J Ambulatory Care Manage
Vol. 47, No. 3, pp. 168–186

OPEN

Harlem Health Advocacy Partners: A Local Health Department's Place-Based Community Health Worker Program

Rachel Dannefer, MPH, MIA; Lois Seidl, MPH; Elizabeth Drackett, MPA; Adam Wohlman, MPH; Safiya Campbell, MS; Diana Herrera, MPH; Carrie Sealy; Veronica Perez, MSW, LCSW-R; Andrea Mata, MS; Juan Pinzon, MA; Nadia Islam, PhD; Lorna E. Thorpe, PhD; La'Shawn Brown-Dudley, MS; Noel Manyindo, MD, MBA, MPH

Abstract: In January 2015, the New York City Department of Health and Mental Hygiene launched Harlem Health Advocacy Partners (HHAP), a place-based initiative to demonstrate the capacity of a CHW workforce to improve the health of residents of public housing. The long-term goal of HHAP is to improve the population health of residents of public housing in East and Central Harlem and to close racial gaps in health and social outcomes. A variety of evaluation approaches have been used to assess the initiative. This paper describes the HHAP model and methods for evaluating the program. **Key words:** *community health workers, health inequities, place-based initiatives, public housing, structural racism*

INTRODUCTION

Many entities, including state and local health departments, have implemented Community Health Worker (CHW) programs

Author Affiliations: *Bureau of Harlem Neighborhood Health, Center for Health Equity and Community Wellness, New York, NY (Mr Dannefer, Ms Seidl, Ms Drackett, Mr Wohlman, Mss Campbell, Herrera, Sealy, Perez, and Brown-Dudley, and Dr Manyindo); New York City Housing Authority, New York, NY (Ms Mata); Community Services Society, New York, NY (Mr Pinzon), and New York University-City University of New York Prevention Research Center, New York University Langone Health, New York, New York (Drs Islam and Thorpe).*

Thank you to the community health workers and many other people who have contributed to HHAP's implementation and development. Thank you also to the residents who have partnered with and participated in HHAP.

The Harlem Health Advocacy Partnership project is supported through municipal funds administered by the New York City Department of Health and Mental Hygiene. Contributions of LT and NI were also supported in part by cooperative agreement U48DP005008 from the Centers for Disease Control and Prevention (CDC), Prevention Research Centers (PRC) Program.

The authors have disclosed that they have no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

Correspondence: *Adam Wohlman, MPH Bureau of Harlem Neighborhood Health, Center for Health Equity and Community Wellness, 161-169 East 110 Street, WS 1-25, New York, NY 10029 (awohlman@-health.nyc.gov).*

DOI: 10.1097/JAC.0000000000000497

to improve a variety of health outcomes and address health inequities (Cosgrove et al., 2014; Islam et al., 2023; Ursua et al., 2014). The American Public Health Association defines a CHW as a "frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served" (American Public Health Association, n.d., paragraph 2). CHW programs have demonstrated success in improving health outcomes for people with chronic conditions, including asthma, diabetes, hypertension, and HIV/AIDS, as well as mental health conditions (Kenya, Chida, Symes, Shor-Posner, 2011; Kim et al., 2016). In clinical contexts, CHW programs have been shown to increase access to care, improve quality and cost-effectiveness of care, help people navigate complex health care systems, and empower residents to become advocates in their own health care (Aponte, Jackson, Wyka, Ikechi, 2017; Rosenthal et al., 2010). In community contexts, CHWs have been deployed to link people with social services and public resources to which they are entitled, and to work alongside residents to advocate for changes in their neighborhood (Pérez Martinez, 2008; Stupplebeen et al., 2019). CHWs often come from the communities they serve or have strong community ties, are skilled at establishing trust within communities, and serve as a bridge to link residents to health systems and other services (Brown et al., 2011; Garcia, Sprager, Jiménez, 2022).

In January 2015, the New York City (NYC) Department of Health and Mental Hygiene (Health Department) launched Harlem Health Advocacy Partners (HHAP), a place-based initiative to demonstrate the capacity of a CHW workforce to improve the health of residents of public housing in East and Central Harlem. These neighborhoods have a high concentration of public housing, which accounts for 30% of rental units in East Harlem (NYU Furman Center, 2022b) and 17% in Central Harlem (NYU Furman Center, 2022a), compared to 7% citywide (NYU Furman Center, 2022c).

In NYC, residents of public housing have a lower median household income than other New Yorkers and most are from racial and ethnic groups that disproportionately experience poor health due to racism (Furman Center for Real Estate and Urban Policy, 2019). While public housing is an essential source of affordable housing in NYC and elsewhere, residents of public housing nationally have been shown to experience health inequities due to a constellation of factors (Freeman et al., 2018; Ruel, Oakley, Wilson, Maddox, 2010).

Overall, the neighborhoods of East and Central Harlem are predominantly Latino and Black (East Harlem: 50% Latino, 31% Black, 11% White, 6% Asian, 2% Other; Central Harlem: 23% Latino, 63% Black, 8% White, 3% Asian, 3% Other) (New York City Department of Health and Mental Hygiene, 2022b, 2022a). The demographics of both East and Central Harlem have remained consistent since HHAP was launched in 2015. The neighborhoods have rich histories of cultural contributions, local organizing, and activism. However, like many areas comprised of primarily Latino and/or Black residents, East and Central Harlem have been subject to a long history of racist and discriminatory policies and practices, such as redlining and neighborhood disinvestment. Such policies have concentrated poverty and produced inequitable health outcomes in these communities. Today, residents of East and Central Harlem experience high rates of chronic health conditions, contributing to a life expectancy that is nearly a decade shorter than that of residents of the Upper East Side, an affluent, predominantly White neighborhood which borders East Harlem to the south (75.1 and 76.0 years vs 85.0 years, respectively) (New York City Department of Health and Mental Hygiene, 2022c).

Structural racism, defined as the "totality of ways in which societies foster discrimination, via mutually reinforcing systems that in turn reinforce discriminatory beliefs, values, and distribution of resources" (Bailey et al., 2017, p. 1454) has systematically shaped health and social outcomes by race

and been identified as a key determinant of population health and health inequities. Place-based health initiatives, which prioritize public health investments in neighborhoods and communities unfairly burdened by poor health outcomes, are one way to advance health equity and mitigate the effects of structural racism (Bailey et al., 2017). More specifically, place-based approaches recognize the need to address underlying conditions for health such as the built environment, health care systems, and social conditions, and they are "designed to promote change around these fundamental determinants of health in local communities" (Dupre et al., 2016, p. 1548) and "share a theoretical and strategic emphasis on concentrated investments in social, economic, and human capital within local settings to achieve measurable health improvements" (Dupre et al., 2016, p. 1548). HHAP embodies this approach by investing in and deploying a workforce of CHWs in a geographic area where residents have been harmed by structural racism and employing multiple strategies to improve community health. Place-based CHW and health advocate programs serving residents of public housing have previously been implemented in other cities, such as Boston (Levy, Brugge, Peters, Clougherty, Saddler, 2006; Rorie et al., 2011), Milwaukee (Wolff, Young, Maurana, 2001), and Augusta (Andrews, Felton, Ellen Wewers, Waller, Tingen, 2007).

