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# Who's Hungry in San Diego

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# DOCTOR OF NURSING PRACTICE PORTFOLIO

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## Objective

Food insecurity (FI), lack of access to nutritious food, has been linked to multiple disease processes from diabetes and obesity to behavioral disorders. Food insecure individuals cannot afford to eat balanced meals, rely on low cost, high calorie foods to survive, skip nutritious meals, and/or cut the size of meals on a regular basis. Affected individuals have increased percentages of waist circumferences and central obesity than those in food secure households[1]. Longitudinal studies have shown that children who grow up in food insecure households have higher incidences of chronic disease such as asthma[2] as well as behavioral disorders[3]. In San Diego County 14% of the total population, are considered food insecure[4]. Of that population, 67% are eligible for federal nutrition programs. The estimated annual meal gap in San Diego County is 77 million meals[4].

Although efforts have been made to reduce unhealthy food purchases which have been rampant in food stamp programs for years, many barriers exist. For example, both a lack access to food markets and grocery stores and a lack of access to reliable transportation plague the food insecure[6]. Socio-economic barriers prevent grocery stores from thriving in food insecure communities. There are four times as many supermarkets in wealthy neighborhoods than in low income neighborhoods[17]. Per the United States Department of Agriculture (USDA), lack of vehicle access is the single most important factor in determining whether a family can obtain nutritious food. Without vehicles, community members are required to travel long distances using public transportation and are limited by what they can hand-carry.

A large community based clinic group in Southern California recognized the impact of FI on its clinic members. This group serves 55,465 patients across seven branch clinics in low income areas of Southern California. Demographics include 62% Hispanic, 31% White, 2%

African American, 3% Asian/Pacific Islander and 2% from other ethnicities. Seventy-nine percent of patients have family incomes below the federal poverty level. Almost all (95%) of its patients meet federal criteria for sustenance programs such as SNAP. Approximately 62% of this group's patients have insurance through Medi-Cal (58%) or Medicare (3%), while 31% remain uninsured**.** Ultimately, this group would like to initiate a program through the USDA and their subsidiary programs Emergency Food Assistance Program (EFAP), which supplies free frozen foods as well as canned fruits and vegetables to low income individuals, and becoming a Neighborhood Distribution Program (NDP), which provides fresh fruits and vegetables to low income families. These programs allow a community center to act as a food bank, thereby supplying fresh fruits and vegetables to the community at minimal cost to the clinic (no fees for EFAP and a one-time 25-dollar fee to become an NDP) and no cost the community member.

**Background**

Currently, this clinic group spends over 1,500 dollars per month to provide canned fruits and vegetables to a small diabetic population of 70 individuals. This high-cost program has no measurable impact on the health or well-being of these patients: especially considering the amount of money being allocated. This group also supplies non-perishable foods through a Feeding America called Rural Enrichment And Counseling Headquarters (REACH): which provides seven-pound bags of non-perishable foods to 300 community members. While these programs are wonderful in spirit, the concern there-lies that the food being offered is non-perishable, processed food rather than fresh-fruits and vegetables. Examples of food provided through REACH are boxed macaroni and cheese, prepackaged pudding, and canned spaghetti[8], while foods offered through EFAP can include frozen chicken or meats and canned vegetables. NDP, which can be combined with EFAP, provides a weekly distribution of fresh fruits and

vegetables to low income families[9]. EFAP combined with NDP provides the clinic group the ability to provide fresh fruits, milk, and dairy products well over 3000 clients per week with the only cost to the clinic being food storage. Instead of reaching a small population of 70 diabetic patients and 300 children through non-perishable food delivery, this clinic can increase the number of individuals and families affected by hungry by at least ten-fold.

## Methods

The initial plan for this project was to directly impact FI by implementing an EFAP/NDP site via food truck, however, after a review of the process, it was decided that the cost-benefit of the process needs to be addressed further. Initially, the clinic group had wanted to have one or two main hubs for food distribution, as well as travel to its 3 outlying clinics via food truck. Considerations were given to cost and maintenance concerns. A refurbished food truck can cost between 60,000.00 to 100,000.00[10]. Furthermore, permits and licenses to operate a food truck runs an average of 2,000 dollars per month, and fuel and maintenance costs range from 100-300 dollars per month[10.] These considerations do not include driving, storage, and refrigeration costs, Refrigeration alone would cost a one-time purchasing price of 14,000 dollars, plus as much as 100 dollars per month for maintenance and increased electricity costs to run a commercial refrigeration unit. After reviewing all financial burdens, stakeholders realized that they have never officially evaluated food security within its doors but only postulated the problem based on patient demographic data and decided that they first would like to evaluate how much FI impacts their population.

