Summer 8-10-2020

Health Ambassadors: A Model for Engaging Community Leaders to Promote Better Health

Sandra Torres
storres12@dons.usfca.edu

Health Ambassadors:

A Model for Engaging Community Leaders to Promote Better Health

Sandra Torres

University of San Francisco

Master of Public Health - Health Policy and Leadership

August 10, 2020

Table of Contents

Abstract

Obesity continues to be a growing epidemic in the United States. Individuals who live in low-income communities' face inequities in areas that continue to have adverse and long-lasting consequences. These consequences can extend from economic conditions, social support, and a lack of access to healthy eating choices and physical activity, all of which contribute to higher obesity rates. It is essential to increase opportunities for change in low-income communities and provide ongoing recommendations to policymakers to allocate resources where it is needed. This paper aims to examine a Health Ambassador model in low-income communities tailored to residents in public housing and other community settings through a community-based intervention. The proposed model focuses on healthy eating, active living, and advocacy to combat obesity in communities utilizing public housing as the appropriate setting to inform individuals and their families about the importance of nutrition, food, health, and their environment. The model effectively elevates community leaders to serve as Health Ambassadors, which in part are from the same community of residents living in public housing but not limited to this community setting. As a result, healthy behaviors that are influenced by a complex interweaving economic, social, and personal factors will be tackled through supportive behavior change. A key aspect to successfully implement this community-based intervention is to make the interventions accessible to the community. The Health Ambassador model will build on existing initiatives that encourage and assist local government and community organizations to put in place healthy eating and active living policies.

I. Introduction

Healthy eating, active living, and a supportive environment provide a foundation for improving the overall health of populations. However, the latest data from the National Health and Nutrition Examination Survey (NHANES) shows that 39.6 percent of adults and 18.5 percent of children ages 2 to 19 in America are obese. According to the State of Obesity report, it is noted that “these are the highest rates ever documented by NHANES.” Unfortunately, not all individuals have access to communities that support a healthy lifestyle and environment, thus leading to health disparities that are more evident in low-income communities.

Low-income communities, such as the ones utilizing public housing, impact the households that reside in it and residents of the surrounding community. In the United States, public housing residents are low-income individuals and predominantly racial/ethnic minorities (Bramante & Clark, 2018). Low-income and/or ethnic minority communities—already burdened with greater rates of disease, limited access to health care, and other health disparities—are also the populations living with the worst built environment conditions (Hood, 2005). The built environment can shape social norms and residential interactions that continue to influence the way people live, work, and play. This project aims to implement a community-based intervention through a Health Ambassador (HA) model to improve the knowledge and preventative health habits of individuals living in public housing, but not limited to other community settings.

Health Ambassadors

Health Ambassadors are members of the community who are committed to helping improve the health and wellness of other individuals and their community. The term Health

Ambassadors have been used in various settings and has interchangeably been compared to Community Health Workers (CHW) and/or Promotores/Promotoras. Both CHW and Promotores/Promotoras have similar definitions in which they are members of a community who are providing health knowledge to his/her community. One of the big takeaways of Health Ambassadors is empowering community residents through education and advocacy. The impact of Health Ambassadors as community leaders will develop healthier eating habits and increase physical activity to themselves, their families, and lessons can be applied in public housing across the nation. Previous studies of community-based health improvement programs have found that they are influential in changing individual behavior and health-related community policies (Lv & Liu, 2014). Health Ambassadors will be able to reduce food insecurity and obesity for low-income individuals by providing those with incomes at or below 185% of the Federal Poverty Level with compensated opportunities to build skills, increase knowledge, and influence nutrition and physical activity change in their communities.

One recommendation is to conduct peer-to-peer education at public housing sites that focus on strategies to create healthier communities. Because the HA model focuses on building individual's and communities' capacity, clear objectives and goals will be measured in short-term, medium-term, and long-term outcomes related to the community-based intervention. The HA model can be accomplished through mini-grants and incentives given to essential community partners working on policy, systems, and environmental changes from the Supplemental Nutrition Assistance Program of Education (SNAP-Ed). Also, the HA model will utilize a multi-tiered engagement model that prioritizes individuals of communities of color to conduct these interventions.

Activities to be included in this intervention will be to perform recruitment and training of property managers, extend partnerships with different entities, educational sessions on advocacy and health, a photovoice project, and a household survey. Health Ambassadors will serve as community leaders to inspire and mobilize community members to create change and take action to promote healthy eating, physical activity, improve population health, and reduce health inequities. These recommendations will enhance local community leadership capacity for Policy, Systems, and Environmental (PSE) changes in nutrition and physical activity. Addressing the root causes of poor healthy eating habits and lack of physical activity in low-income communities will help tackle the obesity epidemic.

II. Background

Obesity

Obesity continues to be an epidemic in the United States. According to the National Health and Nutrition Examination Survey currently, about one in three Americans of all ages—or more than 100 million people—are obese. Two thousand eighteen data from the Behavioral Risk Factor Surveillance System (BRFSS) show that adult obesity rates across the United States continue to climb. Individuals and families who run the risk of being obese are at increased risk of many other adverse consequences. Overweight and obesity are serious medical conditions that can cause complications such as metabolic syndrome, high blood pressure, atherosclerosis, heart disease, diabetes, high blood cholesterol, cancers, and sleep disorders (Lim & Vos, 2012). Poor diet quality is a leading risk factor associated with death and disability in the United States (Lim & Vos, 2012). Among other risk factors, a lack of exercise is a significant culprit in the obesity epidemic. The annual medical expenses related to obesity in the United States are staggering.

One recent study from Harvard's School of Public Health estimates obesity may account for as much as $190 billion annually or 21% of all U.S. medical expenses. Per capita, the cost of medical care for obese patients is estimated to be somewhere between 36% to 150% higher than for non-obese patients (Cawley & Meyerhoefer, 2012). Because obesity continues to pose a significant public health concern and financial burden, it is essential to invest in public health and preventative measures to control healthcare spending and decrease the risk of mortality. The enormity of this economic burden continues to raise national awareness for individuals, communities, states, and organizations to keep fighting the rising obesity surge.

Although all populations are at risk for obesity, some people and communities are more susceptible than others. The rates of obesity continue to rise among certain demographic groups. The overall prevalence of obesity was higher among non-Hispanic black and Hispanic adults than among non-Hispanic white and non-Hispanic Asian adults (NCHS, National Health, and Nutrition Examination Survey, 2015–2016). The disproportionate racial and ethnic disparities in obesity are prevalent and must be addressed. Residents of low-income, non-White neighborhoods have greater access to fast foods and energy-dense foods than residents in higher-income, White neighborhoods (Hager & Cockerham, 2017). Having limited access to healthy foods may result in a higher prevalence of obesity among low-income and minority populations.

In low-income neighborhoods, the distance between home and fast-food/convenience stores and the density of fast-food stores are associated with increased risk for childhood obesity (Hager & Cockerham, 2017). Also, low-income children and children of color are frequently targets of unhealthy food and beverage marketing. At the same time, their families often have less available capital to make healthy decisions about food purchases (ChangeLab Solution, 2018). The association between low-income communities and their limited access to healthy

foods cannot go unnoticed. Low-income and racial/ethnic minority populations have substantial environmental challenges to overcome to make healthy dietary choices and to maintain healthy body weight (Larson, 2009). Dietary behavior, lack of physical activity, and the lack of knowledge affect health more so in these communities.

The obesity epidemic has made it challenging to combat due to the intertwined causes of social, environmental, and governmental factors. Obesity rates continue to become a burden for individuals, families, and communities that lack support throughout their lives to make the healthy choice the easy choice. Policies that create an environment where the default option is the healthy choice should gain more traction, but unfortunately, that is not always the case. We must acknowledge the discrepancy and recognize that diet, exercise, and the environment likely play a role in the increase in obesity rates. It is essential to ensure that individuals consume a healthy diet and achieve an active lifestyle.

