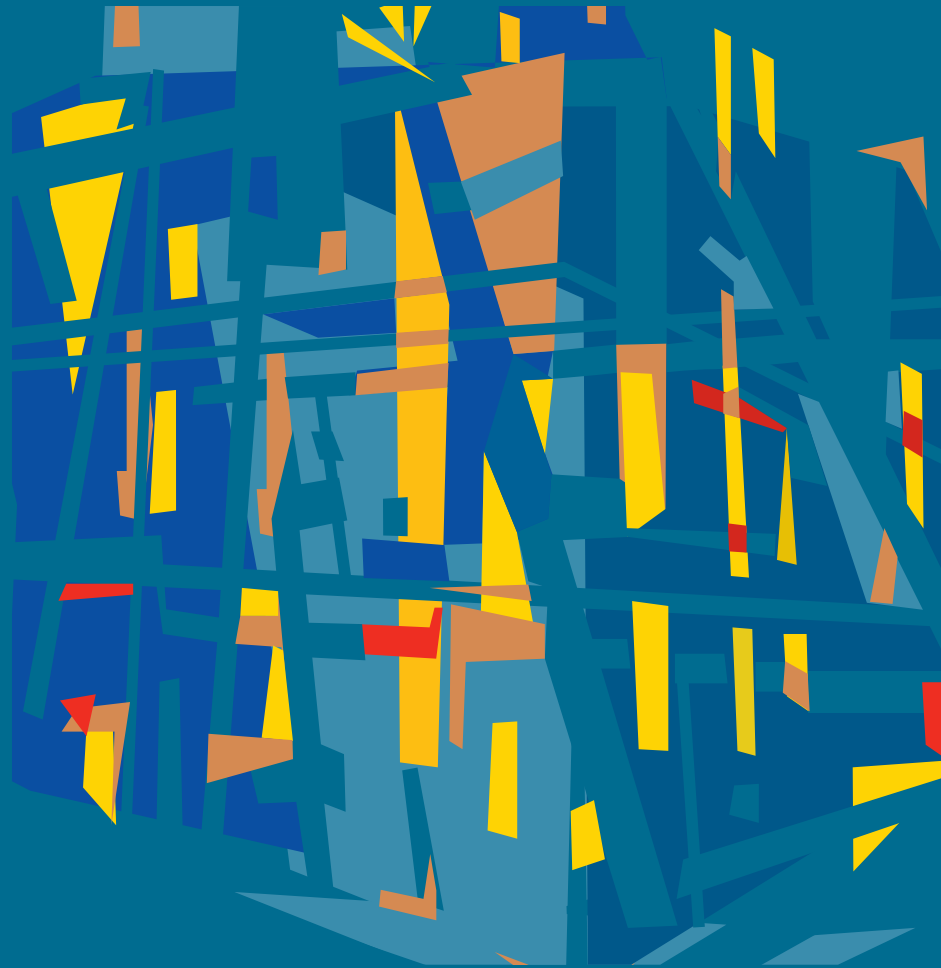


A Health Picture of HUD-Assisted Children, 2006–2012

HUD Administrative Data Linked With the National Health Interview Survey



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A Health Picture of HUD-Assisted Children, 2006–2012

HUD Administrative Data Linked With the National Health Interview Survey

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U.S. Department of Housing
and Urban Development

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Executive Summary

Housing is an important social determinant of health, yet little systematic evidence exists about the health of U.S. Department of Housing and Urban Development (HUD)-assisted households. Current knowledge and understanding of the health of the nation’s assisted housing population is based primarily on case studies and anecdotes.¹ This knowledge gap is being addressed through an interagency effort between the Centers for Disease Control and Prevention, National Center for Health Statistics and HUD. National Health Interview Survey (NHIS) responses were linked with HUD’s administrative data on rental assistance programs. For the first time, reliable estimates of the prevalence of health conditions and healthcare utilization among HUD-assisted individuals—including adults and children—are now available at a national level (Sperling and Helms, 2016).

This report focuses on the health of children in HUD-assisted households.² Among the 5 million households and 10 million individuals receiving HUD rental housing assistance, approximately 4 million are children, representing nearly 6 percent of all children in the United States.³ This report describes the health characteristics of HUD-assisted children using various NHIS variables. Findings establish a baseline that can inform policymakers and stimulate further research. Comparative data for two relevant child groups—children residing in unassisted low-income renter households and the general child population—are provided for context. Differences between groups are not tested for statistical significance.

Analyses revealed that important health status indicators characterize the population of HUD-assisted children. Major findings are highlighted in the following list.

- **Sociodemographic characteristics of HUD-assisted children.** Most HUD-assisted children were Black (52.2 percent). The largest proportion resided in the South (44.1 percent). Most HUD-assisted children lived in a single-parent, female-headed household (74.6 percent). Additionally, a large proportion resided in large metropolitan centers (31.9 percent), and 40.7 percent had a family income that was less than one-half of the federal poverty threshold (based on poverty levels for 2012).⁴
- **Health status of children ages 0–17 years.** Among HUD-assisted children, 5.2 percent had a knowledgeable adult report their health as fair or poor. HUD-assisted children were frequent users of the emergency room. During the year prior to the interview, 14.2 percent of HUD-assisted children visited the emergency room two or more times. A high percentage of HUD-assisted children (21.2 percent) had current asthma.
- **Learning-related health status of school-aged children (ages 6–17).** Among HUD-assisted children, 16.2 percent of school-aged children missed 6 to 10 days of school during the previous year, and 8.5

¹ For some exceptions, see Ahrens et al. (2016) and Fenelon et al. (2017). Authors used the same HUD-National Center for Health Statistics linked data to support findings.

² A previous report focused on HUD-assisted adults. See Helms, Sperling, and Steffen (2017).

³ Estimate based on statistics published by the Federal Interagency Forum on Child and Family Statistics (2016).

⁴ Based on 2012 poverty thresholds published by the Census Bureau, a ratio of family income to the poverty threshold of less than 0.5 translates to an annual household income no greater than \$9,249 for a family of three with one adult and two children (U.S. Census Bureau, 2017).

percent missed 11 or more days. School-aged, HUD-assisted children experience high rates of learning disabilities: 26.5 percent of children had any learning disability reported by a school or health professional; this included 16.1 percent who had been diagnosed with attention deficit hyperactivity disorder or attention deficit disorder and 10.4 percent ever diagnosed with some other kind of learning disability.

- **Healthcare access among children ages 0–17.** Most HUD-assisted children ages 0–17 years had insurance coverage via public health insurance programs (86.8 percent). A smaller proportion of children were uninsured among the HUD-assisted population (4.1 percent) than among the general child population (8.2 percent). Additionally, the percentage of children with unmet medical needs due to cost was similar among HUD-assisted children (3.5 percent) and children in the general population (4.4 percent). Most HUD-assisted children had a well-child visit (84.4 percent) or general doctor visit (85.9 percent) during the prior year.
- **Healthcare access among school-aged children (ages 6–17).** Among HUD-assisted children ages 6–17, 8.3 percent reported unmet dental healthcare needs due to cost. Most (81.1 percent) HUD-assisted children ages 6–17 had obtained oral health services during the prior year. A small percentage (2.5 percent) of HUD-assisted children reported unmet mental healthcare needs. In addition, 16.1 percent of HUD-assisted children saw a mental health professional during the prior 12 months. In HUD-assisted households, 5.6 percent of children were reported to need eyeglasses but did not get them because the family was unable to afford them.

Descriptive analyses show clear differences between HUD-assisted children, children residing in low-income, unassisted households, and children in the general population. The differences reported here were not tested for statistical significance, but the findings underscore the need for further research to better understand the connection between rental housing assistance programs administered by HUD and the health of children in HUD-assisted households.

Introduction

The U.S. Department of Housing and Urban Development (HUD) provides rental housing assistance to approximately 5 million households and 10 million low-income individuals. Approximately 40 percent of HUD-assisted tenants—more than four million—are children. Children living in HUD-assisted households represent nearly 6 percent of all children in the United States.⁵ This report presents a broad overview of the health characteristics of HUD-assisted children using various health survey metrics to establish a baseline to inform policymakers. Comparative data for two relevant child groups, (1) children residing in unassisted low-income renter households and (2) the general child population, are provided for context. Descriptive statistics are presented for children ages 0–17 and for school-aged children ages 6–17.

Housing as a Social Determinant of Health

Recently, housing policymakers and public health professionals have recognized the need to understand housing as a social determinant of health. Housing influences health in many ways. First, housing affordability is central to a family’s financial stability. For most American families, housing costs represent their largest monthly expenditure.⁶ For homeowners, housing is often a family’s greatest financial asset. Geographic location and neighborhood characteristics are also important determinants of health, including factors such as access to transportation, education, and health care. To obtain affordable rents without housing assistance, some low-income families are forced to accept inadequate and unsafe housing and live in hazardous neighborhoods.

Prioritizing Housing as a Social Determinant of Health in *Healthy People 2020*

Recognizing the need to gain a better understanding of the social causes of morbidity and mortality, the U.S. Department of Health and Human Services recently added Social Determinants of Health (SDOH) as a core focus area in *Healthy People 2020* (HP2020). The HP2020 program establishes a set of nationwide health-promotion and disease-prevention goals to be achieved by the year 2020. One-third of SDOH data performance objectives measure poverty, housing cost burden, or both, further indicating the need to prioritize housing as a key SDOH (HP2020, 2016).

Physical conditions within a home can have a significant impact on physical health. Most Americans spend more than half of their time inside their homes. Inadequate units pose health risks through such conditions as pest infestations, dampness and mold, lead-based paint hazards, injury hazards, inadequate ventilation and poor indoor air quality, and inadequate temperature control. Poor indoor environmental conditions, which may be combined with high-crime, polluted, or low-amenity neighborhoods, threaten both physical and mental health (Evans, Wells, and Moch, 2003; Fisk, Eliseeva, and Mendell, 2010; Krieger and Higgins, 2002).

⁵ Estimate based on statistics published by the Federal Interagency Forum on Child and Family Statistics (2016).

⁶ In 2015, 8.3 million very low-income renter households lacked housing assistance and faced severe cost burdens, severely inadequate housing units, or both. HUD classifies housing costs between 30 and 50 percent of income as moderate cost burdens, and housing costs exceeding 50 percent of income as severe housing cost burdens (Watson et al., 2017).

Descriptive statistics in this report aim to provide new insights into the link between subsidized housing and children’s health. The report seeks to encourage focused research using the HUD-National Center for Health Statistics (NCHS) data linkage. Health status and healthcare utilization outcomes for children in HUD-subsidized households are summarized alongside estimates for children in unsubsidized renter households with incomes below the federal poverty line and children in the general population. Comparisons provide context for findings about HUD-assisted children but are not statistically valid comparisons.

HUD Rental-Assistance Programs

This report focuses on HUD-assisted children, defined to include children residing in households receiving one of HUD’s three major rental subsidy program types—public housing, housing choice vouchers (HCVs),⁷ and assisted multifamily housing.⁸ Public housing and HCVs are administered by state and local public housing agencies (PHAs). Within multifamily programs, in contrast, private building owners contract directly with HUD to make units available at subsidized rents. For all three program types, housing providers verify income eligibility of subsidized renters and submit tenant data to HUD, which sets the level of tenant rent contributions. Most tenants have incomes substantially below 50 percent of Area Median Income (AMI)⁹ on admission.

Households that receive HUD assistance may differ from the general population of all households eligible for HUD assistance. For instance, households receiving assistance tend to be poorer, be older, have more disabilities, and be more likely to have a history of homelessness than the group of all eligible households. Therefore, the health of children living in assisted households might differ from the health of children in the larger group of eligible households because of these selection processes. Additional research should make health comparisons between the presented populations with respect to selection into HUD programs.



⁷ HCVs are also known as tenant-based rental assistance.

⁸ Historically, assisted multifamily programs also have been referred to as project-based rental assistance.

⁹ HUD estimates AMI based on metropolitan areas, identified by the Census Bureau, and the nonmetropolitan balance of states. The term *very low income* refers to incomes of no more than 50 percent of AMI, with adjustments for family size. The definitions of *low income*, *very low income*, and *extremely low income* are outlined in the United States Housing Act of 1937, as amended.

HUD-NCHS Data Linkage Sources

In collaboration with HUD, the NCHS linked longitudinal HUD administrative data with two cross-sectional health interview surveys across a 14-year period (1999 through 2012)—the National Health Interview Survey (NHIS) and the National Health and Nutrition Examination Survey.¹⁰ This report focuses on prevalence estimates produced from NHIS-HUD linked data from 2006 to 2012.

National Health Interview Survey

The NHIS¹¹ is an annual cross-sectional interview survey of approximately 35,000 households (90,000 participants). NHIS is designed to monitor the health of the civilian noninstitutionalized U.S. population by collecting data on a broad range of health topics. The sampling plan follows a multistage area probability design that permits the representative sampling of households and noninstitutionalized group quarters.



The core NHIS questionnaire contains four major components. The Household component collects limited demographic information for all individuals living in a housing unit. For example, this file captures the number of household members who did and did not respond and the household's type of living quarters. The Family component collects and verifies additional demographic information on each member in the housing unit and collects data on topics including health status, injuries, healthcare access and utilization, and health insurance. From each family, NCHS randomly selects one sample adult and one sample child (if any children are present) to collect more detailed information. The sample adult is interviewed directly, and an adult who is familiar with the child (a *knowledgeable adult*) gives information about the selected sample child. This report largely focuses on information collected from the Sample Child survey component.

