



# Changes in healthcare access and utilization among participants in a public housing relocation program in Atlanta, Georgia



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## ABSTRACT

Using survey data from participants in a public housing relocation program in Atlanta, Georgia, we examine post-relocation changes in healthcare access (having a usual source of care, having an unmet need) and utilization (receiving a medical exam). Although participants moved to safer, less impoverished neighborhoods, some participants experienced improvements in access and utilization whereas others experienced declines. The supply of healthcare providers in the new neighborhood and having health insurance were associated with improvements in access for this population. Future relocation efforts may seek to assist individuals with choosing a new neighborhood that has accessible healthcare resources for low-income populations.

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## 1. Introduction

Individuals living in more impoverished areas have worse healthcare access (Kirby and Kaneda, 2005) and health outcomes (Gaskin et al., 2013; Henry, Sherman, and McDonald, 2014; Wight et al., 2010) than those in less impoverished areas. Poor health outcomes are particularly evident among residents of public housing complexes, which spatially concentrate poverty (Culhane-Pera et al., 2007; Krieger and Higgins, 2002). Public housing relocation programs allow residents of large public housing complexes to move to less impoverished neighborhoods, often through private market rental vouchers (U.S. Department of Housing and Urban Development, 2014). A modest body of research has examined changes in health outcomes post-relocation, with mixed results (Cooper et al., 2013, 2014; Fauth et al., 2004; Kling et al., 2006; Ludwig et al., 2011).

However, no study has examined changes in individual-level healthcare access or utilization post-relocation, which may be relevant to health outcome changes. Contextual- and individual-level enabling resources, in particular, may be associated with changes in healthcare access and utilization for program participants (Andersen,

1995). On the one hand, access and utilization may increase if the new communities have more enabling healthcare resources (e.g., more physicians) or offer safer, more convenient routes (e.g., lower crime and/or better public transit) to accessing care (Jiang and Begun, 2002; Kirby and Kaneda, 2005). On the other hand, access could decline if participants move to neighborhoods with fewer healthcare resources for the poor (Cooper et al., 2012; May et al., 2004). In either case, changes in access and utilization may depend on individual enabling resources, such as insurance coverage – rates of which are known to be lower among public housing residents (Digenis-Bury et al., 2008).

As part of an ongoing, longitudinal public housing relocation study, this short report provides the first examination of how healthcare access and utilization change for participants in a public housing relocation program. We also examine the associations between key enabling factors and changes in access to and utilization of healthcare for participants.

## 2. Materials and methods

### 2.1. Study setting

Atlanta, Georgia has been particularly active in its public housing relocation efforts, which have been described in detail

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elsewhere (Cooper et al., 2012). In short, Atlanta relocated its public housing residents under the Section 18 amendment to the 1937 Housing Act, which shifted public housing residents into the private market using rental vouchers. These data come from a larger study that examined the effects of relocation on substance use, HIV risk, and other health outcomes among people who use drugs. Participants were recruited from seven public housing complexes targeted for demolition, and met the following criteria: lived in the complex for at least one year prior to the study screening; self-identified as non-Hispanic African-American; were at least 18 years of age; had been sexually active in the past year; and did not live with an individual already enrolled in the study. Nonprobability-based quota sampling methods were used to oversample individuals who misused or were dependent on alcohol or other drugs.

## 2.2. Data collection

We analyzed survey data from the baseline interview (median date June 30, 2009) and follow up. Baseline data captured information about the time period just before relocations began in an individual's complex. Follow-up data used for this study (median interview date May 16, 2011) were obtained nearly two years post-relocation. This study period was chosen so that participants would have had sufficient time to establish relationships with healthcare providers in their new community.

Census tract-level data were obtained from the 2012 American Community Survey (U.S. Census Bureau, 2015) and the 2010 Health Resources and Services Administration (Health Resources and Services Administration, 2014). Study protocols were approved by Emory University's Institutional Review Board, and a federal certificate of confidentiality was obtained for participant protection.

## 2.3. Sample

Of the 172 individuals recruited into the study, 160 completed interviews at baseline and follow-up. After limiting the analytic samples to those with complete data on the study variables, sample sizes ranged from 134 to 139 across the three outcomes.