Public Housing

Public housing residents face significant social, economic, and physical barriers to the practice of health behaviors for the prevention of chronic disease (Bowen & Quintiliani, 2018). Public housing is limited to low-income families and individuals. Research shows that public housing residents are more likely to report higher rates of obesity, current smoking, disability, and insufficient physical activity compared to individuals not living in public housing (Bowen & Quintiliani, 2018). More than 4 million people live in public housing or project-based Section 8 housing subsidized by the U.S. Department of Housing and Urban Development (HUD). Residents of these buildings are disproportionately racial or ethnic minorities, and more than 70 percent are extremely low income (HUD, 2016) (Freeman, 2018). Various aspects of the built

environment can have profound, directly measurable effects on both physical and mental health outcomes, particularly adding to the burden of illness among ethnic minority populations and low-income communities (Hood, 2005).

The lack of sidewalks, bike paths, and recreational areas in public housing and other community settings discourage physical activity and contribute to obesity. Negative aspects of a built environment in public housing can directly impact the health of residents residing in these communities. Housing is one of the best-researched social determinants of health, and selected housing interventions for low-income people have been found to improve health outcomes and decrease health care costs (Health Affairs, 2018). The social determinants of health are the conditions in which people live and work—including income, social relationships, and education. Identifying the linkages between health and housing creates influential opportunities to improve both at the same time.

The demographics of a housing community are considered in the implementation of a community-based intervention by Health Ambassadors. A community-based intervention through a Health Ambassador model would be more productive and beneficial if residents are the ones serving as community leaders. It is essential to go to where the target population is, in this case, where they live. Public housing sites that primarily serve families can help increase knowledge and skills responsive to the needs and desires of residents. When residents are supplied with skills and education, especially for vulnerable individuals with chronic conditions, health improves, and unnecessary hospitalizations are reduced, and the nation can save money.

Neighborhood disparities in public housing sites should be explored because of their potential to influence dietary intake and obesity. Tackling the social determinant of health, and understanding of the obstacles and barriers that the residents face regularly is a great start.

Moreover, health and housing agencies need to work together, along with advocates, to ensure a community-based equitable approach to improving the health of its residents. These partnerships have been known to establish walkable communities as the new paradigm for public housing, with health and sustainability in mind. Positive changes to the built environment that help reduce health disparities can and do emerge from these partnerships (Hood, 2005).

Supplemental Nutrition Assistance Program

The Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program, is the nation's most extensive nutrition assistance program, helping feed approximately 36 million Americans each month. In 1964, the Food Stamp Act was signed by President Johnson, strengthening the agricultural economy and providing improved levels of nutrition among low-income households (USDA, 2020). By 1988, an extension to the Food Stamp program was added called Food Stamp Nutrition Education, focused on direct education in which the states would cover half of the cost of the program. And by 2004, nutrition education programs were in all 50 states. The once known Food Stamp program was changed in 2008 to what we now know as SNAP. SNAP continues to provide families with basic nutritional needs making sure no one in America goes hungry.

Supplemental Nutrition Assistance Program-Education

The Supplemental Nutrition Assistance Program-Education (SNAP-Ed) is a federally funded grant program under the United States Department of Agriculture Food and Nutrition Service. In 2010, the Healthy, Hunger-Free Kids Act was signed and had implications for SNAP nutrition education. The Act reshaped SNAP-Ed by including an emphasis on programming centered on obesity prevention in addition to nutrition education and the promotion of physical

activity (USDA, 2020). To this day we know SNAP-Ed as the nutrition education program of the Supplemental Nutrition Assistance Program (SNAP), which empowers low-income communities with the knowledge and skills they need to make healthy food choices and be physically active.

Many SNAP-Ed efforts include activities that are evidence-based and are delivered through individual, community-based strategies, multi-level interventions, and/or public health approaches. Through federal funding, activities, interventions, and strategies are possible. In FY 2017, Federal funding for the grant program to 50 participating state agencies and 3 U.S. territories totaled $414 million (USDA, 2020). The estimated allocations for the fiscal year 2021 for SNAP-Ed is totaled for $448 million. SNAP-Ed funding allows for the continual support of healthy behaviors where people live, learn, work, shop, and play to strive to serve local communities better. Federally funded programs such as SNAP and SNAP-Ed should continue to be supported and expanded to address the obesity epidemic in the United States.

The greatest concentration of Supplemental Nutrition Assistance Program–Education interventions were associated with adults and children eating more fruits and vegetables and adults eating fast food less frequently (Molitor & Sugerman, 2011-2012). Federally funded nutrition programs have attempted to improve dietary quality among children (Devries, 2009). For example, SNAP-Ed partners in Colorado have brought positive mealtime environments to childcare settings by introducing Cooking Matters for Child Care Professionals (CMCCP). CMCCP addresses the specific needs of child care providers who serve young children from limited-income families. Child care providers can provide hands-on practice in the kitchen, interactive discussions on ways to make healthy choices about the food served to kids, and education on practices to promote healthy eating behaviors in young kids. State and local governments can implement practices to improve the diet and health of their residents, which

would save an estimated $114 billion per year in medical expenses, reduced productivity, and lost lives nationwide (HEAL Cities Campaign, 2018).

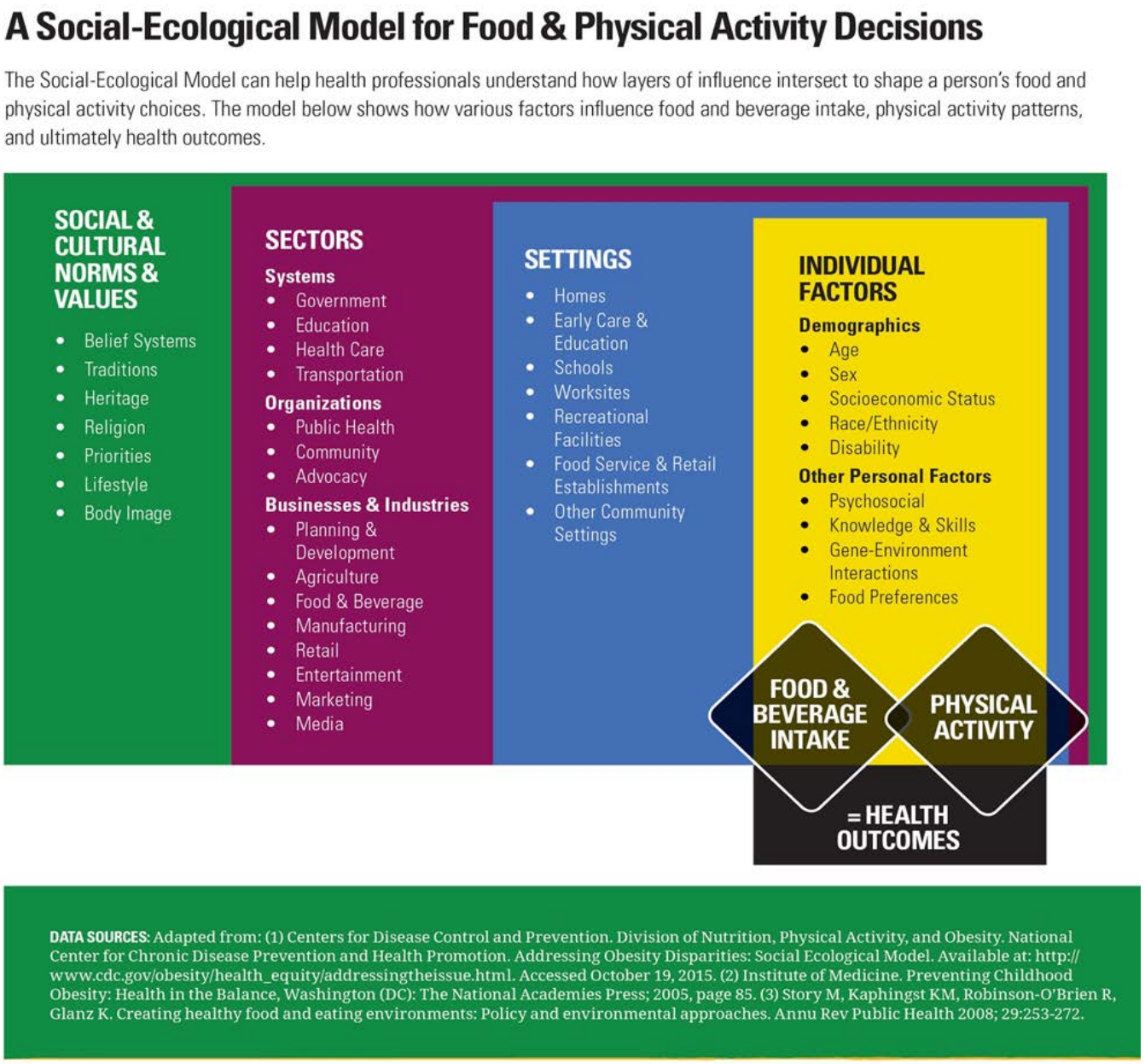
Although local, state, and federal governments have a long history of fighting the problem of obesity, without proper funding, collaboration, nutrition, and physical activity programs, sustainability will not be possible. It is critical to increasing SNAP-Ed's effectiveness through community-based interventions, which are influenced by a multi-leveled approach. That is why the Health Ambassador model is best suited to be implemented under SNAP-Ed funds and be used as a community-based intervention to support evidence-based nutrition education and obesity prevention interventions for individuals, families, and communities in public housing. Delivering the SNAP-Ed program at public housing sites creates a more resource-efficient intervention for residents.