HHAP's model has evolved over time as CHWs, program leadership, and partners have identified community challenges and assets and identified ways to respond. The model consists of 3 strategies: (1) Health coaching to increase healthy behavior, achieve health goals, and manage chronic disease; (2) Referrals, navigation, and client advocacy to improve access to and utilization of health care systems and other community services; and (3) Community health advocacy to seek or create healthy conditions and acceptable services for all residents. While all 3 strategies aim to counter structural racism by using a place-based approach, the third strategy in particular focuses on addressing structural racism (VanDevanter et al., 2022). These strategies address drivers of health at the individual, interpersonal, and community levels and align with socioecological models (Department of Health and Human Services, 2011) that underscore the need for multi-level interventions to overcome systemic barriers to population health.

The long-term goal of HHAP is to improve the population health of residents of public housing in East and Central Harlem and to close racial gaps in health and social outcomes (see Figure 1). A variety of evaluation approaches and short-term indicators have been used to assess and demonstrate the effect of the CHW workforce. This paper describes the HHAP model and methods for evaluating the program and summarizes key programmatic outcomes. We focus primarily on the period from the program's inception to March 2020, when NYC became the epicenter of the COVID-19 pandemic in the United States. Our aim is to provide a comprehensive overview of a unique model for deploying CHWs and to contribute to the literature about implementation and evaluation approaches for CHW programs.

APPROACH

Setting and context

In 2014, the Health Department used laboratory surveillance data from the NYC A1C Registry to identify "hotspots" of poorly controlled diabetes across NYC neighborhoods. The analysis identified a high concentration of individuals with poor diabetes control spanning 5 public housing developments in East and Central Harlem which were subsequently selected as the initial focus of the HHAP intervention (Feinberg, Seidl, Levanon Seligson, Thorpe, 2015; Wu, Jiang, Di Lonardo, 2018). While HHAP has since expanded to additional public housing developments in East Harlem, the developments where HHAP originally focused have a combined population of 14,597 residents across 39 residential buildings, including roughly 10,000 adults, according to

Inputs & Resources	Strategies & Activities	Short- and Medium-term Outcomes	Long-term Impact
• CHWs & HHAP staff • Partnerships • Community resources (Resident Associations, CBOs, FQHCs) • Dedicated funding • Salesforce database	**Health coaching** • Health coaching • Group wellness activities (e.g., blood pressure screenings, peer support groups, walking groups, wellness workshops) **Referrals, navigation, and self-advocacy** • Healthcare navigation • Development of a network of partnerships for recruitment and referrals • Referrals • Capacity building for self-advocacy **Community health advocacy** • Identification of system gaps and barriers and dissemination of data highlighting systemic injustices • Collaboration with Resident Associations and local advocacy organizations	• Improved management of chronic conditions among HHAP participants • Improved self-reported general health among HHAP participants • Improved mental health among HHAP participants • Improved medication adherence among HHAP participants • Improved feeling of connection to community services among HHAP participants • Strengthened social support among HHAP participants • Increased usage of health insurance among HHAP participants • Increased evidence for and awareness of systemic barriers to health • Improvements in neighborhood environment	• Improved population health among residents of public housing in East and Central Harlem • Reduction in racial inequities in health and social outcomes • Decreased systemic barriers

Figure 1. Harlem Health Advocacy Partners (HHAP) logic map.

tenant rolls (New York City Housing Authority, 2022).

Like all public housing in NYC, the developments are owned and managed by the New York City Housing Authority (NYCHA). NYCHA is the largest housing authority in the country and houses approximately 5% of NYC's population (Bach, 2017). NYCHA's aging infrastructure has steadily declined in the face of federal, state and local budget cuts. Delayed capital investment has led to the deterioration of living conditions for residents, impacting residents' health and quality of life (Neuman, 2018). Policy responses to address these conditions have included NextGeneration NYCHA, a comprehensive 10-year strategic plan to improve and invest in NYCHA through a variety of approaches, including privatization, and, more recently, NYCHA 2.0 and the Blueprint for Change (New York City Housing Authority, 2020; The City of New York, 2015, 2018).

Partnerships

Initial partnerships: HHAP was formed by the Health Department as a partnership program with NYCHA, the NYU-CUNY Prevention Research Center (NYU-CUNY PRC) and the Community Services Society of New York (CSS). Harlem Health Advocacy Partners' partnership with NYCHA has focused primarily on their Health Initiatives and Family Partnerships departments and has been essential to obtaining access and support within NYCHA developments, providing mechanisms to share program learning, and fostering collaboration across 2 government agencies in areas of mutual interest, such as workforce development and resident well-being. CSS, a non-profit with expertise in health care and affordable housing, provided health insurance enrollment, post-enrollment assistance, consumer education and outreach, and other benefits services through Health Advocates and strategic advocacy (NY, n.d.). NYU-CUNY PRC, an academic center funded by the Centers for Disease Control and Prevention to study how people and communities can counter risks for chronic disease, provided external evaluation and technical assistance based on experience with other CHW initiatives (*NYU-CUNY Prevention Research Center*, n. d.). These partners collaborated to develop the HHAP model and engage in strategic planning for the initiative. NYU-CUNY PRC and CSS received contractual funding from the Health Department for their services.

Partnerships developed by the CHW workforce: In addition to these partnerships, HHAP's CHWs developed relationships with social service providers, including community-based organizations (CBOs) in senior and community centers housed within each NYCHA development. These centers provide space for activities and outreach and help HHAP to connect with residents. At the start of the program, NYCHA's Health Initiatives staff provided introductions to property managers at developments where HHAP planned to operate. The property managers as well as select CBOs facilitated access to NYCHA grounds for tabling and outreach and authorized posting of HHAP outreach materials on NYCHA grounds, a process which requires adherence to significant procedures and bureaucratic red tape. HHAP also collaborates with NYCHA Resident Associations for the developments in which HHAP works. Resident Associations are comprised of residents who are democratically elected by fellow residents and work to improve the quality of life of residents within the development and the broader community, as well as advise NYCHA management on a variety of issues in their developments (New York City Housing Authority, n.d.). HHAP has worked with Resident Associations to exchange knowledge and resources and to identify opportunities for joint advocacy and mobilization on behalf of residents. HHAP operates out of the Health Department's East Harlem Neighborhood Health Action Center, which co-locates Health Department programs with CBOs, clinical providers, and city social service agencies under one roof in order to

facilitate collaborations to improve neighborhood health. HHAP staff regularly refer participants to and conduct outreach through these co-located programs and have linked co-located partners with NYCHA engagement opportunities as well.

