

Supplementary Table 1. Description and detail of the measures

Variable	Measure
<p><i>Primary predictor of interest</i></p> <p>Poor housing quality</p>	<p>Housing quality represented the number of housing quality issues endorsed. The household reference person was asked if any of the following conditions were present in the household: "... holes in the walls or ceiling, or cracks wider than the edge of a dime?"; "... holes in the floor big enough to catch your foot on?"; "... problems with pests such as rats, mice, roaches, or other insects?"; and "... a toilet, hot water heater, or other plumbing that didn't work?" A response of "yes" to any of the aforementioned problems were coded as 1 and summed together to create the index, for which higher values indicated poorer housing quality.</p>
<p><i>Outcomes of interest</i></p> <p>Poor health status</p> <p>Number of medical visits</p> <p>Hospitalization</p>	<p>Poor health status was measured by the parent's response to the survey item, "What is (the referent child's) health-status?" Possible responses ranged from 1 ("excellent") to 5 ("poor"). The 5-point Likert scale of reported health status was dichotomized to represent either very good/excellent or poor/fair/good.</p> <p>Number of medical visits (other than hospital stays) in the preceding year was categorized into "0" for no healthcare utilization, "1" for 1-2 medical visits per year (reference group), and "2" for greater than 2 medical visits for the year. The measure was created by the parent's response to, "How many times did (referent child) see or talk to a doctor, nurse, or any other type of medical provider about his/her health?"</p> <p>Number of hospital admissions in the preceding year was recoded to indicate any hospital admission versus no hospital admission. The measure was created by the parent's response to, "How many nights did (referent child) spend in the hospital?"</p>
<p><i>Demographic characteristics</i></p> <p>Race</p> <p>Ethnicity</p> <p>Sex</p> <p>Age</p> <p>Disability</p>	<p>Race was coded as White only (reference category), Black only, Asian only, Native Hawaiian or Pacific Islander only (HP), American Indian (AI) only, or multiple races (including White-Black, White-AI, White-Asian, White-HP, Black-AI, Black-Asian, Black-HP, AI-Asian, Asian-HP, White-Black-AI, White-Black-Asian, White-AI-Asian, White-Asian-HP, White-Black-AI-Asian, Other 2 or 3 races, Other 4 or 5 races). The parent was asked, "Please choose one or more races that you consider (referent child) to be?"</p> <p>Ethnicity was coded as 1 ("Spanish, Hispanic, or Latino") and 0 ("non-Hispanic").</p> <p>Sex was coded as 1 ("male") or 0 ("female"). Parents reported the sex of the child.</p> <p>Age was coded as a continuous variable. Age is collected by asking for the month, day, and year of birth for all people in the household. If the respondent does not know the answer, they are asked for their best guess of how old (that household member) is.</p> <p>Disability was measured by whether the parent reported the child had any of the following conditions: serious difficulty hearing (all ages); serious difficulty seeing even when wearing glasses or contacts (all ages); a developmental condition or delay that limits ordinary activity (&lt;5 years of age); serious difficulty concentrating, remembering, or making decisions (ages 5+); serious difficulty walking or climbing the stairs (ages 5+); experience difficulty dressing or bathing (ages 5+); have limited ability to play with other children of the same age (age 5-14); have limitations in their ability to do regular school work (ages 5-14). Those children whose parents reported that they had any of the aforementioned limitations or disability were coded as 1 ("yes") or 0 ("no disability").</p>

Socioeconomic characteristics

Family income-to-poverty ratio

Family income-to-poverty ratio was measured in 2013. It is the ratio of the family's total income and the family's poverty threshold as determined by the family composition.

