Sadoff, BA; Satoshi Yoshimura, PhD

Figure 2. Historical National Health Expenditures by Category, 1980-2011

<table>
<thead>
<tr>
<th>Categories of Health Care Spending</th>
<th>Real National Health Care Expenditures, $ (in Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health activity*</td>
<td>15(2)</td>
</tr>
<tr>
<td>Investment*</td>
<td>48(8)</td>
</tr>
<tr>
<td>Administration costs*</td>
<td>29(5)</td>
</tr>
<tr>
<td>Prescription drugs and equipment*</td>
<td>61(10)</td>
</tr>
<tr>
<td>Professional services*</td>
<td>159(26)</td>
</tr>
<tr>
<td>Hospital and other care facilities*</td>
<td>295(49)</td>
</tr>
<tr>
<td>Overall</td>
<td>607</td>
</tr>
</tbody>
</table>
Era of Value based care

• We are increasingly expected to provide data-driven, patient centered, holistic care to improve quality and reduce cost.

Our Focus: Food Insecurity
Food Insecurity is a household-level economic and social condition of limited or uncertain access to *adequate* food. (USDA)

- Nutritionally adequate
- Safe
- Acquired in socially acceptable ways


US Food Insecurity

11.1% of the US population (14.3 million US households, 37.2 million people) were food insecure at some time during 2018.
• Per the AARP some of the worst rates in seniors
• Nearly 20% of seniors in SC
• 32% of individuals ages 50-59

Food Insecurity and Health

Food insecurity is associated with worse overall health, impaired chronic disease management, worse outcomes, increased cost of care
Food Insecurity and Health Outcomes

• Non-senior Adults:
  – Increased rates of **mental health problems** and **depression**
    • 2.2x in mothers (Whitaker et al)
  – Increased rates of **diabetes** (1.5-2.4x), **hypertension**, **hyperlipidemia** (Seligman et al)
  – Increased rates of **oral health problems**
    • 3.3x increased in working poor with food insecurity (Muirhead et al)

• Seniors:
  – **Being in poor or fair health** (2.33x, Lee and Frongillo)
  – Increased likelihood of **impairment in ADLs** (Ziliak et al, Lee and Frongillo)
  – Increased rates of **depression**

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Food Insecurity and Health Outcomes

• **4.03x odds cost-related medication underuse** in adults with chronic illness¹

• **Individuals with food insecurity had increased mean healthcare expenditures** by $1,863 annually²
Food Insecurity and Obesity

• Heterogeneous population facing hunger

• Strong association of food insecurity with poor diet but exact relationship with obesity unclear
  • Lack of longitudinal studies

• Tendency to consume cheaper, highly processed foods

• Binge-fast cycling with variation in food budget over the month

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Food Insecurity and Development of Diabetes

- **Mechanisms still under investigation**
  - Food insecurity → inflammation
    - Elevated CRP (AOR 1.21), WBC (AOR 1.36) in food insecure patients\(^1\) (cross sectional study of NHANES data)
  - Possible association with central adiposity
    - Adolescents, developing countries
  - Increased insulin resistance in normal weight and overweight individuals with food insecurity (particularly women)\(^2\)


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Food Insecurity and Diabetes Management

- **Poorer dietary quality**
- **Worse glycemic control** (OR 2.05 of HbA1C>9%)\(^2\)
  - Associated with increased outpatient visits\(^2\)
- **Cost related medication underuse** increased in individuals with food insecurity (OR 5.89, 95% CI 4.22-8.23)\(^3\)
  - Increased risk of **hypoglycemia admissions** (↑27%) in low-income population during the last week of the month\(^4\)


\(^2\) Berkowitz et al. "Material need insecurities, diabetes control, and care utilization: Results from the MEND study." *JAMA IM*. 2015


Food Insecurity Matters

Practicalities of Addressing Food Insecurity and the SDH
External Systems to Address Food Insecurity

• Federal programs are necessary but not sufficient
  – SNAP (Supplemental Nutrition Assistance Program) - “food stamps”
  – WIC (Special Supplemental Nutrition Program for Women, Infants and Children)
  – School meal programs

• The safety net is crucial
  – Food banks and other charitable programs

• Challenges remain

Food Insecurity Distribution by Income

• Federal Poverty Level determines program eligibility

<table>
<thead>
<tr>
<th>Household #</th>
<th>100%</th>
<th>130%</th>
<th>185%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$12,060</td>
<td>$15,678</td>
<td>$22,311</td>
</tr>
<tr>
<td>Family</td>
<td>$20,420</td>
<td>$26,546</td>
<td>$37,777</td>
</tr>
<tr>
<td>Three</td>
<td>$24,600</td>
<td>$31,980</td>
<td>$45,510</td>
</tr>
</tbody>
</table>

These rates do not vary from state to state (except in AK and HI), despite significant differences in cost-of-living.


