

# Community Health Worker Intervention in Subsidized Housing: New York City, 2016–2017

From April 2016 to June 2017, the Health + Housing Project employed four community health workers who engaged residents of two subsidized housing buildings in New York City to address individuals' broadly defined health needs, including social and economic risk factors. Following the intervention, we observed significant improvements in residents' food security, ability to pay rent, and connection to primary care. No immediate change was seen in acute health care use or more narrowly defined health outcomes. (*Am J Public Health.* 2020;110:689–692. doi:10.2105/AJPH.2019.305544)

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**T**here has been significant attention to the effect of community health worker (CHW) interventions on chronic disease management and access to care. Less attention has been paid to the potential for CHWs to address patients' more broadly defined health. Place-based CHW interventions may provide an effective means of reaching vulnerable populations with a range of health, social, and economic needs.

## INTERVENTION

The Health + Housing Project, a CHW intervention located in subsidized housing in New York City, aimed to address residents' self-identified health-related needs, including social and economic risk factors.<sup>1</sup> Intervention design and process outcomes (e.g., average number of CHW contacts) have been previously described.<sup>1</sup>

## PLACE AND TIME

The project took place from April 2016 to June 2017 in one privately owned Section 8 and one public housing building in the Lower East Side of Manhattan.

## PERSON

All adult building residents were eligible to participate. Although additional emphasis was

placed on engaging “frequent users,” defined as three or more emergency department visits or one or more hospitalizations in the past year, CHWs attempted to engage all building residents.

## PURPOSE

As health care organizations are challenged to shift their approach from treating patients on a fee-for-service basis to value-based payment models, identifying salient social determinants of health and social risk factors is of increasing interest to many health care delivery systems.<sup>2</sup> Until recently, however, little attention has focused on understanding what types of upstream interventions are most likely to have a positive effect on downstream health outcomes.<sup>3</sup>

US health care systems have increasingly incorporated CHWs and other lay health workers into patient care and engagement efforts.<sup>4</sup> Although most CHW programs have focused on traditional care coordination activities for patients already engaged in health care, CHWs are also well

positioned to reach a broader population and to intervene in social risk factors because they generally share cultural, linguistic, and life experience backgrounds with the people with whom they work.<sup>5</sup>

Subsidized, low-income housing is a promising setting for place-based CHW interventions. Despite the benefits of having access to affordable housing, subsidized housing residents have a disproportionate number of physical and mental health conditions.<sup>6</sup> The concentration of people with high health need presents an opportunity to deliver interventions efficiently and tailor them to a given building's population. CHWs deployed in housing meet residents in their homes and community spaces, where they have access to a more complete picture of the range of factors affecting residents' health. To date, however, there has been scant research examining the effectiveness of housing-based CHW interventions.<sup>7</sup> The goal of the Health + Housing Project was to expand CHW models by designating subsidized housing

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This article was accepted December 21, 2019.

doi: 10.2105/AJPH.2019.305544

as the site of recruitment and intervention, inviting building residents to participate regardless of disease status or age, and addressing broadly defined health needs, including social risk factors for poor health.

## IMPLEMENTATION

We partnered with a local community-based organization, Henry Street Settlement, to implement the intervention and serve as a primary service provider for referrals.

CHWs, who were employed by Henry Street Settlement, engaged residents with an initial intake visit, followed by a goal-setting activity and the creation of an individualized action plan. CHWs used motivational interviewing and referrals to Henry Street Settlement case managers and services and other community resources to assist with goal completion. For example, for participants experiencing food insecurity, CHWs helped gather documents needed for Supplemental Nutrition Assistance Program applications, made referrals to Meals on Wheels home-based meal delivery, and accompanied participants to neighborhood food pantries. They referred participants with rent arrears to Henry Street Settlement case managers who helped them apply for emergency rental assistance. CHWs also facilitated outpatient medical care for participants by scheduling appointments, arranging transportation, and escorting them to appointments.

## EVALUATION

We administered baseline and postintervention surveys to adult

residents in the three months before and after the intervention. Surveyors (not CHWs) recruited residents at various times of the day and week and conducted surveys in person in Spanish, Chinese, and English. Complete evaluation methods are provided in the Appendix (available as a supplement to the online version of this article at <http://www.ajph.org>).