Social-Ecological Model for Food and Physical Activity Decisions

Research suggests that practical approaches to reducing obesity may be multi-level. In the social-ecological model (SEM), multiple levels of the SEM approach should be addressed at the same time because of the interconnectedness among levels (Mahmudiono, 2019). The HA model will be delivered through partners in multiple sectors and involve activities at the individual, interpersonal, community, and societal-policy levels. The SEM will be utilized as a framework for interventions delivered by the Health Ambassadors to reach the target audience at more than one level of the SEM. The SEM exemplifies all sectors of society combined to shape an individual's food and physical activity choices, as seen in Figure 1, adapted from the Centers for Disease Control and Prevention. The multi-level approach allows intervention activities to include not only education but also environmental changes to shift norms and enable the

adoption of healthy behaviors for individuals and their communities. Through this figure, the SEM focuses on different contextual levels.

Figure 1: A Social-Ecological Model for Food & Physical Activity Decisions.



Individual/Interpersonal Level Interventions

Individual/Interpersonal level interventions are those that included individualized/one-to-one health promotion, education, advice, counseling, or subsidy and were conducted in a health care or research setting or in participant's homes (Hillier-Brown & Bambra, 2014). For instance, community health workers (CHW) is an umbrella term describing community members who assist individuals and communities in adopting healthy behaviors (Stevens & Pratt, 2017). CHWs programs can also be interpersonal level interventions. CHWs provide tailored coaching, social support, advocacy, and navigation (Kangovi, 2017). A CHW intervention combined with collaborative goal-setting led to modest improvements in diabetes, obesity, and smoking (Kangovi, 2017).

Community-Level Interventions

Community-level interventions are group-based health promotion, education, advice, counseling, or subsidy only interventions, or interventions conducted in a community setting (Hillier-Brown & Bambra, 2014). Such community-level interventions are an essential strategy for achieving population-level change. For example, Cooking Matters is a campaign and program that is helping to end childhood hunger by inspiring families to make healthy, affordable food choices. The program Cooking Matters for Adults educates low-income adults to shop for and prepare healthy meals economically using hands-on meal preparation, facilitated discussion, and participate in an interactive grocery store tour. (Pooler & Morgan, 2017). Equipping low-income families with food resource management skills allowed them to access healthier foods even during times of hardship (Pooler & Morgan, 2017).

Moreover, the Healthy Eating Active Living (HEAL) Zones are a Kaiser Permanente program designed to help make healthy choices more accessible to people in underserved

communities. It uses a mix of evidence-informed strategies through community capacity building, such as increasing referrals and coordination between clinics and community resources and programs. In addition, the Healthy Eating Active Living Zones design targeted places and people through policy, environmental, and programmatic strategies (Cheadle, 2018). The strategy included health target areas where physical activity, sugar-sweetened beverage (SSB) consumption, fruit, and vegetable consumption, and healthy food (Cheadle, 2018) were evident. The efforts of a community-level intervention are essential to sustain strategies and make changes in the future. Community efforts in a HA model will focus on supporting healthy eating and active living in public housing settings and others.

Societal-Policy Level Interventions

Societal-policy level interventions are macro-level policies such as taxation, advertising restriction, or subsidies (Hillier-Brown & Bambra, 2014). The majority of obesity interventions address clinical, behavioral, or educational issues; little attention is paid to environmental factors. Interventions targeting the environment of public housing developments can assist residents in changing unhealthy behaviors and can reduce the high levels of chronic disease among public housing residents (Bowen & Quintiliani, 2018). An example of a societal-policy level intervention is when San Francisco Supervisor Scott Wiener introduced legislation that required all advertisements for sodas and sugar-sweetened beverages in San Francisco to have a health warning that reads "WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay (Perry, 2015).

Moreover, providing incentives for programs to increase the number of supermarkets or farmers' markets in underserved populations and/or expand healthy food offerings in corner stores (Perry, 2015) is a societal-policy intervention. Defaults in the food environment can

influence the selection and consumption of food. Policy interventions that change defaults are the swiftest and most effective way of producing change. Along with encouraging more supermarkets, farmers' markets, or other sources of affordable healthy foods to operate in underserved communities through zoning, land-use planning, and community development efforts (Perry, 2015).

III. Recommendations

The Health Ambassador Model

The Health Ambassador Model is a community-based intervention composed of residents serving as community leaders who reside in public housing but are also applicable to other community settings and/or sites. The HA model that is being proposed in these community settings, such as public housing sites, will provide individuals, families, and the community a safe and supportive environment. Along with various growth opportunities, including activities and experiences that promote personal, social, monetary, and health consciousness growth. The HA model will utilize a multi-tiered engagement model that prioritizes adults living in public housing communities to build capacity as community leaders in their communities. This HA model differs from other models and strategies due to its added focus in advocacy at the community level. The model focuses on decreasing obesity, increasing physical activity, increasing nutrition education, and developing leaders among residents of public housing through a variety of sessions. Sessions and training will be conducted in a culturally appropriate manner based on community needs, utilizing a SNAP-Ed approved evidence-based curriculum.

To effectively implement such a model, effective communication to all stakeholders involved is necessary for promoting public health intervention in populations that experience

cultural and communication barriers. Health Ambassadors will act as a crucial bridge to effectively reach their community by providing a better understanding of their residential environments, including aspects that might shape health. Because Health Ambassadors are residents of public housing serving as community leaders of their community, they have a deeper understanding of the challenges residents may face regarding health disparities in public housing. By educating through example and modeling the behavior change, Health Ambassadors can communicate with their peers through their insights and knowledge of cultural norms, thus establishing trusted relationships within their community.

Residents that complete the training to become Health Ambassadors in their communities will be compensated for completing program deliverables such as conducting subsequent sessions with residents of public housing communities. One of the deliverables will be to do a photovoice activity to provide a voice for individuals, families, and communities who want to be listened to. Communities change when change is called upon by the people who live in them. Photovoice is participatory action research (PAR) and evaluation method developed to engage people to deepen their understanding of an issue and to share their stories with others, individuals, and groups who might not typically hear them. More specifically, PAR aims to improve health and reduce health inequities by involving the people who, in turn, are empowered by this process to take action to improve their health and that of their community. This method and activity will be included in the HA model to get information and data to work on efforts to make community change. A photovoice will instill critical consciousness among the community to educate elected officials to support healthy eating and active living.

Lastly, the scale of this model will require cross-collaboration of state and local government, community-based organizations, public housing managers, academic institutions,

and others to improve diet and increase levels of physical activity. Through cross-collaboration Health Ambassadors will be able to be effective liaisons between these partnerships. The ability to leverage and build confidence among residents and collaborate with multiple local and state partners is essential in implementing the Health Ambassador model.

