Evaluation of Food Insecurity Screening and Direct Referral System

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BA, Butler University, 2016

Submitted to the Graduate Faculty of

Department of Behavioral and Community Health Sciences

Graduate School of Public Health in partial fulfillment

of the requirements for the degree of

Master of Public Health

University of Pittsburgh

2019

UNIVERSITY OF PITTSBURGH

GRADUATE SCHOOL OF PUBLIC HEALTH

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April 9, 2019

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University of Pittsburgh, 2019

Abstract

Background: Food insecurity is a social issue linked to adverse health outcomes, affecting over 12 million U.S. children in 2017. Research demonstrates that food insecurity puts children at risk for more emergency room visits and longer inpatient hospital stays. Due to the significance of food insecurity as a public health issue, health care institutions can implement evidence-based practices for screening and coordinating resources.

Purpose: Screenings for food insecurity have been implemented in a number of settings. The American Academy of Pediatrics (AAP) recommends that children are screened for food insecurity in all health maintenance visits. In addition to screening, appropriate protocols must be in place to connect caregivers with resources they need to improve their levels of food insecurity. As it stands, many pediatric clinics offer caregivers information about food resources. Caregivers are then responsible for coordinating resources independently. A direct referral system removes this burden from the caregiver, allowing an agency to directly contact the caregiver and offer resources. The purpose of this evaluation is to assess a direct referral system between five clinics in the UPMC Children's Hospital of Pittsburgh (CHP) Network and Just Harvest, a community partner who connects caregivers with Supplemental Nutrition Assistance Program (SNAP) benefits.

Methods: Five CHP clinics conducted food insecurity screenings for caregivers. Starting in November 2018, caregivers who screened positive were then offered a direct referral to Just

Harvest, who then contacted the caregiver with information about and assistance with applying for SNAP benefits. Caregivers who agreed to this option consented to have their contact information sent to Just Harvest. From this point, outcomes were tracked from Just Harvest's initial contact with the caregiver to the decision about whether to apply for SNAP benefits. Every point of the process was tracked, including, but not limited to, ability to contact, benefit eligibility screening, and final SNAP application decision.

Results: Of the 37 caregivers who agreed to the referral, 30 were successfully contacted by Just Harvest. Eight (26.7%) were screened for SNAP benefits, and 5 (62.5%) applied for benefits. For those who applied, the average monthly benefit amount per household was $377.

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1.0 Introduction

Food insecurity, as defined by the Food and Agricultural Organization of the United Nations (FAO), refers to a situation that exists when people lack secure access to sufficient, safe, and nutritious food for normal growth and development and an active and healthy life.[1] Children who are food insecure are more likely to have frequent stomach aches, frequent headaches, iron deficiency anemia, and frequent upper respiratory infections.[2] Even as food insecurity affects health in childhood, adverse outcomes tend to continue into adulthood: adults who identify as having experienced food insecurity during childhood are more likely to describe themselves as currently being in poor health.[2] Poor health conditions are linked to a higher utilization of health care services, frequent emergency room visits[3], and increased lengths of inpatient stays.[4] As food insecurity becomes increasingly linked to higher rates of health care utilization and poor health outcomes, providers are becoming increasingly interested in the improvement of food security within their patient populations.

In August 2018, UPMC Children's Hospital of Pittsburgh (CHP) partnered with Just Harvest, a non-profit organization in Pittsburgh that provides advocacy, support, and resources to those individuals and families identified as experiencing food insecurity. More specifically, the clinical-community partnership was formed to facilitate a direct referral system between five CHP outpatient clinics and Just Harvest. For the purposes of this partnership, Just Harvest assists food insecure patients by connecting their caregivers to Supplemental Nutrition Assistance Program (SNAP) benefits.

This direct referral system serves to identify food insecure patients and connect them to Just Harvest, who assists caregivers with SNAP benefit applications. Overall, this research will

investigate the direct referral system from November 2018 to February 2019, including the number of positive food insecurity screenings, the proportion of caregivers who complete the referral process and apply for SNAP benefits with the assistance of Just Harvest, as well as the outcomes of each SNAP application. This evaluation research will also determine which patients identified as food insecure are unable to be contacted and the reasons for unsuccessful full completion of referral at each step of the process.

2.0 Literature Review

2.1 Food Insecurity & Current Social Interventions

Food insecurity is a complex phenomenon that intersects with many other social issues, including but not limited to unemployment, transportation issues, and poverty in general.[2] Conceptualized as the limited access or uncertain availability of nutritionally adequate and safe foods (or the lack of ability to acquire these foods in socially acceptable ways)[5], food insecurity can also produce chronic stress in the family or individual.[6] Food insecurity can also be a cause of hunger, which is a painful physical and/or mental sensation as a response to food deprivation.[5] Food insecurity and hunger, then, are different concepts, yet are inextricably linked. Hunger and chronic stress are proven correlates of both physical and mental health issues,[2] linking food insecurity to these issues as well. Hunger can also cause malnutrition or malnourishment, defined as "a lack of nutrition leading to diminished physical and mental function and impaired clinical outcome."[7] Food insecurity intersects very closely with both hunger and malnourishment, making food insecurity one of many social determinants of health, defined as the "conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."[8] With over 12 million American children living in food insecure households in the year 2017,[9] it is a social determinant of health that cannot be overlooked.

In order for a household to be considered food secure, there are four dimensions that must be fulfilled. First, a food secure household has the physical availability of food, meaning that adequate food must be available within the community, on the "supply side" of food production

and consumption.[10] If a community does not have an accessible grocery store (stocked with fresh fruit, vegetables, and other whole foods), this neighborhood is considered a food desert.[11] Second, a food secure household must also have economic and physical access to food, meaning that a family has adequate funding to pay for food, and has appropriate transportation and physical ability to go and buy it.[10] Households that are food secure must also have food that is usable and can be utilized by the body for adequate energy and nutrient intake.[10] Finally, food security includes the stability of these three dimensions (availability, accessibility, usability) over time.[10] Without stability, households can experience transitory food insecurity, which is unpredictable in nature and difficult to identify for targeted intervention.[10] Chronic food insecurity, on the other hand, is a long-term and persistent form of instability in one or more of the dimensions listed above.[10] Any form of food insecurity, however, can be detrimental to individuals and families. Regardless of when food insecurity is experienced, individuals who are food insecure often have to choose between buying food and paying for other necessities, such as utility bills, medications, and visits to the doctor. When households are forced to make these decisions, they must cope with the trade-offs, and are thereby forced to compromise the health, safety, and wellbeing of their families.

During the 1960s, the United States government recognized hunger as a chronic issue among its citizens with an increase in assistance programs and projects aimed at reducing the effects of poverty, including hunger.[5] Many of these federal assistance programs are called "safety nets," which are intended to protect families and individuals from the effects of poverty. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and SNAP (formerly known as food stamps), are two programs that aim to improve the food security of U.S. families and children. SNAP provides benefits to eligible low-income individuals and families via Electronic Benefits Transfer card, which can be used like a debit card to purchase eligible food

from authorized food retailers.[12] WIC, on the other hand, is available to pregnant women or women raising children under the age of 5.[13] WIC participants are eligible to receive supplemental nutritious foods, nutrition education and counseling at WIC clinics, and screening and referrals to other health, welfare, and social services.[13]

SNAP, the federal program of focus in this paper, has been a successful program for those who participate. From a study of nearly 3000 households across the United States, researchers found that after participating in SNAP for 6 months, children were less likely to be identified as food insecure, a correlation which remained statistically significant across both cross-sectional and longitudinal analyses.[14] While SNAP benefits assist many households, 45% of SNAP clients report the use of coping strategies for making their benefits last until the end of the month.[15] These coping strategies include restricting food intake, altering the kinds of food consumed, turning to social support networks, visiting food pantries, and meticulously planning around grocery store sales. The data suggests that although SNAP may provide a helpful supplement for families during times of hardship, this "safety net" may not be sufficient for alleviating chronic financial stress or improving all dimensions of food security. However, it is a highly utilized program, with an average of more than 40 million U.S. households participating each year.[16]

Other programs exist with the aim of reducing food insecurity. Organizations such as food pantries and emergency food services provide supplemental support to families who are food insecure. Additionally, many non-profit organizations advocate for policy change and have implemented other social programs, such as ones that bring fresh food into communities through the development of grocery stores and community farmers markets. Even with the existence of programs and services available for families, there still remains approximately 40 million people (12.5% of the U.S. population) struggling with food insecurity.[9]