Of the 819 estimated adult building residents, 390 (48%) completed a baseline survey. Of those, 226 (58% of survey takers) completed an intake with a CHW. Most intervention participants were female (61%) and Latinx (69%), 28% were aged 65 years or older, 63% had a household income less than \$20 000, and many reported having chronic diseases. Of the 226 participants, 172 (76%) completed both baseline and postintervention surveys and were included in the outcome analysis (Figure A, available as a supplement to the online version of this article at <http://www.ajph.org>). No significant differences were found between participants who completed both surveys and those who completed only a baseline survey (Table A, available as a supplement to the online version of this article at <http://www.ajph.org>).

Table 1 shows differences between preintervention and postintervention survey responses. Compared with baseline, we observed a significant decrease in the percentage of participants who reported food insecurity and inability to pay rent on time after the intervention. In addition, significantly fewer participants reported needing and being unable to access food, a place to exercise, job training or employment placement programs, and education.

**TABLE 1—Social and Economic Risk Factors, Health Service Use, and Health Status at Baseline and After the Survey: New York City Health + Housing Project, April 2016 to June 2017**

	CHW Intervention Participants With Baseline and Postintervention Survey Data (n = 172)			
	Baseline, No. (%) <sup>a</sup>	Postintervention Survey, No. (%)	Difference, % or Mean	Paired <i>P</i> <sup>b</sup>
<b>Social and economic risk factors<sup>c</sup></b>				
Food insecurity <sup>d</sup>	91 (53.5)	71 (41.8)	−11.7	.004
Inability to pay rent on time	37 (22.2)	22 (13.2)	−9.0	.009
Pests or mold in apartment, currently	89 (52.1)	91 (53.2)	+1.1	.74
Needed but could not access <sup>e</sup>				
SNAP or WIC	54 (31.8)	23 (13.5)	−18.3	<.001
Place to exercise	41 (24.0)	28 (16.4)	−7.6	.012
Cash assistance	30 (17.5)	23 (13.4)	−4.1	.19
Food bank	26 (15.2)	22 (12.9)	−2.3	.47
Job training or employment program	21 (12.3)	11 (6.4)	−5.9	.018
Education, GED, or ESL	14 (8.2)	4 (2.3)	−5.9	.018
Child care	6 (3.5)	8 (4.7)	+1.2	.52
Legal assistance	3 (1.7)	9 (5.2)	+3.5	.034
<b>Health care access and use</b>				
Insured, currently	161 (94.7)	167 (98.2)	+3.5	.06
Has a personal doctor	142 (84.0)	156 (92.3)	+8.3	.008
Has seen personal doctor	124 (91.9)	113 (83.7)	−8.2	.041
No. of outpatient visits				.037
0	22 (12.9)	24 (14.1)	+1.2	
1	26 (15.3)	32 (18.8)	+3.5	
2–3	80 (47.1)	56 (32.9)	−14.2	
≥ 4	42 (24.7)	58 (34.1)	+9.4	
Problems getting doctors' appointments	18 (10.5)	11 (6.4)	−4.1	.14
Needed medical care but did not get it	19 (11.2)	16 (9.4)	−1.8	.53
≥ 3 ED visits in past 12 mo	25 (14.5)	18 (10.5)	−4.0	.13
≥ 1 hospitalization in past 12 mo	30 (17.5)	25 (14.6)	−2.9	.41
<b>General health status</b>				
Excellent, very good, or good	92 (53.8)	89 (52.0)	−1.8	.63
Fair or poor	79 (46.2)	82 (48.0)	+1.8	
<b>Confidence in ability to take care of health</b>				
Completely, very, or somewhat confident	140 (81.4)	140 (81.4)	0	>.99
A little or not confident at all	32 (18.6)	32 (18.6)	0	

*Continued*

TABLE 1—Continued

	CHW Intervention Participants With Baseline and Postintervention Survey Data (n = 172)			
	Baseline, No. (%) <sup>a</sup>	Postintervention Survey, No. (%)	Difference, % or Mean	Paired <i>P</i> <sup>b</sup>
<b>Mental health<sup>c</sup></b>				
Positive screening for anxiety	37 (22.6)	42 (25.6)	+3.0	.38
Positive screening for depression	40 (23.8)	31 (18.5)	-5.3	.14
<b>Health behavior</b>				
Self-rated diet				
Excellent, very good, or good	90 (52.3)	93 (54.1)	+1.8	.68
Fair or poor	82 (47.7)	79 (45.9)	-1.8	
Exercised in the past 30 d	115 (66.9)	123 (71.5)	+4.6	.25
Currently smokes (tobacco)	35 (20.5)	32 (18.7)	-1.8	.37

Note. CHW = community health worker; ED = emergency department; ESL = English as a second language; GED = general equivalency diploma; SNAP = Supplemental Nutrition Assistance Program; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

<sup>a</sup>Because of missing data (<5% for all variables), denominators vary for questions and do not always equal 172.