Food insecurity

Food insecurity was an ordinal score from 1 ("low food insecurity") to 3 ("high food insecurity"). The score was created from the 6 survey items below:

1. "the food you bought did not last?" (1:"often true"-3:"never true")
2. "could not afford balanced meals?" (1:"often true"-3:"never true")
3. "In 2013, did you ever cut the size of your meals or skip meals because you did not have enough money for food?" (Yes, No)
4. (If yes to the above) "How often did you cut the size of your meals?" ( 1:"almost every month", 2:"some months but not every month", 3:"only 1 or 2 months).
5. "In 2013, did you ever eat less than you felt you should because there wasn't enough money to buy food?" (Yes, No)
6. "In 2013, were you ever hungry but didn't eat because there wasn't enough food?" (Yes, No)

Individuals were assigned "high food insecurity" if the reference household member reported "often true" to item 1; they cut the size of their meals "almost every month"; or they were ever hungry but didn't eat because there wasn't enough food

Individuals were assigned "moderate food insecurity" if the reference household member reported "sometimes true" to item 1; "often true" or "sometimes true" to item 2; cut the size of their meals "some months", or "only 1 or 2 months"; or ate less than they should because there wasn't enough money to buy food.

Health insurance coverage

Health insurance coverage was created by dichotomizing whether the respondent indicated that they were insured ("yes" to either private or public coverage, "no" for a lack of coverage) for any portion of the year.

Parental education

Parental education was created by the parent's response to "What is the highest level of school completed or the highest degree received by December of 2014?" The results were then dichotomized into 2 groups: high school graduate (diploma or GED or equivalent) or less, compared to some college credit or associate's degree or higher.

Other housing-related indicators

Number of people per household

Number of people per household was measured by the reported number of persons in the house during the interview month in 2014.

Parent inability to pay rent/mort. or utilities

Parental inability to pay rent/mortgage or utilities was created by the parent's response to the following two questions, "During 2013, was there any time when you did not pay the full amount of the rent or mortgage?" or "...did not pay the full amount of the gas, oil, or electricity bill?" Responses ranged from 1 ("yes") to ("no").

Unsafe neighborhood perception

Unsafe neighborhood perception was measured from a single item with ordinal responses ranging from 1 ("very safe") to 4 ("very unsafe"). The item was worded "Was your neighborhood during the year safe?" Similar to recent literature, perceived safety was dichotomized into 1 ("very safe) and 0 ("somewhat safe/somewhat unsafe/very unsafe").

Non-metropolitan area

Metropolitan status of the residence at time of interview is provided on the dataset. This indicator was recoded to "0" for in a metropolitan area, and "1" for not in a metropolitan area.

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Source: U.S. Census Bureau, 2014 Survey of Income and Program Participation Wave 1 Public Use file

Supplementary Table 2) Frequency of health status responses, *weighted*

<b>Health Status Response</b>	<b>Frequency n (%)</b>
'Excellent'	7,931 (62.8%)
'Very Good'	3259 (24.6%)
'Good'	1458 (10.2%)
'Fair'	280 (2.0%)
'Poor'	54 (0.40%)

Supplementary Table 3. Proportions and means of children in the United States in the SIPP analytic sample and excluded sample, for those 2-14 years of age, weighted