2.2 Measurement of Food Insecurity

With the inception of the term "food insecurity" came a complex process of defining how the term would be measured and assessed. In recent years, research has moved from the macro to the mezzo and micro levels, gauging food insecurity in terms of household-level access to food.[17] Although it has been argued that food insecurity is experienced differently based on each individual, the household marker is an economic unit of interest to economists and allows for more simplified, streamlined survey methods.[18] To embark on this process of measurement, the American Institute of Nutrition and the Life Sciences Research Office formally defined food insecurity as existing when "the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain."[17] This definition, earlier measurement tools like the Radimer/Cornell, and the factors involved were used to shape the United States Department of Agriculture's (USDA) 18-item national household food security survey (HFSS). While this screening module has proven useful for research, studies show that this tool is only useful in US settings where it is not necessary to reduce burden on survey responders and administers.[19] This tool, then, is not pragmatic for routine use in health care settings due to its length and complex scoring process.[20]

In health care settings with limited time for screening, measuring levels of food insecurity is a challenge, yet imperative. With this in mind, tools have been developed to improve the identification of household-level food insecurity. A 6-item HFSS tool was developed, which uses a subset of the 18-item HFSS tool; this is generally the gold standard for minimizing response burden.[20] In an effort to provide a more efficient method for identifying patients in food insecure households, Hager et al. developed the Hunger Vital Sign (HVS), a 2-item screening tool for use in clinical settings.[21] The HVS tool was developed with 5 characteristics in mind: applicability to

families and young children, brevity, sensitivity, specificity, and validity.[21] The two items are as follows:

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 our food just didn't last and we didn't have money to get more.

As designed, responders to the HVS tool have the choice between "often true," "sometimes true," or "never true."[21] The HVS uses a 12-month recall period to measure food insecurity, while other screening tools use a 30-day recall period.[20]

In pediatric settings, the American Academy of Pediatrics (AAP) recommends an adapted version of the HVS, which alters screening items from categorical responses to "yes" or "no" answers.[20] One study aimed to test the diagnostic accuracy of these three tools (6-item HFSS, original HVS, AAP adaptation), finding that when utilizing a 30-day recall period, the prevalence of food insecurity was 39% using the 6-standard HFSS, 31% with the AAP adaptation, and 46% with the original HVS.[20] The original HVS tool, with its categorical responses, had a higher sensitivity (91%) than the AAP adaptation and its yes/no response categories (72%).[20] Although the AAP tool had a higher specificity (93%) than did the HVS tool (82%), it is better to optimize sensitivity (reduction of false negatives) rather than specificity (reduction of false positives).[20] The over-identification of food insecurity further ensures the ability of the tool to reach its target population, while under-identification reduces the probability of identifying those in need of support.

In another study, the AAP adaptation was found to have 97% sensitivity.[22] The AAP adaptation may be more useful in settings where simplification is necessary, and is more likely to be adopted and accepted by health care providers. In a fast-paced hospital environment, the

simplicity of the AAP adaptation has proven useful for provider buy-in.[23] As it stands, there is no universal screening mandate for measurement of food insecurity, only recommendations. Ultimately, then, it is the choice of the provider to determine which validated tool will best fit with their clinical work flow and ensure patient identification. Due to the fact that the AAP adaptation is the tool recommended for pediatric health care settings, it is often chosen for use by providers.

2.3 Health Outcomes & Health Care Utilization

Emerging evidence demonstrates the impact of food insecurity on the health of individuals and children. Research shows an association between food insecurity and persistent health problems, such as chronic disease in adults.[24] In regards to children, those who are food insecure are more likely to have iron-deficiency anemia, headaches, stomach aches, and frequent upper respiratory infections,[23] and are at a higher risk of developing anxiety, depression, and behavioral problems.[25] Many of these food insecure children end up in the hospital, as food insecurity is a risk factor for emergency department and other hospital visits, as well as a contributing factor to an increased length of stay for many patients.[4] This provides medical settings with an opportunity to focus interventions toward children who are food insecure and in need of more social support in order to live a healthy lifestyle.

When children are seriously and chronically ill or have frequent medical visits, it becomes much more important to address social determinants of health, especially food insecurity and hunger. In 2016, patients who were food insecure accounted for twice the amount of health care expenditures when compared to their well-nourished counterparts, simply due to prolonged hospitalizations and higher rates of readmission.[26] Of those recently hospitalized children,

characterized by hospitalization within the past year, approximately 25% screened positive for food insecurity.[23] A study of recently hospitalized children also found that of those living in food insecure households, 31% had not received SNAP benefits in the past year, despite eligibility, which is consistent with the USDA reports stating that 25% of eligible Americans do not receive SNAP.[23]

The cost of health services is burdensome for patients, health care providers, and the government alike. Due to this high cost for all stakeholders, the health care system has aimed its sights at reducing hospital admission and readmission rates as well as health care utilization rates in general. In order to do this, the federal government has aimed to reduce the number of hospital readmissions under the Affordable Care Act's (ACA) Hospital Readmission Reduction Program (HRRP), which provides incentives for hospitals to reduce their readmission rates.[27] Due to the fact that food insecurity has been associated with increased rates of hospital readmission, Swinburne, Garfield, & Wasserman argue for hospitals to utilize food insecurity interventions as a way to reduce hospital readmissions.[28]

There is an established connection between food insecurity, high rates of health care utilization, and negative health outcomes for children. Combatting food insecurity not only improves the overall health of children and families, it can also reduce the amount of dependence on the health care system, providing households with the security they need to live healthy, self-sustaining lifestyles. Despite the evidence, however, household level food insecurity is not routinely addressed in pediatric care. Even with an evidence-based understanding about food insecurity and its impact on patient health, providers feel reluctant to screen patients for food insecurity.[29] Some of the reasons for this reluctance include uncertainty about how to handle a positive screen, lack of knowledge of community resources, and concern that caregivers will feel

judged.[29] From an implementation perspective, practitioners also see lack of resources, time, and appropriate screening tools as barriers to meeting needs of patients and coordinating their resources.[30] For this reason, otherwise effective systems often miss significant needs among young patients and inadvertently perpetuate an avoidable dependence on health care services. In order to meet those significant and impactful health needs, hospitals should begin the process of educating providers and normalizing the conversations necessary for reducing food insecurity for all patients.

2.4 Food Insecurity Screening Methods & Interventions in Pediatric Settings

In 2015, the AAP formally recommended that all health care providers screen their pediatric patients for food insecurity at each scheduled health maintenance visit or sooner, if necessary.[31] Among health care professionals, it is well known that food insecurity is an issue for their patients, yet studies have found that providers feel reluctant to conduct screenings.[29] Some of the reasons for this reluctance include uncertainty about how to handle a positive screen, lack of knowledge of community resources, and concern that caregivers will feel judged.[29] However, in a study conducted at the Boston Children's Hospital, 54% of caregivers experiencing food insecurity requested referrals for food support.[32] This demonstrates the need for interventions that are evidence-based and supportive to both providers and caregivers during the process. When interventions are sensitive in their approach to a challenging topic, participants will feel more comfortable and competent talking about the issue openly, thereby identifying and reaching more individuals in need.