Pre-Intervention Engagement and Needs Assessment

Prior to HHAP's launch in February 2015, CHWs and supervisors were hired, with attention given to hiring residents of NYCHA and Harlem. As part of the onboarding process, CHWs received comprehensive training in core CHW competencies, disease-specific trainings, and orientation to NYCHA and the Health Department. HHAP also worked with NYCHA to establish a legal agreement granting HHAP permission to conduct outreach, health coaching and wellness activities on NYCHA property. A pre-launch kickoff meeting was held with core stakeholders in August 2014. Following the kickoff, CHWs and CSS's Health Advocates canvassed NYCHA grounds and buildings, distributing flyers and speaking with residents to inform them about the initiative in advance of recruitment. HHAP also reached out to each development's community and senior centers and building managers and held regular luncheons for Resident Association leadership to provide updates and obtain feedback on planned outreach and implementation activities. Efforts were also made to engage local health providers, health coalitions, and CBOs, and HHAP was covered in the *NYCHA Journal* (a resident newspaper), in support of program implementation, participant enrollment, and program partnerships.

Alongside these outreach efforts, NYU-CUNY PRC led a formal community needs assessment from December 2014 to January 2015, with assistance provided by NYCHA's Health Initiatives team, resident leaders, and NYCHA community volunteers. The needs assessment included a representative telephone survey of residents of the 5 NYCHA developments participating in HHAP and 5 comparison developments with similar demographics. All developments were in the neighborhoods of East and Central Harlem. The survey was restricted to adults aged 35 and older as they more commonly have the chronic conditions originally addressed by HHAP. The survey used simple random sampling techniques and was powered to measure prevalence of health behaviors and conditions, and to produce generalizable results, for the intervention and comparison populations. Survey data were weighted to be demographically representative of adults 35 years and older in the 5 NYCHA developments. Surveys were conducted via telephone over a 4-week period with additional door-to-door recruitment to augment response rates. A total of 1,123 respondents completed the survey (43.5% response rate) (Feinberg et al., 2015). In addition, NYU-CUNY PRC conducted 6 focus groups with 55 residents from the intervention developments with self-reported diagnoses of hypertension, diabetes, or asthma. Participants discussed disease management, barriers and facilitators to healthy behaviors, health promotion, and the role of the CHWs.

The population-based survey confirmed a high burden of chronic disease in the NYCHA developments selected for HHAP, with 74% of residents 35 years and older having asthma, diabetes, and/or hypertension. Mental health also emerged as an issue, with 27% of respondents reporting fair or poor mental health. The survey revealed that most residents were already insured, most often with Medicaid, Medicare or both, which resulted in a redesign to focus health navigation services on insurance plan and health system navigation, including medical billing and obtaining durable medical equipment, rather than insurance enrollment. Focus group participants offered several suggestions about how CHWs could build resident capacity. Survey and focus group data indicated that HHAP was likely to be well-accepted by residents and although most were unfamiliar with CHWs, many residents were interested in being contacted by the program. HHAP adopted

a number of recommendations generated by the needs assessment. These included implementing a comprehensive outreach strategy to reach different demographics, providing free opportunities for physical activity, creating curriculum materials for basic disease education and medication adherence, building CHW capacity around mental health, developing partnerships to link residents with resources for social and other needs, and ongoing training to equip CHWs and Health Advocates to address the complex issues experienced by some residents, while building staff and residents' capacity to be effective community leaders. Findings were shared with Resident Association leaders and other partners and published in a brief report (Feinberg et al., 2015).

Recruitment and intervention strategies

Community outreach and engagement are used to support staff recruitment, participant recruitment and intervention delivery. For each of these activities, there is a focus on canvassing within and around NYCHA developments. Outreach activities include tabling in building lobbies, on NYCHA grounds, and at community/senior centers, local health providers' offices, and neighborhood events, as well as participating in meetings held by Resident Associations, community boards, and local police.

For all staff positions, HHAP strives to hire residents of public housing and/or residents of Harlem in order to draw upon their local expertise and lived experiences and leverage NYCHA's workforce development initiatives. Doing so creates employment opportunities for residents, roots the program more deeply in the community, increases credibility and helps build the trust needed for effectiveness and sustainability. At the project's outset, 14 CHWs were hired, nearly a third of whom were residents of NYCHA (4/14). Many of the CHWs had strong community ties, with some having worked in the area for more than 20 years, and some were native Spanish speakers. The group was diverse in terms of age and education; some CHWs had college degrees, while others brought lived experience to the position. CHWs were supervised by Health Department staff.

Health coaching

Since 2015, a team of 12-15 CHWs has provided health coaching to residents of NYCHA in East and Central Harlem to improve access to health care and social services, and to share resources and provide education related to the management of chronic diseases and other health conditions. Health coaching and other aspects of HHAP's programming are tailored to align with the cultural preferences, practices, and preferred languages of participants. CHWs and supervisors receive standardized trainings covering CHW core competencies, disease-specific education, and program-specific competencies with annual refresher trainings offered for key topics (Figure 2). These offerings aim to prepare CHWs to address the health conditions and social needs they encounter among community members. Additional trainings are offered in response to topics requested by CHWs (eg, trainings in bereavement and group facilitation) and other emerging issues (eg, COVID-19). Trainings are led by HHAP staff, other Health Department staff, and outside experts.

Participants are recruited into health coaching primarily through outreach conducted by HHAP staff at NYCHA developments and through peer referrals. While eligibility for health coaching was initially restricted to adult residents (18 years or older) of participating NYCHA developments with a diagnosis of diabetes, hypertension or asthma, eligibility was expanded in the program's fourth year to include any adult resident of a NYCHA development served by HHAP, regardless of disease status. Ultimately, health coaching aims to help people improve their health and well-being by providing education and peer support that is specific to each participant's health goals and needs.

CHW Core Competencies ***Offered as part of onboarding and orientation; refresher trainings offered as needed***
Case Management and Care Coordination
Chronic Disease Management
Community Health Worker Roles, Skills, and Tasks
Culturally Relevant and Appropriate Services
Health Education and Health Coaching
Motivational Interviewing
SMART Goals and Goal Setting
Program-Specific Core Competencies ***Offered as part of onboarding and orientation; refresher trainings offered as needed***
Asthma
Diabetes
Hypertension
Mental and Behavioral Health
COVID-19
Food Insecurity
Self-Care
Safety in the Community
Case documentation
Protocol and forms
Salesforce database
Additional trainings ***Offered on an ad hoc basis, often in response to CHW requests or current issues***
Bereavement counseling
Civic Engagement and Community Organizing
CPR – Hands only
Group Facilitation
Healthy Homes
Naloxone
Team Building
Tobacco Control/ Smoking Cessation

Figure 2. Community health worker (CHW) training topics.

Health coaching participants engage with a CHW for at least 6 months and participate in 4 or more individualized coaching sessions. To date, health coaching has been primarily provided in 3 languages (English, Spanish, and Chinese) and delivered in multiple locations, most often in the homes of participants, NYCHA's community and senior centers, and HHAP's offices in the East Harlem Neighborhood Health Action Center. However, coaching sessions have also been delivered on park benches as well as virtually and by telephone. In some cases, CHWs provide health coaching during evenings and weekends to accommodate participants' schedules. Over the course of several coaching sessions, CHWs perform assessments, work with participants to set specific, measurable, actionable, realistic, and time-bound (SMART) goals related to improved health and well-being, use motivational interviewing to help participants identify potential barriers to achieving their goal(s), create tailored action plans and assess participant progress, and problem solve as needed. Additionally, as appropriate, CHWs deliver educational modules developed by NYU-CUNY PRC on topics such as chronic disease management and nutrition (NYU Langone Health, 2015). CHWs also provide individual advocacy by accompanying participants to medical appointments, pharmacies, housing court, local politician offices, food pantries, farmers markets, and grocery stores.