	<b>Youth Sample (N=12964)</b>	<b>Number of Excluded Cases with Data</b>	<b>Excluded Youth Sample (N=150)</b>	<b>Sign. Diff. (T-Test)</b>
<b>Outcome variable of interest</b>	% or mean (Std Error)	n	% or mean (Std Error)	
Poor/Fair/Good health status	12.5% (0.42%)	150	19.6% (1.35%)	*
No healthcare utilization, 2013	18.0% (0.51%)	150	35.4% (2.88%)	***
Standard utilization (1-2 medical visits), 2013 (reference group)	45.8% (0.62%)	150	27.6% (2.05%)	***
High utilization (> 2 medical visits), 2013	36.2% (0.57%)	150	37.0% (2.07%)	
Any hospitalization, 2013	2.9% (0.18%)	150	7.7% (0.84%)	**
<b>Housing quality characteristics</b>				
No poor housing characteristics (reference group)	80.8% (0.55%)	150	75.2% (1.77%)	
1 poor housing characteristic	12.4% (0.47%)	150	18.6% (1.04%)	
2 poor housing characteristics	4.7% (0.29%)	150	4.2% (0.49%)	
3 poor housing characteristics	1.7% (0.18%)	150	2.1% (1.25%)	
4 poor housing characteristics	0.4% (0.10%)	150	0	n/a
<b>Other housing-related indicators</b>				
Parental inability to afford rent/mortgage or utility bills	19.0% (0.58%)	150	27.6% (5.03)	
Number of people per household (range = 1-20)	4.6 (0.03)	150	4.3 (0.17)	
Unsafe neighborhood	35.4% (0.65%)	150	39.9% (0.02)	
Non-metropolitan area	13.2% (0.56%)	150	21.5% (0.02)	
<b>Demographic characteristics</b>				
<i>Race and ethnicity</i>				
Black-African American	15.1% (0.48%)	150	17.4% (2.3%)	
Pacific Islander or American Indian	1.7% (0.22%)	150	5.0% (0.13%)	*
Multi-racial/ethnic	5.1% (0.32%)	150	2.7% (1.32%)	
Asian	5.2% (0.34%)	150	3.0% (0.08%)	
White (reference group)	72.9% (0.62%)	150	71.8% (2.60%)	
Hispanic	25.0% (0.59%)	150	15.0% (2.44%)	*
Male	51.1% (0.50%)	150	51.1% (2.31%)	
Age, 2-14 years old	8.0 (0.01)	150	8.1 (0.25)	
Disability status	9.1% (0.28%)	150	20.5% (1.63%)	***
<b>Socioeconomic characteristics</b>				
Income to poverty ratio, range 0-75	3.3 (0.05)	-	0	-
Health insurance coverage (for any)	93.6% (0.66%)	150	94.3% (0.82%)	
Food insecurity, range 1-3 (3: high insecurity)	1.3 (0.01)	150	1.3 (0.02)	
Parental education	38.1% (0.66%)	150	40.4% (2.57%)	
High school graduate or less				

Indicates statistically significant differences at the \*p-value <0.05, \*\*p-value <0.01,\*\*\*p-value < 0.001 Source: U.S. Census Bureau, 2014 Survey of Income and Program Participation Wave 1, Public Use file. Data are subject to sampling and non-sampling error. For more information see <https://www.census.gov/programs-surveys/sipp/methodology/sampling.html>

Poor health status indicated poor, fair, or good health status (“1”) compared to very good or excellent health status (“0”). Unsafe neighborhood indicated somewhat safe, somewhat unsafe, and very unsafe (“1”) compared to very safe (“0”).

Supplementary Table 4. Models 1-3 Multinomial regression odds ratio estimates and 95% Confidence limits of models predicting no medical utilization (n = 2497) compared to standard medical utilization (n = 5786) in children ages 2-14 years in the United States

	Model 1	Model 2	Model 3
<i>Housing quality</i>			
Poor housing quality, 0-4	1.01 (0.91, 1.12)	0.90 (0.80, 1.01)	<b>0.89 (0.79, 1.00)*</b>
<i>Demographic characteristics</i>			
Black/AA		1.09 (0.91, 1.31)	1.14 (0.93, 1.38)
Asian		1.20 (0.88, 1.63)	1.25 (0.92, 1.70)
American Indian/Pacific Islander		1.36 (0.79, 2.34)	1.21 (0.72, 2.02)
Multi-racial		1.02 (0.72, 1.43)	1.04 (0.74, 1.46)
White (reference group)			
Hispanic		1.10 (0.94, 1.27)	1.14 (0.98, 1.33)
Male		1.06 (0.95, 1.18)	1.07 (0.96, 1.19)
Age		<b>1.04 (1.03, 1.06)***</b>	<b>1.04 (1.03, 1.06)***</b>
Disability status		<b>0.66 (0.50, 0.87)***</b>	<b>0.66 (0.50, 0.87)**</b>
<i>Socioeconomic characteristics</i>			
Income to poverty ratio		<b>0.94 (0.91, 0.97)***</b>	<b>0.95 (0.92, 0.98)***</b>
Food insecurity		1.10 (0.98, 1.24)	1.12 (0.99, 1.21)
Health insurance		<b>0.31 (0.25, 0.38)***</b>	<b>0.32 (0.25, 0.39)***</b>
Parental education			
High school graduate or less		<b>1.40 (1.20, 1.63)***</b>	<b>1.35 (1.16, 1.58)***</b>
<i>Other housing-related indicators</i>			
Number of persons per household			<b>1.06 (1.00, 1.12)*</b>
Inability to pay rent/mort. or utilities			0.94 (0.77, 1.15)
Unsafe neighborhood			1.07 (0.92, 1.26)
Non-metropolitan status			<b>1.45 (1.17, 1.81)***</b>