When implementing a screening methodology, it is important to consider how questions will be asked. While some clinics prefer self-administered paper forms, others converse with the

caregiver, screening verbally. Caregivers have reported feelings of discomfort around disclosure of social issues such as food insecurity in front of their children.[29] They also express this discomfort due to fears around the prospective involvement of Child Protective Services.[29] Providers share this concern around verbal screening, as they worry that caregiver discomfort or stigmatization would inhibit a caregiver's willingness to disclose food insecurity.[33] A study conducted at the Children's Hospital of Philadelphia (CHOP) in the Emergency Department found that self-administered tablet-based screening methods were preferred among over 80% of participants and were more likely to produce accurate identification of food insecurity.[34]

In one study, caregivers were given the choice between self-administered paper surveys or verbal screenings conducted by the provider. Caregivers were split between their choice of screening methods: some caregivers preferred paper forms to fill out themselves, while others preferred the verbal screening method, which could then lead into a conversation about resources.[35] Ultimately, this evaluation determined that providers understand best what works within their work flows and patient populations.[35]

As demonstrated, research on screening implementation methodology is mixed. While some participants prefer conversation, others prefer not to discuss matters of food insecurity openly. Due to this lack of agreement, providers should use knowledge of their patient population to determine the best mechanism for screening and identifying as many food insecure patients as possible. Regardless of the screening method, it is important that screening responses are tracked for the purposes of reporting and evaluation. A number of successful screening interventions have used some form of electronic medical record (EMR) to track screenings.[36]

Screening interventions have shown the benefit of providing personal resource navigators, similar to social workers and care coordinators, who uniquely tailor the referral coordination

experience. In one randomized clinical trial of food insecurity interventions, researchers focused on how written community resource information as well as a personal resource navigator would benefit in comparison to those who only receive the written resource information.[37] When a personal resource navigator was provided to caregivers whose children were deemed food insecure in the pediatric care setting, the family's social, mental, and legal health needs, as well as caregiver-reported global health, were markedly improved compared to those who did not receive a personal resource navigator following their child's medical appointment.[37]

In a similar intervention conducted by Samaan et al. within three hospital clinics, children under the age of 14 participated in food insecurity screening, which were part of a larger services bundle given to patients.[38] The study found a number of failures to provide services following a positive screening, which were due to family refusal, failure to document services, or the prevalence of transient providers who were unfamiliar with the process.[38] To address these barriers, structural and functional interventions were implemented to troubleshoot the process. Structural interventions included team development, promotion of a shared vision among staff, expert consultation, quality improvement trainings, and project data management. Functional interventions, on the other hand, included optimizing the EMR, improving communication, and implementing ideal clinical work flow. After employing these changes, the delivery rate of resources to patients was over 92% for a 1-year period.[38] The researchers developed a plan for sustainability, cultivating a standardized orientation and training process for newly hired staff and providers.[38] The troubleshooting aspect of this randomized clinical trial is significant for the development of a sustainable model in pediatric care clinics. This restructure process could be used as a standard for the implementation of best screening practices.

Another hospital has oriented screening efforts toward referring caregivers to an in-hospital food pantry, with the goal of relieving hospital food insecurity, defined as a lack of food during the period of hospitalization.[39] These interventions have been demonstrated to contribute to the alleviation of stress for caregivers, a reduction in the likelihood of hospital re-admission, and an improvement in acute health outcomes for patients and their families.[39] Programs like these are effective interventions for short-term support. They also demonstrate the need for more long-term resource coordination, as 66% of those screening positive for hospital food insecurity were also identified as positive for household level food insecurity.[39]

Food insecurity screenings have been conducted in a number of ways, but connecting caregivers to necessary resources is imperative for improving household level food security for pediatric patients and their families. While many available intervention models exist, clinical-community partnerships are the focus of this research. The importance of and outcomes associated with clinical-community partnerships will be discussed in the following section.

2.5 Clinical-Community Partnerships

In recent years, there has been a push to narrow the gap between evidence-based research and clinical practice in order to improve upon the health outcomes of patients.[40] However, adopting and implementing evidence-based interventions in the clinical setting is beset with a number of barriers, including but not limited to inadequate funding, insufficient resources, provider stress, and provider attrition.[41,42] When evidence-based interventions are not realistic to fully implement in-house, partnerships with community organizations can accelerate the work of adopting

evidence-based interventions, reaching more patients in need without creating undue burden on providers.

When addressing food insecurity in a health care setting, identifying patients living with food insecurity is not enough. In order to meet patients' food and nutrition needs, referrals to community resources are imperative.[32] When caregivers are screened, those screening positive for food insecurity are likely to request referrals for food resources.[32] When given the option, caregivers who screen positive for food insecurity will often request specific assistance with applying for SNAP benefits and other federal "safety net" programs.[32] While health care providers do not always have the expertise to meet their patients' needs, community organizations can be equipped with the time and skills to assist, but may lack the ability to find and access those in need.[43] This is why clinical-community partnerships can be critical for appropriately identifying and meeting the needs of children and families who are living in food insecure households.

Clinical-community partnerships can provide benefit to health care providers who want to equip their patients with appropriate resources. Although partnerships can vary in nature and complexity, hospitals often provide a list of community resources, a warm referral from provider to a resource navigator, and assistance with applications for federal benefits.[36] Interventions can involve a process in which caregivers experiencing food insecurity are asked if they would like a community partner representative to call them directly, and if so, they must consent to have their information sent to said agency. This is called a direct referral, which has the potential to shift the onus of responsibility from caregiver to provider and community partner.[44] When offered a direct referral, evaluations have found a substantial increase in the number of individuals who are successfully contacted. In fact, one study demonstrated an increase from 3% to 75% of caregivers reached by community partner after the implementation of direct referrals.[44]

The Keeping Infants Nourished and Developing (KIND) intervention is one focused on food-insecure families with infants in primary care clinics.[43] In an effort to meet the needs of their patients with household level food insecurity, they began a collaboration with the local food bank, whose role was to connect food insecure patient caregivers to federal assistance, including SNAP benefits.[43] With the screening and referral process built into the patient's visit, KIND participants were more likely to be referred to the community partner and connected to necessary benefits.[43] Additionally, families participating in KIND were more likely to be linked to services that addressed other concerns, such as a social worker or legal advocate, demonstrating the potential of food and food-related resources as a connection to other social and medical health needs.[43]

Another direct referral intervention, developed at CHOP, was implemented in three pediatric primary care clinics. Utilizing the HVS, providers screened 7,284 patients, of which 15.6% (1,133) reported food insecurity.[35] Of this group, 630 patients consented and their contact information was sent to a community partner, who then contacted these families to help connect them with SNAP benefits and other resources.[35] A total of 235 families were screened for federal benefit eligibility, and 85 applied for government benefits, 27 of whom were approved and received these benefits. The researchers found that trust and care were very important to caregivers, as they were more likely to answer screening questions truthfully when they felt comfortable in the care setting. Caregivers reported that the community partner's assistance with application for benefits was crucial, as caregivers usually see the application process as too long and cumbersome to approach on their own.

Other models have been evaluated and published in the literature. Martel et al. developed a screening and referral system between hospital and community partners.[45] Researchers found that the use of an EMR proved useful for food resource coordination and describing referral

patterns.[45] When patients screened positive for food insecurity and were offered a referral to the community partner, providers ordered a "referral for food" in the EMR.[45] This referral order prompted the EMR software to generate an automated fax with the caregiver's contact information, which was sent to the community partner.[45] When the community partner received this information, they contacted the caregiver to assist with resource coordination.[45] With the use of a screening and referral process built into the hospital's EMR, the intervention had an increase in direct referrals to community partner, as 74% of food insecure patients were successfully contacted by the community partner, with 63% accepting and receiving assistance.[45] The implementation of EMR reporting improved access to food resources and assistance for patients, diminishing barriers for providers and expediting the referral process.[45] When electronic record systems are utilized to track and refer patients, the process can be simplified, as fewer support staff are necessary to sustain the intervention. The addition of useful technology is key for addressing the long-term sustainability and lower overall cost of clinical-community partnerships.

In order to reduce the impact of food insecurity and co-occurring health issues, medical professionals have begun to screen patients for food insecurity and refer them to necessary resources through the implementation of clinical-community partnerships. As an important social health issue, food insecurity should continue to be addressed in medical settings, using models and evaluation methods that have proven efficacy with families in their primary care settings. Clinical-community partnerships, and most notably those using a direct referral system, have demonstrated success in connecting food insecure households with appropriate and supportive resources.

3.0 Intervention Setting

The direct referral system between the CHP network and Just Harvest has been implemented in various hospital clinics beginning in November 2018. While not all clinics offer direct referrals, many are beginning to screen for food insecurity during each patient visit with the intention of joining the partnership in the future.

Prior to participating in the direct referral system, clinics were given the opportunity to distribute Just Harvest brochures to caregivers who screen positive for food insecurity. These brochures outline Just Harvest's available services. Upon participation in the direct referral system, these brochures are still available to distribute to caregivers who screen positive for food insecurity but do not consent to the direct referral.