Participants are considered to have completed health coaching if they have: (1) received an overview of services and resources offered through HHAP activities and how this may facilitate personal goals; (2) completed an intake assessment and created a work plan and set at least one short-term SMART goal with their CHW; (3) had a least 4 meaningful encounters with HHAP through activities, such as health coaching or wellness activities, over a period of at least 6 months; and (4) completed a follow-up assessment and discussed post-completion resources with their CHW. There is no limit to the number of individual health coaching encounters per participant, as each participant works with their CHW to plan and progress towards individualized health goals. Residents who complete health coaching are invited to attend an annual recognition ceremony. Following health coaching, participants are encouraged to stay engaged with HHAP through group wellness activities (see below) and advocacy efforts, and through connection to co-located programs and partners at the East Harlem Neighborhood Health Action Center.

To complement health coaching and provide practical ways for participants to work towards health goals, participants are connected to group wellness activities designed and developed by HHAP's CHWs. Examples of the activities CHWs have developed include walking groups, blood pressure screenings, peer support groups, art therapy, smoking cessation workshops, and other educational workshops on topics such as stress management and nutrition. Wellness activities reflect the capacity of the CHWs to identify and respond to participant needs at the community level. These activities are held at NYCHA community and senior centers and other neighborhood locations, as well as virtually, and many are offered in partnership with CBOS to leverage local services and expertise. While these activities are open to all residents, they are primarily attended by current and former health coaching participants.

Between February 1, 2015 and February 29, 2020, HHAP enrolled 1,513 community residents, among whom 1,088 successfully completed the health coaching program (71.9%). During this same period of time, each CHW managed a caseload of approximately 20 program participants.

Referrals, navigation, and self-advocacy

HHAP has facilitated access to health and social resources through insurance navigation, referrals, and individual advocacy. Insurance navigation is offered by 1 to 3 Health Advocates, originally contracted through CSS (Frazier et al., 2022). Health Advocates are trained experts in health

insurance and health system navigation and help residents overcome a variety of challenges to getting needed health care services. They help residents understand health insurance plan options and assist with insurance enrollment, renewal, and obtaining supplemental health insurance. They resolve billing issues, address service denials, and obtain medical services/equipment. Health Advocates aim to directly resolve client issues (rather than simply provide referrals). They focus on sustaining relationships with CHWs and clients through advocacy, education on patient rights and expanding health insurance literacy to build capacity for self-advocacy within the health care system (Frazier et al., 2022). Eligibility for health navigation is broader than for health coaching, requiring only residence in East or Central Harlem. However, most individuals who receive health navigation are health coaching participants, and CHWs and Health Advocates often work closely together to support participants. Health Advocates also recruit participants for health navigation at local health fairs and at wellness activities offered through HHAP.

In addition to health navigation, CHWs make referrals to a wide range of services to address social determinants of health. Referrals are commonly made to address food insecurity, housing issues, employment, and mental health. Referrals are often provided in the context of health coaching, but CHWs also make referrals to residents who are not enrolled in health coaching. Furthermore, CHWs also build individuals' capacity to advocate for themselves by offering peer support and providing tools such as patient rights education. CHWs may also accompany participants on medical visits and serve as advocates in clinical settings and can help build participants' skills and confidence for self-advocacy in such settings.

Community health advocacy

HHAP has partnered with residents and CBOs to collectively advocate for healthy neighborhood conditions and high-quality services. This strategy was influenced by a recognition of the value of community organizing in addressing health inequities produced by structural racism (VanDevanter et al., 2022). HHAP has worked to increase awareness of residents' concerns and priorities and to increase visibility of systemic barriers to health experienced by residents, including by pairing community stories with Health Department data from HHAP, by producing publications on barriers to health (Feinberg et al., 2015; Frazier et al., 2022), and by participating in advocacy efforts of local organizations (VanDevanter et al., 2022). HHAP staff work particularly closely with Resident Associations from participating NYCHA developments. Resident Associations provide a formal structure for residents to inform NYCHA's decision-making and offer a natural venue for identifying local issues of concern and opportunities for advocacy. U.S.Department of Housing and Urban Development regulations guarantee residents the right to organize these associations and provide funding for activities for resident involvement in housing authorities' mission and operations (National Low Income Housing Coalition, 2011). Resident associations have been essential in securing improvements within public housing and are an important accountability partner that can bring chronic and unmet needs to NYCHA's attention (and the attention of other local and citywide institutions) as they work to direct limited resources. HHAP staff attend Resident Association meetings, provide resources to Resident Associations, and solicit feedback from Resident Association leaders. Issues that have been highlighted through HHAP's community health advocacy work include street cleanliness and conditions, safety and violence prevention, and housing conditions. To highlight systemic barriers to health and lay the groundwork for advocacy opportunities, HHAP has also used PhotoVoice, a participatory process through which people capture images of their environments and experiences to advocate for change (Wang Burris, 1997).

This community health advocacy work was originally led by a team of 5 Health Department-based Community Health Organizers, who worked with fellow residents to identify and advocate around local issues to improve neighborhood health. Eventually, these responsibilities were incorporated into those of the CHWs and Health Advocates to better reflect the role that they naturally play in advocacy as part of their regular responsibilities.

EVALUATION DESIGN AND METHODS

HHAP has been evaluated with a mixed-methods design, using both quantitative and qualitative approaches to evaluate several aspects of the program. Together, evaluation approaches were intended to assess HHAP's individual program components and to build an understanding of the impacts of HHAP's model on participant health outcomes. Evaluation efforts were also intended to produce findings to improve and strengthen the program's model, assess its reach and implementation, and inform the potential scaling and replication of this approach. The study was approved by the Institutional Review Board (IRB) at the NYC Department of Health and Mental Hygiene (IRB Protocol 14-125). The NYU Grossman School of Medicine's IRB categorized activities as public health program evaluation, with the exception of the focus groups and key informant interviews, which were approved as research by the NYU Grossman School of Medicine IRB. Findings from various evaluation components have been previously published and are briefly summarized following this section.

Quasi-experimental design for health coaching—year 1

In year 1, we used an expanded quasi-experimental evaluation design to assess short-term individual outcomes for health coaching participants and a comparison group to inform the early design of the study. As this was a quasi-experiment, there was a control group, but intervention and comparison participants were not randomly assigned. Health coaching participants were recruited primarily through in-person outreach, with some also recruited through the telephone needs assessment survey. Comparison participants were recruited from respondents from 5 demographically similar public housing developments located in the same neighborhoods as the intervention developments who had participated by phone in the community needs assessment conducted pre-intervention. Residents were eligible if they reported hypertension, diabetes or asthma and expressed interest in participating in a series of in-person surveys. All participants received $20 as compensation.