Food Insecurity Rate in SC by % FPL

- % below 130% poverty
  - SNAP, WIC, free school meals, CSFP, TEFAP
- % between 130% and 185% poverty
  - WIC, reduced price school meals
- % above 185% poverty
  - Charitable Response

https://map.feedingamerica.org/county/2017/overall/south-carolina
Charitable Food Programs Know the Connection with Health

“78 percent have had to choose between paying for food and utilities, 71 percent have had to choose between food and medical care or medicine, and 56 percent have even had to choose between food and their rent or mortgage.”

- Harvest Hope Food Bank

The 3 Buckets of Prevention

http://journal.rrw.com/jphmp/toc/publishahead

1. Traditional Clinical Prevention
   - Increase the use of evidence-based services

2. Innovative Clinical Prevention
   - Provide services outside the clinical setting

3. Total Population or Community-Wide Prevention
   - Implement interventions that reach whole populations

Why does this model make sense?

http://news.gallup.com/poll/224639/nurses-keep-healthy-lead-honest-ethical-profession.aspx
We want to help, but...

- Clinician discomfort with addressing all issues
- Time pressures
- Uncertainty of management and follow up of screen positive

Systems Level Screening for SDH

- Increased screening rates in practices that serve disadvantaged populations
- Barriers to implementation cited as lack of time, incentives, and financial resources
Avoiding the Unintended Consequences of Screening for Social Determinants of Health

Screening for social determinants of health, which are the health-related social circumstances (e.g., food insecurity and inadequate or unstable housing) in which people live and work, has gained momentum as evidenced by the recent Centers for Medicare & Medicaid Services innovation initiative of $537 million toward creation of accountable health communities. Funding will allow grantees to test a novel model of health care that includes identifying and addressing social determinants of health for Centers for Medicare & Medicaid Services beneficiaries. The initiative promotes collaboration between the clinical realm and the community through screening of beneficiaries to (1) identify unmet health-related social needs and (2) assist high-risk beneficiaries (e.g., >2 emergency department visits and a health-related social need) with accessing available community services.

Some health policy makers have embraced screening of social determinants as the next hope for achieving the triple aim of better health, improved health care delivery, and reduced costs because social and environmental factors are thought to contribute half

ment) requires effective care coordination and cross-sector collaboration. The relatively few exemplary, evidence-based models (e.g., WE CARE, Health Leads, Project DULCE, Safe Environment for Every Kid, Help Me Grow) that use such strategies are limited in scope and reach and must be expanded to address the needs of diverse patient populations.

The sensitive nature of such issues as food insecurity, unemployment, and interpersonal violence also poses unique challenges. Physicians may be uncomfortable routinely inquiring about adverse social circumstances, given their lack of personal experience with such needs and inadequate training on how to respectfully elicit and respond to patients’ concerns. In addition, the absence of available services means that needs are often difficult to address, given the tenuous capacity of community resources such as affordable housing, behavioral health services, workforce development and employment, and public transportation. Thus, despite the potential benefits of identifying and addressing adverse social determinants, there is the potential for unintended harm. Such screening could yield expectations that, if unfulfilled, could lead to frustration for patients and physicians alike. Furthermore, patients’ perceptions of physicians as judgmental, presumptuous, or even callous could erode the patient-physician relationship. However, sev-

Clinical Community Linkages

- Leverage the medical knowledge and trusted relationship of clinical teams with expertise of community partners to address unmet social needs for the betterment of health

Pilot Project: In the Clinic

Internal Medicine Clinic, Prisma Health – Upstate

QI Collaboration with Drs. Angela Liese, Dr. Sonya Jones, and Lauren Reid – USC Arnold School of Public Health,