During the first three months of this direct referral system, five clinics have participated. Data from these clinics are included for analysis of referral outcomes. These five clinics include the Gastroenterology, Hepatology, and Nutrition (GI) Clinic; the Child Advocacy Center (CAC); General Academic Pediatrics of Oakland (GAP); the Perinatal Cardiology Department of Magee Women's Hospital (Fetal Magee); and the Outpatient Cardiology Clinic of Children's Hospital (Cardiology CHP). Brief descriptions of each clinic and their referral processes are provided.

3.1 Background of UPMC Clinics & Screening Methods

Gastroenterology, Hepatology, and Nutrition (GI) Clinic

The GI clinic provides a full range of diagnostic procedures and treatments related to the gastrointestinal tract, liver and pancreas, as well as a variety of specialized treatment programs. The GI clinic has been screening caregivers for food insecurity and recording results since the end of June 2018. Medical Assistants (MAs) distribute paper forms for caregivers to fill out, responding to HVS questions as well as follow-up screening questions about whether the caregiver would like to have a conversation about their responses (Appendix A). With an increase in screening rates, they began distributing Just Harvest brochures to caregivers who screened positive for food insecurity in October 2018. On November 12, 2018, the GI clinic began participating in the Just Harvest direct referral system, directly referring caregivers to Just Harvest when necessary.

Child Advocacy Center (CAC)

The Child Advocacy Center (CAC) provides comprehensive evaluations for children and adolescents who may be victims of physical or sexual abuse, or neglect. In September 2018, CAC began by exclusively serving a subset of patients who are involved with Child, Youth, and Families services (ARCH patients). Due to the fact that nurses are accustomed to having difficult conversations with patients and caregivers, they verbally screen caregivers and/or patients for food insecurity. With this in mind, caregivers are simply asked one question: “In the last month, have you worried about running out of food?” When caregivers answer “yes,” they are offered food resources. On November 12, 2018, they began participating in the direct referral system with their ARCH patients. In January 2019, they began offering these direct referrals to all CAC patients.

General Academic Pediatrics- Oakland campus (GAP)

General Academic Pediatrics (GAP), located in the Oakland neighborhood of Pittsburgh, conducts verbal screenings for food insecurity and other social health issues, which began in 2017. The clinic's care coordinator has compiled a repository of resources, which can be used for tailoring services to a patient's specific needs. Upon a positive food insecurity screening, GAP can provide emergency food boxes to those with more imminent food needs or food vouchers for local grocery stores. As of December 12, 2018, GAP has been participating in the direct referral system.

Outpatient Cardiology Clinic (Cardiology CHP)

The Outpatient Cardiology Clinic (Cardiology CHP) provides a wide variety of cardiology services. This clinic uses a self-administered paper form for caregivers to fill out themselves. Upon a positive screening for food insecurity, they are offered a direct referral to Just Harvest as well as a social work consult if a social worker is available. They initiated the direct referral system on January 21, 2019.

Perinatal Cardiology Department of Magee Women's Hospital (Fetal Magee)

The Perinatal Cardiology Department (Fetal Magee Clinic) provides cardiac services to patients in the Magee Women's Hospital. Upon a positive food insecurity screening, they initially distributed Just Harvest brochures. They began offering Just Harvest direct referrals on December 28, 2018.

3.1.1 History of Food Insecurity Initiatives at UPMC Children's Hospital of Pittsburgh

In 2017, the Division of Community Health created the Food Security Task Force, which is composed of hospital providers and other community partners interested in improving food insecurity for the hospital's patient population. The task force was developed to increase awareness

and understanding of food insecurity among clinical staff, identify systematic processes for implementing food insecurity screenings into the clinical workflow, and to connect positively-screened patients with community food resources. The Food Security Task Force meets on a monthly basis to collaborate on the most effective ways to address food needs within their patient populations. When clinics become interested in incorporating food insecurity screenings and initiatives into their work flow, the task force is a helpful way to talk with other clinicians and determine the best course of action.

The Food Security Team, housed in the Division of Community Health, organizes and facilitates the Food Security Task Force meetings. The Food Security Team coordinates and supports food security efforts throughout the hospital. Most notably, the team assists clinics with the implementation of food insecurity screenings, resource coordination, and data monitoring.

When the Division of Community Health was awarded a grant by the Henry L. Hillman Foundation in July 2018, the food security team was given the opportunity to expand initiatives throughout the hospital network. As a result, more CHP clinics began to implement food insecurity screenings, in preparation to coordinate referrals and resources for patients in need. The Hillman grant provided funding to support more coordinated efforts.

Efforts to improve food security throughout the hospital have continued to develop throughout the year 2018 and into 2019. Other than the Just Harvest direct referral system, clinics offer food resource lists, emergency food boxes, produce vouchers, and gift cards to local grocery stores. Food insecurity screenings and subsequent projects were first initiated in outpatient clinics, with expansion to inpatient clinics during the year 2019.

3.2 Background of Just Harvest: Action Against Hunger

Just Harvest is a non-profit organization based in Allegheny County. Founded in 1986, Just Harvest began with advocacy work aimed at the amelioration of hunger. These efforts created more school breakfast programs around the county, improved access to emergency food assistance for Pittsburgh residents, and increased awareness about the issue of food insecurity and hunger.[47] Since then, Just Harvest has gone through many changes.[47] Today, the organization is multifaceted, aimed at reducing hunger and food insecurity on the individual, household, community, and national levels. In addition to providing assistance with government benefits, Just Harvest also offers free tax filing assistance. They aim to improve access to healthy foods through their Fresh Access program, which enables SNAP recipients to use their benefits at farmers markets around the county. Additionally, they partner with other community organizations to develop corner grocery stores in neighborhoods without adequate access to fresh food.

After serving Allegheny County residents for over 30 years, their programs have helped tens of thousands of low-income households. As their mission, "Just Harvest educates, empowers, and mobilizes people to eliminate hunger, poverty, and economic injustice in our communities by influencing public policy, engaging in advocacy, and connecting people to public benefits."[47] In partnership with the UPMC Children's Hospital of Pittsburgh, Just Harvest helps to provide SNAP benefit application assistance to those caregivers who are experiencing food insecurity and are also interested in receiving support.

4.0 Methodology

This study investigates the Just Harvest Direct Referral System, tracking referrals and outcomes over a 16-week period (November 12, 2018 to February 28, 2019). Prior to November 2018, clinic providers began screening families for food insecurity with methods specific to each clinic. As evidenced by the literature, providers and MAs are most likely to adopt a screening method of their choosing, based on knowledge of their clinical work flows and patient populations. Following a positive screen, staff provided food resources when available, or a Just Harvest brochure with more information about how to receive SNAP assistance.

In November 2018, two clinics (GI and CAC) implemented the Just Harvest Direct Referral System, expanding screening into a referral process to connect caregivers experiencing food insecurity with Just Harvest. As described, the process and form of screenings vary by clinic. Following each screening and referral, providers report responses into the EMR. In December 2018 and January 2019, three other clinics (GAP, Fetal Magee, and Cardiology CHP) began participating in the Direct Referral System (see Table 1).

Upon a positive food insecurity screen, providers describe the hospital's partnership with Just Harvest to the patient or caregiver. Then, caregivers are asked if they would like to be contacted by Just Harvest for information and assistance with applying for SNAP benefits. In the event that a caregiver screens positive for food insecurity but already receives SNAP, providers in select clinics express that Just Harvest is available to help if one or more of the following applies:

- Number of household members has changed since initiation of benefits
- Household income has changed since initiation of benefits
- There is a need to submit annual re-certification documents

If a caregiver agrees to the direct referral, they must fill out a consent form, thereby permitting the hospital to send their personal contact information to Just Harvest. When this form is filled out and signed, it is sent to the Division of Community Health's food security project assistant (electronically or in-person, depending on the clinic) (see Table 1). As they are received, the food security project assistant sends the caregiver's first name, last name, and phone number to Just Harvest in the form of a secure email.

Once Just Harvest receives this contact information, trained Food Stamp Specialists conduct outreach via phone call, screen families for SNAP eligibility (assisting SNAP beneficiaries with other questions as needed), and help eligible clients apply for benefits during the phone call. When clients are already enrolled in SNAP, Food Stamp Specialists provide support with changes to household structure or income, and/or re-certification of documents. As outlined in the partnership agreement, Food Stamp Specialists attempt to contact the caregiver up to three times.