Surveys and bio-measures

Assessment surveys and collection of non-invasive bio-measures were conducted at baseline, 12 weeks, 6 months, 1 year and 18 months for health coaching and comparison participants (Table 1). CHWs conducted assessments and collected bio-measures for health coaching participants at enrollment. Trained interviewers from NYU-CUNY PRC conducted all other surveys and bio-measure collection. Assessment surveys included questions on insurance status and linkage to care, utilization of preventive services, medication adherence, general health, disease management including self-reported A1C and asthma control where relevant, diet and physical activity, use of community services, and social connectedness and social capital. Bio-measures included blood pressure, height, and weight. Outcomes hypothesized to change in the health coaching group included general health, A1C control, blood pressure control, and asthma control for individuals with relevant conditions. Secondary outcomes of interest were increased healthy behaviors such as physical activity, healthy eating, and medication adherence, increased health care access through health insurance coverage and connections to local services, and increased social support. For each wave of data collection, results were tabulated and shared back to the HHAP team to guide

Table 1. Quantitative Data Sources and Measures for Evaluation of HHAP Health Coaching

Data Sources and Measures	Quasi-Experimental Evaluation With Multiple Observations and Control Group (Year 1)	Ongoing Cohort Review With Pre-Post Comparisons (All Years)
Assessment survey bio-measure collection	**Baseline, 3, 6, 12, and 18 months**	**Baseline, program completion**
Health measures		
Self-reported general health	×	×
Self-reported A1C control	×	×
Blood pressure	×	×
Mental health (PHQ9)	×	×
Medication adherence	×	×
Social support and connection to services		
Health insurance problems	×	×
Social services needed	×	×
Connection to social community services		×
Social support		×
Administrative data	**2 years prior to and following program completion**	
SPARCS hospitalization data		
Emergency department visits	×	×
Hospitalizations	×	×
A1C registry data		
A1C test results	×	×

ongoing operations. Evaluation results have been published elsewhere and are summarized briefly in the following section (Feinberg et al., 2019; Lopez et al., 2017).

Focus groups with HHAP participants

At the conclusion of HHAP's first year, 4 focus groups and 2 interviews (3 focus groups in English and 1 in Spanish with 45 participants total, and 2 individual interviews in Spanish) were conducted with residents who had received health coaching and/or health navigation, and 2 groups were held with CHWs and Health Advocates to assess barriers and facilitators to program implementation and perceptions of opportunities for community advocacy to improve neighborhood health. Focus groups provided early information about the aspects of health coaching and navigation that residents most valued. They also highlighted ongoing challenges to health and areas of concern related to HHAP, in particular the legacy of disinvestment and the need to build trust over time. Findings from the focus groups were used to guide modifications to intervention components, including wellness and community organizing activities and motivational interviewing approaches.

Ongoing monitoring and evaluation

In the absence of funding for a comparison group following the first program year, a number of approaches have been used to monitor program implementation and impact. Importantly, the program invested in creating a custom-built HIPAA secure relational database in Salesforce. This database served not only to facilitate CHW health coaching and case management, but also allowed CHWs and supervisors to record and access program data in real time, providing a foundation for ongoing program evaluation and reporting. The database

includes participant contact information, assessments, referrals, and more, which supports integrated health coaching decision-making and CHW supervision, and provides data for ongoing evaluation. The database facilitated many of the evaluation components described below. Implementation evaluation for HHAP is informed by the Consolidated Framework for Implementation Research, which provides a systematic approach for identifying barriers and facilitators to implementation (Damschroder et al., 2009).

Reach and recruitment monitoring

HHAP monitors health coaching participants by housing development to understand program reach over time and to guide enrollment and outreach efforts, focusing on developments with lower saturation. To guide recruitment efforts, the program also monitors the sources of leads for potential program participants, the amount of time it takes for the program to contact a new lead with information about the program, and the proportion of leads who enroll into the program.

Cohort review approach for health coaching outcomes

Beginning in the second year, we implemented a cohort review process to monitor process and outcome measures for health coaching over time. We continued to conduct assessment surveys and collect noninvasive bio-measures at baseline and at program completion for all health coaching participants. We grouped HHAP participants into cohorts by enrollment year, and key metrics included the participation status of enrollees ("health coaching complete," "actively enrolled," "lost to follow-up," "discontinued," or "on leave") and health outcomes, such as blood pressure control (among all participants and among those with hypertension), self-reported A1C control among those with diabetes, self-reported general health, mental health, and more (Table 1). Participation status metrics are used to monitor quality of program implementation and health outcome measures assess program effectiveness. Cohort review results for HHAP's first 2 cohorts and the year 1 comparison group have been previously published and are summarized briefly in the following section (Feinberg et al., 2019). As the program has matured, the number of outcomes examined through the cohort review has expanded and the program has maintained or strengthened its impact in areas monitored through this approach.

Hospitalizations and cost analyses

Health coaching participants and comparison participants were consented to allow access to their records from administrative health databases for 2 years prior to and 2 years following their study participation.Accordingly, we linked consenting participants to their records in the New York Statewide Planning and Research Cooperative System (SPARCS), which tracks patient-level data, including diagnoses and services for inpatient and outpatient visits at all New York State hospitals. These data have been used to assess changes in rates of emergency department visits and hospitalizations for conditions potentially affected by health coaching, and to estimate changes in costs and charges related to hospitalizations in order to explore the potential cost savings associated with health coaching in the context of a health system that is increasingly expensive.

A1C test results

We linked consenting health coaching participants and comparison participants to their A1C test results through the NYC Health Department's A1C Registry, which contains A1C laboratory results for all NYC residents, for 2 years prior to and 2 years following participation. These data have been used to assess clinically measured improvements in A1C control following participation in HHAP among health coaching versus comparison participants.

Monitoring protocol fidelity

Program fidelity is ensured through regular supervision, team meetings, and review of documentation and process metrics. CHWs meet biweekly with supervisors and participate in monthly case reviews to discuss complex cases. Supervisors periodically shadow CHWs during health coaching visits to monitor fidelity to HHAP protocols and provide feedback. During shadowing, supervisors assess CHWs on areas such as setting/reviewing health goals and related action plans with residents, clearly presenting appropriate educational materials, demonstrating active listening, and correctly completing documentation. Documentation related to health coaching, including assessment surveys and progress notes, are captured in a web-based, HIPAA compliant database. The database features dashboards and reminder functions to help CHWs manage their active caseload. Health Advocates track all records for health navigation in a web-based HIPAA compliant database managed by their organization. Other process metrics are regularly monitored including enrollment, completion, caseload, and program delivery (eg, health coaching sessions, referrals, etc.).

Qualitative evaluation of community health advocacy

To evaluate formation and development of HHAP's efforts around community health advocacy, key informant interviews systematically investigated factors that could influence successful implementation and potential sustainability of this component of HHAP. This work is guided by the Consolidated Framework for Implementation Research, an overarching typology for identifying barriers and facilitators. In-depth, semi-structured, open-ended interviews were conducted over the 6 to 10 months following initiation of the community health advocacy component. Interviews were conducted with a purposive sample of 19 key informants with either direct experience or knowledge of the program during the implementation phase including HHAP staff, Health Department leadership, community residents, and others. Full results have been published previously and are summarized in the following section (VanDevanter et al., 2022).

