

Table S1. Participant Identification Codes.

Table S1. Participant Identification Codes.

Code Type	Codes
International Classification of Diseases, Ninth Revision (ICD-9)	55.61, 55.69
International Statistical Classification of Diseases, Tenth Revision (ICD-10)	0TY00Z0, 0TY00Z1, 0TY00Z2, 0TY10Z0, 0TY10Z1, 0TY10Z2
Current Procedural Terminology (CPT)	50360, 50365, 50380, S2065

Table S2. Summary of studies that have used HOUSES.

Supplementary Table 2. Summary of studies that have used HOUSES

Author	Population	Exposure	Outcomes	Effect sizes (95% CI)
<b>Adults</b>				
<b>Chronic conditions</b>				
Bang D, Manemann S, Gerber Y, et al. A Novel Socioeconomic Measure Using Individual Housing Data in Cardiovascular Outcome Research. <i>International Journal of Environmental Research and Public Health</i> . 2014;11(11):11597-11615.	Population-based 696 cases with MI and 718 controls without RA	HOUSES	Post-MI mortality	HR = 1.45 (0.82-2.58)*
Ghawi H, Crowson CS, Rand-Weaver J, Krusemark E, Gabriel SE, Juhn YJ. A novel measure of socioeconomic status using individual housing data to assess the association of SES with rheumatoid arthritis and its mortality: a population-based case-control study. <i>BMJ Open</i> . 2015;5(4).	Population-based 650 cases with RA and 650 controls without RA	HOUSES	RA diagnosis and post-RA mortality	OR = 1.06 (1.02-1.09)* (RA diagnosis) HR = 1.58 (1.05-2.36)* (Post mortality)
Takahashi PY, Ryu E, Hathcock MA, et al. A novel housing-based socioeconomic measure predicts hospitalisation and multiple chronic conditions in a community population. <i>Journal of Epidemiology and Community Health</i> . 2015;70(3):286-291.	Biobank enrollees (n=6402)	HOUSES	All-cause hospitalization and multiple chronic conditions (MCC)	HR = 1.53 (1.18-1.98)* (Hospitalization) OR = 2.4 (2.0-3.1)* (MCC)
Wi C-I, Sauver JLS, Jacobson DJ, et al. Ethnicity, Socioeconomic Status, and Health Disparities in a Mixed Rural-Urban US Community—Olmsted County, Minnesota. <i>Mayo Clinic Proceedings</i> . 2016;91(5):612-622.	Population-based community residents (n= 88 010)	HOUSES	Prevalence of five common chronic conditions	OR = 0.74 (0.69, 0.80) (CHD) OR = 0.78 (0.73, 0.83) (Asthma) OR = 0.56 (0.52, 0.60) (Diabetes) OR = 0.64 (0.61, 0.68) (Hypertension) OR = 0.61 (0.58, 0.63) (Mood disorder)
Thacher TD, Dudenkov DV, Mara KC, Maxson JA, Wi C-I, Juhn YJ. The relationship of 25-hydroxyvitamin D concentrations and individual-level socioeconomic status. <i>The Journal of Steroid Biochemistry and Molecular Biology</i> . 2019:105545.	Population-based community residents who had 25(OH)D results (n= 11 002)	HOUSES	25(OH)D concentration	25(OH)D increased by 0.28 (0.21-0.35; P < 0.001) ng/mL for each unit increase in HOUSES
Bjur KA, Wi C-I, Ryu E, Crow SS, King KS, Juhn YJ. Epidemiology of Children With Multiple Complex Chronic Conditions in a Mixed Urban-Rural US Community. <i>Hospital Pediatrics</i> . 2019;9(4):281-290.	Population-based community residents	HOUSES	Five-year prevalence and incidence rates of children with Multiple Complex Chronic Conditions (MCCs)	MCCs tend to be more prevalent among children with a lower SES
<b>Acute conditions</b>				