In order to track referrals, the food security project assistant maintains secure copies of all screening surveys and consent forms, as well as recording them in a formal spreadsheet. Results of each screening are recorded and cross-referenced with data from the patient's EMR. Of those who consent to the referral, the following information is tracked:

- First and last name of each caregiver
- Phone number of each caregiver
- Email address of caregiver (if applicable)
- Food insecurity screening responses
- Whether they currently receive SNAP benefits (when information is available)

On a monthly basis, the Just Harvest Operations Coordinator sends an email with outcomes for each referral from that month. This includes the following information, which are imported into the referral tracking spreadsheet:

- Number of times Just Harvest attempts to call caregiver (standard is three attempts)
- When contact is unsuccessful, reason for no contact
- When contact is successful:
    - Outcome of 5-minute screening process to determine eligibility
    - When caregiver is deemed ineligible, reason for ineligibility
    - When caregiver is deemed eligible, whether they choose to apply
    - If caregiver chooses not to apply, client reason for no application

Approximately 60-75 days after the application is submitted, the Pennsylvania Department of Human Services (DHS) releases a monthly list describing the outcomes of each SNAP application completed by Just Harvest. These outcomes signify either the approval or denial of benefits. Due to the nature of Just Harvest's contract with DHS, the department provides denial rationale only for those who are denied benefits and reside in Allegheny County. Of those outside of Allegheny County, denial outcomes ar reported but rationale is not provided. As Just Harvest receives these reports from DHS, they are forwarded along to the Food Security Team for reporting. These outcomes are incorporated into the referral tracking spreadsheet.

When data is collected from each clinic and Just Harvest, outcomes are analyzed in order to learn how many caregivers are agreeing to the direct referral, how many are successfully contacted by Just Harvest, the outcome of the conversation, and the proportion of individuals who are successfully connected to SNAP benefits. The overall objective of this evaluation is to learn how many caregivers successfully complete the referral process. In other words, the goal is to learn how many caregivers are successfully connected to SNAP benefits. As listed above, other outcomes are tracked along the way. All of this information is compiled in order to analyze outcomes of the partnership and determine barriers to successfully connecting food insecure patients with SNAP benefits.

Table 1 Clinic Process Details

Clinic	Start Date	Screening Method	Screening Question	Method of Delivery (Clinic to Project Assistant)	Total # of Referrals	Approx. Time of Evaluation
GI Clinic	11/12/2018	Self-Administered Paper Survey	Hunger Vital Signs	In-Person, Bi-weekly basis	1	16 weeks
CAC/ARCH	11/12/2018	Verbal Screen	One question	In-Person, Weekly basis as needed	8	16 weeks
GAP Oakland	12/12/2018	Verbal Screen	Hunger Vital Signs	Secure email, as needed	16	11 weeks
Fetal Magee	12/28/2018	Self-Administered Paper Survey	Hunger Vital Signs	Secure email, as needed	8	9 weeks
Cardiology CHP	1/21/2019	Self-Administered Paper Survey	Hunger Vital Signs	In-Person, Bi-weekly basis	4	6 weeks

5.0 Results

From November 12, 2018 to February 28, 2019, a total of n=37 referrals were made to Just Harvest. From the Child Advocacy Center, 8 referrals were received. From the GI clinic, 1 referral was received. The GAP- Oakland clinic, which joined the direct referral system on December 12, 2018, had a total of 16 referrals made. The Fetal Magee clinic had 8 referrals since December 28, 2018. The Cardiology CHP clinic had 4 referrals since January 21, 2019. Table 1 describes detailed information about each clinic, including approximate time of evaluation and number of referrals for each clinic.

Of the 37 referrals made to Just Harvest, 7 (19%) were unable to be contacted by a Food Stamp Specialist. Reasons for this included a disconnected phone number, a full voicemail inbox, or three attempts to contact without a response or any returned messages. The remaining 30 (81%) referrals were successfully reached by Just Harvest's Food Stamp Specialists. Of those who were reached, 7 (23.3%) were no longer interested or in need of services, based on each client's response to the Food Stamp Specialist's initial offer of assistance (more details outlined in the "Qualitative Results" section below). Fifteen referrals (50% of those reached) were already enrolled in SNAP benefits, but received another Just Harvest service related to their individual cases. Eight referrals (26.7%) were not current SNAP recipients and were screened for benefit eligibility, 5 (62.5%) of whom applied for SNAP benefits. Of those who did not apply (3 referrals or 37.5%), most were over the income level or decided not to apply for other personal reasons. At this time, information is not yet available from DHS to determine whether those applications were approved and successfully received by the client. Figure 1 shows the number of referrals at each step of the referral process.

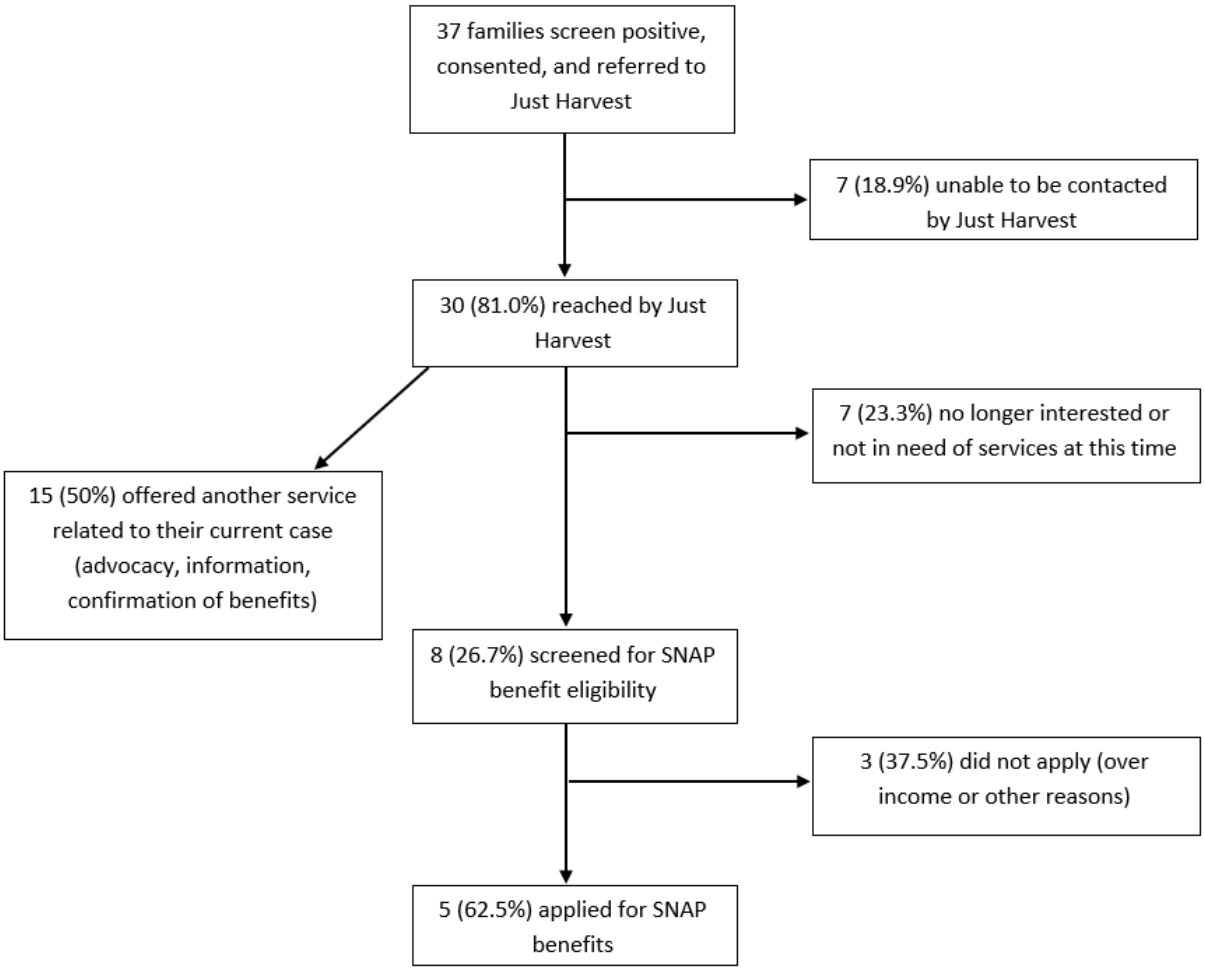


Figure 1 Referral Process by Numbers

Those clinics using a self-administered paper survey accounted for 13 of all referrals (35.1%), while those clinics using a verbal screening process submitted 24 referrals (64.9%). Demographic characteristics were also collected for patients involved in each referral, data that was collected from the EMR. Due to the fact that three individuals who agreed to the referral were caregivers to more than one patient, there were a total of 40 patients involved in the direct referral

process. The racial identity of 5 patients remains unknown due to reporting limitations (detailed in the "Discussion" section).