Evaluation Plan

The evaluation plan to be used in the Health Ambassador model aims to measure short-term, medium-term, and long-term outcomes related to the community-based intervention. This intervention seeks to build local capacity to implement Policy, Systems, and Environmental (PSE) changes for nutrition and physical activity in low-income communities throughout California. This project aims to test the external validity of a SNAP-Ed intervention, such as the one proposed in this paper with diverse populations in California by using an ecological approach (Molitor & Sugerman, 2011-2012).

The SNAP-Ed Evaluation Framework will be utilized for evaluation with a focus on individual, environmental, and social and cultural norms and values indicators, as seen in Figure 2, adapted by SNAP-Ed Connection and the United States Department of Agriculture.

Figure 2: SNAP-Ed Evaluation Framework, Nutrition, Physical Activity, and Obesity Prevention Indicators.

SNAP-ED EVALUATION FRAMEWORK

Nutrition, Physical Activity, and Obesity Prevention Indicators

	READINESS & CAPACITY SHORT TERM (ST)	CHANGES MEDIUM TERM (MT)	EFFECTIVENESS & MAINTENANCE LONG TERM (LT)
INDIVIDUAL 	GOALS AND INTENTIONS ST1: Healthy Eating ST2: Food Resource Management ST3: Physical Activity and Reduced Sedentary Behavior ST4: Food Safety	BEHAVIORAL CHANGES MT1: Healthy Eating MT2: Food Resource Management MT3: Physical Activity and Reduced Sedentary Behavior MT4: Food Safety	MAINTENANCE OF BEHAVIORAL CHANGES LT1: Healthy Eating LT2: Food Resource Management LT3: Physical Activity and Reduced Sedentary Behavior LT4: Food Safety
ENVIRONMENTAL SETTINGS EAT, LIVE, WORK, LEARN, SHOP, AND PLAY 	ORGANIZATIONAL MOTIVATORS ST5: Need and Readiness ST6: Champions ST7: Partnerships	ORGANIZATIONAL ADOPTION AND PROMOTION MT5: Nutrition Supports MT6: Physical Activity and Reduced Sedentary Behavior Supports	ORGANIZATIONAL IMPLEMENTATION AND EFFECTIVENESS LT5: Nutrition Supports Implementation LT6: Physical Activity Supports Implementation LT7: Program Recognition LT8: Media Coverage LT9: Leveraged Resources LT10: Planned Sustainability LT11: Unexpected Benefits
SECTORS OF INFLUENCE 	MULTI-SECTOR CAPACITY ST8: Multi-Sector Partnerships and Planning	MULTI-SECTOR CHANGES MT7: Government Policies MT8: Agriculture MT9: Education Policies MT10: Community Design and Safety MT11: Health Care Clinical-Community Linkages MT12: Social Marketing MT13: Media Practices	MULTI-SECTOR IMPACTS LT12: Food Systems LT13: Government Investments LT14: Agriculture Sales and Incentives LT15: Educational Attainment LT16: Shared Use Streets and Crime Reduction LT17: Health Care Cost Savings LT18: Commercial Marketing of Healthy Foods and Beverages LT19: Community-Wide Recognition Programs

POPULATION RESULTS (R)

TRENDS AND REDUCTION IN DISPARITIES

R1: Overall Diet Quality
R2: Fruits & Vegetables
R3: Whole Grains
R4: Dairy
R5: Beverages
R6: Food Security
R7: Physical Activity and Reduced Sedentary Behavior
R8: Breastfeeding
R9: Healthy Weight
R10: Family Meals
R11: Quality of Life

CHANGES IN SOCIETAL NORMS AND VALUES

APRIL 2016

Evaluation questions must be established on these indicators to determine which ones will be utilized. Individual indicators must ask, to what extent does the SNAP-Ed programming improve and sustain participants' dietary and physical activity behaviors. In environmental indicators, to what extent does the SNAP-Ed programming create and sustain access for improved dietary and physical activity choices in various community settings. Lastly, social and cultural norms and values, to what extent do community-level obesity prevention strategies such as the HA model impact lifestyle choices, values for healthy living, and the public's priorities.

At both individual and environmental setting levels in the SNAP-Ed evaluation framework, the HA model will evaluate readiness and capacity, changes, and effectiveness and maintenance, which are short-term (ST), medium-term (MT), and long-term (LT) indicators. The 51 indicators in the framework represent the consideration, and collaboration of the HA model to plan, deliver, and evaluate effectively. At the individual level, these indicators will be ST1/MT1: Healthy Eating and ST3/MT3: Physical Activity and Reduced Sedentary Behavior. They evaluate the individual's intentions and goals that serve as motivators to behavior changes recommended in a one time or multiple class setting—the indicators at this level focus on improving nutrition, stretching food dollars, and increasing physical activity. The Health Ambassadors will administer the survey between sessions that offer nutrition and physical activity education lessons.

Through environmental settings, the HA model will evaluate for ST5 (Need and Readiness for PSE). It will be a two-part indicator that measures sites or organizations where there is identified a need for PSE changes and associated organizational, and staff readiness for adopting PSE changes have been assessed. For ST5, property managers generally oversee housing sites and can provide information on the site's resources and facilities to develop a

partnership with outside organizations in addressing environmental needs around eating, learning, living, playing, shopping, or working categories. Moreover, indicator ST6 (Local Champions): Local champions provide sustained and often charismatic leadership that successfully advocates for, create the appeal of or improves access to nutrition and physical activity in various organizations or environmental settings. Health Ambassadors will be interviewed to describe examples of their activities, accomplishments, and benefits to the site, organization, or community. Areas of improvement will also be identified. In this particular indicator, Health Ambassadors and community residents will be recognized, thanked, and celebrated for their efforts in contributions of SNAP-Ed work. Also, documentation of this indicator will be established through working with other community leaders and decision-makers to advance policies and best practices in public health through advocacy by the Health Ambassadors and residents.

In addition, ST7 (Organization Partnerships) are partnerships with service providers, organizational leaders, and SNAP-Ed representatives in settings where people eat, learn, live, play, shop, and work. This indicator measures active partnerships in SNAP-Ed qualified sites or organizations that regularly meet, exchange information, and identify and implement mutually reinforcing activities. Program administrators of the Health Ambassador model will use a qualitative approach by interviewing and meeting with residents and community leaders at each collaborative site to describe the depth of the relationship, partnership accomplishments, and lessons learned. Furthermore, this includes measuring through key informant interviews with nonparticipating members to identify partnership activities and outcomes.

Lastly, LT1 (Healthy Eating Behaviors Maintenance) and LT3 (Physical Activity and Reduced Sedentary Behavior): are long-term indicators that inform whether SNAP-Ed

participants continue to demonstrate targeted behavioral changes even after graduating from a direct education program. LT1 and LT3 measures which healthy eating behaviors and/or other behaviors are sustained at a minimum of 6 months post-intervention. The maintenance stage of the Transtheoretical (Stages of Change) Model lasts from 6 months to 5 years. Health Ambassadors will be responsible for follow-up information regarding resident participation in training and sessions. Health Ambassadors will be able to reach residents through telephone, mail, email, or face-to-face survey for follow-up.

Funding

More specifically, funding for the proposed intervention would come from formula-based funding by meeting SNAP-Ed guidance requirements. The SNAP-Ed program through the California Department of Social Services (CDSS), known as CalFresh Healthy Living (CFHL) in California, promotes the consumption of California grown fruits and vegetables. It empowers communities to realize that access to healthy food is a right, not a privilege. The CalFresh Healthy Living funding aids community-based organizations, and community leadership programs emphasize working in communities of color to reduce health disparities and address food justice issues. There have been numerous programs that have been funded through the CDSS and CFHL, which relate to healthy-food-access.