HUD Administrative Data

HUD-affiliated housing providers collect administrative data on families participating in HUD assistance programs and transmit these data to HUD. Information collected includes—

- Dates of enrollment, income recertification, and end of participation.
- Name of each person living in the housing unit and personal attributes including sex, race, Social Security number, date of birth, and relationship to the head of household.
- Family characteristics that might qualify the family for tenant selection preferences.¹²

¹⁰The HUD-NCHS linked data website contains more information about this linked product, including data documentation, public use feasibility files, and analytic guidelines (Lloyd and Helms, 2016).

¹¹For more information about NHIS, see NCHS (2013a).

¹²For example, some public housing and assisted multifamily units are designated for people with disabilities, and homeless individuals and families may receive preferential admission. Selection preferences vary across PHAs.

- Detailed income and assets information for all household members.
- Anticipated family income for the next 12 months and sources of that income.
- Geographic information for assisted units.

The federal forms used to collect HUD administrative data are forms HUD-50058,¹³ HUD-50058 MTW,¹⁴ and HUD-50059.¹⁵ The data are stored in two databases—the Public and Indian Housing Information Center contains information public housing and the HCV program and the Tenant Rental Assistance Certification System contains information on properties subsidized by programs of HUD’s Office of Multifamily Housing.¹⁶

¹³ Administrative Form HUD–50058, the Family Report, is used to collect data on people who participate in the HCV and public housing programs.

¹⁴ PHAs participating in the Moving to Work (MTW) demonstration have fewer data requirements. Form HUD–50058 MTW (MTW Family Report) is used only by PHAs participating in MTW.

¹⁵ Administrative Form HUD–50059, titled “Owners Certification of Compliance with HUD’s Tenant Eligibility and Rent Procedures,” is used to collect data on the people who participate in multifamily programs.

¹⁶ For more information about HUD data systems in connection with the linked data, consult Lloyd and Helms (2016).

Child Groups Examined

Analyses examined sociodemographic characteristics and health outcomes among three groups of children ages 17 or younger, defined by income and status of HUD assistance during survey years 2006 to 2012. This report focuses on HUD-assisted children and presents indicators for other child groups to provide useful context. The three child groups were defined as follows:



HUD-Assisted Children

The primary group of interest for this study comprises linkage-eligible¹⁷ sample children in the NHIS who linked with HUD administrative data and received housing assistance at the time of health interviews during NHIS survey years 2006 to 2012.¹⁸ Children in this group lived in households that received one of three types of HUD rental assistance—HCVs,¹⁹ public housing, or multifamily housing.



Unassisted Low-Income Children in Renter Households

A second group represents linkage-eligible sample children who lived in unassisted rental units, did not link with HUD administrative data for the relevant years, and had household incomes below the federal poverty threshold.²⁰ Renter status is based on NHIS responses, and individuals assisted by HUD at the time of interview are excluded from this group. Low-income renter households may be unassisted because the head of household did not apply for assistance, did apply but was not admitted to the program because of limited public resources,²¹ or was once assisted but is no longer assisted.



General Child Population

A final group examined was all linkage-eligible sample children from NHIS survey cycles 2006 to 2012. Children in this group represent the general child population without regard to income, housing tenure, or housing assistance status. This group does not exclude HUD-assisted children or children in low-income, renting households.

¹⁷ Approximately 55 percent of NHIS survey participants were linkage-eligible during NHIS survey years 2006–2012. Details describing linkage eligibility criteria and linkage processes are described in Lloyd et al. (forthcoming) and Lloyd and Helms (2016).

¹⁸ Receipt of HUD assistance for NHIS participants was determined using the standard NCHS concurrency variables, which are based on the survey date being preceded and followed by HUD administrative records that are not more than 425 days apart, or 790 days apart for MTW agencies (Lloyd and Helms, 2016).

¹⁹ The Homeownership Program and the Moderate Rehabilitation Single Room Occupancy Program, both included in the HCV program category, have a trivial effect on estimates.

²⁰ In this report, *low income* is used generically to mean incomes below the federal poverty threshold, which are comparable with the incomes of most HUD-assisted renters. The term neither means nor aligns with the substantially greater threshold of 80 percent of AMI that HUD uses to define which families are low income for purposes of program administration.

²¹ Only 25 percent of those eligible receive housing assistance. For more information regarding unmet housing needs, consult Watson et al. (2017).

Methods

Data Linkage

NCHS linked NHIS survey participant data to administrative records from HUD’s largest housing assistance programs using Social Security number, name, gender, and date of birth. Based on assurances and procedures to ensure confidentiality and privacy, the NCHS Research Ethics Review Board and HUD’s legal staff approved the data linkage.

The HUD-NCHS linkage was primarily a deterministic, rules-based matching process. The NHIS questionnaire, implemented since 1997, has core questions and supplements. From each family in the NHIS, one sample child is randomly selected from whom to collect information on the Sample Child component. During NHIS survey years 2006 to 2012, information was collected from a knowledgeable adult about approximately 77,000 sample children. Among sample child survey participants, approximately 32 percent (N = 76,627) met linkage eligibility criteria. The respondent (that is, the knowledgeable adult) provided sufficient personal identifying information, provided linkage consent, and did not refuse to answer a question about housing assistance status (N = 25,018).²² During NHIS survey years 2006 to 2012, approximately 1,516 children were linkage-eligible and received housing assistance at the time of their NHIS (NCHS, 2016).

Statistical Analysis

This report primarily uses data from the Sample Child component of NHIS. All tables display weighted percentages of demographic, socioeconomic, and health characteristics among children in the three groups and displayed percentages are estimated national prevalence rates. The appendix provides estimates of standard errors. Data were pooled across survey years 2006 to 2012 to ensure sufficient sample for statistically valid estimates.

Data analysis was performed using SAS software, version 9.4 (SAS Institute, Cary, NC), and SAS-callable SUDAAN, version 9.0 (RTI, Research Triangle Park, NC). NCHS adjusted NHIS sample weights, which account for nonresponse and for unequal probabilities of selection, to account for linkage eligibility. Weighted percentages were based on the linkage eligibility-adjusted sample weights, and standard errors of the percentages were estimated accounting for the complex survey sampling design (NCHS, 2013a). Multiple imputation methods enabled the ratio of family income to the poverty threshold to be estimated without omitting cases that lack complete income data (NCHS, 2013b).²³

The report provides a broad descriptive summary of health characteristics of HUD-assisted children. This report does not test for causal associations. Moreover, side-by-side comparisons for the three child groups are designed to provide context for findings about HUD-assisted children. This report does not include statistical tests of differences between the groups compared. Analyses provide a general picture of the health of HUD-assisted children.

²² Individuals who refused to answer questions regarding housing assistance status were presumed hesitant to share information regarding their housing situation; therefore, to protect confidentiality and respect privacy, these individuals were considered ineligible for data linkage with HUD administrative data.

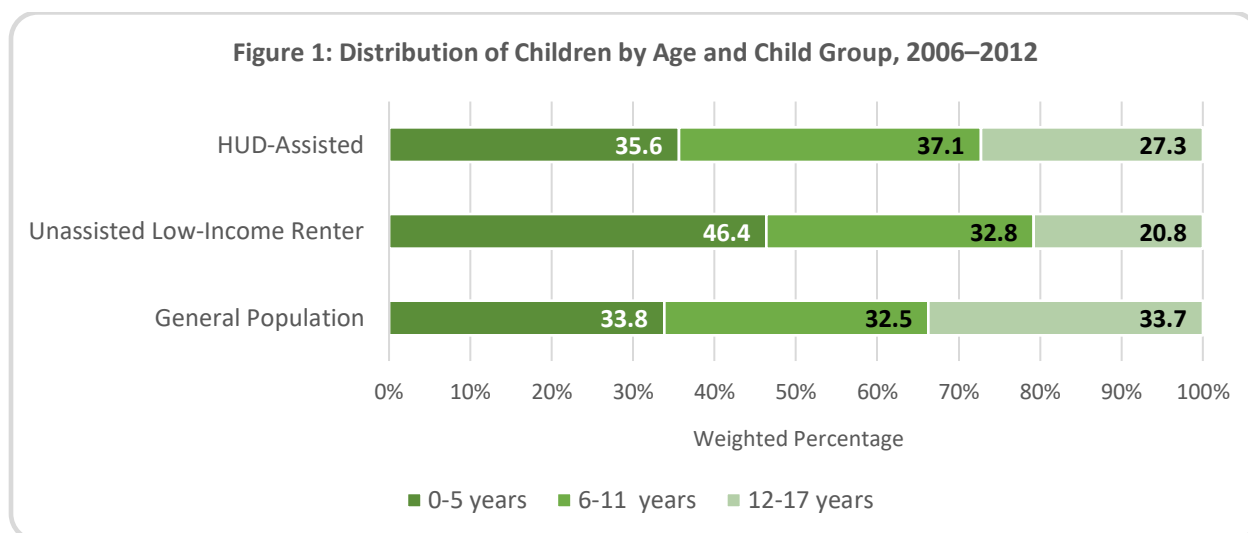
²³ NCHS provided poverty ratio intervals in NHIS public use data files beginning with the 1997 NHIS. The poverty ratio is a ratio of the family’s income to the appropriate federal poverty threshold. Published poverty thresholds from the Census Bureau are used to calculate this ratio.

Sociodemographic Characteristics Among Children Ages 0–17

Individual-level and household-level sociodemographic characteristics were examined among HUD-assisted children, unassisted children in low-income renter households, and the general child population. Table A-1, in the appendix, displays weighted percentages and standard error estimates for each of the three groups examined.

Age at Interview

The following three age categories were analyzed: 0 to 5, 6 to 11, and 12 to 17 years. Among HUD-assisted children, 35.6 percent were ages 0 to 5, 37.1 percent were ages 6 to 11, and 27.3 percent were ages 12 to 17. The proportion of children under age 5 was greatest (46.4 percent) among the unassisted, low-income renter household group (figure 1) and was similar among HUD-assisted children (35.6 percent) and the general child population (33.8 percent). The percentage of children ages 6 to 11 was similar among all three groups. During the reference period, children residing in unassisted, low-income renter households had the smallest proportion of adolescents ages 12 to 17 (20.8 percent), and the general child population had the greatest proportion (33.7 percent). Generally, the age distribution was similar among HUD-assisted children and the general child population; however, children residing in low-income, unassisted renting households tended to be younger than the other two child groups.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

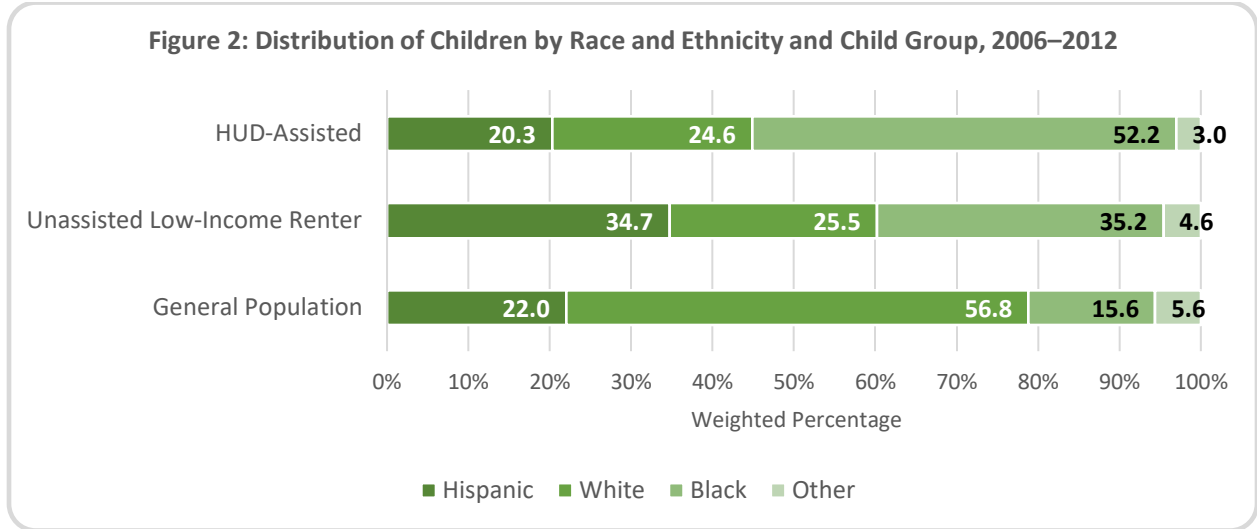
Sex

Among all three child groups examined, the sex ratio is balanced (table A-1). All groups exhibit a male and female sex distribution around 50 percent.

Race and Ethnicity

Because of potential sample size limitations, race and ethnicity variables were recoded into four broad categories: Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic other (henceforth termed Hispanic, White, Black, and other). The racial and ethnic composition differs between the three child groups (figure 2). Among HUD-assisted children, most were Black (52.2 percent), followed by White (24.6 percent), Hispanic (20.3 percent), and other (3.0 percent). Among children residing in unassisted low-income renter households, one-third (35.2 percent) were Black, one-third (34.7 percent) were

Hispanic, and one-fourth (25.5 percent) were White. The general child population is less diverse, with 56.8 percent White, 22.0 percent Hispanic, and 15.6 percent Black. Such differences between low-income renters, on the one hand, and the general child population, on the other, reflect the persistent association between poverty and minority status in the United States.