Ryu E, Juhn YJ, Wheeler PH, et al. Individual housing-based socioeconomic status predicts risk of accidental falls among adults. <i>Annals of Epidemiology</i> . 2017;27(7).	Biobank enrollees of 12 286 adults	HOUSES	Accidental falls	HR = 0.58 (0.44-0.76)
<b>Behavioral risk conditions</b>				
Wi C-I, Gauger J, Bachman M, et al. Role of individual-housing-based socioeconomic status measure in relation to smoking status among late adolescents with asthma. <i>Annals of Epidemiology</i> . 2016;26(7):455-460.	Population-based birth cohort with asthma aged 19-22 years (n=289)	HOUSES	Smoking status	OR = 0.39 (0.18-0.87)
Ryu E, Olson JE, Juhn YJ, et al. Association between an individual housing-based socioeconomic index and inconsistent self-reporting of health conditions: a prospective cohort study in the Mayo Clinic Biobank. <i>BMJ Open</i> . 2018;8(5).	Biobank enrollees (n=11 717)	HOUSES	Inconsistency in survey results when reporting prevalent diseases	OR = 1.46 (1.17 - 1.84)*
Barwise A, Juhn YJ, Wi C-I, et al. An Individual Housing-Based Socioeconomic Status Measure Predicts Advance Care Planning and Nursing Home Utilization. <i>American Journal of Hospice and Palliative Medicine</i> ®. 2018;36(5):362-369.	Population-based cohort admitted to intensive care units (ICUs)	HOUSES	Advance directives Discharge to home	OR = -0.77(0.63-0.93) OR = -0.60 (1.0.5-0.72)
<b>Children</b>				
<b>Chronic conditions</b>				
Juhn YJ, Beebe TJ, Finnie DM, et al. Development and Initial Testing of a New Socioeconomic Status Measure Based on Housing Data. <i>Journal of Urban Health</i> . 2011;88(5):933-944.	Random sample of children living in Olmsted County, MN (n=750) and Jackson County, MO (n=781)	HOUSES	Overweight, low birth weight, tobacco smoking status of household	1. Olmsted County OR = 0.39 (p=0.008) (Overweight) OR = 0.63 (p=0.330) (LBW) OR = 0.39 (p=0.007) (Smoking) 2. Jackson County OR = 0.49 (p=0.07) (Overweight) OR = 0.42 (p=0.018) (LBW) OR = 0.24 (p<.001) (Smoking)
Butterfield MC, Williams AR, Beebe T, et al. A two-county comparison of the HOUSES index on predicting self-rated health. <i>Journal of Epidemiology &amp; Community Health</i> . 2010;65(3):254-259.	Random sample of children living in Olmsted County, MN (n=746) and Jackson County, MO (n=704)	HOUSES	Adverse self-rated health	1. Olmsted County; OR = 0.21 (0.08-0.51) 2. Jackson County; OR = 0.99 (0.25-4.04)
Harris MN, Lundien MC, Finnie DM, et al. Application of a novel socioeconomic measure using individual housing data in asthma research: an exploratory study. <i>npj Primary Care Respiratory Medicine</i> . 2014;24(1).	Random sample of children with asthma from Sanford Children Hospital (n=80)	HOUSES	Poorly control asthma by Asthma Control Test score	OR = 0.21 (0.05-0.89)
Ryu E, Wi C-I, Crow SS, et al. Assessing health disparities in children using a modified housing-related socioeconomic	Random sample of children living in	Modified HOUSES	Overweight, low birth weight, tobacco	1. Olmsted County

status measure: a cross-sectional study. <i>BMJ Open</i> . 2016;6(7).	Olmsted County, MN (n=750) and Jackson County, MO (n=781)		smoking status of household	OR = 0.48 (0.25-0.94) (Overweight) OR = 0.78 (0.30-2.03) (LBW) OR = 0.24 (0.11-0.49) (Smoking) 2. Jackson County OR = 0.45 (0.23-0.89) (Overweight) OR = 0.54 (0.34-1.21) (LBW) OR = 0.26 (0.16-0.44) (Smoking)
---	---	--	-----------------------------	---

**Acute Conditions**

Johnson MD, Urm SH, Jung JA, et al. Housing data-based socioeconomic index and risk of invasive pneumococcal disease: an exploratory study. <i>Epidemiology and Infection</i> . 2012;141(4):880-887.	Population-based cases (n=35) and controls (n=70)	HOUSES	Invasive pneumococcal disease	OR = 0.16 (0.02–1.11)
Bjur KA, Wi C-I, Ryu E, et al. Socioeconomic Status, Race/Ethnicity, and Health Disparities in Children and Adolescents in a Mixed Rural-Urban Community—Olmsted County, Minnesota. <i>Mayo Clinic Proceedings</i> . 2019;94(1):44-53.	Population-based community residents (n= 31 523)	HOUSES	Bronchiolitis, Pneumonia, UTI, Accident and adverse childhood experiences	OR = 0.69 (0.61-0.78) (Bronchiolitis) OR = 0.88 (0.78,-0.99) (Pneumonia) OR = 0.66 (0.56-0.78) (UTI) OR = 0.54 (0.44-0.66) (Accident and adverse childhood experiences)