1, public use file.

Data are subject to sampling and non-sampling error. For more information see <https://www.census.gov/programs-surveys/sipp/methodology/sampling.html>

Poor housing quality was measured as a count variable from 0-4, with 0 indicating no house problems up to 4 poor house problems (cracks in ceiling, holes in floor, pest and plumbing problems). No medical utilization indicates that the child did not access medical services compared to only those children who had standard medical utilization (1-2 visits)

Indicates statistically significant differences at the \*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value < 0.001  
Source: 2014 Survey of Income and Program Participation, wave

Supplementary Table 5. Models 1-3 Logistic regression odds ratio estimates and 95% Confidence limits of models predicting hospitalizations of children ages 2-14 years in the United States (N=12964)

	Model 1	Model 2	Model 3
<i>Housing quality</i>			
Poor housing quality, 0-4	<b>1.26 (1.10, 1.45)***</b>	1.07 (0.92, 1.25)	1.05 (0.90, 1.23)
<i>Demographic characteristics</i>			
Black/AA		1.01 (0.71, 1.43)	1.02 (0.72, 1.44)
Asian		1.06 (0.58, 1.93)	1.13 (0.61, 2.06)
American Indian/Pacific Islander		1.59 (0.76, 3.33)	1.65 (0.76, 3.57)
Multi-racial		0.99 (0.59, 1.69)	0.97 (0.57, 1.65)
White (reference group)			
Hispanic		<b>1.34 (1.01, 1.79)*</b>	<b>1.38 (1.03, 1.85)*</b>
Male		0.97 (0.76, 1.23)	0.96 (0.76, 1.22)
Age		<b>0.94 (0.90, 0.97)**</b>	<b>0.93 (0.90, 0.97)**</b>
Disability status		<b>4.92 (3.78, 6.40)***</b>	<b>4.80 (3.65, 6.30)***</b>
<i>Socioeconomic characteristics</i>			
Income to poverty ratio		1.01 (0.96, 1.06)	1.01 (0.97, 1.07)
Food insecurity		<b>1.18 (1.00, 1.40)*</b>	1.10 (0.92, 1.31)
Health insurance		<b>2.58 (1.31, 5.13)**</b>	<b>2.59 (1.30, 5.17)**</b>
Parental education			
High school graduate or less		1.22 (0.95, 1.57)	1.24 (0.97, 1.59)
<i>Other housing-related indicators</i>			
Number of persons per household (range = 1-20)			0.96 (0.88, 1.04)
Inability to pay rent/mort. or utilities			<b>1.39 (1.03, 1.88)*</b>
Unsafe neighborhood			0.98 (0.78, 1.24)
Non-metropolitan status			1.20 (0.86, 1.69)

Indicates statistically significant differences at the \*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value < 0.001 Source: 2014 Survey of Income and Program Participation, wave 1, public use file. Data are subject to sampling and non-sampling error. For more information see <https://www.census.gov/programs-surveys/sipp/methodology/sampling.html>

Poor housing quality was measured as a count variable from 0-4, with 0 indicating no house problems up to 4 house problems (cracks in ceiling, holes in floor, pest and plumbing problems).