SUMMARY OF PUBLISHED OUTCOMES

HHAP has published findings from various evaluation components (Feinberg et al., 2019; Lopez et al., 2017; VanDevanter et al., 2022). Published findings comparing baseline and 6-month follow-up assessments for participants enrolled over the first 2 program years found improvements in clinical outcomes among participant versus comparison participants. Specifically, this analysis showed significant improvements in self-reported A1C control in cohort 1, non-significant improvements in cohort 2, and no change among comparison participants. Blood pressure control improved significantly only among cohort 2 participants, suggesting that the program may have strengthened approaches in this area over time (Feinberg et al., 2019). Earlier findings based on assessments 3 months after the start of the program indicated improvements in self-reported routine blood pressure self-monitoring in intervention participants relative to comparison participants (Lopez et al., 2017). Key findings related to program acceptance and feasibility have included high participant satisfaction with their CHW, with health navigation services, and with the program overall (Lopez et al., 2017; VanDevanter et al., 2022).

Other key findings relate to community health advocacy. In-depth key informant interviews conducted with HHAP staff, broader DOHMH staff, community members and leaders and collaborating agencies aimed to identify factors that might affect successful implementation of the intervention and to evaluate the initial implementation of the community health advocacy strategy. Implementation facilitators included positive community feelings about the program, the responsiveness of staff to community needs, program visibility and adaptability, and staff norms and values.

Some of the challenges included limited ability to impact larger housing-related challenges, questions about long-term funding for the program, navigating diverse organizations and community priorities, time and effort required to build trust with community members, and staff efforts to balance the dual roles of serving as community advocates and Health Department employees (VanDevanter et al., 2022).

HHAP has also published findings to increase the visibility of systemic barriers to health experienced by residents (Feinberg et al., 2015; Feinberg et al., 2017; Frazier et al., 2022). This includes a publication highlighting financial barriers to health care among people who have health insurance. This paper highlighted findings that residents were often not able to afford health care services cost-sharing and were frustrated by the lack of coordination within the health care system. Of 591 clients served by Health Advocates from November 2014 to January 25, 2017, 25% experienced a financial barrier to care. The most common barriers were related to affordability followed by outstanding bills, non-covered benefits barriers, billing errors, service denials and eligibility barriers. This publication highlighted the financial burden to care experienced by people even when they have health insurance, as well as the role that health advocates can play in addressing these challenges (Frazier et al., 2022).

DISCUSSION

This paper describes the model, evaluation, and key published findings for HHAP, a place-based CHW initiative that serves residents of public housing in East and Central Harlem. By focusing tailored resources in a particular geographic area, HHAP's deployment of a CHW workforce serves as a form of neighborhood investment to address health inequities produced by structural racism (Bailey et al., 2017). HHAP is intentionally rooted within the communities it serves, engaging residents in their neighborhoods and adapting to community priorities and emerging health needs. While HHAP's CHWs were not formally activated as part of the Health Department's COVID-19 emergency response due to contractual constraints, they conducted wellness checks by phone with NYCHA residents with whom they had coaching relationships, and several CHWs volunteered to distribute food, personal protective equipment, sanitizers, and other resources (in their private capacity as NYCHA and community residents) during the initial statewide lockdown in Spring 2020. CHWs also helped HHAP participants schedule COVID-19 vaccination appointments, provided masks and home-testing kits to Resident Association leaders for broader distribution, and disseminated timely, accurate information to residents, which served to address some of the misinformation that was disseminated on social media and other environments. CHWs were instrumental in fomenting trust between the Health Department and NYCHA residents in East and Central Harlem.

HHAP's focus on residents of public housing responds to calls to implement housing-based health interventions to promote public health (Hernández, 2019). Through its partnership with one of the nation's largest residential landlords, HHAP serves as a mechanism for focusing on the intersection of health and housing. For example, HHAP supported the roll-out of Smoke-Free NYCHA, a NYCHA initiative that responds to a federal mandate that all public housing authorities implement a smoke-free policy (New York City Housing Authority, 2018). HHAP engaged residents and provided resources to residents who wanted to quit smoking, such as smoking cessation workshops (Jiang et al., 2021). A CHW from HHAP served on NYCHA's Advisory Group on Smoking and Health, and HHAP leadership contributed to the design of a NYCHA-led initiative to train and hire CHWs to serve as Smoke-Free Liaisons. Additionally, HHAP has connected NYCHA residents with other Health Department programs,

including diabetes prevention efforts and Get Cool, through which households receive free air conditioners. Finally, HHAP has inspired the development of a larger set of partnerships that create pathways for NYCHA residents to enter CHW careers.

HHAP's design reflects best practices that have emerged in the CHW literature. HHAP CHWs adapt to participant needs and goals and living context, rather than using a one-size-fits-all approach, and the program has removed disease-specific requirements for eligibility, which is in keeping with recommendations to use a person-centered rather than disease-specific approach (Kangovi Asch, 2018; Kangovi, Grande, Trinh-Shevrin, 2015). Additionally, HHAP offers long-term resources for individuals who have completed health coaching through access to ongoing wellness activities and advocacy opportunities that allow people to stay engaged with the program and provide mechanisms to keep building on health gains. Finally, HHAP has developed a strong supervision and training component that involves case reviews, shadowing, and regular training for both CHWs and their supervisors.

Since HHAP was first conceived, the Community Health Worker Research and Evaluation Center collaboratively developed the CHW Common Indicators (CHW Center for Research Evaluation, 2023), which are a set of process and outcome indicators to be used for evaluating CHW practice. Of note, HHAP's approach has aligned with general recommendations that accompany these indicators. For example, one recommendation is that indicators be operationalized into existing data collection or case management tools to reduce burden on staff (CHW Center for Research Evaluation, 2023). In line with this recommendation, data are collected as part of HHAP's intake and follow-up visits for the purposes of both tailoring health coaching and evaluation. This integration helps to streamline data collection for both CHWs and participants. HHAP's evaluation has incorporated qualitative approaches, which is also in line with recommendations included in the guide for using the CHW common indicators. A number of the indicators used by HHAP align with the CHW common indicators, including self-reported physical, mental, and emotional health, assessment of health care and social needs, and assessment of participant social support. While the program has not systematically assessed areas related to participant empowerment and policy and systems change, these align with programmatic approaches and goals but have been challenging to measure. The measures for these areas included CHW Common Indicators may be incorporated for future measurement.

To date, HHAP has published early program findings (Lopez et al., 2017), results from its cohort review approach (Feinberg et al., 2019), and findings on its community health advocacy efforts (VanDevanter et al., 2022). In addition, HHAP has produced 3 publications that have increased the visibility of systemic barriers experienced by residents, including a community health needs assessment (Feinberg et al., 2015), a discussion of financial barriers to care for residents who have health insurance (Frazier et al., 2022), and an examination of smoking among public housing residents (Feinberg et al., 2017). Efforts to publish additional findings on the program's health impact are underway.