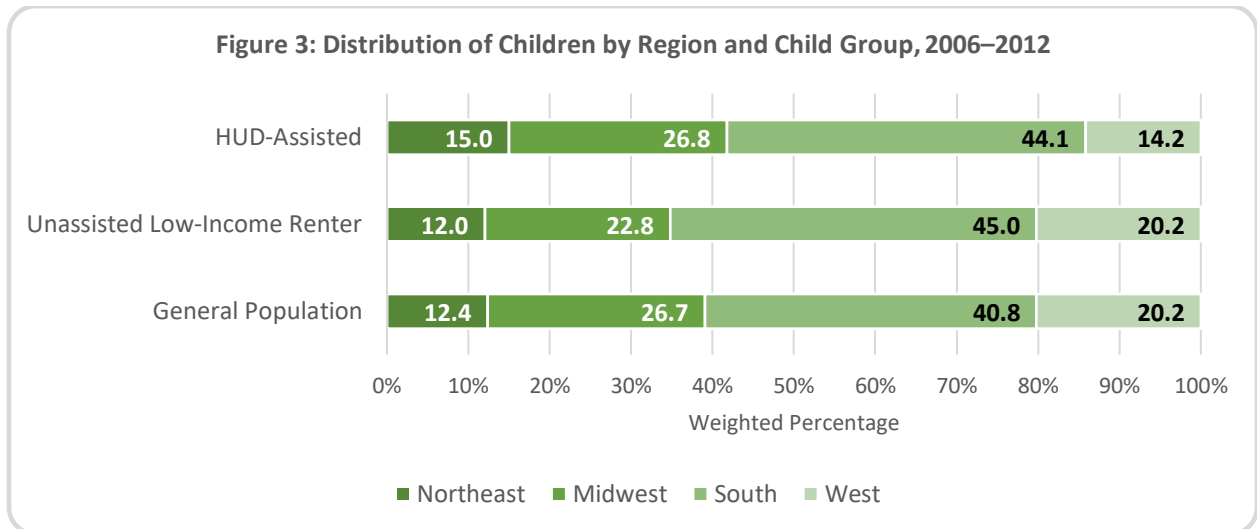


SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Region

To ensure respondent confidentiality in the linked data set, the lowest level of geography available for aggregation and reporting using NHIS data is region. The United States is divided into four census regions—Northeast, Midwest, South, and West.

Among HUD-assisted children, 15.0 percent resided in the Northeast, 26.8 percent resided in the Midwest, 44.1 percent resided in the South, and 14.2 percent resided in the West. When examining the distribution of children by region among the three child groups, low-income renters—whether HUD-assisted or not—were similar to the general child population (figure 3). For all three groups, a plurality of children resided in the South.



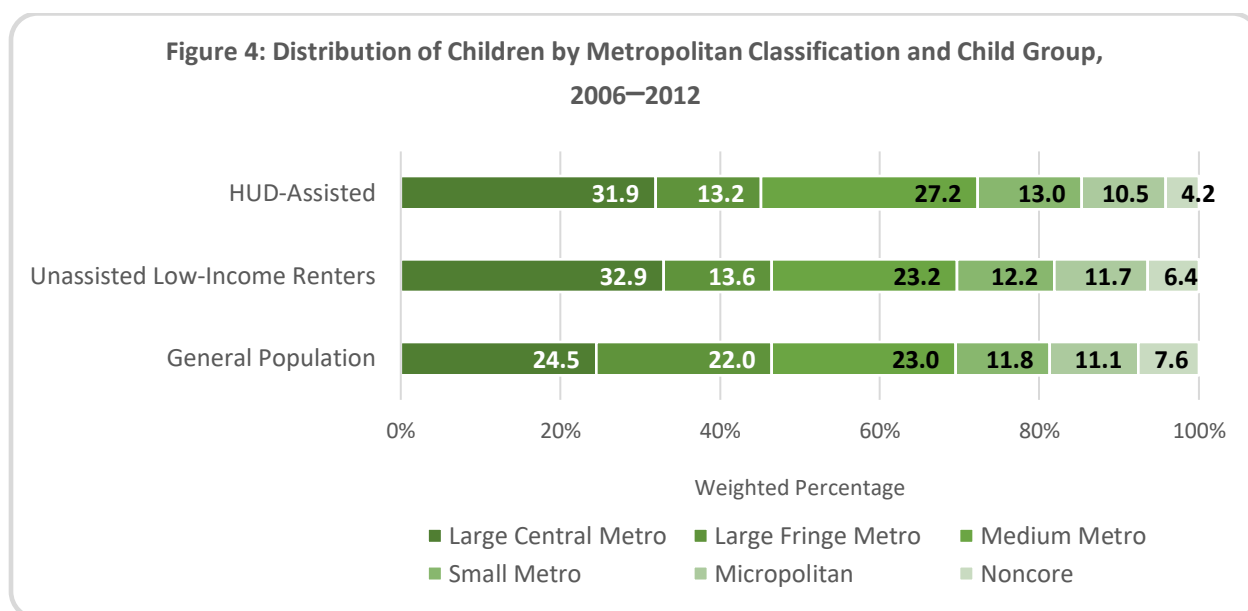
SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Metropolitan Classification

An urban-rural classification schema developed by NCHS was used to examine urban-rural differences across child groups (NCHS, 2014). The measure defines U.S. counties and county-equivalent entities to one of six categories. The 2006 version used in this report is based on the 2000 census and the Office of Management and Budget’s 2005 delineation of metropolitan and micropolitan statistical areas.²⁴

The most urban category consists of central counties of large metropolitan areas, and the most rural category consists of nonmetropolitan (referred to as “noncore”) counties. When listed from urbanity to rurality, metropolitan classification categories include—large central metro, large fringe metro, medium metro, small metro, micropolitan, and noncore.

Most HUD-assisted children reside in metropolitan counties, including 31.9 percent in large central metropolitan counties, 13.2 percent in large fringe metropolitan counties, and 27.2 percent in medium metropolitan counties (figure 4). The urban-rural distribution was similar across the three child groups except that, relative to the general population, greater proportions of HUD-assisted and unassisted low-income renter children were concentrated in the largest central metropolitan areas.



SOURCE: Authors’ tabulations of NHIS-HUD Linked Data

Ratio of Family Income to Poverty Threshold

The NHIS provides an invaluable resource for studying the association between income and health. However, NHIS nonresponse rates are high for the variables meant to capture total family income in the previous calendar year. To handle the problem of missing data on family income in the NHIS, multiple imputations were performed.²⁵ Determining the ratio of family income to poverty threshold requires information on family size, structure, and income. The ratio was calculated using poverty thresholds published by the Census Bureau.

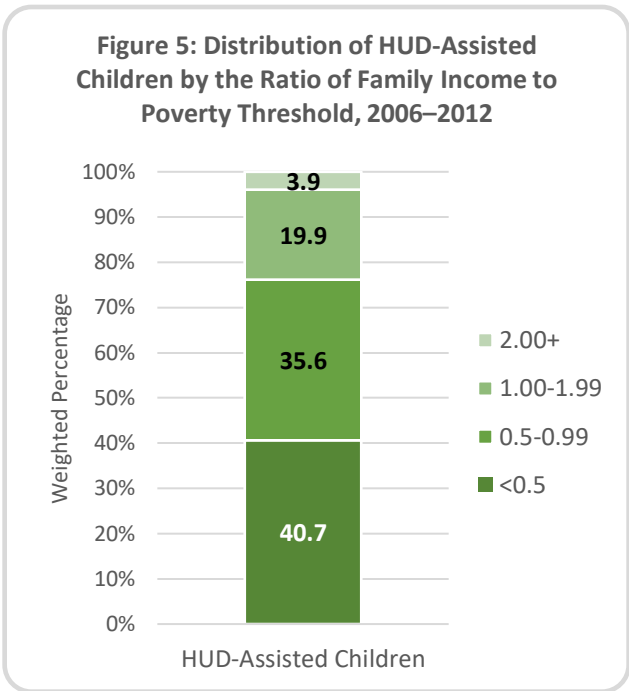
²⁴ For more information about 2005 statistical areas, visit <http://www.census.gov/programs-surveys/metro-micro.html>.

²⁵ For more information about multiple imputation of missing income data, see Schenker et al. (2006).

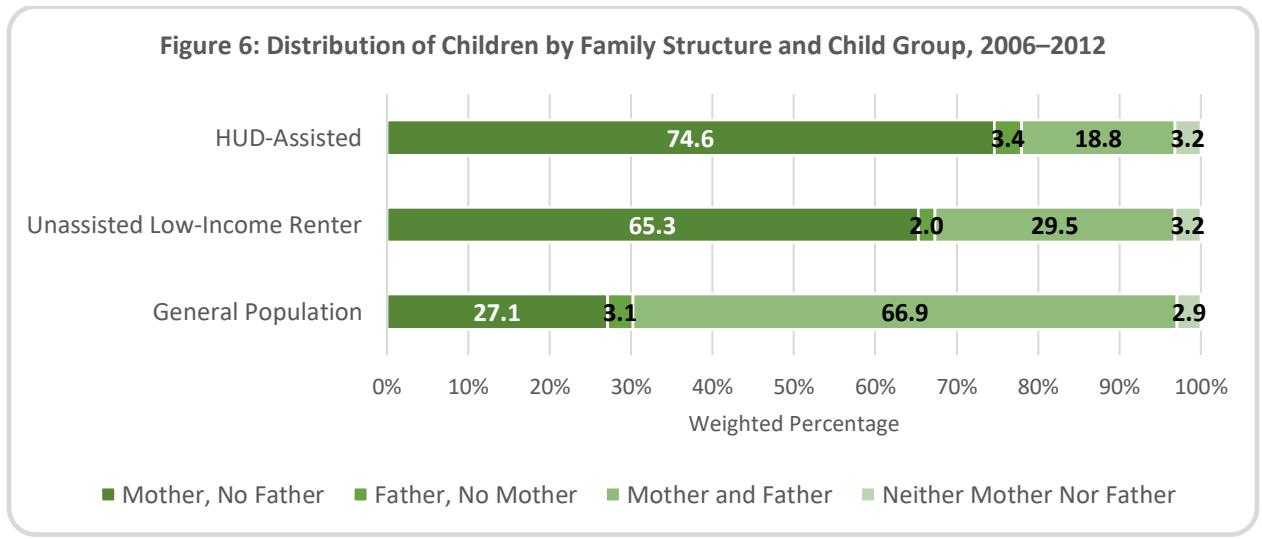
More than three-fourths of HUD-assisted children resided in households with incomes below the poverty threshold—40.7 percent of households had a ratio of family income to the poverty threshold below 0.5, and 35.6 percent had a ratio between 0.5 and 1.0 (figure 5). Consistent with the definition used to define the group, all children residing in unassisted low-income renter households had incomes below the federal poverty threshold. Dissimilarly, among the general population, one-half of children (51.5 percent) resided in households with family incomes exceeding twice the federal poverty threshold.

Family Structure

To determine family structure, variables meant to capture the presence of various family members were recoded to assess parental presence in a household.²⁶ Family structure, in terms of parents present in the home, varied across the three child groups (figure 6). Most HUD-assisted children resided in households with a mother and no father (74.6 percent), and few (3.2 percent) resided in households with neither a mother nor father. Similarly, most (65.3 percent) unassisted low-income renter children resided in households with a mother and no father. In contrast, most children (66.9 percent) in the general child population resided in household with a mother and a father, and 27.1 percent resided in households with a mother and no father present.



SOURCE: Authors’ Tabulations of NHIS-HUD Linked Data



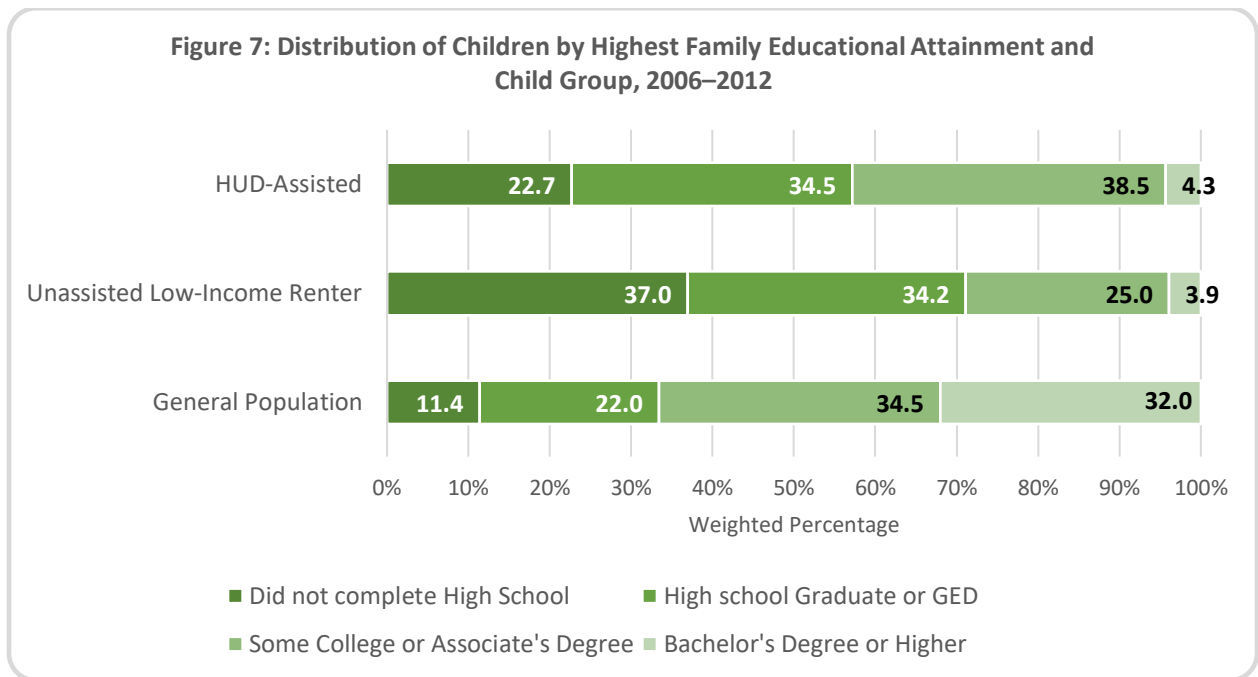
SOURCE: Authors’ tabulations of NHIS-HUD Linked Data

²⁶ Per NHIS documentation, the terms *mother* and *father* can include biological, adoptive, step, and foster relationships. The recoded variable does not classify legal guardians as parents.