## 2.4. Measures

### 2.4.1. Dependent variables

We analyzed three dichotomous outcomes of healthcare access and utilization that were ascertained at each wave. Consistent with Institute of Medicine guidelines, we conceptualized healthcare access as the timely use of personal health services to achieve the best possible outcomes (Millman, 1993). First, we created an indicator of whether an individual reported having a usual source of care (USOC) where he/she usually went to for medical care in the 6 months prior to the interview (other than the emergency room), a common measure of access because it provides an entry point into the healthcare system if timely services are needed (Agency for Healthcare Research and Quality, 2014). Second, we created a dichotomous indicator for whether a respondent had wanted medical care in the six months prior to the interview, but was unable to receive it (i.e., unmet need). This measure assesses an individual's perception of their inability to receive timely services (Agency for Healthcare Research and Quality, 2014). Finally, we created an indicator for healthcare utilization that assesses whether a respondent had an examination by a physician in the past 12 months.

We also created three categorical variables to capture changes in each measure for individual participants across time. For example, we created a categorical measure of USOC for those who: (1) had a USOC at baseline and follow-up (i.e., access in both

**Table 1**

Healthcare access, healthcare utilization, and enabling characteristics among participants in a public housing relocation program, at baseline and follow-up.<sup>a</sup>

	Baseline	Follow-up	p-Value <sup>b</sup>
<i>Individual-Level Healthcare Access and Utilization</i>			
Has Usual Source of Care (n=137), %	75.2	73.7	0.782
Had Unmet Need (n=134), %	28.4	20.9	0.156
Had Medical Exam (n=139), %	72.7	69.1	0.509
<i>Neighborhood-Level Enabling Characteristics</i>			
Percentage living in poverty in the census tract, mean (SD)	41.0 (11.3)	31.9 (12.8)	< 0.001
Number of primary care physicians per 1,000 residents in the census tract, mean (SD)	1.8 (3.2)	0.9 (2.6)	0.003
Perceived neighborhood safety (1–5 Scale, 5 is Most Safe), mean (SD)	3.9 (0.9)	4.3 (0.7)	< 0.001
<i>Individual-Level Enabling Characteristic</i>			
Has health insurance (vs. uninsured), %	65.6	74.1	0.132

<sup>a</sup> Median interview dates were June 30, 2009 at baseline and May 16, 2011 at follow-up.

<sup>b</sup> Bivariate comparisons between the value of each measure at baseline and follow-up were conducted with equality of proportions tests and *t*-tests. Bivariate comparisons for neighborhood- and individual-level enabling characteristics use the largest sample (i.e., those who had complete data for the medical exam question; n=139).

waves); (2) gained a USOC between baseline and follow-up (i.e., access improved); (3) lost USOC between baseline and follow-up (i.e., access declined); and (4) never had a USOC in either wave. We created similar measures for unmet need and having a physical in the past 12 months.

### 2.4.2. Enabling characteristics

We used Anderson's Behavioral Model of Healthcare Utilization framework to identify enabling characteristics during the follow-up period at the neighborhood and individual levels that may be associated with access and utilization changes (Andersen, 1995). At the neighborhood level, we examined the: (1) percentage of census tract residents living in poverty; and (2) number of clinically active primary care physicians per 1000 residents in the post-relocation census tract. A third neighborhood characteristic was derived from a survey question that asked participants about their perception of their neighborhood safety on a scale of 1 ("very unsafe") to 5 ("very safe"). At the individual level, we examined whether an individual had health insurance at follow-up (vs. being uninsured).

## 2.5. Analytic approach

We compared healthcare access and use across the two time points using Stata's equality of proportions test (StataCorp, 2013). We subsequently described changes in the outcomes using the categorical measures to assess the proportion of participants for whom access improved or declined.

Finally, we examined the association between enabling characteristics and changes in access and utilization across waves. Bivariate associations were assessed using chi-squared tests and one-way analysis of variance tests. We also estimated multinomial logistic regression models, which included the enabling characteristics, individual-level predisposing characteristics (age and gender), need-related characteristics at baseline [a dichotomous indicator of fair or poor self-reported health status (vs. good, very good, or excellent) and a scale of substance use behaviors (Knight et al., 2002)], and the local road distance participants had moved. Standard errors were clustered at the pre-relocation census tract. We present marginal effects, which were estimated at the

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