Twenty-five patients (62.5%) identified as Black, and 10 patients (25%) identified as White. Twenty-six patients (65%) were female and 14 patients (35%) were male. The majority of patients involved in a referral were between 0 and 5 years old (22 patients or 55%). The majority of patients were also residents of Allegheny County (33 patients or 82.5%). Table 2 provides more detailed information about patient demographics.

Neighborhood of residence was also collected for each patient. As demonstrated in Figure 2, most referrals reside in Allegheny County, with others in surrounding counties. Figure 3 represents the map of patients enrolled in the direct referral system from the Greater Pittsburgh area. Eleven patients were residents of the East End neighborhoods, including East Hills, Garfield, Homewood, Oakland, Point Breeze North, Wilkinsburg, and Braddock. Three were from the North Hills/North Side boroughs such as McKees Rocks, Brighton Heights, and Perry North. The majority of patients (13) were from South Hills neighborhoods, including Arlington, Baldwin, Brentwood, Carrick, Duquesne, Mt. Lebanon, Mt. Oliver, Overbrook, and West Mifflin. Three more patients were from the West End, specifically the Sheraden and Crafton Heights communities.

Table 2 Patient Demographics

	NUMBER OF PATIENTS	PERCENT OF PATIENTS
ALL	*n*=40	100%
RACE		
BLACK	25	62.5%
WHITE	10	25%
UNKNOWN	5	12.5%
SEX		
FEMALE	26	65%
MALE	14	35%
AGE		
0-5 Y/O	22	55%
6-10 Y/O	5	12.5%
11-17 Y/O	5	12.5%
18-21 Y/O	2	5%
22-25 Y/O	1	2.5%
26-30 Y/O	2	5%
31+ Y/O	3	7.5%
COUNTY		
ALLEGHENY	33	82.5%
BEAVER	2	5%
FAYETTE	1	2.5%
MERCER	1	2.5%
VENANGO	1	2.5%
WASHINGTON	2	5%

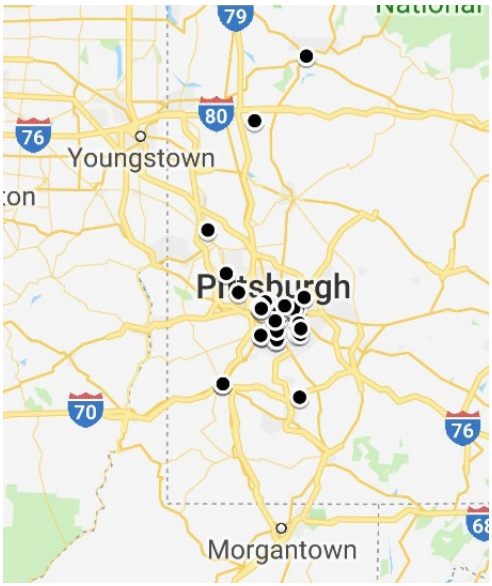


Figure 2 Western Pennsylvania Map

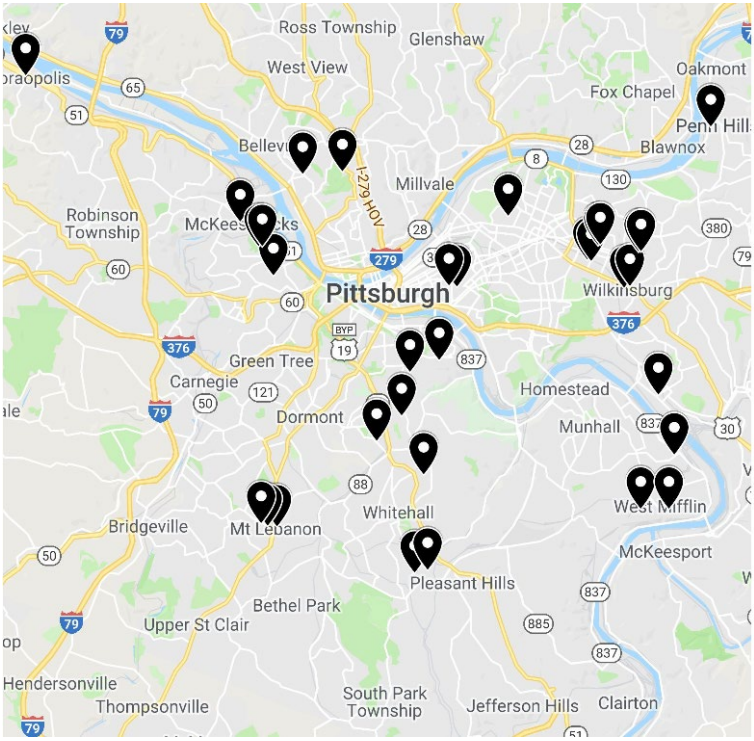


Figure 3 Pittsburgh Map

5.1 GAP Clinic Example

Comprehensive clinic data, including the number of all patients screened for food insecurity, is not available for every clinic involved in the direct referral system. This information is available for the GAP clinic in Oakland, however. Between January 1 to February 28, 2019, data was collected and analyzed to determine how many patients were screened for food insecurity, how many agreed to the referral, and how many completed the referral process. During this time,