After a discussion with the stakeholders, it was decided to adopt the American Academy of Pediatrics (AAP) endorsed two-question FI screening survey to assess the need for a FI program within its doors. Recently, the AAP recommended screening for FI at all well

appointments using the two-question FI screening tool[11]. Screening includes asking "Within the past 12 months we worried whether our food would run out before we got money to buy more" and "Within the past 12 months the food we bought just didn't last and we didn't have money to get more." This two-question survey has 97% sensitivity and 83% specificity in identifying FI and has the benefit of being much shorter and more effective than the previous standard 18 question survey created by the USDA. The previously recommended 18 question screening tool is too long, not as reliable as the two-question screener, and impractical for clinic use due to increasing clinic demands and time constraints. Depending on results of these surveys, the next step for the clinic would be to provide pre-existing local resources for patients who screen positive for hunger, as is outlined in the recommendation. Both the USDA and the AAP provided guidelines and recommendations in support of implementing a two-question FI survey at every well encounter, and then to provide resources for patients to obtain relief from FI[11.] Since no prior measurements had been obtained, identifying the need for a FI program became the first step towards and ultimately the process improvement initiative. For one week, every at every encounter each patient was provided a printed two-question questionnaire printed in both Spanish and English. Answers were qualified by choices "always true" "sometimes true" or "never true" with "always true" and "sometimes true" representing a positive response and "never true" representing a negative response.

**Figure 1**
*Two-Question FI Survey*

Answer if statement is often true, sometimes true, or never true.
**Responda se esto es frecuente, sucede a veces o nunca les ha pasado.**

1. Within the last 12 months we were worried whether our food would run out before we got to buy more.
   **En los últimos 12 meses nos preocupamos de que nuestra comida se acabara antes de tener dinero para comprar más**.

   | Often true | Sometimes true | Never true |
   |---|---|---|
   | **Esto es frecuenta** | **sucede a veces** | **nunca les ha pasado** |
   | ☐ | ☐ | ☐ |

2. Within the past 12 months the food we bought just didn't last and we didn't have money to get more.
   **En los últimos 12 meses la comida que compramos no alcanzó y no teníamos dinero para comrar más.**

   | Often true | Sometimes true | Never true |
   |---|---|---|
   | **Esto es frecuenta** | **sucede a veces** | **nunca les ha pasado** |
   | ☐ | ☐ | ☐ |

## Project Approval

Approval was granted to implement the AAP recommended FI survey for one week with the goal of assessing the need for a permanent questionnaire in the medical record. An IRB waiver was obtained.

## Evidence Based Practice Model

The Joanna Briggs Institute (JBI) model for user engagement best fits the intervention of reducing community FI through providing free fruits and vegetables to community members via EFAP. Like JBI, evidence based practice frameworks supporting complex care interventions are cyclical: that is, they involve all program members from the program supervisor to community members. JBI includes two tools allowing for both community member and project team continuous reassessment of evidence and intervention effectiveness. These tools include the Practical Application of Clinical Evidence Systems (PACES) tool and the "getting research into

practice" (GRIP) tool[16]. Together with JBI, PACES and GRIP call for 360-degree feedback of all members of the team. The JBI model for user engagement allows the researcher to track backwards and reassess the effectiveness of each piece of the intervention, thereby allowing focused improvements to evidence-based care. Not only does JBI call the clinician to continually evaluate, synthesize, and implement evidence; but the model also calls for the clinician to do the same with patients or in this case: community members and families.