The Rollin' Root is operated by the Agricultural Institute of Marin (AIM), a Bay Area non-profit, which has been funded by CDSS and CFHL. Similar to the HA model that is being proposed, the Rollin' Root is a healthy-food-access pilot project that pairs Rollin' Root's food-access strategy with in-person nutrition tips, using the Food Smarts curriculum as a guide targeting older adults. The Rollin' Root mobile farmers' market aims to increase access to fresh,

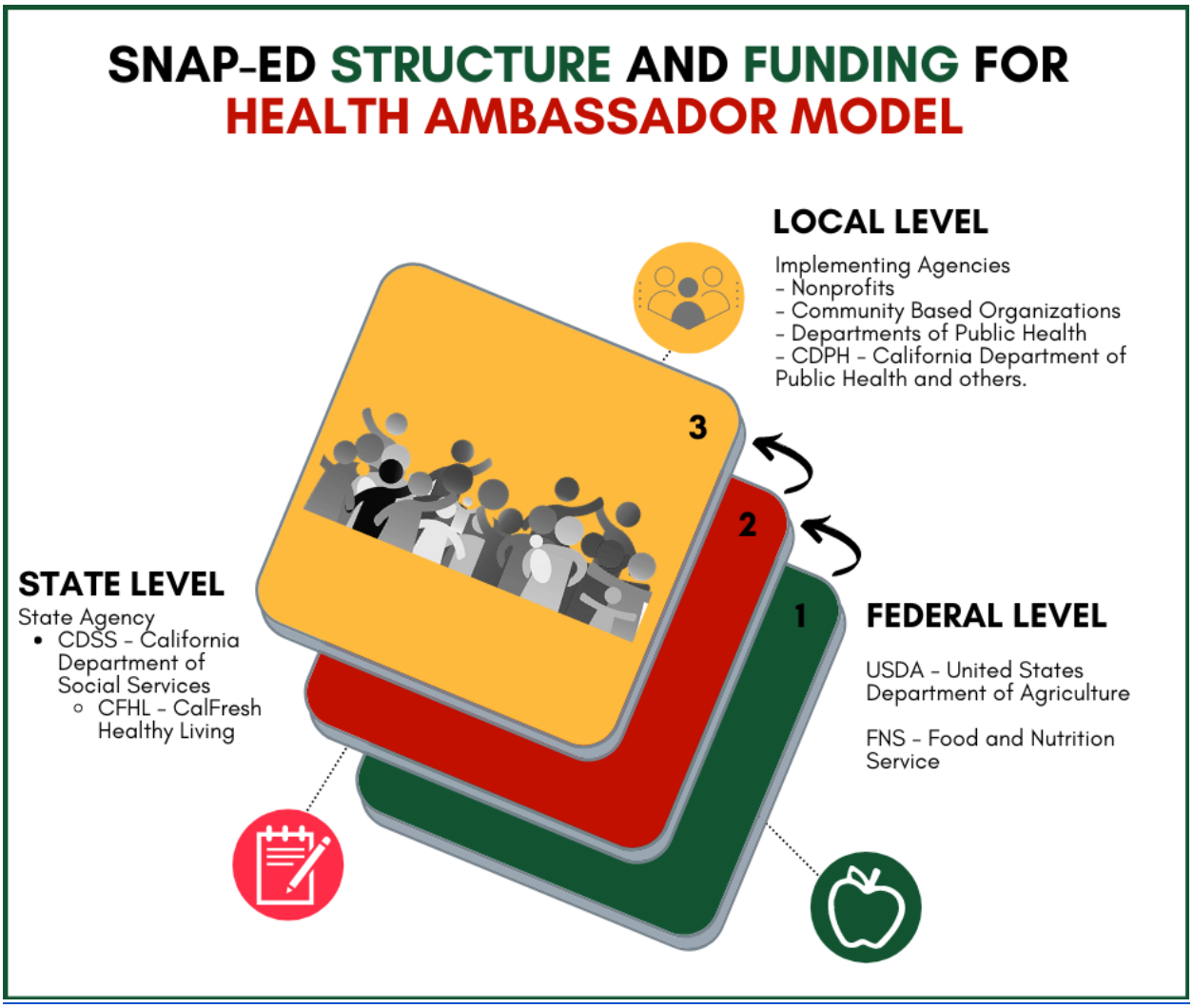
locally grown produce and nutrition education for low-income seniors. The Rollin' Root is a mobile, refrigerated food truck serving communities that experience economic and transportation barriers to healthy food by bringing fresh, affordable produce to older adults where they live. The Rollin' Root includes marketing and community engagement among its activities, recruiting and training senior ambassadors, who are "local champions" for the Rollin' Root. The Senior Ambassadors receive compensation to support day-of pop-up activities on mobile market days while also informing their fellow residents and community members of the Rollin' Root's operations and nutrition tips. The Rollin' Root is an excellent example of how the HA model will be funded.

The CalFresh Healthy Living Funding is unique as it is the most extensive nutrition education program in the United States. It offers critical resources and budget-conscious strategies for healthful eating and staying physically active. According to the California SNAP-Ed 2019 Annual Report, there were over 13,713 direct education interventions across 3,485 sites, and 432,863 direct education participants reached. It is essential to recognize that funding at this level is possible by working directly with CDSS, State Implementation Agencies such as CFHL, and organizational partners at all levels to develop and implement programming that target community needs. Although the funding mentioned is mainly focused under California programming, the HA model intends to expand nationwide using similar funding sources.

For the HA model to receive the funding, it is essential to build relationships with organizations already engaged and involved in nutrition and physical activity projects and/or programs. Resources are scarce, and many communities that engage in these efforts require private investment, grants, and public funds to implement their programs (Lv & Liu, 2014). A

structure and funding model has been created to showcase how federal SNAP-Ed dollars are disseminated to state and local agencies to implement this work in Figure 3.

Figure 3. SNAP-Ed Structure and Funding for Health Ambassador Model



Logic Model and Diagram of the Process

To capture the scope of health and economic impact of the Health Ambassador model, a logic model has been created and presented to inform program evaluation and serve as a model of the assessment of other efforts. The logic model will capture the goals of the community-

based Health Ambassador model and the program's expected outcomes, which are staged in short, medium, and long-term impacts, Figure 4.

Figure 4. Logic Model Health Ambassador Model

LOGIC MODEL- Health Ambassador Model

RESOURCES

- Funding from Partners
- Evaluation Team
- Policymakers engaged
- Leverage funding
- Health Ambassador Applicants from a public housing setting

PARTICIPANTS

- Apartment Managers
- Community Members
  - Public housing residents
- Community Based Organizations and/or Non-profit organizations
- Government, State, and local agencies

ACTIVITIES

- Develop, assess, and implement strategies for Health Ambassador participation and launch
- Provide technical assistance to health ambassador applicants and resident participants

OUTPUTS

- Applicants processed
- Loans and grants are distributed
- Leverage additional resources and funds
- Expand program in underserved communities such as those in public housing

SHORT TERM OUTCOMES

- PSE Change: Increased knowledge and access to healthy foods and physical activity
- Compensation opportunity in economically distressed areas
- Bolstered community retention

MEDIUM TERM OUTCOMES

- Behavior Change: Improved Dietary Quality and increase physical activity participation
- Improved community perception of neighborhood and needs
- Improved nutritional quality of consumption

LONG TERM OUTCOMES

- Improved Health Outcomes: Improved community health of residents in the public housing setting.
- Improved diets of residents after sustained behavior at a minimum of 6 months post-intervention.

Also, a diagram of the process identifying community and capacity for the community-based Health Ambassador model is essential in understanding the relationships among the stakeholders involved, Figure 5. The value of identifying community and capacity is in the actions that will be in place to improve the community. The HA model, a community-based intervention, will be based on what the community has to work with and can include strengthening current partnerships as seen on the diagram and developing new ones as well. . It is important to note that without the property managers, the HA model cannot be implemented physically in the public housing setting. The power of cross-sector collaboration between the Health Ambassadors and property managers are the vehicle for promoting the health and well-being of residents of public housing. This diagram allows for new ways to bring groups and organizations together to learn about each other's capacity and collaborate more effectively.

Figure 5. Identifying Community and Capacity

IDENTIFYING COMMUNITY AND CAPACITY

are representatives that are passionate about access to healthy food in their neighborhoods. These are powerful partners.

will promote healthy eating and active living as trusted advocates in their community for the implementation of policy, systems, and environmental changes in public housing settings but not limited to other community settings.

will offer research based assistance in design and evaluation of the HA model.

will seek out funding resources and grant opportunities for HA model implementation at underserved communities.

will connect with stakeholders and assist with marketing a public health approach to food accessibility work and physical activity opportunities.

will be engaged to establish partnerships. For example, corner stores may be encouraged to sell healthier products and parks and recreation facilities will be encouraged to improve access to physical activity in the communities.