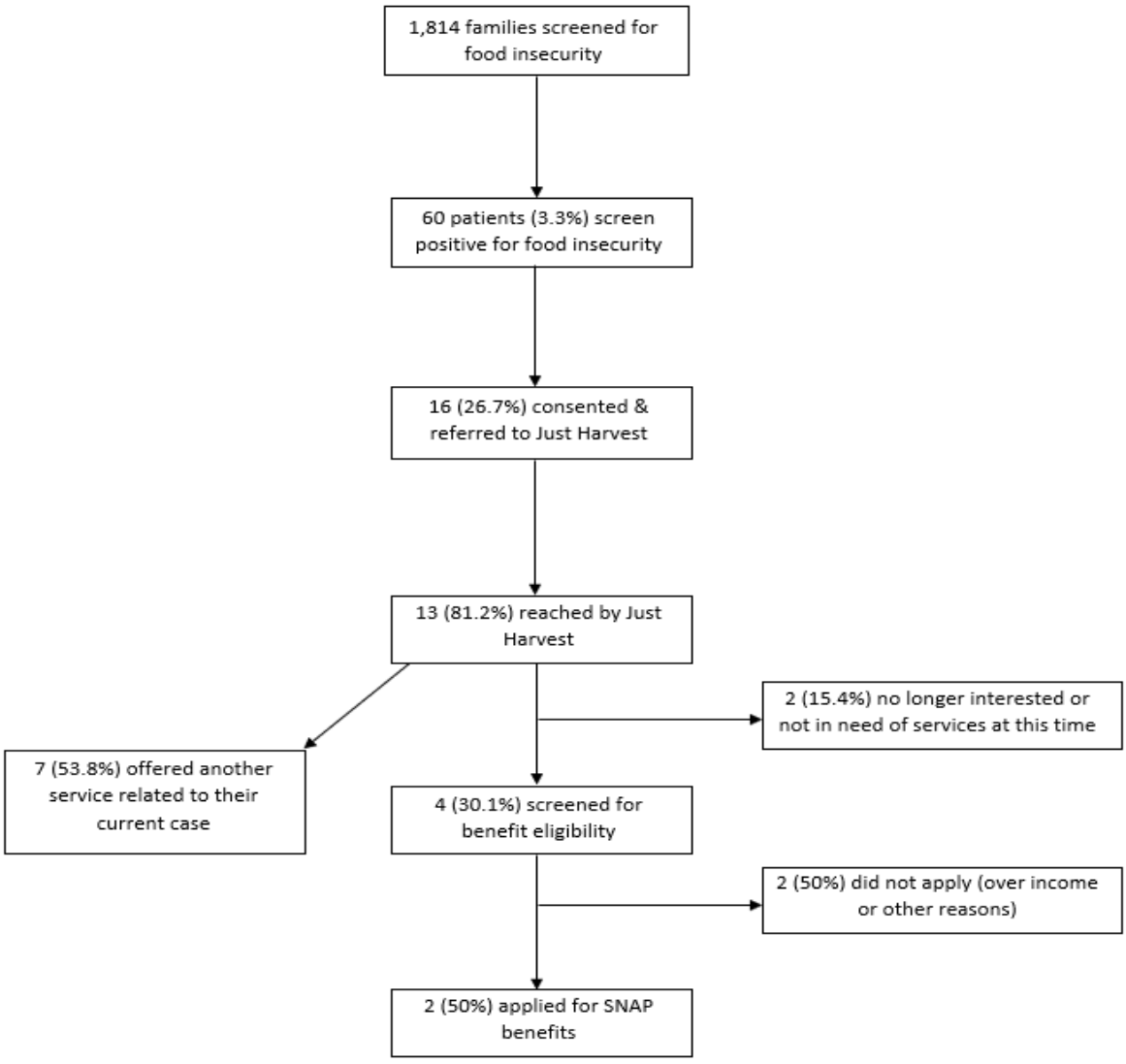


Figure 4 GAP Clinic Data

1,814 patients were screened for food insecurity. Of those, 60 patients (3.3%) screened positive. Of those who screened positive, 16 caregivers (26.7%) consented to the referral. Of those referrals, 13 (81.2%) were reached by Just Harvest. From there, 2 (15.4%) were no longer interested or in need of services. Seven referrals (53.8%) were offered another service related to their current case, and 4 (30.1%) were screened for SNAP benefit eligibility. Of those screened, 2 (50%) applied for benefits. For those who did not apply (2 referrals or 50%), clients were over income or chose not to apply for other reasons. At this time, information is not yet available from DHS to determine whether those applications were approved and benefits successfully received by the client. Figure 2 shows the number of referrals at each step of the referral process. Figure 4 shows the number of referrals at each step of the referral process.

5.2 Qualitative Evaluation: The Just Harvest Process

This section highlights the Just Harvest contact process, along with perspectives of the Food Stamp Specialists who engage with clients from the direct referral system. After observation of this process from the perspective of a community partner, the following information was learned.

When referrals were originally sent to Just Harvest beginning in November, there was one contact person, who received every referral via secure email. Throughout the process, the team decided that it would work well if all Food Stamp Specialists had access to this email in the event that one person was unavailable or out of the office. For this reason, an email account was created by Just Harvest and was designated for UPMC Children's Hospital referrals only. This account

allows for any member of the Food Stamp Team to check the email, receive referrals with the use of a secure pin number, and add the referrals to the team's call log.

Upon receiving a referral, the contact's first and last names, phone number, and email address are added to the call log, along with the date of referral. When an initial attempt to contact is made, the Food Stamp Specialist adds the date of attempt as well as their initials. When the call is answered, Food Stamp Specialists ask for the referral by name. Then, the Food Stamp Specialist introduces herself and that the referral information was passed along by the Children's Hospital. Then, the client is asked if they are interested in applying for SNAP (when speaking with the client, referred to as Food Stamps). In the case that the client is interested in applying for SNAP benefits, the Food Stamp Specialist then asks a series of questions about the client's number of household members, household income, amount of money spent on utilities and rent per month, as well as whether the client receives cash assistance. All of these answers are incorporated into an excel table that calculates an estimated benefit amount based on eligibility criteria from DHS. The Food Stamp Specialist then tells the client what they are eligible to receive on a monthly basis in SNAP benefits. If the client decides to apply for benefits, the Food Stamp Specialist opens the Compass website and proceeds to apply with the client answering questions on the phone. Clients are also asked whether they would like to add a Medical Assistance Benefits application, which would be generated automatically based on information incorporated into the SNAP application. If clients need further assistance with their medical benefits, they are often referred directly to the Consumer Health Coalition, an organization that provides assistance and advocacy services related to health care and medical bills.

When a client is already receiving SNAP benefits but would like to confirm they are receiving the correct amount in monthly benefits, the Food Stamp Specialist uses the excel table

calculator. When a client has a question about SNAP benefits or any concerns about their specific case, Food Stamp Specialists offer other types of assistance. Regardless of the substance of the call, the Food Stamp Specialist adds reports of the result into their team's call log. When clients who are referred are called three times and messages have been left without reply, the referral outcome is reported as "unreachable."

During a call or message to the client, Food Stamp Specialists have expressed that they make it a priority to describe what Just Harvest can offer, and that the Food Stamp Team is available for any needs or concerns around SNAP benefits. They leave their names and phone numbers, encouraging clients to give them a call should any needs arise. In many cases, Just Harvest can offer advocacy services or a warm referral to another community resource.

5.3 Qualitative Evaluation: Clinic Perspective

An extensive qualitative evaluation of the direct referral process, from the provider perspective, is not within the scope of this project. Throughout the process of implementation and coordination of the direct referral system, however, some provider feedback was recorded. The results are summarized in this section.

When choosing a screening methodology, providers were divided about preference for self-administered paper and verbal screenings. Of those who opted for a self-administered paper form, providers believed that caregivers would answer more honestly, as many of their patients' caregivers did not want to talk about food insecurity or other uncomfortable issues in front of their children. These providers also reported a high level of discomfort and reluctance among clinic MAs, as they are not accustomed to having these difficult conversations. In the future, providers

requested a more comprehensive script for MAs to use when attempting to engage caregivers who screen positive for food insecurity.

On the other hand, there are a number of clinicians who, due to the higher vulnerability of their patient populations, are more accustomed to having a verbal conversation with patients and caregivers about food insecurity and other complex issues. These providers reported a high level of rapport with patients and families.

Some barriers to screening and referrals include a lack of time to incorporate more steps and paperwork into the clinical work flow, reluctance from MAs and physicians, uncertainty about the process, and privacy concerns.

The perceived lack of time to incorporate more steps and paperwork into clinical work flow was a significant barrier to screening and referrals. As described, each clinic has a distinct screening and referral process based on their unique work flows. There is perceived administrative burden of paper screening, which is a barrier to clinics receiving buy-in for the direct referral system. For clinics that utilize a verbal screening, this perceived barrier is diminished, as they only have to complete one extra piece of paperwork.

Uncertainty about the process of referrals is another significant barrier to engaging providers in the process. Although most clinicians engaged in the direct referral system for this evaluation did not express this concern, it has been expressed among prospective participants, which has been a barrier for engaging more clinic providers in the direct referral system.

Providers also highlighted the fear that many caregivers have about disclosing issues of food insecurity. For example, some caregivers might worry that disclosing this information would indicate their lack of fitness for parenting and a call to Child, Youth, and Families (CYF). For this

reason, providers must ensure privacy and confidentiality with families who are experiencing food insecurity.

6.0 Discussion and Recommendations

Even among the growing evidence demonstrating food insecurity's impact on patient health, there is no standardized process of screening families for household food insecurity and referring those in need to necessary resources. In order to equip CHP clinics with the means to intervene on issues of patient household food insecurity, this direct referral system was developed and implemented to build a bridge between provider and community partner.

Within a 16-week evaluation period, 37 referrals were made from 4 different clinics. Of those referrals, 30 clients (81%) were reached by Just Harvest. Of those reached, 5 clients (13.5% of all referrals) applied for SNAP benefits. Among the 5 referrals who successfully applied for benefits, their estimated amount of monthly benefits was a total of $1,508, with an average of $377 per application. The highest amount estimated for one family was $642 per month. Final approval of benefits data from DHS is forthcoming. Connecting families to this important federal benefit was the overall goal of this direct referral system, increasing the supplemental income of families experiencing food insecurity.

Although many individuals were already enrolled in benefits or were no longer interested in services, the mere contact between Just Harvest and client is imperative for the referral process. These clients, who may not have used Just Harvest to enroll in SNAP, are now aware of Just Harvest's services and contact information, with the understanding that Food Stamp Specialists may be able to help with a number of things related to SNAP and food insecurity. Thanks to the direct referral system, more families are learning about Just Harvest and are now aware of this free, accessible resource. This, in and of itself, is a success.