The Health Department is exploring replication of HHAP's model to deploy CHWs in additional neighborhoods. In particular, through the city-based Public Health Corps, CBOs have been engaged to provide tailored, culturally relevant COVID-19 outreach and education, delivered by CHWs, to communities throughout NYC. Additionally, it has been proposed that a similar program, more closely aligned with HHAP's focus on chronic disease management, education and health care navigation, be implemented to serve residents of public housing in additional boroughs. Comprehensive and ongoing evaluation will be essential to inform these efforts and to contribute more broadly to our understanding of place-based approaches to improve health equity for residents of public housing.

REFERENCES

American Public Health Association, A. (n.d.). *Community Health Workers*. Retrieved March 21, 2024, from https://www.apha.org/apha-communities/member-sections/community-health-workers

Andrews, J. O., Felton, G., Ellen Wewers, M., Waller, J., & Tingen, M. (2007). The effect of a multi-component smoking cessation intervention in African American women residing in public housing. *Research in Nursing and Health*, *30*(1), 45–60. doi:10.1002/nur.20174

Aponte, J., Jackson, T. D., Wyka, K., & Ikechi, C. (2017). Health effectiveness of community health workers as a diabetes self-management intervention. *Diabetes and Vascular Disease Research*, *14*(4), 316–326. doi:10.1177/1479164117696229

Bach, V. (2017). *Public Housing: New York's Third City*. https://www.cssny.org/publications/entry/public-housing-new-yorks-third-city

Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: Evidence and interventions. In *The Lancet*. vol, Lancet Publishing Group; 1453–1463.

Brown, N., Vaughn, N. A., Lin, A. J., Browne, R., White, M., & Smith, P. (2011). Healthy families Brooklyn: working with health advocates to develop a health promotion program for residents living in New York City housing authority developments. *Journal of Community Health*, *36*(5), 864–873. doi:10.1007/s10900-011-9388-0

CHW Center for Research Evaluation. (2023). *2023 CHW Common Indicators Grid*. https://www.chwcre.org/post/2023-chw-common-indicators-grid

The City of New York. (2015). *Next Generation NYCHA*. https://www.nyc.gov/assets/nycha/downloads/pdf/nextgen-nycha-web.pdf

The City of New York. (2018). *NYCHA 2.0, PART 1: INVEST TO PRESERVE ASSURING QUALITY AFFORDABLE HOUSING FOR ALL NYCHA RESIDENTS*. https://www.nyc.gov/assets/nycha/downloads/pdf/NYCHA-2.0-Part1.pdf

Cosgrove, S. ,Moore-Monroy, M., Jenkins, C., Castillo, S. R., Williams, C., Parris, E. . . . Brownstein, J. N. (2014). *Health Promotion Practice*, *15*(6), 795–802. doi:10.1177/1524839914541442

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, *4*(1), 50. doi:10.1186/1748-5908-4-50

Dupre, M. E., Moody, J., Nelson, A., Willis, J. M., Fuller, L., Smart, A. J. . . . Silberberg, M. (2016). Place-based initiatives to improve health in disadvantaged communities: Cross-sector characteristics and networks of local actors in North Carolina. *American Journal of Public Health*, *106*(9), 1548–1555. doi:10.2105/AJPH.2016.303265

Feinberg, A., Lopez, P. M., Wyka, K., Islam, N., Seidl, L., Drackett, E. . . . Thorpe, L. E. (2017). Prevalence and correlates of smoking among low-income adults residing in New York City public housing developments—2015. *Journal of Urban Health*, *94*(4), 525–533. doi:10.1007/s11524-017-0180-z

Feinberg, A., Seidl, L., Dannefer, R., Wyka, K., Drackett, E., Brown-Dudley, L. . . . Thorpe, L. E. (2019). A cohort review approach evaluating community health worker programs in New York City, 2015-2017. *Preventing Chronic Disease*, *16*(7), 1–7. doi:10.5888/pcd16.180623

Feinberg, A., Seidl, L., Levanon Seligson, A., & Thorpe, L. E. (2015). *Launching a neighborhood-based community health worker initiative: Harlem Health Advocacy Partners (HHAP) Community Needs Assessment*. https://www.nyc.gov/assets/doh/downloads/pdf/dpho/neighborhood-based-chw-iInitiative.pdf

Frazier, T. L., Lopez, P. M., Islam, N., Wilson, A., Earle, K., Dulieprе, N. . . . Thorpe, L. E. (2022). Addressing financial barriers to health care among people who are low-income and insured in New York City, 2014–2017. *Journal of Community Health*, *48*(2), 353–366. doi:10.1007/s10900-022-01173-6

Freeman, A. L., Li, T., Kaplan, S. A., Ellen, I. G., Young, A., Rubin, D. . . . Doran, K. M. (2018). A pilot community health worker program in subsidized housing: the health + housing project. *Cityscape: A Journal of Policy Development and Research*, *20*(2), 19–38.

Furman Center for Real Estate and Urban Policy. (2019). *How NYCHA Preserves Diversity in New York's Changing Neighborhoods*. NYU Furman Center. https://furmancenter.org/research/publication/how-nycha-preserves-diversity-in-new-york8217s-changing-neighborhoods

Garcia, M. L., Sprager, L., & Jiménez, E. B. (2022). Latino community health workers: meeting their community's emotional needs in intuitively culturally appropriate ways. *Progress in Community Health Partnerships: Research, Education, and Action*, *16*(1), 17–25. doi:10.1353/cpr.2022.0002

Hernández, D. (2019). Housing-based health interventions: Harnessing the social utility of housing to promote health. *American Journal of Public Health*, *109*(Suppl S2), S135–S136. doi:10.2105/AJPH.2018.304914

Islam, N. S., Wyatt, L. C., Ali, S. H., Zanowiak, J. M., Mohaimin, S., Goldfeld, K. . . . Trinh-Shevrin, C. (2023). Integrating community health workers into community-based primary care practice settings to

improve blood pressure control among South Asian immigrants in New York City: results from a randomized control trial. *Circulation: Cardiovascular Quality and Outcomes*, *16*(3), E009321. doi:10.1161/CIRCOUTCOMES.122.009321

Jiang, N., Gill, E., Thorpe, L. E., Rogers, E. S., de Leon, C., Anastasiou, E. ... Shelley, D. (2021). Implementing the federal smoke-free public housing policy in New York City: Understanding challenges and opportunities for improving policy impact. *International Journal of Environmental Research Public Health*, *18*(23), 12565. doi:10.3390/ijerph182312565

Kangovi, S. Asch, D. (2018). The Community Health Worker Boom. *New England Journal of Medicine Catalyst* 1–11.

Kangovi, S., Grande, D., & Trinh-Shevrin, C. (2015). From rhetoric to reality — community health workers in post-reform U.S. *Health Care. New England Journal of Medicine*, *372*(24), 2277–2279. doi:10.1056/nejmp1502569

Kenya, S., Chida, N., Symes, S., & Shor-Posner, G. (2011). Can community health workers improve adherence to highly active antiretroviral therapy in the USA? A review of the literature. In *HIV Medicine*. vol, HIV Med; 525–534.