*HA (Health Ambassador)

IV. Implications

Cost-Effectiveness

The growing interest in a Health Ambassador model is fueled in part by expected cost savings. Research has shown similar Health Ambassador initiatives to be cost-effective such as Community Health Worker programs and/or Promotoras initiatives. In 2018, MHP Salud's Community Health Worker led cancer prevention program, demonstrated a return on investment (ROI) of $3.16 for every $1 spent and a program for Medicaid-eligible adults, instated by the Molina Health Care System of New Mexico, reported a $4 return for every $1 invested. ("Community Health Workers and Return on Investment," 2017). Positive ROI results from Community Health Worker-led programs contribute to the evidence of their success as an effective means to improve the quality of healthcare services while controlling health spending ("Community Health Workers and Return on Investment," 2017). MHP Salud has determined a return on investment (ROI) of $2.19-3.09 for every $1 invested in its healthy community programs. This cost-savings demonstrates the adaptability of the CHW-model to address a variety of health challenges in communities, while also having a positive economic impact ("Community Health Workers and Return on Investment," 2017).

Also, numerous projects using the Promotora/CHW model have sought to improve health outcomes and increase access to needed care across the United States during the last ten years (Capitman, 2019). Researchers compared health-service utilization rates, including hospitalizations, emergency department use, and Medicaid costs of individuals served by CHWs with a control group. They found that each client served by a CHW cost an average of $2,700 less per year than clients in the comparison group. The researchers projected a savings of

approximately $50,000 per year for each CHW hired on the program administration cost assuming each CHW has an average caseload of 30 clients (Ro, Treadwell, Northridge, 2003). The Kentucky CHW Homeplace Project also demonstrated a savings of $935,000 over one year to Kentucky's health care system due largely to the CHWs success in preventing clients from being admitted into nursing homes and hospital emergency departments (Ro, Treadwell, Northridge, 2003).

Moreover, A lifetime cost-effectiveness analysis from a societal perspective was conducted to estimate the costs, health gains, and cost-effectiveness (dollars per quality-adjusted life-year [QALY] gained, relative to no intervention) of seven public health interventions to promote physical activity in a simulated cohort of healthy U.S. adults stratified by age, gender, and physical activity level (Roux, 2008). Cost-effectiveness ratios ranged between $14,000 and $69,000 per QALY gained, relative to no intervention (Roux, 2008). All of the evaluated physical activity interventions appeared to reduce disease incidence, to be cost-effective, and—compared with other well-accepted preventive strategies—to offer good value for money (Roux, 2008). For the Health Ambassador model, it is essential to understand that the cost-effectiveness of this program will be based on the individual/interpersonal level of interventions.

Policy, System, and Environmental (PSE) Changes

Policy, System, and Environmental (PSE) Change strategies are ways of modifying the environment to make healthier choices more practical to the community. A significant impact can be made through PSE change with little time and resources through the shaping of physical landscapes and/or changing laws. By changing PSE's, communities can tackle health issues related to obesity, diabetes, cancer, and other chronic diseases. Policy, systems, and

environmental change approaches seek to go beyond programming and into the systems that create the structures in which we work, live, and play. These approaches often work hand-in-hand where, for example, and environmental change may be furthered by a policy or system change (Health Trust, 2012). For example, changing local zoning ordinances so that corner markets can display produce outdoors, changing community park laws to allow fruit trees, passing a law allowing residents to plant community gardens in vacant lots, farm to school programs, expanding the availability of healthy food choices in restaurants or cafeterias, and charging higher prices for less healthy products to decrease their use. Also, understanding that individual, community, and policy levels are equally crucial for the success of the Health Ambassador model.

Individual /Interpersonal Level

At the individual level, the Health Ambassador model will offer nutrition and physical activity education for adults living in low-income communities, preferably in public housing but not limited to other community settings. The HA model provides skill-building experiences, knowledge, and social support to promote dietary and physical activity self-efficacy and goal attainment. The SNAP-Ed funded curriculum that is to be used by the Health Ambassadors empowers adults living in low-income communities with the tools and knowledge needed to make healthier eating choices on a limited budget and increase physical activity. Through the Health Ambassador model residents share and learn ideas for healthier eating and being physically active, residents change their shopping habits, preparation methods, and food choices to be healthier. Poor decision-making on the part of community members, lack of education, economic conditions, and the food environment are all causes of health problems that the Health Ambassador Program hopes to address. A range of factors influences decisions about behaviors

in many cases. Factors, including the norms of society and the physical environment all, can affect an individual's choice of where they live, learn, work, eat, play, and shop. It is suggested that the best available international evidence indicates that some individual and community-based interventions may be effective in reducing socio-economic inequalities in obesity among adults in the short term (Hillier-Brown, 2014).

Community Level

The Health Ambassador model is seeking to achieve the most change in a community-level intervention. At the community level, stakeholders, local and state governments, community-based organizations, and community advocates will work in communities with the greatest need for healthy food access, nutrition, and physical activity information. By focusing more intensely on target neighborhoods such as public housing and/or other low-income communities, a more concentrated and comprehensive approach will lead to positive outcomes and impacts for residents. The Health Ambassador model hopes to increase capacity and maximize existing resources to help communities in need.

Through collaboration and partnerships, the program will be able to provide a platform to find the solutions needed in these communities. The Health Ambassador model will bring together multiple partnerships that focus on food and physical activity to address other social determinants of health, such as housing, transportation, employment, food access, and more. A community-level approach benefits a diverse range of individual health outcomes and behaviors, as well as health and societal systems. In addition, the Health Ambassadors will aim to improve health and reduce health inequities by involving the people who, in turn, are empowered to take action to improve their health and that of their community.

Interventions that are led to a community level environment work well with multi-components that also involve individual and environmental change strategies. Because the Health Ambassador model is more complex, there is a need to move beyond single interventions and outcomes. The most efficient interventions occurred at the community level, whenever the intervention was permanent or maintained for long periods and relied on the continuous education of community health workers that had constant interference inside the population covered (Machado, A. P., 2016). Various levels of interventions at a community-level will be suggested; this will include educational and advocacy strategies that involve not only the individual but families, organizations, and other networks. For example, the effectiveness of a community-based breast cancer education intervention among understudied populations in the New York State (NYS) Capital Region by assessing and comparing baseline and post-education breast cancer knowledge (Yi, Jenny K. 2005). This community-based education intervention was effective in increasing breast cancer knowledge among demographically diverse groups with low levels of baseline knowledge in the NYS Capital Region (Yi, Jenny K. 2005).

Policy Level

Policies that tackle obesity provide an essential opportunity to improve health, for lower-income individuals, who tend to have less access to healthy food as well as a higher risk for obesity compared to other individuals. At the policy level, state and local governments often implement policy interventions for obesity prevention and control. Policy decisions and approaches include fiscal measures, advocacy at a legislative level, taxations, and regulatory oversight. It is challenging to make healthy choices when there are barriers in your community. Implementing policies to improve the built and social environments can support residents to eat well and be active. Through the HA model, the ability to enhance opportunities for physical

activity participation is achievable through existing initiatives. For example, improving conditions for walking by building sidewalks, installing crosswalks, and taking other pedestrian-safety measures—as residents engage in more physical activity when their neighbors have sidewalks (Krahnstoever, 2019).

Also, a policy can be maintained and expanded to other unhealthy foods to reinforce community-level interventions to address healthy eating. Creating policies that make healthy beverages the default, such as through vending-machine rules or food-service guidelines, can reduce an individual's consumption of sugary drinks. Establishing healthy beverage options in vending machines in community rooms in public housing is another option that the Health Ambassadors can approach. Adaptation of a policy level intervention sets the context of widespread change. Also, other suggestions may include for Health Ambassadors to advocate for zoning laws that incentivize healthy food outlets to open stores in underserved neighborhoods and that restrict fast-food and other outlets that sell primarily unhealthy food (Cooksey-Stowers, 2019).