Half of those reached by Just Harvest were already receiving SNAP benefits and still screened positive for food insecurity. This demonstrates that current SNAP participation can be an indicator of food insecurity. This also indicates that SNAP benefits may not go far enough for families experiencing food insecurity. For this reason, SNAP recipients could also be directly referred to other local services, such as the Greater Pittsburgh Community Food Bank, 2-1-1 United Way, and other social services to provide more comprehensive support.

Over half (62.5%) of patients who screened positive for food insecurity identify as Black, while only 25% identify as White. This sample is simply one example of how issues of food access and availability, as well as economic disadvantage, disproportionately impact people of color. The majority of patients experiencing food insecurity were residents of the East End (11 patients) neighborhoods, such as Garfield, Homewood, and Oakland, as well as the South Hills communities, such as Carrick, Mt Lebanon, and West Mifflin. Only a few patients engaged in the referral were from the North Side and West End neighborhoods. See Figure 3 for a map of this data. This evaluation demonstrates the need for more community interventions aimed at these communities, as well as the need for providers to target patients residing in these areas.

Although not the original goal of this evaluation, it may be important to look at the difference in referral rates between clinics using verbal vs. paper screening methods. Those clinics using a self-administered paper survey accounted for 13 of all referrals (35.1%), while those clinics using a verbal screening process submitted 24 referrals (64.9%). The GI clinic, using a self-administered paper survey, as well as CAC, were the longest participants in the direct referral system. GI, however, with the barriers described below (perceived time constraints, discomfort with screenings, not offering referral to current SNAP recipients), was unable to provide more than one referral during the time period. CAC, on the other hand, is more accustomed to handling

uncomfortable conversations, and predominantly works with youth and families involved in the foster care system, making them more likely to engage with families and patients experiencing food insecurity. Clinics with more vulnerable patient populations (CAC & GAP) were the two clinics using a verbal screening method; this confounding factor makes it difficult to determine which screening methodology was most impactful for reaching households experiencing food insecurity.

Comprehensive training and communication between providers, MAs, and the food security team was imperative for the facilitation of consistent screenings and referrals. During this time period, one clinic had a few staff changes. What remained important, however was the use of intentional training for MAs, who were screening caregivers and offering referrals. Although each clinic's process was unique, the point person in each clinic provided oversight and trainings.

Although most clinics were engaged in this process, the GI clinic faced a number of obstacles throughout the process. A lack of consistency between MAs and their referral and reporting processes led to a discrepancy around where completed consent forms were placed for pick up. Additionally, MAs were concerned about engaging in uncomfortable conversations with caregivers. For this reason, there is a question at the end of each screening form (for this clinic only) that asks caregivers if they would like to discuss their answers aloud in the room (see Appendix A). If a caregiver circled "No," a conversation is not conducted and the referral is not offered. There were a number of positive screening forms without a consent form attached, due to the fact that caregivers were not interested in having a conversation. This is the caregiver's right, and many parents are concerned about discussing the matter in front of their children. However, this type of question feels more like an attempt at avoiding discomfort rather than making accommodations and forging a path towards normalization of conversations like these. In the

future, it will be important for the food security team to ensure that MAs have the appropriate language and training for facilitating conversations with caregivers and patients who screen positive for food insecurity. Another potential solution is to offer the consent form to caregivers even if they are not interested in discussing answers aloud. This would require more reading for caregivers who circle "No" to the discussion question, but it would give caregivers the opportunity to fill out the consent form without the need to discuss the matter in front of their children.

Not all clinics took advantage of Just Harvest's complete service package. While Just Harvest offered to assist current SNAP recipients with recertification documents or to confirm eligibility of benefits, one clinic in particular chose not to offer the referral to current SNAP recipients. This was due to perceived time and resistance to discussion with caregivers experiencing food insecurity. This clinic submitted only one referral throughout the course of the evaluation. In the future, more time and energy should be allotted to these screenings and referrals, specifically by way of hospital-wide policy and staff training.

There are other limitations to this evaluation. Throughout the 16-week period, consent forms were often filled out with only the caregiver name included, leaving blank the "patient name" section. This proved difficult for tracking patients who screened positive for food insecurity and were impacted by the referral. Although most patient demographic data were gathered, this process could have been streamlined with the full completion of consent forms.

Additionally, this evaluation gives only a limited understanding of why families refused the referral even upon a positive screening. When families agreed to the referral but were unreachable by phone or email, there is a very limited understanding of these households as well.

The lack of hospital-wide policy around food insecurity creates a challenge for hospital staff interested in interventions. Without a formalized policy, each clinic will determine their own

method of intervention and reporting on food insecurity. While this in and of itself is not a disadvantage, it makes the process of tracking and reporting outcomes more challenging. With a more comprehensive policy throughout the UPMC CHP network, clinics can find room for flexibility within their clinical work flows, but some guidelines around sending and reporting referrals would be in place. This system could be used to advocate for a hospital-wide policy that would allow hospital staff to determine the screening and referral processes that work best within their clinics. A hospital-wide policy would also allow for some process consistency between hospital and community partner. In order to support the consistency around sending referrals and evaluating data, the EMR project developed by Martel et al. can be used as a model.[45] This model would allow providers to place an order for a "referral for food" into the EMR, which automatically prompts the EMR software to generate an automated fax with the caregiver's contact information to be sent directly to the community partner.[45] Although this would dictate some accommodations from the Information Technology department, it would be a strategic way to circumvent a number of barriers related to offering and sending referrals, such as provider and staff time and training. This would also help to support project sustainability and ease of reporting and evaluation methods.

7.0 Conclusions

This evaluation of CHP's direct referral system demonstrates a need for more food insecurity screenings and interventions within hospitals and other health care settings. Clinical-community partnerships are a way to build bridges and provide linkages for patients and families in need. This referral system reached a total of 30 households who agreed to the referral. These families utilized Just Harvest's services, received answers to their SNAP-related questions, or at the very least learned about Just Harvest as a future resource. Five households applied for SNAP benefits and increased their supplemental monthly income.

The overall goal of this evaluation was to determine the number of households successfully connected to SNAP benefits. Another intended consequence was that families experiencing food insecurity were made aware of and connected to an accessible community partner, one which serves in both advocacy and support roles. This connection was facilitated through the Clinical-Community Partnership, removing the onus of responsibility from the shoulders of families.

Due to the fact that a number of families experiencing household food insecurity are already enrolled in SNAP benefits, hospitals and other health care providers must be aware of other community resources, such as food pantries and emergency food assistance. This type of intervention can be replicated for other types of community partners and resources.

This study suggests that direct referrals and hands-on assistance with federal benefits can be profound for increasing access. By removing barriers to a resource such as SNAP, this direct referral system helps families better understand their benefits as well as to simplify the process of SNAP benefit applications. Food resource referrals are a significant first step towards addressing

the food needs of the pediatric patient population, thereby supporting a reduction in utilization rates and improving health outcomes.

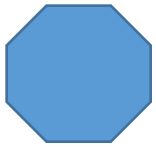
Appendix Self-Administered Screening Forms

We have found that many of our families are having trouble running out of food at the end of the month. We are trying better help with this problem. To do this, we have started asking every patient who comes into the GI clinic about your access to food. We appreciate your answering these questions. Even if you receive other benefits, we know this can sometimes not be enough. **No matter your answer, <u>the care you or your child receive will not be affected</u>, but we will give you resources for gaining access to food.**

1. Within the past 12 months we worried whether our food would run out before we got money to buy more:
    a. Yes
    b. No
2. Within the past 12 months, the food we bought just didn't last and we didn't have money to buy more:
    a. Yes
    b. No

Is it okay to discuss your answers out loud in the room? (Please circle) Yes No

<u>IF YOU ANSWERED "NO" TO BOTH QUESTIONS 1 and 2, PLEASE STOP HERE</u>.



<u>IF YOU ANSWERED "YES" TO EITHER OF QUESTIONS 1 or 2, PLEASE ANSWER THE FOLLOWING</u>:

3. Are you currently enrolled in Supplemental Assistance Nutrition Program or "SNAP" benefits or food stamps?
    a. Yes
    b. No
4. If you answered **<u>"No"</u>** to question 3, are you interested in learning more about SNAP benefits or food stamps?
    a. Yes
    b. No
    c. N/A

Is it okay to discuss your answers out loud in the room? (Please circle) Yes No

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