Kim, K., Choi, J. S., Choi, E., Nieman, C. L., Joo, J. H., Lin, F. R. ... Han, H. R. (2016). Effects of community-based health worker interventions to improve chronic disease management and care among vulnerable populations: A systematic review. In *American Journal of Public Health*. vol, American Public Health Association Inc; e3–e28.

Levy, J. I., Brugge, D., Peters, J. L., Clougherty, J. E., & Saddler, S. S. (2006). A community-based participatory research study of multifaceted in-home environmental interventions for pediatric asthmatics in public housing. *Social Science and Medicine*, *63*(8), 2191–2203. doi:10.1016/j.socscimed.2006.05.006

Lopez, P. M., Islam, N., Feinberg, A., Myers, C., Seidl, L., Drackett, E. ... Thorpe, L. E. (2017). A place-based community health worker program: feasibility and early outcomes. New York City: 2015. *American Journal of Preventive Medicine*. Vol. *52*, S284–S289. doi:10.1016/j.amepre.2016.08.034

National Low Income Housing Coalition. (2011). *Resident Participation in Public Housing: Part 964 Regulations*. https://nlihc.org/sites/default/files/Part-964_Resident-Participation-in-Public-Housing.pdf

Neuman, W. (2018). As 4 of 5 in Public Housing Lost Heat, a Demand for an Apology Is Unfulfilled. *New York Times*. https://www.nytimes.com/2018/02/06/nyregion/heat-cold-nycha-nyc-olatoye.html

New York City Department of Health and Mental Hygiene. (2022a). *Community Health Profiles: Central Harlem*. New York City Department of Health and Mental Hygiene. https://a816-health.nyc.gov/hdi/profiles/

New York City Department of Health and Mental Hygiene. (2022b). *Community Health Profiles: East Harlem*. New York City Department of Health and Mental Hygiene. https://a816-health.nyc.gov/hdi/profiles/

New York City Department of Health and Mental Hygiene. (2022c). *Community Health Profiles: Upper East Side*. New York City Department of Health and Mental Hygiene. https://a816-health.nyc.gov/hdi/profiles/

New York City Housing Authority. (2018). *NYCHA is now Smoke-Free*. https://www.nyc.gov/site/nycha/about/press/pr-2018/pr-20180730.page

New York City Housing Authority. (2020). *A Blueprint for Change*. https://www.nyc.gov/assets/nycha/downloads/pdf/NYCHA-Blueprint-for-Change_NYHC_Final.pdf

New York City Housing Authority. (2022). *NYCHA Developments Data Book 2022*. https://www.nyc.gov/assets/nycha/downloads/pdf/pdb2022.pdf

New York City Housing Authority. (n.d.). *Resident Councils*. Retrieved May 22, 2023, from https://www.nyc.gov/site/nycha/residents/resident-councils.page

NY, C. S. S. (n.d.). *Community Service Society of New York*. Retrieved May 22, 2023, from https://www.cssny.org/

NYU Furman Center. (2022a). *Neighborhood Profile: Central Harlem, MN10*. https://furmancenter.org/neighborhoods/view/central-harlem

NYU Furman Center. (2022b). *Neighborhood Profile: East Harlem, MN 11*. https://furmancenter.org/neighborhoods/view/east-harlem

NYU Furman Center. (2022c). *Neighborhood Profile: Manhattan*. https://furmancenter.org/neighborhoods/view/manhattan

NYU Langone Health. (2015). NYU-CUNY prevention research center community health worker toolkit. *In* NYU Langone Health. https://med.nyu.edu/departments-institutes/population-health/divisions-sections-centers/health-behavior/section-health-equity/research/nyu-cuny-prevention-research-center/tools-publications/community-health-worker-toolkit

NYU-CUNY Prevention Research Center. (n.d.). Retrieved May 22, 2023, from https://med.nyu.edu/departments-institutes/population-health/divisions-sections-centers/health-behavior/section-health-equity/research/nyu-cuny-prevention-research-center

Pérez, L. M. Martinez, J. (2008). Community health workers: Social justice and policy advocates for community health and well-being. In *American Journal of Public Health*. American Public Health Association Inc; 11–14.

Rorie, J. A., Smith, A., Evans, T., Horsburgh, C. R., Jr Brooks, D. R., Goodman, R. ... Geller, A. (2011). Using resident health advocates to improve public health screening and follow-up among public housing residents. Boston: 2007–2008. *Public Health Research, Practice, and Policy*. https://stacks.cdc.gov/view/cdc/20543.

Rosenthal, E. L., Brownstein, J. N., Rush, C. H., Hirsch, G. R., Willaert, A. M., Scott, J. R. . . . Fox, D. J. (2010). Community health workers: Part of the solution. In: *Health Affairs*. Health Aff (Millwood); 1338–1342.

Ruel, E., Oakley, D., Wilson, G. E., & Maddox, R. (2010). Is public housing the cause of poor health or a safety net for the unhealthy poor? *Journal of Urban Health*, *87*(5), 827–838. doi:10.1007/s11524-010-9484-y

Stupplebeen, D. A., Sentell, T. L., Pirkle, C. M., Juan, B., Barnett-Sherrill, A. T., Humphry, J. W. . . . Keliikoa, L. B. (2019). Community health workers in action: community-clinical linkages for diabetes prevention and hypertension management at 3 community health centers. *Hawai'i Journal of Medicine Public Health*, *78* (6 Suppl 1), 15–22. http://www.ncbi.nlm.nih.gov/pubmed/31285963

US Department of Health & Human Services. (2011). Principles of Community Engagement (2nd Edition). https://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf

Ursua, R. A., Aguilar, D. E., Wyatt, L. C., Katigbak, C., Islam, N. S., Tandon, S. D. . . . Trinh-Shevrin, C. (2014). A community health worker intervention to improve management of hypertension among Filipino Americans in New York and New Jersey: A pilot study. *Ethnicity and Disease*, *24*(1), 67–76. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3955003/

VanDevanter, N., Zhong, L., Dannefer, R., Manyindo, N, Walker, S., Otero, V. . . . Islam, N. (2022). Implementation facilitators and challenges of a place-based intervention to reduce health disparities in harlem through community activation and mobilization. *Frontiers in Public Health*, 10, 1–10. doi:10.3389/fpubh.2022.689942

Wang, C. Burris, M. A. (1997). Photovoice: Concept, Methodology, and Use for Participatory Needs Assessment. *Health Education and Behavior*, *24* (3), 369–387. doi:10.1177/109019819702400309

Wolff, M., Young, S., & Maurana, C. A. (2001). Community advocates in public housing. *American Journal of Public Health*, *91*(12), 1972–1973. doi:10.2105/AJPH.91.12.1972

Wu, W. Y., Jiang, Q., & Di Lonardo, S. S. (2018). Poorly controlled diabetes in New York City: mapping high-density neighborhoods. *Journal of Public Health Management and Practice*, *24*(1), 69–74. doi:10.1097/PHH.0000000000000544