Behaviors and conditions may be shaped by the built and social environments in which people live in. An environmental level diet and physical activity intervention targeting obesity among urban public housing developments were conducted. The data provide initial support for the idea that interventions targeting the environment of public housing developments can assist residents in changing unhealthy behaviors and can possibly reduce the high levels of chronic disease among public housing residents. (Bowen & Quintiliani, 2018). Today, health care policymakers and other public health professionals frequently need programmatic cost data to make wise decisions in the allocation of scarce resources (Mirambeau, 2013). More research is

needed in assessing program costs from the public health perspective as a way of providing necessary economic information for improving the effectiveness of that system.

Cross-Level/Multi-Level

Activities that collaborate with local, state, regional, and national partners will maximize impact. HA model intervention activities should include not only educational systems but environmental changes to shift norms and enable the adoption of healthy behaviors within communities. For example, Health Ambassadors will solidify their partnerships within the public housing setting to teach a SNAP-Ed evidence-based approved curriculum to residents, while advocating with residents' environmental changes in their communities. Environmental changes, such as establishing a food garden, healthier vending machine options, start a food bank site, invite mobile markets, or start a summer meal program for children, are ideas that could be encouraged. Changes can occur within a community and across organizations to promote healthy behaviors.

Impacts of Programmatic Next Steps

To support and efficiently implement the HA model in public housing settings, it is crucial (1) to decide on SNAP-Ed approved curriculum for the Health Ambassadors training and sessions, (2) develop supplemental materials that would most adequately support Health Ambassadors and resident learning, (3) to identify bicultural, bilingual program staff to ensure high program completion outcomes and strong engagement post-training, (4) to determine the contracting process, (5) quantitative data collection methods, and (6) assure that the comprehensive evaluation plan factors in literacy levels and language access, and (7) to be mindful of unexpected staff changes if they were to occur.

Limitations

The Health Ambassador model primarily focuses on the recruitment of adults who live in public housing sites. The majority of adults living in public housing sites who become Health Ambassador and/or participants are members of a targeted population and share many social, cultural, and economic characteristics. Also, one of the eligibility requirements is that participants be individuals living in public housing and/or a similar community setting. The advantages of using residents who are already living in public housing are because they can provide insight into the common barriers of healthy eating and active living that are available to affected individuals. One limitation of the HA model is self-reported data collected by the Health Ambassadors, which may also have been subject to socially biased responses.

V. Conclusion

The gaps that will be addressed through a community-based intervention is understanding the value of healthy and supportive housing. It is essential to identify evidenced-based programs that feature promising practices for enhancing community development within public housing. Some of the critical challenges in implementing a community-based intervention approach are the lack of agencies coming together to combat the issues of health at public housing communities. Building coalitions among stakeholders would lead to the highest chance of addressing health disparities in these communities. Identifying how to increase financial leverage to achieve long term sustainability effectively is essential.

There is a growing consensus among public health organizations about features of housing programs that foster healthy social, emotional, and knowledgeable development for adults and families in these communities. In examining the literature that is on innovative models

in health and housing, cross-sector collaboration is crucial in addressing broader community health needs and the social determinants of health. Cultural sensitivity is essential, especially when discussing diet and language in public health activities. Understanding that the residents are the experts needs to be recognized. A policy component will eventually need to be addressed to achieve long-term impacts effectively.

Moreover, the Health Ambassador model will focus on building advocacy for changes in the built environment on the community level. Sustaining the Health Ambassador model is ultimately a community decision that required long-term commitment to funding and staffing dedicated to driving the implementation. Being healthy is not just about individual choices; a continued investment of both time and monetary resources in the Health Ambassador model would further support community-led solutions that address the issues of food insecurity and obesity. Leveraging residential settings as places that naturally connect people via a common address is crucial for the success of this model. Lastly, by introducing healthy eating habits, physical activity, and advocacy knowledge to low-income communities in public housing, you establish an effective method to combat obesity amongst individuals, families, and the community.

References

A study for the California Center for Public Health Advocacy. (2009, July). The Economic Costs of Overweight, Obesity, and Physical Inactivity Among California Adults— 2006. Https://Saferoutescalifornia.Wordpress.Com/. https://saferoutescalifornia.files.wordpress.com/2012/06/costofobesity_brief.pdf

Bramante, C. T., Clark, J. M., & Gudzune, K. A. (2018). Access to a scale and self-weighing habits among public housing residents. *Clinical obesity, 8*(4), 258–264. https://doi.org/10.1111/cob.12255

Bowen, D. J., Quintiliani, L. M., Bhosrekar, S. G., Goodman, R., & Smith, E. (2018). Changing the housing environment to reduce obesity in public housing residents: a cluster-randomized trial. BMC public health, 18(1), 883. https://doi.org/10.1186/s12889-018-5777-y

Capitman, John A., Gonzalez, Alicia, Ramirez, Mariana, Pacheco, Tania L., (2009). The Effectiveness of a Promotora Health Education Model for Improving Latino Health Care Access in California's Central Valley: Results from Central Valley Health Policy Institute. http://www.fresnostate.edu/chhs/cvhpi/documents/cms-final-report.pdf

Cawley J, Meyerhoefer C. The medical care costs of obesity: an instrumental variables approach. J Health Econ. 2012; 31:219-30.

Cheadle, A., Atiedu, A., Rauzon, S., Schwartz, P. M., Keene, L., Davoudi, M., Spring, R., Molina, M., Lee, L., Boyle, K., Williamson, D., Steimberg, C., Tinajero, R., Ravel, J., Nudelman, J., Azuma, A. M., Kuo, E. S., & Solomon, L. (2018). A Community-Level Initiative to Prevent Obesity: Results From Kaiser Permanente's Healthy Eating Active Living Zones Initiative in California. *American journal of preventive medicine, 54*(5 Suppl 2), S150–S159. https://doi.org/10.1016/j.amepre.2018.01.024

Community Health Workers and Return on Investment. (2017). Retrieved from

https://mhpsalud.org/programs/community-health-workers-roi/

Cooksey-Stowers K, Schwartz MB, and Brownell KD. “Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States.” International Journal of Environmental Research and Public Health, 14(11): 1366, 2017. https://www.mdpi.com/1660-4601/14/11/1366 (accessed July 23, 2019).

D. Blumenthal and S. Seervai, "Rising Obesity in the United States Is a Public Health Crisis," *To the Point*, the Commonwealth Fund, Apr. 24, 2018. (https://www.commonwealthfund.org/blog/2018/rising-obesity-united-states-public-health-crisis)

Freeman, A., Li, T., Kaplan, S., Ellen, I., Young, A., Rubin, D., . . . Doran, K. (2018). A Pilot Community Health Worker Program in Subsidized Housing: The Health Housing Project. Cityscape, 20(2), 19-38. Retrieved July 10, 2020, from www.jstor.org/stable/26472165

Hager, E. R., Cockerham, A., O'Reilly, N., Harrington, D., Harding, J., Hurley, K. M., & Black, M. M. (2017). Food swamps and food deserts in Baltimore City, MD, USA: associations with dietary behaviors among urban adolescent girls. *Public health nutrition*, *20*(14), 2598–2607. https://doi.org/10.1017/S1368980016002123

Hillier-Brown, F. C., Bambra, C. L., Cairns, J. M., Kasim, A., Moore, H. J., & Summerbell, C. D. (2014). A systematic review of the effectiveness of individual, community, and societal-level interventions at reducing socio-economic inequalities in obesity among adults. *International journal of obesity (2005)*, *38*(12), 1483–1490. https://doi.org/10.1038/ijo.2014.75

Hood E. (2005). Dwelling disparities: how poor housing leads to poor health. *Environmental health perspectives*, *113*(5), A310–A317. https://doi.org/10.1289/ehp.113-a310

"Housing And Health: An Overview Of The Literature, " Health Affairs Health Policy Brief, June 7, 2018.DOI: 10.1377/hpb20180313.396577.