**Behavioral risk conditions**

Hammer R, Capili C, Wi C-I, Ryu E, Rand-Weaver J, Juhn YJ. A new socioeconomic status measure for vaccine research in children using individual housing data: a population-based case-control study. <i>BMC Public Health</i> . 2016;16(1).	Population-based case (n=130) and controls (n=261)	HOUSES	Pertussis vaccine up-to-date status	OR = 3.66 (1.34-9.96)*
---	--	--------	-------------------------------------	------------------------

*Note.* \*Highest SES (i.e., highest HOUSES) as a reference. Otherwise, the lowest HOUSES was used as a reference; HR = Hazard Ratio; OR = Odds Ratio; MI = Myocardial Infarction; RA = Rheumatoid Arthritis; Urinary Tract Infection = UTI

Figure S1. Kaplan Meier Estimates Comparing Graft Failure Rates Between Highest HOUSES Quartiles (Q2, Q3, Q4) Versus Lowest HOUSES Quartile (Q1) in all Recipients (N=181;  $P = 0.12$ ).

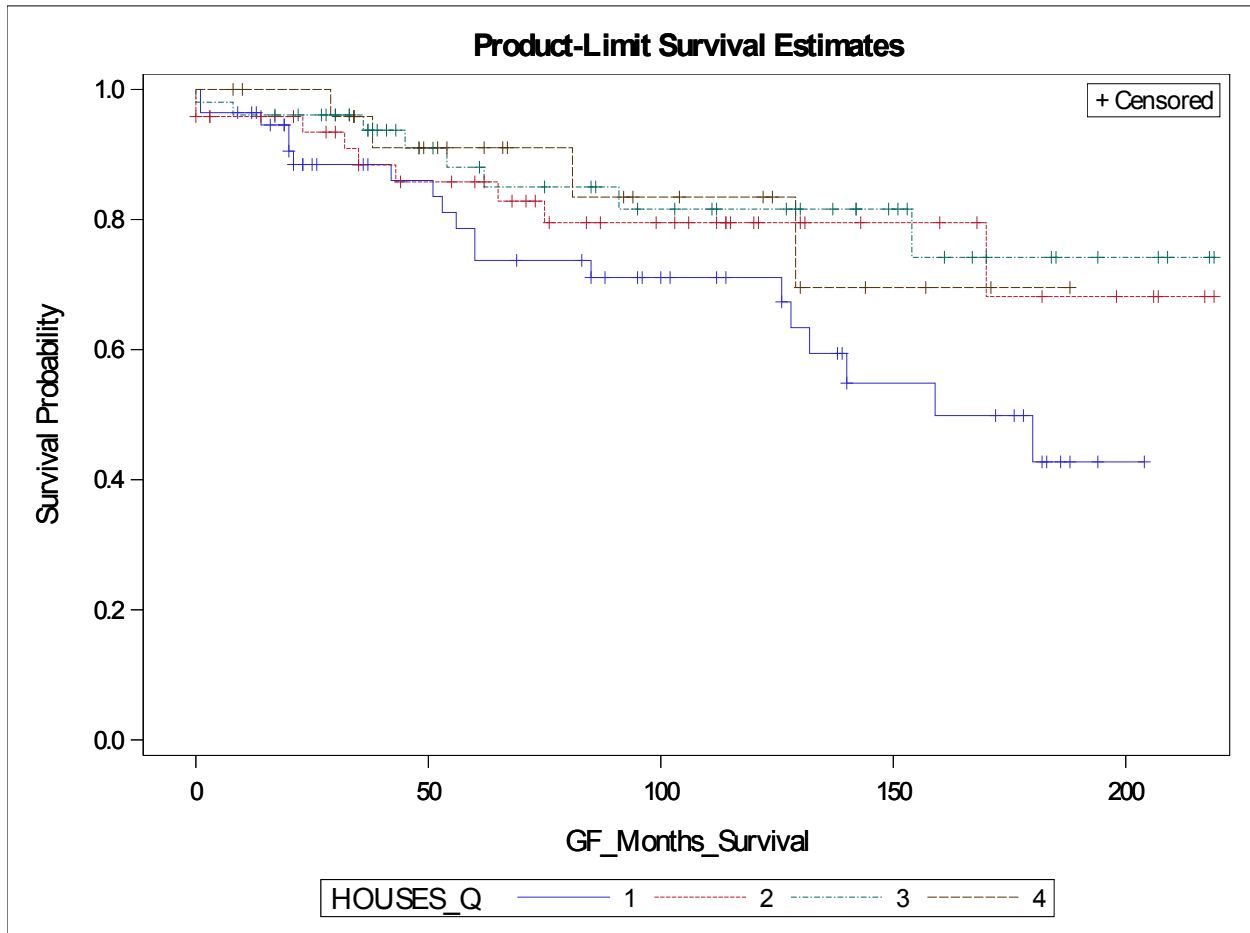


Figure S2. Kaplan Meier Estimates Comparing Graft Failure Rates Between Highest HOUSES Quartiles (Q2, Q3, Q4) Versus Lowest HOUSES Quartile (Q1) in DDKT Recipients (N=68; P = 0.09).