**Proposed Evidenced-based Solutions**

Evidence supports surveying for FI at all well appointments and providing resources to allow clients access to fresh fruits and vegetables and nutritious foods. Ovid and pub-med databases were implemented as well as hand-selecting reports from quality sources to find high-quality data. Key search words included "AAP," "pediatrics," "survey," "two-question survey," "FI survey," "18 question survey," "food-insecurity," "food security," "food desert" "feeding America," "Supplemental Nutrition Assistance Program" (SNAP)," "Emergency Food Assistance Program," "USDA" and combinations of these terms. Of the fourteen articles and reports reviewed, four articles specifically provided feedback related to methods of supporting project implementation. Because this project is qualitative in nature, many of the resources available are what Melnyk and Fineout-Overholt[12] would consider lower level data: the scale being a rating of "Level I" as the highest level systematic review or meta-analysis and the lowest level data being "Level VI:" expert opinion. Nonetheless the data sets available provide excellent support for projects aimed at increasing food security in vulnerable populations.

An OVID search of "Emergency Food Assistance Program" resulted in the discovery of a pilot program called "LINKS": a food security program implemented in two community clinics in the San Diego area[13]. This program is similar to EFAP with food banks set up at two clinic

sites: one rural site and the other an urban. Both sites catered to a majority Hispanic, low-income population. LINKS is an instrumental example because the program fostered a unique partnership between food banks, pantries, and community health clinics to provide fresh fruits and vegetables to communities. Projected outreach was around 13,000 individuals over six months. Success of this project was two-fold. Not only was food security increased, but more than 1,000 adults were screened for diet related conditions, and of those, nearly 300 individuals were found to need medical care and were provided with appointments and education. Although clients already belonged to the clinic prior to implementation of the program, this style can be used future programs[13]. For example, a possible future goal for could include utilization of EFAP to collect health data on recipients as well as offer nutritional education to its vulnerable population. Because this program is qualitative in nature it is most similar to level V data[12]; due to its similarity to a controlled cohort study without randomization, an argument can be made for its consideration as level III data.

A follow-on Ovid search of "Feeding America" led to the discovery of Seligman, et al's level III pilot project measuring the effect of diabetic food boxes on 687 diabetic food pantry participants. Seligman et al's strategy to decrease FI, specifically in a diabetic population, included supplying participants with food boxes filled with fresh fruits and vegetables, whole grain foods, and fresh dairy products. Ultimately, project implementation resulted in a decrease of hemoglobin A1c (HbA1c) from 9.52 at baseline to 9.04 after just six months[15]. Similar to Biel, Evans, and Clarke, this project supports future possibilities within the clinic group related to its improve outcomes in its diabetic population through EFAP.

Resulting from the same OVID search, Ver Ploeg, et al describes the impact of FI on a national level using throughout all demographics using National Health and Nutrition

Examination Survey (NHANES) data. This level V impact study compares and contrasts food security versus FI over race, age and social demographics. Of considerable use to program implementation, this report includes pre-post surveys provided by the USDA in order to measure community and clinic success related to SNAP and EFAP.

A related Ovid search for "SNAP" resulted in finding Nguyen, Shuval, Bertmann, and Yaroch's level V research review related to the benefits of SNAP on FI. Similar to Ver Ploeg et al, 2010 NHANES data was implemented in order to review of the benefits of SNAP on 8,333 non-pregnant adults ages 20 and older. Ultimately Nguyen, Shuval, Bertman, and Yaroch concluded that while SNAP has a beneficial outcome on FI, there still lies considerable opportunities to help alleviate the burden FI on vulnerable populations.

**Stakeholder Identification**

Three process stakeholders coordinated to create this FI process improvement initiative. A doctor of nursing practice student, a professor of nursing from a local university, and a project facilitator at the large community clinic site who specializes in quality improvement projects coordinated this project. The project facilitator was the direct link between the project process and the COO of the clinic.

The goal of implementing this process improvement initiative was to identify whether there was a need for the clinic to provide resources for clinic clients to obtain food. Depending on the need, the COO would direct attention to future initiative such as either creating an EFAP, translating the survey into the electronic medical record (EMR) and/or referring clients to local EFAP programs.