Dr. Meenu Jindal, Dr. Shay Temas and Dr. Ahmer Ansari

Donna Edwards, Amy Abdallah, Jenene Davis - IMC

Practical Screening for Food Insecurity

FoodShare SC

- Started in Columbia (Dr. Beverly Wilson), expanded to Greenville via Mill Village Farms
- Bi-weekly ordering of produce box with educational meal card included
- $5 of patients SNAP benefit + $10 Healthy Bucks match → $15 of fresh produce
- Convenient pickup site at the clinic
- Meets a nutritional need not readily available in all food pantries

https://foodsharesc.org/

FoodShare SC – Greenville – IMC Collaboration

Patient Self Referral
- Waiting room flyer/poster

SW identification of food insecurity/Lack of Healthy Food Access

Clinician/Team Member Referral for Food Insecurity/Lack of Healthy Food Access

Patient interested in Food Share program?
- Yes
- No

Enrollment in Food Share Program:
1) Completion of Hunger Vital Sign 2-question screener
2) Sign up and pay via cash or SNAP authorization

Refer to SW if not already connected
FoodShare Participation and Food Insecurity

- First year: 200 participants, 657 boxes
  - 37% repeat participants
- 158 completed Hunger Vital Sign
  - 67% of participants overall endorse food insecurity
  - Higher in individuals w/SNAP
- On correlation analysis, increased FoodShare participation is correlated with decreased food insecurity ($-0.172, p = 0.03$)
Health System Opportunities

Accountable Communities - Community Health Engagement

**Accountable Communities**
Nutrition, Prevention, Physical Fitness, Health Living

**Community Resources**
Supportive Housing, Social Services, Eligibility Programs

**Medical Neighborhoods**
Specialists, ER, Urgent Care, Pharmacists, EMS, Fire Department Medical Personnel, Employer Work Sites, Home Health, School Nurses

**Care Providers**
Physicians, Nurse Practitioners, Home Health, Care Managers, Practice Staff, Family Members
Prisma Health - NowPow

Physician developed technology system that allows for digital “prescription” to community based resources

The platform empowers care professionals to:

• Promote awareness of high quality community resources
• Provide data driven referrals (e-referrals and lists via print, text)
• Track patient engagement and activation

https://www.nowpow.com/

Prisma Health Departments Currently Live

• In-Patient Case Management
• Accountable Communities
• Ambulatory Care Management
• Home Health
NowPow Usage Through October 2019

<table>
<thead>
<tr>
<th>NowPow</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># Total Employee Users</td>
<td>409</td>
</tr>
<tr>
<td>Patients Engaged</td>
<td>179</td>
</tr>
<tr>
<td># Searches</td>
<td>1743</td>
</tr>
<tr>
<td># Total Referrals</td>
<td>1283</td>
</tr>
<tr>
<td># Referrals Shared</td>
<td>1245</td>
</tr>
<tr>
<td># Tracked Referrals Sent</td>
<td>39</td>
</tr>
</tbody>
</table>

Source: NowPow At-A-Glance Summary Report
Use: Monitor NowPow Data Analytics Activity

Future Scaling Opportunities
Food as Medicine

• Meals on Wheels – improved food security and nutritional status

• Trial of medically tailored (17 options) vs general meals (‘Meals on Wheels’ style nutritional food) home delivered to dually eligible adults
  • 5 days worth of lunch, dinner, snacks
  • Compared with matched non-participants, both meal delivery groups had ↓ED visits and lower medical spending
  • ↓Inpatient admissions in medically tailored meal program

• Simulation study: providing healthy food incentives for Medicare/Medicaid recipients could significantly improve health (prevention of CVD events/death and diabetes, substantial savings in healthcare costs)

• Many other national programs and pilots!

2 Berkowitz, Seth A., et al. "Meal Delivery Programs Reduce The Use Of Costly Health Care In Dually Eligible Medicare And Medicaid Beneficiaries." 2018

Medicare Advantage Plans Cleared To Go Beyond Medical Coverage — Even Groceries

Health Insurance Coverage For Healthy Groceries? More Food-Based Interventions May Be Coming

Host of new benefits await Medicare Advantage customers

By TOM MURPHY September 25, 2019
Take Aways

- To improve the health of our patients and community, sensitivity to addressing the social determinants of health is essential
- 1:10 patients in your practice is likely food insecure and this impacts their care and disease management
- You can’t do it all alone, but you can do many things in partnership (clinical community linkages)
- Future healthcare landscape offers novel opportunities

References

- American Diabetes Association. Standards of Medical Care in Diabetes. Diabetes Care 2019;42(Suppl. 1):S1–S2 | https://doi.org/10.2337/dc19-SINT01
References


Online Resources