Highest Educational Attainment in Household

Administrative data are not meant for research purposes, so data collection instruments collect information strictly pertinent to program participation. Extraneous nonprogram information generally cannot be collected without proper authorization. Thus, administrative systems often lack key sociodemographic variables, such as education level, for assessing social circumstance. The linked HUD-NCHS data provide a mechanism to assess educational attainment among HUD-assisted families. The NHIS data include a recoded variable that captures the highest education level attained by any adult in the surveyed family. Previous research strongly suggests that parental educational level is a key predictor of child outcomes (Dubow, Boxer, and Huesmann, 2009).

Only 4.3 percent of HUD-assisted children lived in a household in which at least one member had attained a bachelor’s degree or higher, and 22.7 percent resided in households in which no member held a high school diploma or a general educational development (GED) certificate (figure 7). Low-income unassisted children were even more likely to reside in a household in which no one had earned either a high school diploma or a GED (37 percent), and only 3.9 percent lived in a household in which a member had attained a bachelor’s or higher degree. The rate of living with someone who had attained at least a bachelor’s degree was much higher for children in the general population (32 percent).



SOURCE: Authors’ tabulations of NHIS-HUD Linked Data

Summary of Sociodemographic Characteristics Among HUD-Assisted Children Ages 0–17

Descriptive statistics reveal important variations in the distribution of sociodemographic characteristics across the three child groups. Among HUD-assisted children, the largest proportions were Black (52.2 percent), the region with the largest proportion of HUD-assisted children was the South (44.1 percent), and most HUD-assisted children lived in households with a mother but no father present (74.6 percent). Additionally, pluralities of nearly one-third of HUD-assisted children resided in large metropolitan centers

(31.9 percent), and very few lived in rural counties. Nearly one-half (40.7 percent) lived in households that had a ratio of family income to poverty threshold less than 0.5, which translates to approximately \$9,249 (or less) for a family of three with one adult and two children.²⁷

Consistent with prior research, substantial sociodemographic differences were evident between the two low-income groups and the general child population. For example, race and ethnicity varied across child groups. Family structure also varied—HUD-assisted children were mostly in single-parent families, as are low-income unassisted children, but the general child population had mostly two-parent families. Not presented in these data is the significant fact that most U.S. households, including households with children, are homeowners. The general population group thus includes homeowners, but the two renter groups do not include homeowners. This difference is important, because housing tenure has implications for the resources available to each group and for the health outcomes that follow (Pollack, Griffin, and Lynch, 2010).

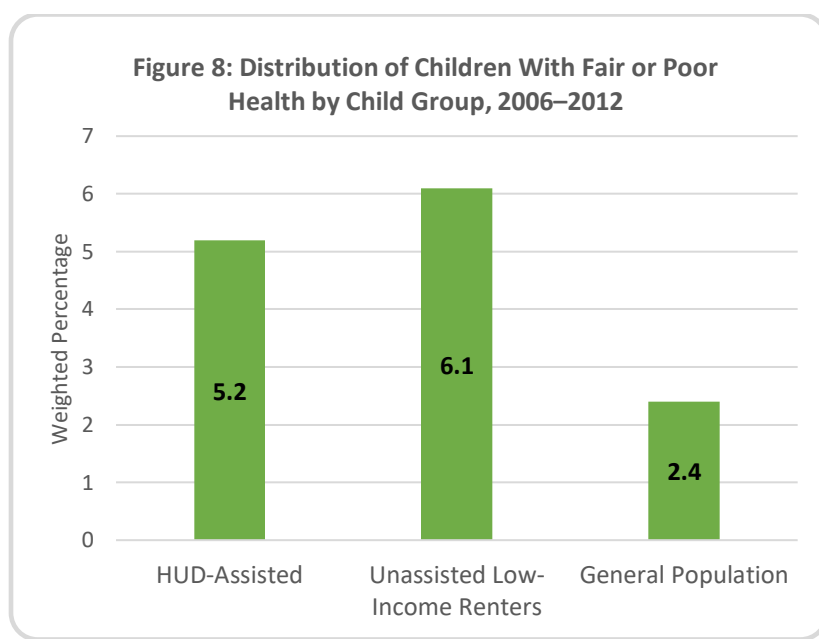
²⁷ Estimate based on 2012 poverty thresholds published by the Census Bureau (U.S. Census Bureau, 2017).

Health Status Among Children Ages 0–17

Analyses examined individual-level health characteristics among HUD-assisted children and two relevant child groups. Underlying data are presented in appendix table A-2, including weighted percentages and standard error estimates for each group examined.

Reported Health Status

The NHIS asks a knowledgeable household adult to rate the sample child’s general health status on the following five-point Likert scale—excellent, very good, good, fair, or poor. The distribution of general health status varied across child groups examined (figure 8). Among HUD-assisted children, 5.2 percent of children had a fair or poor health status. This percentage was similar among unassisted, low-income renter children (6.1 percent). In contrast, among the general child population, 2.4 percent had fair or poor health.



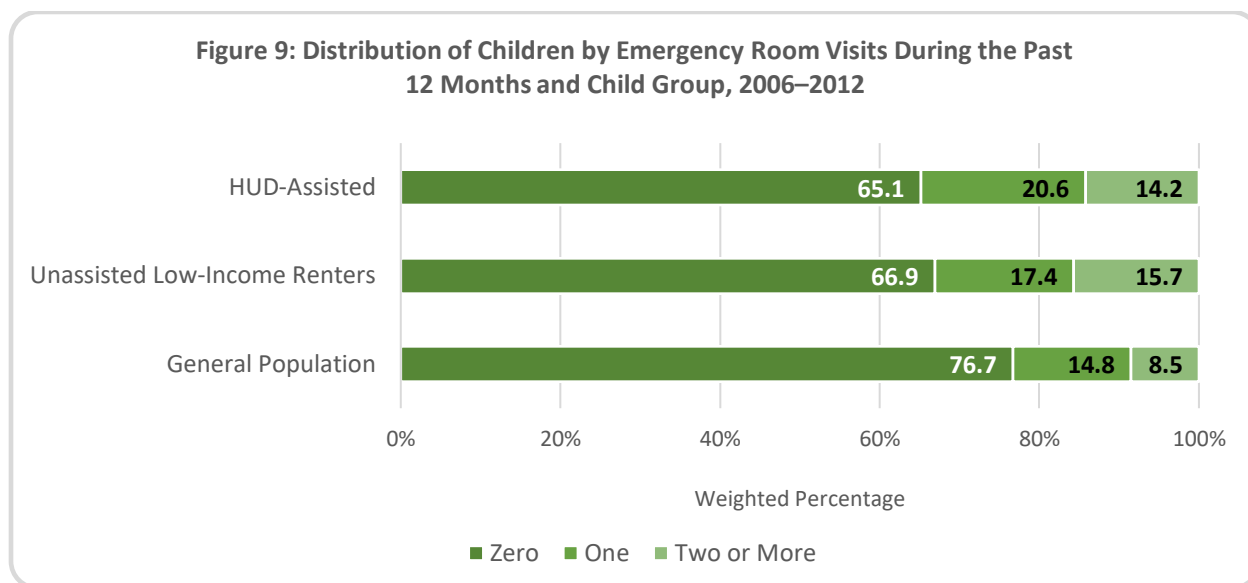
SOURCE: Authors’ tabulations of NHIS-HUD Linked Data

Emergency Room Visits

Frequent use of the emergency room (ER) can signal health status or health access issues. For example, repeated ER visits could indicate chronic health emergencies, such as asthma attacks or broken bones, or can signal lack of access to a regular doctor, inadequate preventive care, or an inability to afford the out-of-pocket costs associated with office visits. Previous Centers for Disease Control and Prevention (CDC) research suggests that children with Medicaid coverage are more likely to visit the ER than are uninsured children or children with private health insurance. As public health insurance programs cover most HUD-assisted children (table A-4), this relationship is key to further understanding ER use among HUD-assisted children. The research also showed that most ER visits by children occur at night or on a weekend, regardless of their health insurance coverage, and that the main reason for ER visits by children is that the doctor’s office is not open (Gindi and Jones, 2014).

Among HUD-assisted children, 14.2 percent had two or more ER visits during the past 12 months, and 20.6 percent had one visit (figure 9). The distribution by number of ER visits was similar among children in

unassisted, low-income renter households, of which 15.7 percent had two or more ER visits and 17.4 percent had one ER visit in the past 12 months. Among the general child population, a smaller proportion, 8.5 percent, had two or more ER visits and 14.8 percent had one ER visit. These results suggest that children in the general population may have a qualitatively different pattern of ER usage than the two groups of children residing in low-income, renter households.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

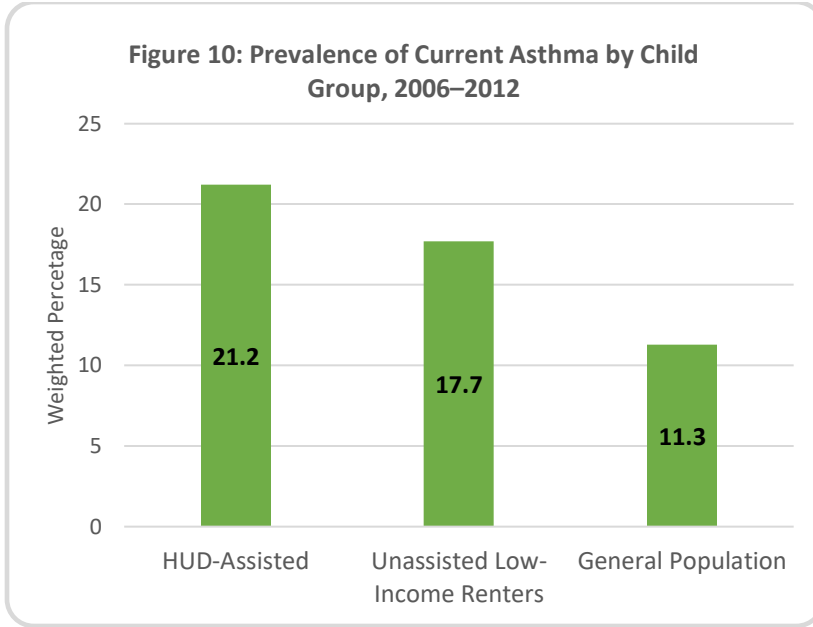
Current Asthma

Asthma is a potentially fatal inflammatory disease that affects the lungs and is characterized by episodes of wheezing, breathlessness, coughing, or chest tightness.²⁸ Indoor environmental allergens, including those found in substandard housing such as cockroach infestations or mold, are significant asthma triggers. Early childhood exposure to cockroach allergen and mold have also been associated with asthma development (Do, Zhao, and Gao, 2016; Jaakkola, Hwang, and Jaakkola, 2005; Reponen et al., 2011). Traffic-related air pollution, which may be more concentrated in low-income neighborhoods, also is associated with asthma development (Bowatte et al., 2015). NHIS sample children were considered to have current asthma if the knowledgeable adult answered affirmatively to the sample child (1) ever having had asthma and (2) still having asthma at the time of the health interview.

Among HUD-assisted children, 21.2 percent had current asthma (figure 10). Among unassisted children in low-income renter households, 17.7 percent had current asthma, but only 11.3 percent of the general child population had current asthma.²⁹ Such disparities in asthma prevalence suggest the possibility that poorly controlled asthma, including nighttime attacks, could be leading to greater ER use by children in the HUD-assisted and unassisted low-income renter groups.

²⁸ For more information about asthma, visit <https://www.cdc.gov/asthma/>.

²⁹ Previous research shows a similar pattern of asthma disparities among HUD-assisted adults. See Helms, Sperling, and Steffen (2017).