Two barriers to implementation became immediately evident. Initially, the COO predicted that 90% of the population qualified for food assistance programs and would therefore

screen positive for hunger. While this may seem an obvious reason to implement the survey and the action plan to refer patients to food security programs, it was for this reason the COO did not see a need to measure something that was predicted to affect nearly every patient in the organization. Eventually he became convinced that in the least obtaining baseline data was vital to implementing a process improvement initiative to measure its success. A second barrier to implementation was the cost of implementing the survey into the medical record. Depending on the type of EMR supported by the clinic site, changes to the EMR could cost as much as 3,600 dollars[14]. To implement the FI survey into the medical record, a cost-benefit would have to be realized or the changes would need to take place during an ongoing system change as to minimize the cost of implementation.

**Cost/Benefit Analysis**

Rates of hunger in the United States are increasing. In 2007, 12.2% of households were food insecure compared with 2015's 15.1%[18]. Conservative estimates put the cost of hunger at 542 dollars per person per year in the United States[16]. The cost of implementing this survey into the clinic was inexpensive: costing the organization a total of 200.00 (*Table 1*). Potential cost benefits for this project come not directly from this evolution in the process, but in future steps of this multi-year process improvement initiative. Hunger directly correlates with increased rates of depression, anxiety, suicide, hypertension, diabetes, hyperlipidemia, asthma and multiple associated medical conditions; the direct costs of hunger in one state was over 1.3 billion dollars in direct medical expenses[13]. Because hungry children miss more school days and have higher rates of drop out the cost of hunger on state education budgets bring a burden of nearly 300 million dollars[13]. Because the government recognizes the need to decrease hunger, programs such as EFAP and the NDP program are free or at very low cost to the community. Potential

benefits of reducing hunger surely outweigh costs.

**Table 1**
*Cost of Implementing Hunger Survey*

| **Expenditures** | **Costs** |
|---|---|
| Paper and Ink | $100.00 |
| Clerk clinical time | $100.00 |
| **TOTAL** | **$200.00** |

**Process Indicator and Data Monitoring**

Initially, the project started with multiple process indicators and outcome indicators. However, the project was cut down from its original intentions, and the resulting project was a short one-week assessment of need. Because this project only lasted one week, the process indicator and outcome indicator was one in the same: survey response. During a one-week effort at five clinic sites, 686 patients were screened for FI. Per 2015 data, there are roughly 4,133 patient encounters per week. During a one-week period in May of 2016, 686 patients, or roughly 20% of patients presenting to each of five clinic sites were screened based on projected weekly encounters.

## Results

Based on this quantitative survey, 48% of 686 patients screened positive for FI. This positive survey response directly correlates with statements in the literature which conclude that SNAP benefits are either not enough, or people who use SNAP benefits do not have access to facilities who offer diverse nutritional opportunities[16].

**Sustainability**

Because this project has been separated into three parts, it is projected to last a total of at least three calendar years before complete implementation is achieved. After which, due to its low cost and support available from the USDA, this project is projected to be highly sustainable.

Buy-in from the COO and board of directors within the organization is a work in progress. Due to the success of the one-week process improvement initiative, both the COO and board of directions do realize the potential of helping its patients find local food banks and programs to obtain food. The second step of this project would be to implement the survey into the medical record. The third part of this project will include either disseminating information about local EFAP/NDP programs or creating an EFAP/NDP site within the organization.

## Conclusions

Screening for FI affords a provider the opportunity to identify at-risk populations and provide them the resources for local FI programs. Since FI within this community clinic group is more than triple that of San Diego county, screening patients and then offering resources to at-risk populations is imperative in this population base. Alternative food assistance programs run by the USDA such as EFAP and NDP help mitigate this problem by bringing nutritious foods to food insecure neighborhoods. Literature strongly supports this project's far reaching effects on the health and wellness of a whole community.

Implementing EFAP and NDP at this clinic may prove to be a rather daunting task for a single DNP student. However, because stakeholders are interested and eager to begin this project, I feel very well supported to continue moving forward. The next step of the project is to screen patients for FI and hand fliers with local EFAP or food assistance information to patients who screen positive. Future budget analysis will include costs of the current program versus costs of staffing a food-bank versus clients impacted. Projecting further into the future, the clinic group may be able to use this project to address clinical implications. For example, a project idea may include measuring FI against the clinic population who suffers from diabetes and creating a specific plan for these patients to obtain healthy food.

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