<sup>b</sup>Paired *P* value for preintervention and postintervention difference using McNemar test, Stuart-Maxwell test, or paired *t* test, as appropriate.

<sup>c</sup>All questions used a time frame of past 6 mo unless otherwise noted.

<sup>d</sup>Positive response to at least 1 of 2 US Department of Agriculture screening questions for food insecurity in the past 6 mo.

<sup>e</sup>Questions about need for each service or benefit were worded as "needed but could not get."

<sup>f</sup>Two-item Generalized Anxiety Disorder Scale and Patient Health Questionnaire-2 used for anxiety and depression screening, respectively.

More participants reported having a personal doctor on the postintervention survey than at baseline, but fewer reported seeing their personal doctor in the past six months. There was a significant change from baseline in the number of outpatient visits in the past six months, with more participants reporting four or more visits. No significant change from baseline was seen in self-reported emergency department visits or hospitalizations in the past year, although in a small subgroup analysis, we observed heterogeneity by prior use frequency (with some suggestion of reductions in emergency department visits among frequent users of the emergency department and increases among non-frequent users; Figure B, available

as a supplement to the online version of this article at <http://www.ajph.org>). This finding may have reflected regression to the mean. No change from baseline occurred in participants' self-reported general or mental health status or health behaviors. Evaluation limitations include the small sample size, short time frame, and lack of a comparison group.

## ADVERSE EFFECTS

We did not observe any adverse effects from the intervention.

## SUSTAINABILITY

The CHW intervention was funded by a foundation grant and support from community health

improvement funds of a large academic health care system. Seeing value in the CHW intervention, the owners of the Section 8 intervention building decided to fund a continuation of the program and its expansion to two other buildings. They have partnered with Henry Street Settlement (the community-based organization partner for our intervention) to provide CHW services.

This model may potentially be replicable in subsidized housing developments that participate in the federal Rental Assistance Demonstration, which often entails partnerships with community-based organizations to provide social services to tenants. That the Section 8 building's board of directors chose to expand the program also shows the importance of considering diverse interests of cross-sector partners rather than focusing narrowly on health care cost reductions for housing-based interventions.

## PUBLIC HEALTH SIGNIFICANCE

CHWs successfully engaged a significant proportion of vulnerable subsidized housing residents in an intervention focused on addressing broadly defined health-related needs. We saw positive outcomes for social and economic risk factors, particularly improvements in food security and ability to pay rent, and connection to a personal doctor. We hypothesize that these were the areas that CHWs were most likely to affect in the short term, which might have other downstream health effects. It may take longer for health care use and other health outcomes to emerge. A more disease-focused intervention also may be necessary to affect some of these measures.

Our study suggests that place-based CHW interventions in subsidized, low-income housing are feasible and have the potential to address the broadly defined health needs of a concentrated population of vulnerable residents. Future research should examine subsidized housing as a site for health-related interventions, with the potential to reach patients with high levels of health and social risk factors. **AJPH**

## CONTRIBUTORS

T. Li conducted the data analysis, and A. L. Freeman and K. M. Doran assisted with interpretation. A. L. Freeman, S. A. Kaplan, I. Gould Ellen, M. N. Gourevitch, and K. M. Doran participated in study design. A. Young assisted with research implementation and supervision. All authors made critical revisions to the article.

## ACKNOWLEDGMENTS

The authors gratefully acknowledge funding for this project from the Robin Hood Foundation and New York University Langone Health community health improvement funding as part of its community service plan.

The authors would like to thank the survey staff who collected data, the residents and resident associations who took part in the project, and the dedicated community health workers (Laureen Cuprill, Stephanie Liu, Rosalie Roman, and Daniel Tsai) who worked closely with residents and helped them to improve their lives. The authors also thank their community partner, Henry Street Settlement, and the buildings' management companies and board of directors for their supportive partnerships.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

## HUMAN PARTICIPANT PROTECTION

Institutional review board approval was obtained from the New York University School of Medicine for this research.

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