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Summary of Health Status Among HUD-Assisted Children Ages 0–17

Among HUD-assisted children, 5.2 percent had a knowledgeable adult report their health as fair or poor. HUD-assisted children are frequent users of the ER. During the prior year, 14.2 percent of HUD-assisted children visited the ER two or more times. Additionally, a high percentage of HUD-assisted children (21.2 percent) had current asthma, indicating the need to further assess asthma rates and asthma-related disease among HUD-assisted children to consider cost-effective interventions.

Learning-Related Health Status Among School-Aged Children Ages 6–17

For school-aged children, the NHIS collects several indicators relevant for understanding school performance, including school days missed due to illness or injury and learning disability status. This analysis examined such indicators among school-aged HUD-assisted children, children in unassisted low-income households, and children in the general child population.



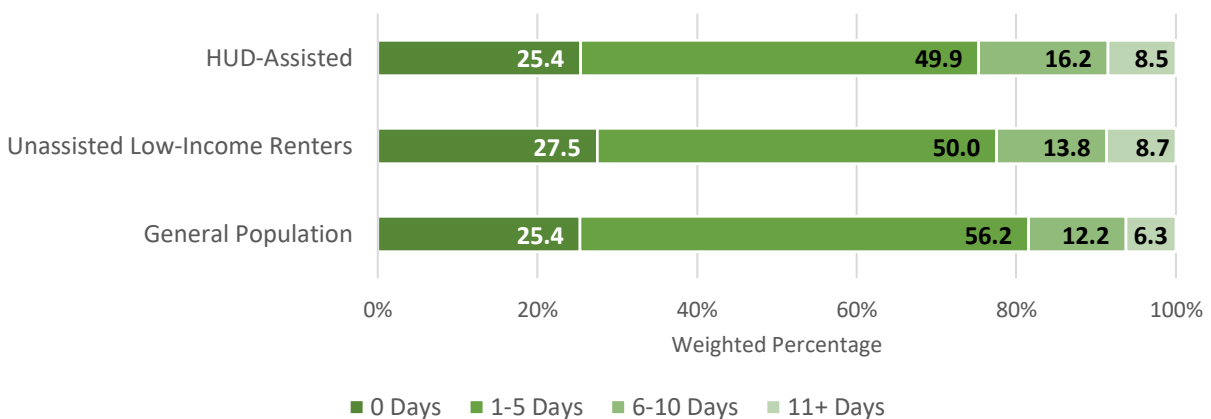
For the purposes of this report, school-aged was defined as children ages 6 to 17 years of age at the time of their health interview. Data are presented in table A-3, including weighted percentages and standard error estimates for each of the three child groups.

School Days Missed

To assess the number of school days missed due to injury or illness, the following interview question was asked about sample children ages 5 to 17 years: *During the past 12 months, about how many days did {Sample Child} miss school because of illness or injury?*

Among HUD-assisted children, 16.2 percent of school-aged children missed 6 to 10 days of school during the previous year, and 8.5 percent missed 11 or more days due to illness or injury (figure 11). Rates were similar for children in unassisted, low-income renter households, with 13.8 percent missing 6 to 10 days of school and 8.7 percent missing 11 or more days of school. Among children in the general population, 12.2 percent missed 6 to 10 days of school during the previous year due to illness or injury, and 6.3 percent missed 11 or more days.

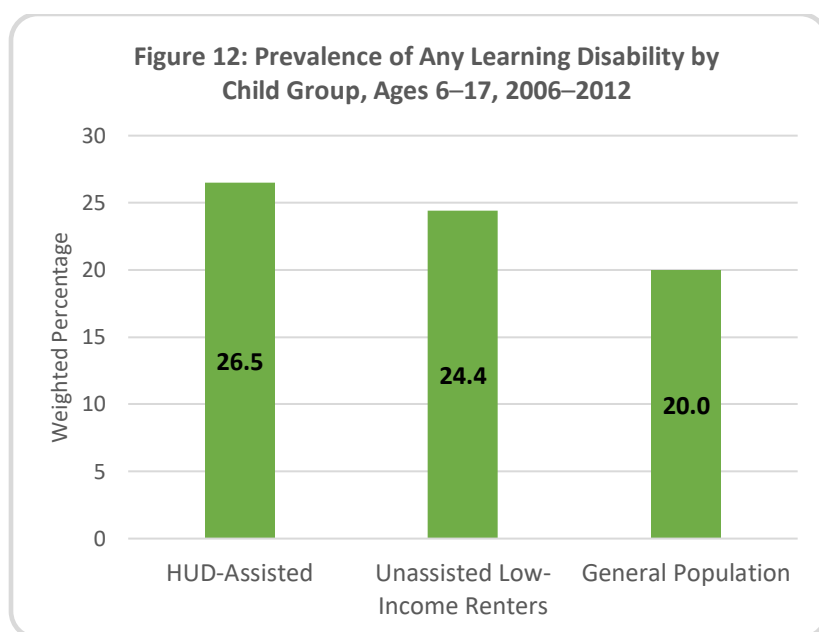
Figure 11: Distribution of School Days Missed During the Past 12 Months by Child Group, Ages 6–17, 2006–2012



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Any Learning Disability

Learning disorders are difficulties that a child experiences with one or more areas of learning that may or may not affect overall intelligence or motivation. Learning disability symptoms include difficulties concentrating, remembering instructions, and understanding the concept of time (CDC, 2017). Among NHIS sample children,³⁰ the following question was used to assess the prevalence of learning disabilities: *Has a representative from a school or a health professional ever told you that {Sample Child} had a learning disability?* Among HUD-assisted children, more than one-fourth (26.5 percent) of children ages 6 to 17 years had a learning disability reported by a school or health professional (figure 12). The prevalence of any learning disability was similar among children in unassisted, low-income renter households (24.4 percent), but among children in the general population, only 20.0 percent had a learning disability as reported by a school or health professional. The “any learning disability” metric included the most prevalent type of learning disorder among children, attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD).



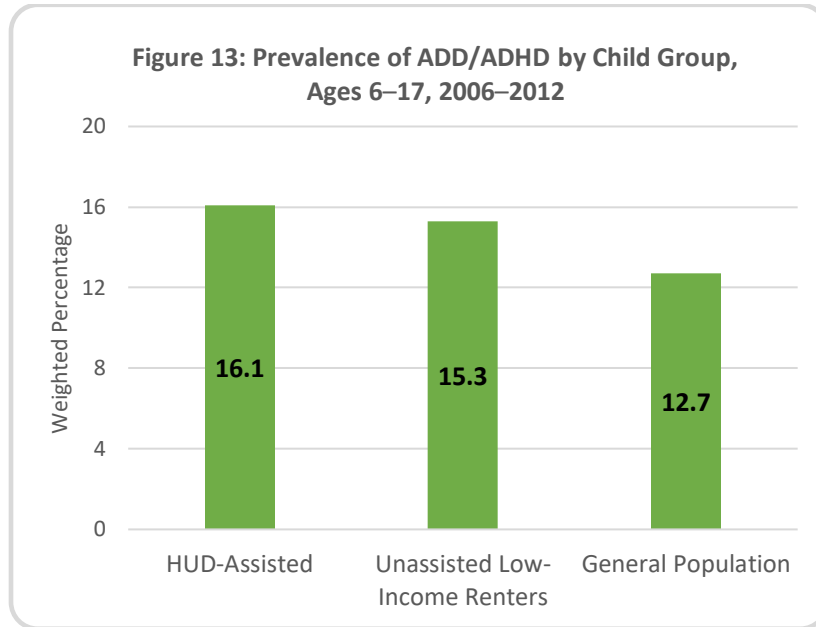
SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Attention Deficit Hyperactivity Disorder or Attention Deficit Disorder

One of the most prevalent learning disorders among children is attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD). ADHD/ADD, characterized by trouble paying attention, is a common neurodevelopmental disorder among children that often continues into adulthood. The CDC estimates that in 2011, 11 percent of children ages 4 to 17 years were diagnosed with ADHD/ADD (CDC, 2016). To assess the prevalence of ADHD/ADD, the following survey question was employed: *Has a doctor or health professional ever told you that {Sample Child} had [...] attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD)?* HUD-assisted children and children in unassisted low-income

³⁰ This question is asked for sample children ages 3–17; however, for this metric, this report limited the study population to children ages 6–17.

households show similar prevalence of ADHD/ADD, with 16.1 and 15.3 percent, respectively (figure 13). Among children in the general population, 12.7 percent had been diagnosed with ADHD/ADD.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Summary of Learning-Related Health Status Among School-Aged Children Ages 6–17

Among HUD-assisted children ages 6 to 17, 16.2 percent missed 6 to 10 days of school and 8.5 percent missed 11 or more days during the previous year due to illness or injury. School-aged, HUD-assisted children experienced high rates of learning disabilities. From 2006 through 2012, 26.5 percent of children had a learning disability reported by a school or health professional, including 16.1 percent diagnosed with ADHD or ADD and 10.4 percent with some other kind of learning disability. These results indicate that health issues and learning disorders place HUD-assisted children at high risk for difficulties in school and potentially adverse long-term outcomes.

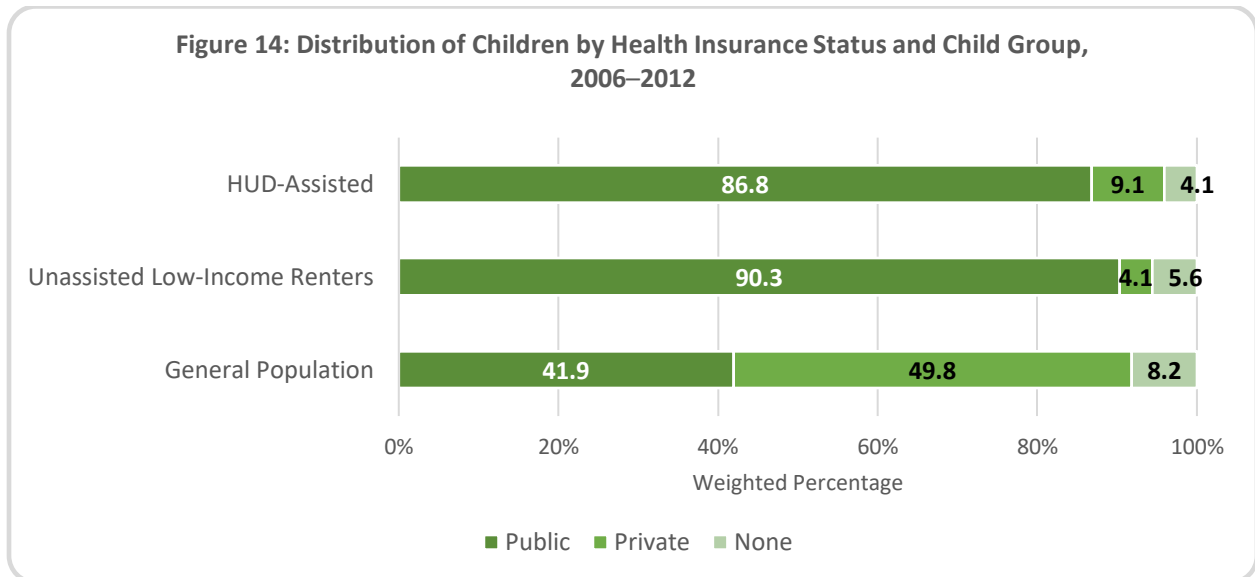
Healthcare Access Among Children Ages 0–17

The NHIS asks survey participants several questions about sources of health care, including health insurance coverage, access to general practitioners, medical specialists, and mental health professionals. Appendix table A-4 contains weighted percentages and standard error estimates for each of the three child groups examined.

Health Insurance Coverage

The NHIS asks a series of questions about health insurance status. Children were considered to have public health insurance if they were reported to have coverage through any of the following health insurance providers—Medicaid, the State Children’s Health Insurance Program, a state-sponsored health plan, other government programs, or a military health plan.³¹

Most HUD-assisted children had public health insurance (86.8 percent). Similarly, children in unassisted, low-income renter households also had high rates of public health insurance coverage (90.3 percent; figure 14). The distribution of health insurance coverage differed among children in the general population. Unlike the low-income child groups examined, approximately one-half (49.8 percent) of children in the general population had private health insurance, and 41.9 percent had public health insurance. Rates of uninsurance were similar among HUD-assisted children (4.1 percent) and children who resided in unassisted, low-income renter households (5.6 percent). Among children in the general population, 8.2 percent were uninsured.



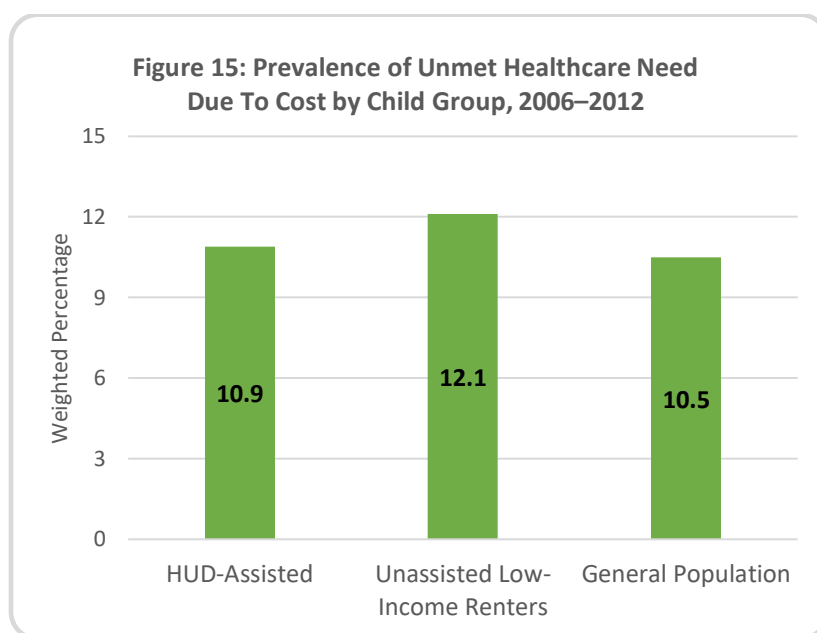
SOURCE: Authors’ tabulations of NHIS-HUD Linked Data

³¹ It is important to note that the survey years used in this report precede the implementation of the Affordable Care Act.