QuickStats: Number* of Youths Aged 2-19 Years and Adults Aged ≥20 Years with Obesity† or Severe Obesity§ - National Health and Nutrition Examination Survey, 2015-2016. (2018). MMWR. Morbidity and mortality weekly report, 67(34), 966. https://doi.org/10.15585/mmwr.mm6734a7

Kangovi, S., Mitra, N., Grande, D., Huo, H., Smith, R. A., & Long, J. A. (2017). Community Health Worker Support for Disadvantaged Patients With Multiple Chronic Diseases: A Randomized Clinical Trial. *American journal of public health*, *107*(10), 1660–1667. https://doi.org/10.2105/AJPH.2017.303985

Kim, K., Choi, J. S., Choi, E., Nieman, C. L., Joo, J. H., Lin, F. R., Gitlin, L. N., & Han, H. R. (2016). Effects of Community-Based Health Worker Interventions to Improve Chronic Disease Management and Care Among Vulnerable Populations: A Systematic Review. American journal of public health, 106(4), e3e28. https://doi.org/10.2105/AJPH.2015.302987

Larson NI, Story MT, Nelson MC. Neighborhood environments: disparities in access to healthy foods in the U.S. Am J Prev Med. 2009;36(1):74-81. doi:10.1016/j.amepre.2008.09.025

Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2224–60.

Lee-Kwan SH, Moore LV, Blanck HM, Harris DM, Galuska D. Disparities in State-Specific Adult Fruit and Vegetable Consumption — United States, 2015. MMWR Morb Mortal Wkly Rep 2017;66:1241–1247. DOI: http://dx.doi.org/10.15585/mmwr.mm6645a1external icon

Lv J , Liu QM , Ren YJ , He PP , Wang SF , Gao F, et al. A community-based multi-level intervention for smoking, physical activity, and diet: short-term findings from the

Community Interventions for Health programme in Hangzhou, China. J Epidemiol Community Health. 2014;68(4):333– 9.

Mahmudiono, T., Segalita, C., & Rosenkranz, R. R. (2019). Socio-Ecological Model of Correlates of Double Burden of Malnutrition in Developing Countries: A Narrative Review. *International journal of environmental research and public health*, *16*(19), 3730. https://doi.org/10.3390/ijerph16193730

Mirambeau, A. M., Wang, G., Ruggles, L., & Dunet, D. O. (2013). A cost analysis of a community health worker program in rural Vermont. Journal of community health, 38(6), 1050–1057. https://doi.org/10.1007/s10900-013-9713-x

Perry, A., Patlak, M., Ramirez, A., & Gallion, K. (2015). How to Achieve Better Food in the Neighborhood for Latino Kids. https://xrv281o3wvu1d29sd405vdf6-wpengine.netdna-ssl.com/wp-content/uploads/2017/08/Better-Food-Issue-Brief.pdf

Pooler, J. A., Morgan, R. E., Wong, K., Wilkin, M. K., & Blitstein, J. L. (2017). Cooking Matters for Adults Improves Food Resource Management Skills and Self-confidence Among Low-Income Participants. *Journal of nutrition education and behavior*, *49*(7), 545–553.e1. https://doi.org/10.1016/j.jneb.2017.04.008

Ro, M.J., Treadwell, H., Northridge, M. (2003). Community health workers and community

Voices: promoting good health [policy brief on the Internet]. Washington (DC): Community Voices. Available from URL: http://www.communityvoices.org

Roux, L., Pratt, M., Tengs, T. O., Yore, M. M., Yanagawa, T. L., Van Den Bos, J., Rutt, C., Brownson, R. C., Powell, K. E., Heath, G., Kohl, H. W., 3rd, Teutsch, S., Cawley, J., Lee, I. M., West, L., & Buchner, D. M. (2008). Cost effectiveness of community-based physical activity interventions. American journal of preventive medicine, 35(6), 578–588. https://doi.org/10.1016/j.amepre.2008.06.040

Stevens, J., Pratt, C., Boyington, J., Nelson, C., Truesdale, K. P., Ward, D. S., Lytle, L., Sherwood, N. E., Robinson, T. N., Moore, S., Barkin, S., Cheung, Y. K., & Murray, D. M.

(2017). Multi-level Interventions Targeting Obesity: Research Recommendations for Vulnerable Populations. *American journal of preventive medicine*, *52*(1), 115–124. https://doi.org/10.1016/j.amepre.2016.09.011

Appendices

A: USF MPH Competencies

UNIVERSITY OF SAN FRANCISCO | School of Nursing and Health Professions

Inventory of Competencies in Capstone paper and Health Professions Day presentation

CEPH Foundational Competencies

Foundational Competency	Description of how it was used for Capstone
Evidence-based Approaches to Public Health	
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software as appropriate	
4. Interpret results of data analysis for public health research, policy and practice	
Public Health & Health Care Systems	
5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings	
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	
Planning & Management to Promote Health	
7. Assess population needs, assets, and capacities that affect communities' health	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Applied principles of community-based interventions to focus on partnership

	building in public housing communities to implement a Health Ambassador model.
9. Design a population-based policy, program, project or intervention	Reviewed the literature to find evidence-based programs on physical activity and nutrition. Designed a program on best practices identified in the literature to develop the Health Ambassador Model intervention.
10. Explain basic principles and tools of budget and resource management	Identified funding sources to implement recommendations laid out in the Capstone paper. A SNAP-Ed structure and funding were identified in the paper.
11. Select methods to evaluate public health programs	Used the SNAP-Ed Evaluation Framework and Interpretive Guide to identify evaluation indicators for the Health Ambassador model. Using short, medium- and long-term indicators from the SNAP-ED evaluation framework, laid out an evaluation plan for collecting data to determine programmatic effectiveness.
Policy in Public Health	
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	The Social-Ecological Model (SEM) for Food and Physical Activity Decisions was identified to be utilized as a framework for interventions delivered by the Health Ambassadors to reach the target audience at more than one level of the SEM.
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	
14. Advocate for political, social and economic policies and programs that will improve health in diverse populations	The Health Ambassador model identified multiple sectors and activities at the individual/interpersonal, community, and societal levels to promote public health intervention in populations that experience cultural and communication barriers.
15. Evaluate policies for their impact on public health and health equity	
Leadership	

16. Apply principles of leadership, governance, and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	The Health Ambassadors were identified as effective liaisons between state and local government, community-based organizations, academic institutions, property managers, and others to improve diet and increase levels of physical activity in their communities through advocacy.
17. Apply negotiation and mediation skills to address organizational or community challenges	
Communication	
18. Select communication strategies for different audiences and sectors	Created figures/diagrams of the SNAP-Ed structure and funding, community and capacity, and logic model to visually depict funding, relationships among stakeholders, and outcomes.
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	Outlined, drafted, and finalized Capstone paper, including a literature review, recommendations, and implications on a current public health problem. Created a slide deck based on the Capstone paper and delivered an oral presentation at Health Professions Day in front of an interprofessional audience.
20. Describe the importance of cultural competence in communicating public health content	
Interprofessional practice*	
21. Perform effectively on interprofessional teams	
Systems Thinking	
22. Apply systems thinking tools to a public health issue	Created a logic model of the Health Ambassador Model to visually depict the goals of the program's expected outcomes, which are staged in short, medium, and long-term impacts.

Health Policy Leadership Concentration Competencies

Competency	Description of how it was used for Capstone
1. Apply economic concepts to understand the effect of changes in policies at the government, health systems, and public health sectors	
2. Synthesize economic concepts to assess equity and efficiency in making health policy recommendations in underserved communities	
3. Formulate efficient health policy change recommendations through the analysis of proposed health policy initiatives that could affect health outcomes of vulnerable populations	
4. Develop recommendations to improve organizational strategies and capacity to implement health policy	Reviewed the literature to identify best practices and gaps in existing strategies for Health Ambassadors and public housing communities. Recommendations
5. Analyze policy options to address environmental health needs at the local, state, and federal levels	

B. List of Abbreviation

CDSS	California Department of Social Services
CFHL	CalFresh Healthy Living
CHW	Community Health Workers
FNS	Food and Nutrition Service
HA	Health Ambassador
LT	Long-Term
MT	Medium-Term
PSE	Policy, Systems, Environmental
SEM	Social-Ecological Model
SNAP	Supplemental Nutrition Assistance Program
SNAP-Ed	Supplemental Nutrition Assistance Program Education
ST	Short-Term
USDA	United States Department of Agriculture