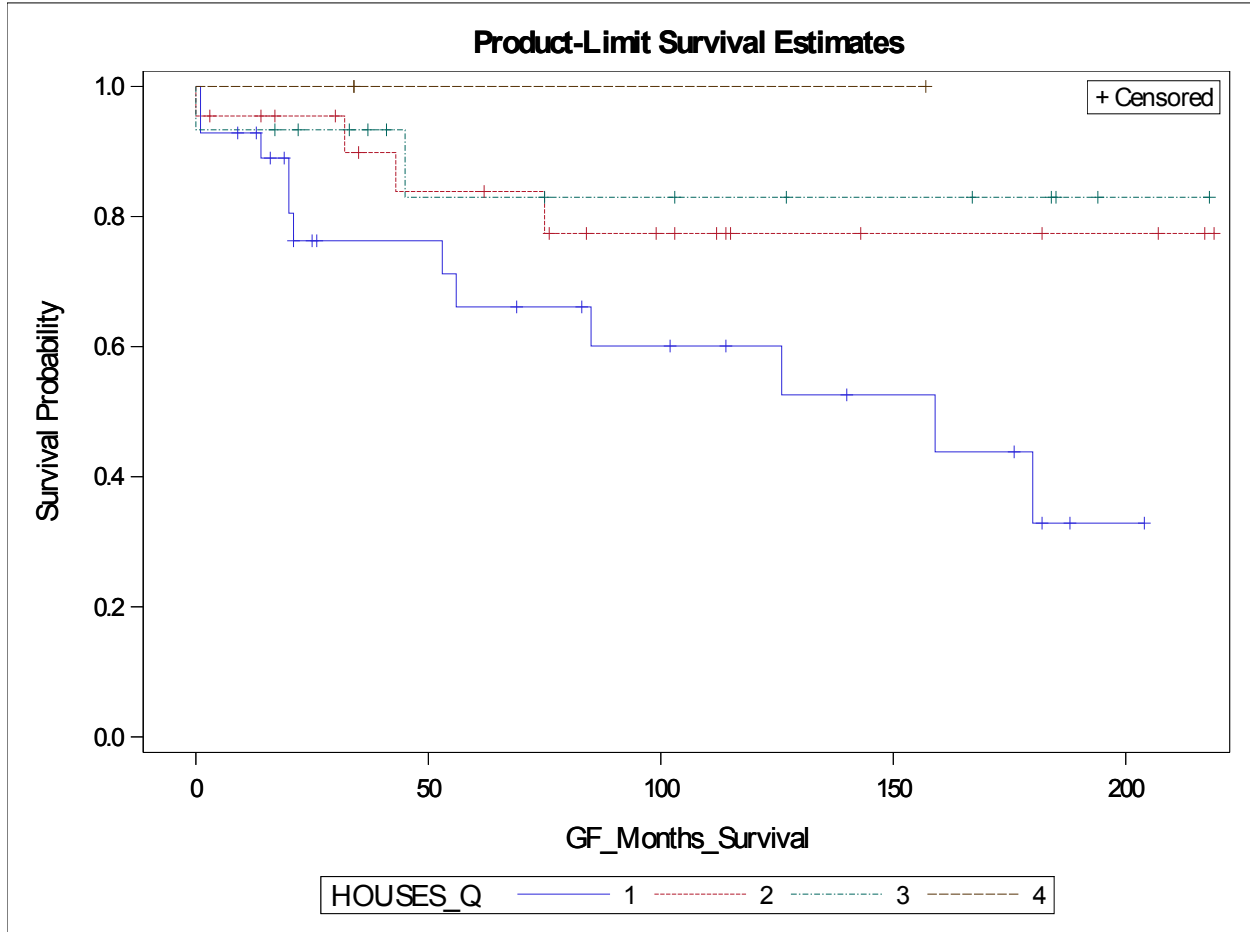


Figure S3. Kaplan Meier Estimates Comparing Graft Failure Rates Between Highest HOUSES Quartiles (Q2, Q3, Q4) Versus Lowest HOUSES Quartile (Q1) in LDKT Recipients (N=113;  $P = 0.92$ ).