Unmet Need for Health Care

NHIS survey participants are asked a series of questions that can be used to determine unmet need for health care. The questionnaire includes a series of questions about needs that remained unmet due to cost. For sample children, a knowledgeable household adult was asked the following questions: *During the past 12 months, was there any time when {Sample Child} needed [prescription medicines, mental health care or counseling, dental care (including checkups), or eyeglasses], but didn't get it because you couldn't afford it?*

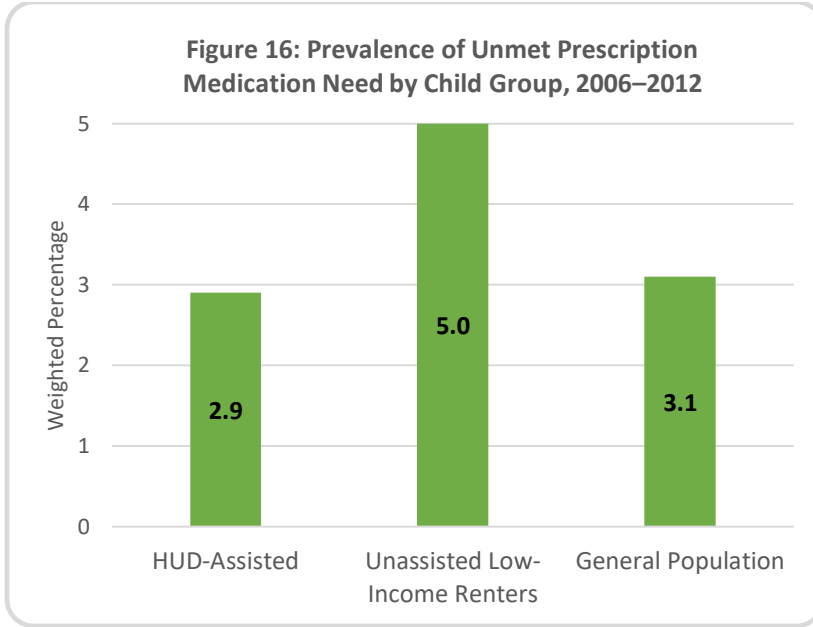
Sample children for whom a knowledgeable household adult answered yes to any of the four questions about unaffordable services were considered to have unmet need for healthcare services due to cost. Among HUD-assisted children, 10.9 percent were reported have unmet healthcare need due to cost (figure 15). This estimate compared with 12.1 percent among children in unassisted, low-income renter households and 10.5 percent among the general child population.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Could Not Afford Medication

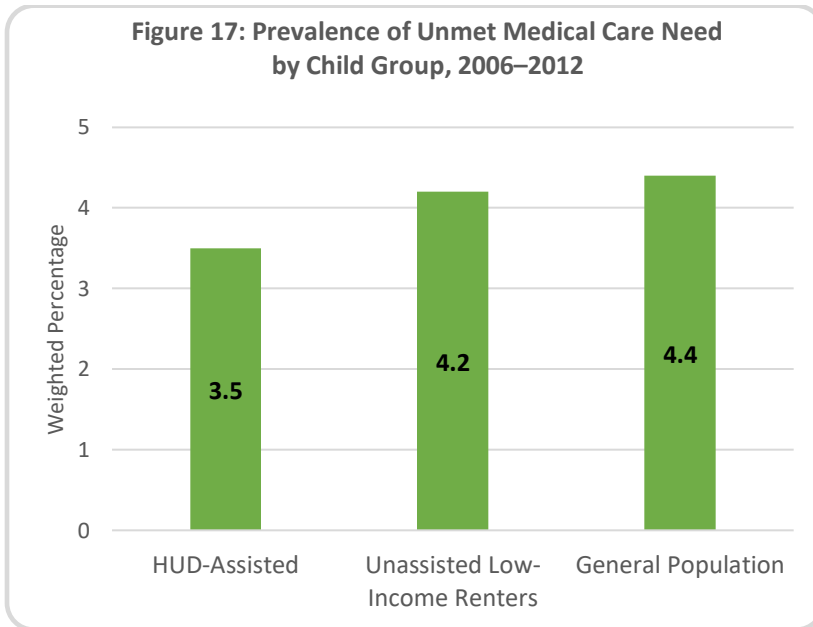
To assess unmet need for prescription medications, the NHIS asked the following question: During the past 12 months, was there any time when {Sample Child} needed prescription medicines, but didn't get it because you couldn't afford it? The percentage of children who needed but did not get prescription medication because the adult respondent could not afford the medication was similar among HUD-assisted children (2.9 percent) and the general child population (3.1 percent; figure 16). Among unassisted children in low-income, renter households, 5.0 percent faced cost-related unmet need for prescription medication.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Could Not Afford Medical Care

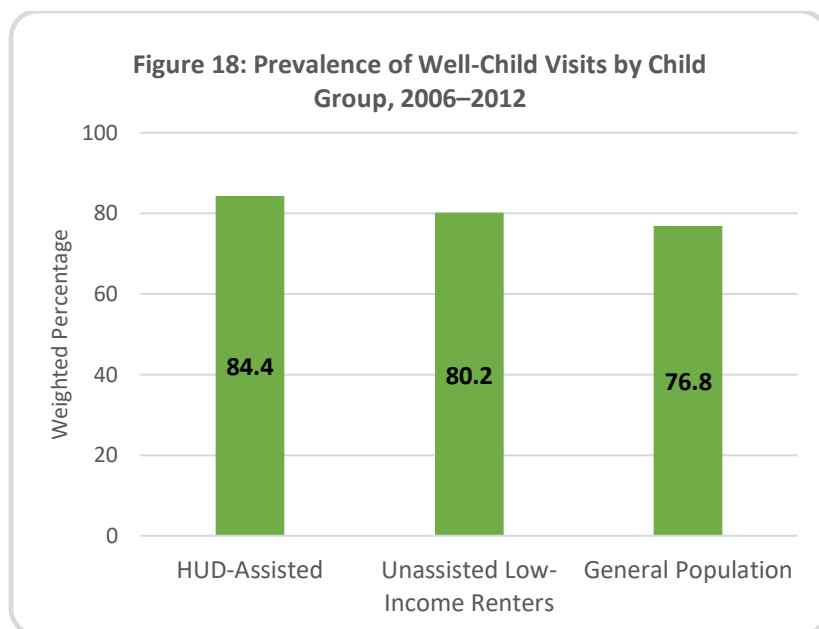
In addition to asking about unmet needs for specific services such as prescriptions, general unmet need for medical care due to cost was also assessed. For sample children, a knowledgeable adult respondent was asked: *During the past 12 months, was there any time when {Sample Child} needed medical care, but did not get it because {you} couldn't afford it?* Among HUD-assisted children, 3.5 percent had unmet medical care needs (figure 17). Rates were similar among children in unassisted, low-income renter households (4.2 percent) and the general child population (4.4 percent).



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Well-Child Visits

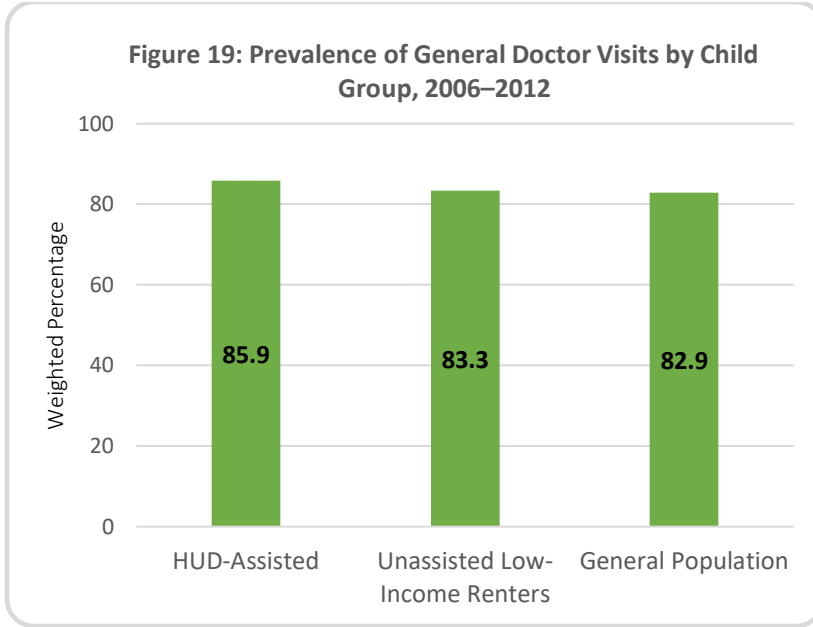
To assess the occurrence of regular physicals and well-child visits, the following questions were asked: During the past 12 months, did {Sample Child} receive a well-child checkup—that is, a general checkup when {he/she} was not sick or injured? Consistent with the prevalence of public insurance, the prevalence of well-child visits among HUD-assisted children was high—84.4 percent had a well-child visit in the past year (figure 18). Among children in unassisted, low-income renter households, 80.2 percent had a well-child visit during the prior 12 months. The prevalence of well-child visits among children in the general population was 76.8 percent.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

General Doctor Visits

The NHIS asks survey participants several questions about healthcare sources, including the following question meant to capture whether the sample child had contact with a general practitioner during the prior year: *During the past 12 months, have you seen or talked to the following about [Sample Child]'s health? A general doctor who treats a variety of illnesses (a doctor in general practice, pediatrics, family medicine, or internal medicine)?* Estimated rates of general doctor visits were similar to rates of well-child visits. Among HUD-assisted children, 85.9 percent had visited a general doctor during the prior year (figure 19). Lower rates were observed among children in unassisted low-income renter households (83.3 percent) and the general child population (82.9 percent).

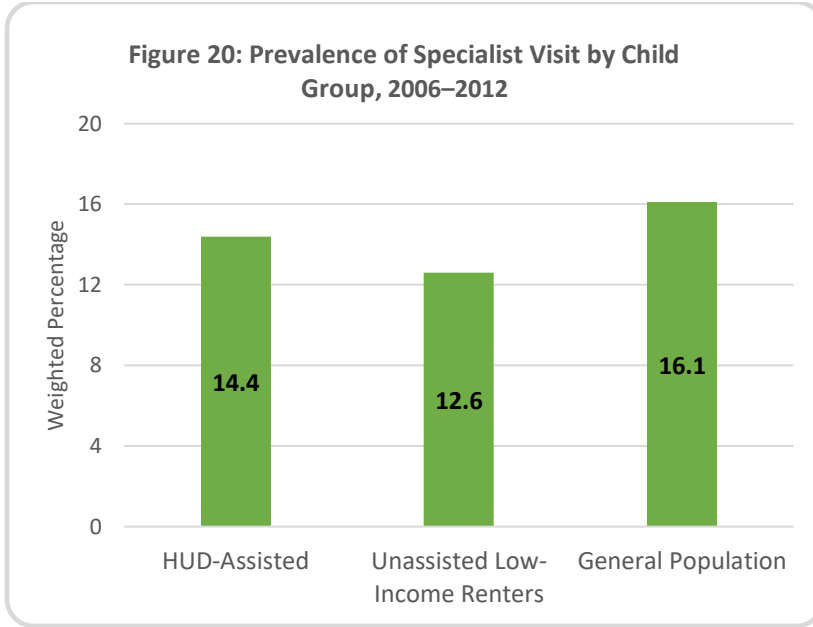


SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Specialist Visits

To find out whether children in respondent households had visited a medical specialist, the NHIS included the following question: *During the past 12 months, have you seen or talked to the following about {Sample Child}'s health? A medical doctor who specializes in a particular medical disease or problem.*

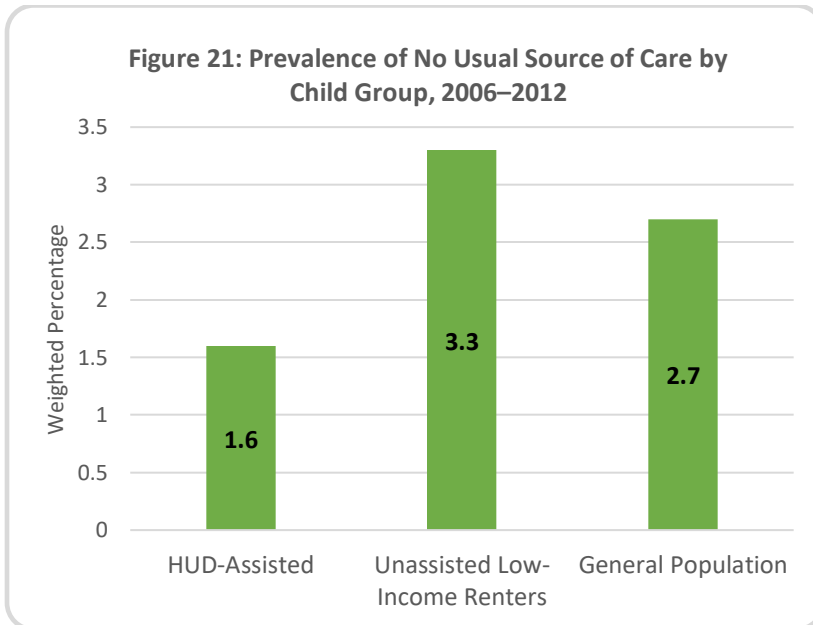
According to the survey instrument, a specialist is defined in NHIS as a “medical doctor who specializes in a particular medical disease or problem (other than obstetrician/gynecologist, psychiatrist or ophthalmologist).” Among HUD-assisted children, 14.4 percent were reported to have visited a specialist during the past year (figure 20). Children in the general population had slightly more visits to specialists (16.1 percent), and children in unassisted low-income renter households had slightly fewer (12.6 percent).



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

No Usual Source of Care

Usual source of health care among sample children was examined using the following question, which was asked to a knowledgeable adult: *Is there a place that {Sample Child} usually goes when {he/she} is sick or needs advice about {his/her} health?* If survey respondents said the sample child had no usual place, then the child was classified as having no usual source of care. In each of the three child groups, very few children lacked a usual source of care. HUD-assisted children were the least likely to lack a usual source of care (1.6 percent; figure 21). Among the general child population, a similar proportion of 2.7 percent lacked a usual source of care. Among unassisted low-income renter children, 3.3 percent were reported to have no usual source of care.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Summary of Healthcare Utilization and Access Among Children Ages 0–17

The clear majority of HUD-assisted children ages 0–17 years had insurance coverage via public health insurance programs (86.8 percent). HUD-assisted children were uninsured at a lower rate (4.1 percent) than uninsured children in the general child population (8.2 percent). The percentage of HUD-assisted children with unmet need for medical care (3.5 percent) was similar to the proportion among children in the general population (4.4 percent). Most HUD-assisted children were reported to have had a well-child visit (84.4 percent) or general doctor visit during the prior year (85.9 percent).

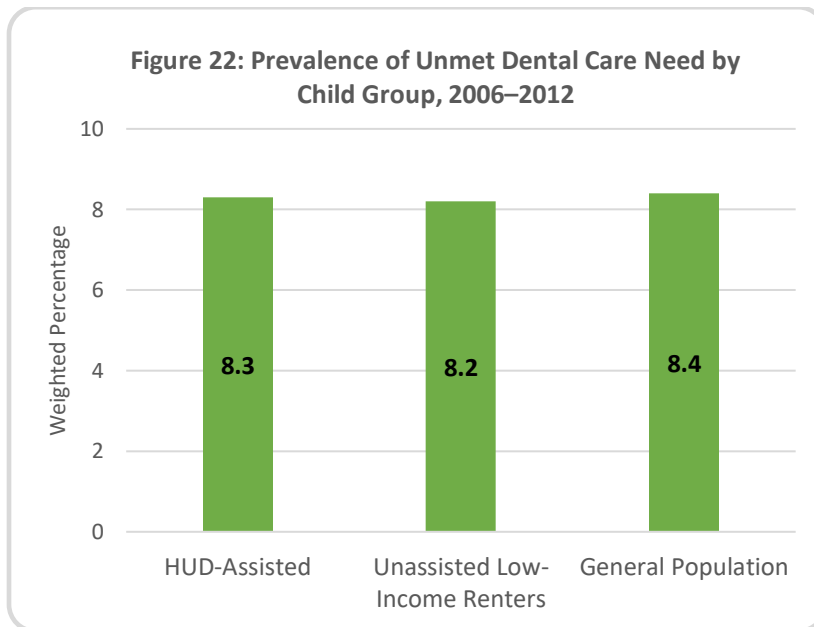
Healthcare Access Among School-Aged Children (Ages 6–17)



The NHIS collects several indicators relevant for understanding the needs of school-age children, including dental care, mental health care, and eyeglasses affordability. This analysis examined such indicators among school-aged children in HUD-assisted households, unassisted low-income renter households, and the general child population. For the purposes of this report, school-aged was defined as children ages 6 to 17 years at the time of their health interview. Data for this age group are presented in table A-5. This table includes weighted percentages and standard error estimates for each of the three groups examined.

Dental Care Affordability

Previous research suggests that low-income children receive fewer preventive dental care visits and have higher unmet dental care needs (Kenney, McFeeters, and Yee, 2005). To assess unmet needs for dental care, the following survey question was used: *During the past 12 months, was there any time when {Sample Child} needed any of the following, but didn't get it because you couldn't afford it? Dental care (including checkups)?* Rates among the three child groups were similar, ranging from 8.2 percent to 8.4 percent (figure 22).

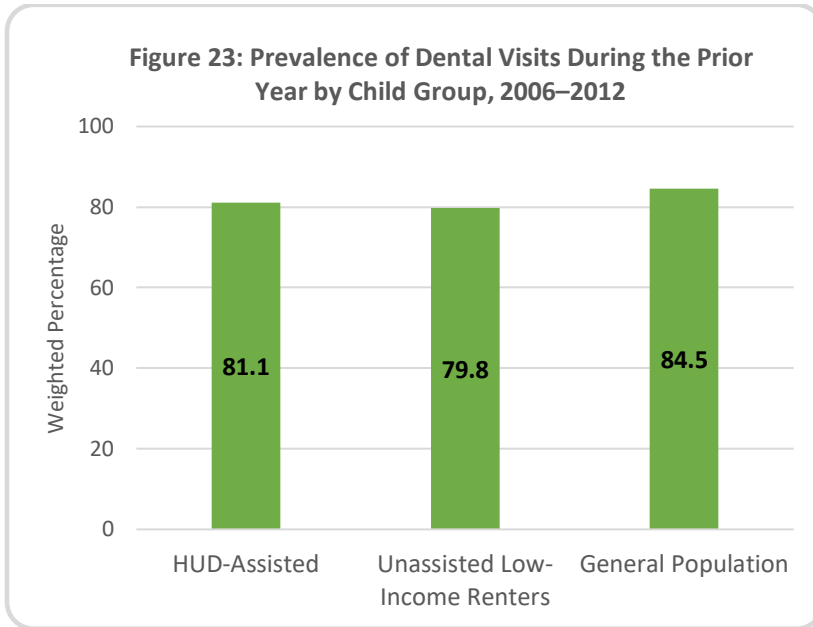


SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Dental Visits

To capture dental visits during the prior year, the following NHIS question was used: *About how long has it been since {Sample Child}'s last saw a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists.* Sample children who saw a dentist in the past 12 months were considered to have obtained oral health services. Among HUD-assisted children, 81.1 percent reported a dental visit during the past year (figure 23). This rate slightly exceeded

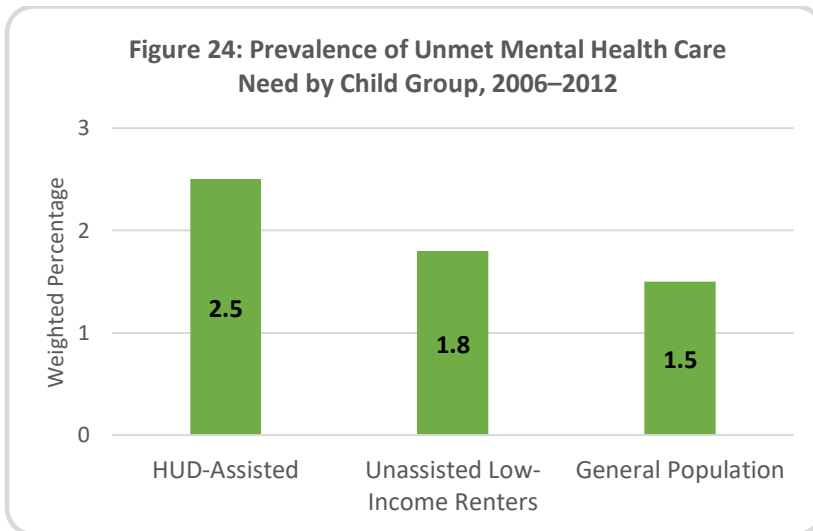
the prevalence among children of unassisted low-income renters (79.8 percent) but was lower than the rate among children in the general population (84.5 percent).



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Mental Healthcare Affordability

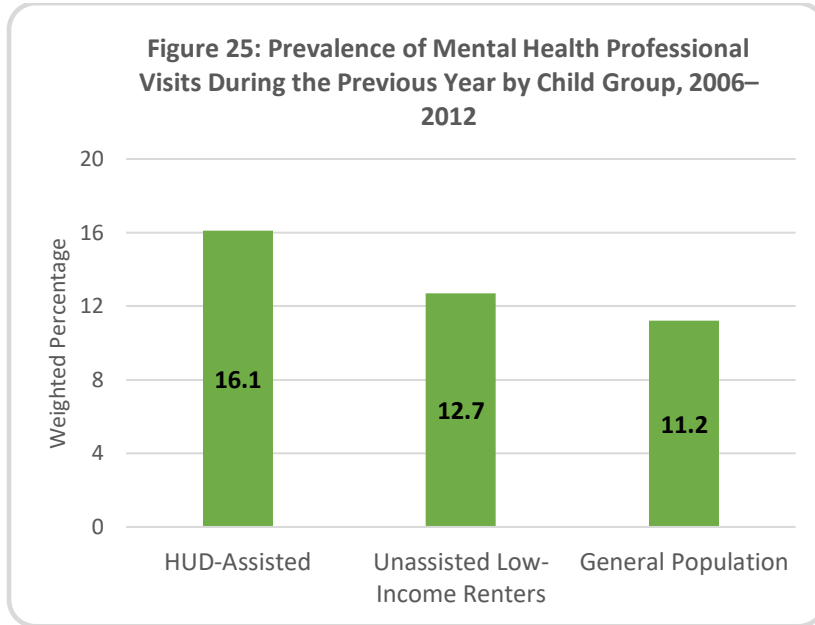
The following question was used to measure unmet need for mental health care due to lack of affordability: *During the past 12 months, was there any time when {Sample Child} needed any of the following, but didn't get it because you couldn't afford it? Mental health care or counseling?* Rates were similar across all three child groups examined. Among HUD-assisted children, 2.5 percent were reported to have unmet mental healthcare need. Among the general child population, 1.5 percent of children had unmet mental healthcare need due to affordability (figure 24).



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Mental Health Professional Visits

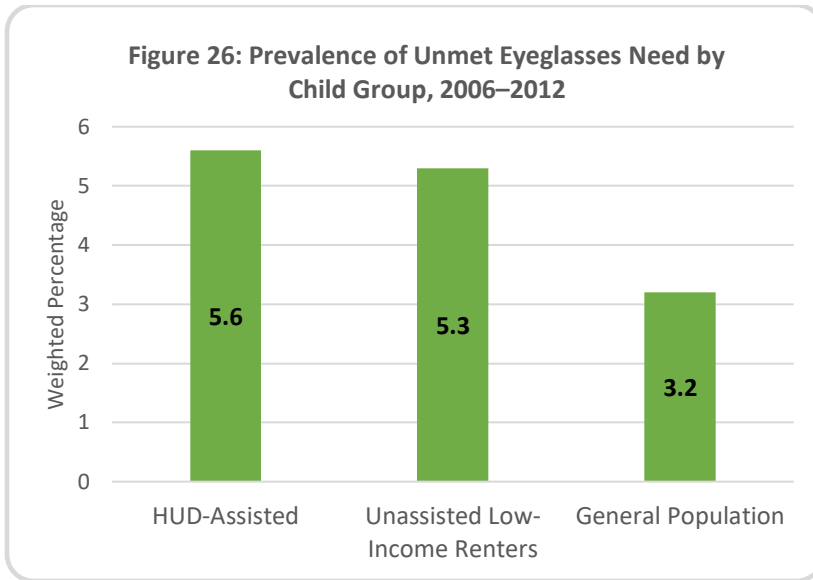
The NHIS asks survey participants several questions about sources of health care, including the following question meant to capture whether a sample child had contact with a mental health professional: *During the past 12 months, have you seen or talked to any of the following health care providers about {Sample Child}'s health? A mental health professional such as a psychiatrist, psychologist, psychiatric nurse, or clinical social worker.* Among HUD-assisted children, 16.1 percent saw a mental health professional during the prior 12 months (figure 25), somewhat more than the 12.7 percent of unassisted low-income renters and 11.2 percent of the general child population that had visited a mental health professional.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Eyeglasses Affordability

To assess unmet eyeglasses need due to affordability, a knowledgeable adult was asked the following question: *During the past 12 months, was there any time when {Sample Child} needed eyeglasses, but didn't get it because you couldn't afford it?* Rates of unmet eyeglass need were similar among HUD-assisted children (5.6 percent) and children in unassisted low-income renter households (5.3 percent; figure 26). Among children in the general population, 3.2 percent reported needing eyeglasses but not having funds to afford them.



SOURCE: Authors' tabulations of NHIS-HUD Linked Data

Summary of Healthcare Utilization and Access Among School-Aged Children Ages 6–17

Among school-aged, HUD-assisted children, 8.3 percent were reported to have unmet dental healthcare needs due to cost. Most (81.1 percent) HUD-assisted children ages 6–17 had obtained oral health services during the prior year. A small percentage (2.5 percent) of HUD-assisted children were reported to have unmet mental healthcare need. In addition, 16.1 percent of HUD-assisted children had seen a mental health professional during the prior 12 months. Among HUD-assisted children, 5.6 percent were reported to need eyeglasses but did not get them due to not having funds to afford them.

Conclusion

Analyses provided a descriptive summary of the linked 2006-to-2012 HUD-NCHS data for HUD-assisted children. This report presents the first nationally representative estimates of the overall health status, including healthcare access and utilization, for HUD-assisted children. Findings represent a first step in sharing an important data resource for housing and health researchers and the general public.

Although statistical testing between groups was not conducted, clear differences emerged when examining side-by-side estimates among HUD-assisted children, children residing in low-income, unassisted renter households, and children in the general population. Examining sociodemographic characteristics of the three child groups showed that unassisted, low-income children of renters and HUD-assisted children were similar, but that these groups differ substantially from the general child population. Notably, more than one-half of HUD-assisted children are Black; only one-third of low-income unassisted children and less than one-fifth of the general child populations are Black. HUD-assisted children and low-income unassisted children tend to live in major metropolitan areas, but the general child population is concentrated outside of these areas. Additionally, the educational attainment in HUD-assisted families exceeds attainment of low-income unassisted families but is much lower than families in the general population. The demographic differences between child groups should be considered when examining differences among the health indicators presented throughout this report.

In terms of health status, HUD-assisted children are like other low-income, unassisted renter children. However, HUD-assisted children appear to have worse health status than children in the general population, despite appearing to have greater access to health care and higher utilization. For example, 86.8 percent of HUD-assisted children had public health insurance, and 85.9 percent visited a general health doctor during the prior year. However, even with high rates of healthcare access, 14.2 percent of HUD-assisted children visited the ER two or more times during the prior year, and more than one-fifth of HUD-assisted children had current asthma. Poverty, quality of healthcare resources, and neighborhood conditions may account for much of these differences, but further research is needed to understand this relationship.

School-aged, HUD-assisted children have high rates of learning disabilities: 26.5 percent had ever been told by a school or health professional that they had a learning disability, and 16.1 percent had been diagnosed with ADHD or ADD. In terms of dental healthcare needs, 8.3 percent of HUD-assisted children had unmet dental healthcare needs due to cost, but most (81.1 percent) had obtained oral health services during the prior year. HUD-assisted children had high mental healthcare needs. During the prior 12 months, 16.1 percent had seen a mental health professional, and 2.5 percent were reported to have had unmet needs for mental health care.

Overall, the health status of HUD-assisted children is similar to children in unassisted, low-income renter households but several key findings emerged: HUD-assisted children are more likely to have asthma, more likely to miss school due to illness or injury, and are more often diagnosed with a learning disability. On other indicators, however, HUD-assisted children displayed some advantages over children in unassisted, low-income renter households, such as greater prevalence of health insurance and of well-child preventive healthcare visits. Such conclusions, however, must be viewed as exploratory and preliminary. Assisted housing programs may shape selection mechanisms so that less-healthy populations

become assisted. For this reason, the descriptive nature of this research cannot determine the extent to which assisted housing influences health. Nevertheless, HUD-assisted populations have significant health needs that warrant attention by policymakers.

The United States makes substantial public investments in both housing and health care every year. Using these newly linked data to better align housing assistance programs and health policy has the potential to improve the cost effectiveness and outcomes of public investments. Considering that children are in vulnerable early stages of development, interventions to address specific health needs at an early stage or to better coordinate the existing health services available to assisted housing populations can yield great benefits during the life course for young, developing individuals and the broader society.

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Appendix

Table A-1: Demographic and Socioeconomic Characteristics of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Table A-2: Health Status of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Table A-3: Learning-Related Health Status of Linkage-Eligible, School-Aged U.S. Children Ages 6–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Table A-4: Healthcare Access, Utilization, and Affordability of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Table A-5: Healthcare Access, Utilization, and Affordability of Linkage-Eligible, School-Ages U.S. Children Ages 6–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Table A-1: Demographic and Socioeconomic Characteristics of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Characteristic	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
	n	% (SE)	n	% (SE)	n	% (SE)
Age at interview (years)						
0–5	507	35.6 (1.67)	844	46.4 (1.70)	8,427	33.8 (0.41)
6–11	554	37.1 (1.66)	560	32.8 (1.45)	7,461	32.5 (0.40)
12–17	455	27.3 (1.64)	440	20.8 (1.44)	9,130	33.7 (0.41)
Sex						
Male	750	49.2 (1.56)	940	51.9 (1.69)	12,827	51.1 (0.41)
Female	766	50.8 (1.56)	903	48.1 (1.69)	12,191	48.9 (0.41)
Race/ethnicity						
Hispanic	369	20.3 (1.79)	695	34.7 (1.72)	6,709	22.0 (0.51)
White non-Hispanic	288	24.6 (2.54)	381	25.5 (1.72)	12,067	56.8 (0.66)
Black non-Hispanic	815	52.2 (2.54)	678	35.2 (1.82)	4,696	15.6 (0.49)
Other non-Hispanic	44	3.0 (0.78)	89	4.6 (0.84)	1,546	5.6 (0.29)
Region						
Northeast	266	15.0 (1.98)	236	12.0 (1.28)	3,137	12.4 (0.45)
Midwest	370	26.8 (3.25)	378	22.8 (2.16)	5,871	26.7 (0.76)
South	639	44.1 (2.90)	818	45.0 (2.03)	10,237	40.8 (0.77)
West	241	14.2 (2.23)	411	20.2 (1.45)	5,773	20.2 (0.69)
Metropolitan classification						
Large central metro	529	31.9 (2.36)	688	32.9 (1.70)	7,185	24.5 (0.60)
Large fringe metro	208	13.2 (2.04)	238	13.6 (1.54)	5,139	22.0 (0.85)
Medium metro	395	27.2 (2.70)	408	23.2 (1.82)	5,526	23.0 (1.16)
Small metro	153	13.0 (3.26)	196	12.2 (2.01)	2,599	11.8 (1.16)
Micropolitan	164	10.5 (1.73)	194	11.7 (1.76)	2,693	11.1 (1.12)
Noncore	67	4.2 (1.17)	119	6.4 (1.05)	1,876	7.6 (0.93)

	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
Ratio of family income to poverty threshold						
< 0.5	572	40.7 (1.85)			2,418	9.7 (0.34)
0.5–0.99	521	35.6 (1.85)			3,510	14.1 (0.37)
1.00–1.99	340	19.9 (1.48)			6,318	25.2 (0.45)
2.00+	82	3.9 (0.64)			12,766	51.1 (0.64)
Family structure						
Parents: mother, no father	1,155	74.6 (1.88)	1,242	65.3 (1.68)	7,574	27.1 (0.47)
Parents: father, no mother	58	3.4 (0.66)	48	2.0 (0.39)	884	3.1 (0.15)
Parents: mother and father	235	18.8 (1.60)	495	29.5 (1.66)	15,703	66.9 (0.50)
Parents: neither	68	3.2 (0.49)	58	3.2 (0.55)	857	2.9 (0.13)
Highest education in household						
Did not graduate HS	369	22.7 (1.69)	691	37.0 (1.70)	3,025	11.4 (0.36)
HS graduate (includes GED)	503	34.5 (1.68)	582	34.2 (1.76)	5,509	22.0 (0.39)
Some college/associate's degree	572	38.5 (1.62)	487	25.0 (1.43)	8,865	34.5 (0.45)
Bachelor's degree or higher	71	4.3 (0.70)	79	3.9 (0.63)	7,612	32.0 (0.62)

GED = general educational development (certificate). HS = high school. HUD = U.S. Department of Housing and Urban Development. NHIS = National Health Interview Survey. SE = standard error.

Note: Due to rounding, not all reported percentages precisely equal 100.0 percent.

Table A-2: Health Status of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Characteristic	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
	n	% (SE)	n	% (SE)	n	% (SE)
Reported health status						
Excellent, very good, or good	1,436	94.8 (0.71)	1,736	93.9 (0.77)	24,388	97.6 (0.13)
Fair or poor	80	5.2 (0.71)	107	6.1 (0.77)	628	2.4 (0.13)
Emergency room visits, past 12 months						
0 visits	988	65.1 (1.82)	1,220	66.9 (1.54)	18,972	76.7 (0.39)
1 emergency room visit	310	20.6 (1.54)	333	17.4 (1.25)	3,812	14.8 (0.30)
2 or more emergency room visits	216	14.2 (1.22)	289	15.7 (1.15)	2,220	8.5 (0.25)
Current asthma						
Current asthma	306	21.2 (1.45)	301	17.7 (1.28)	2,816	11.3 (0.27)

HUD = U.S. Department of Housing and Urban Development. NHIS = National Health Interview Survey. SE = standard error.

Note: Due to rounding, not all reported percentages precisely equal 100.0 percent.

Table A-3: Learning-Related Health Status of Linkage-Eligible, School-Aged U.S. Children Ages 6–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Characteristic	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
	n	% (SE)	n	% (SE)	n	% (SE)
School days missed						
0 days	279	25.4 (1.77)	299	27.5 (1.98)	4,404	25.4 (0.47)
1–5 days	492	49.9 (2.29)	472	50.0 (2.12)	9,041	56.2 (0.50)
6–10 days	145	16.2 (1.85)	131	13.8 (1.64)	1,989	12.2 (0.36)
More than 10 days	90	8.5 (1.09)	84	8.7 (1.25)	1,057	6.3 (0.26)
Learning disability						
Any learning disability	274	26.5 (1.71)	212	24.4 (1.86)	3,289	20.0 (0.37)
Attention deficit hyperactivity disorder or attention deficit disorder	163	16.1 (1.59)	130	15.3 (1.60)	2,070	12.7 (0.32)

HUD = U.S. Department of Housing and Urban Development. NHIS = National Health Interview Survey. SE = standard error.

Note: Due to rounding, not all reported percentages precisely equal 100.0 percent.

Table A-4: Healthcare Access, Utilization, and Affordability of Linkage-Eligible U.S. Children Ages 0–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Characteristic	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
	n	% (SE)	n	% (SE)	n	% (SE)
Health insurance status						
Private	132	9.1 (1.08)	85	4.1 (0.57)	11,756	49.8 (0.61)
Public	1,317	86.8 (1.32)	1,643	90.3 (0.99)	11,143	41.9 (0.59)
None	64	4.1 (0.72)	114	5.6 (0.79)	2,085	8.2 (0.26)
Healthcare access and affordability						
Unmet need	180	10.9 (0.96)	218	12.1 (1.13)	2,789	10.5 (0.26)
Could not afford medication	57	2.9 (0.49)	90	5.0 (0.79)	871	3.1 (0.13)
Could not afford medical care	48	3.5 (0.72)	91	4.2 (0.63)	1,124	4.4 (0.19)
Healthcare utilization						
Well visit, past 12 months	1,263	84.4 (1.36)	1,480	80.2 (1.49)	19,360	76.8 (0.42)
General doctor visit, past 12 months	1,277	85.9 (1.18)	1,515	83.3 (1.21)	20,586	82.9 (0.41)
Specialist visit, past 12 months	223	14.4 (1.23)	227	12.6 (1.12)	3,981	16.1 (0.33)
No usual source of care	33	1.6 (0.32)	53	3.3 (0.66)	715	2.7 (0.14)

HUD = U.S. Department of Housing and Urban Development. NHIS = National Health Interview Survey. SE = standard error.

Note: Due to rounding, not all reported percentages precisely equal 100.0 percent.

Table A-5: Healthcare Access, Utilization, and Affordability of Linkage-Eligible, School-Ages U.S. Children Ages 6–17, by HUD Assistance, Tenure, and Low-Income Status (Weighted NHIS-HUD Linked Data, 2006–2012)

Characteristic	HUD-Assisted Children (n = 1,516)		Children Residing in Unassisted Low-Income Renter Households (n = 1,844)		General Child Population (n = 25,018)	
	n	% (SE)	n	% (SE)	n	% (SE)
Dental care						
Needed but could not afford dental care	78	8.3 (1.09)	84	8.2 (1.23)	1,437	8.4 (0.30)
Dental visit, past 12 months	816	81.1 (1.77)	807	79.8 (1.79)	13,920	84.5 (0.42)
Mental health						
Needed but could not afford mental health care	24	2.5 (0.61)	19	1.8 (0.53)	266	1.5 (0.13)
Seen mental health professional, past 12 months	168	16.1 (1.61)	126	12.7 (1.45)	1,891	11.2 (0.33)
Eyeglasses affordability						
Could not afford eyeglasses	47	5.6 (1.04)	53	5.3 (1.00)	592	3.2 (0.19)

HUD = U.S. Department of Housing and Urban Development. NHIS = National Health Interview Survey. SE = standard error.

Note: Due to rounding, not all reported percentages precisely equal 100.0 percent.

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