There is increasing awareness that the social, economic, and environmental conditions outside of the doctor’s office can have a bigger effect on health outcomes than direct interaction with the health care system itself.\textsuperscript{1,2} These social determinants of health (SDH)—such as education, employment, housing, and nutrition—are particularly salient for Medicaid members, who are disproportionately affected by poverty, which constrains choices and opportunities to meet such social needs. This brief illustrates potential opportunities in New York City for Medicaid providers and plans to address one such determinant—housing—to support delivery of more appropriate and higher-quality care, improve enrollees’ health outcomes, and potentially prevent high-cost utilization in the future.\textsuperscript{3}

Understanding how addressing SDH can increase the value of health care for Medicaid members, the New York State Department of Health has incentivized the use of SDH interventions through its value-based payment (VBP) initiative. VBP contractors in Level 2 or 3 (shared-risk) arrangements are required to implement at least one SDH intervention, and providers or provider networks will receive a funding advance from managed care organizations for addressing one or more social determinants.\textsuperscript{4} Providers in Level 1 VBP arrangements are not required to implement an SDH intervention but they will receive a bonus if they do so.\textsuperscript{4} VBP contractors have flexibility to select SDH interventions from among five broad domains; one such domain, “economic stability,” includes interventions focused on homelessness, housing instability, and lack of access to affordable housing.\textsuperscript{5}

Housing may be a particularly compelling SDH for VBP contractors to address, given research consistently showing how unstably housed or homeless individuals are more likely to experience high rates of emergency department use, frequent and costly hospital admissions, and adverse health outcomes such as drug and alcohol dependence, mental illness, infectious disease, injuries, and unmet health care needs.\textsuperscript{7-11} Although existing evidence most strongly demonstrates that homelessness itself predicts adverse health outcomes, indicators of housing insecurity may also be useful to examine in the absence of accurate data on homelessness.\textsuperscript{12} Definitions of “housing insecurity” vary, but the term generally describes a range of challenges that may be precursors to homelessness—such as difficulty paying rent, paying large shares of income toward rent, living in crowded housing, temporarily living with friends or relatives, or frequently moving.\textsuperscript{13,14} In addition, housing insecurity itself may be associated with reduced access to health care, difficulties with managing chronic conditions, and certain adverse health outcomes.\textsuperscript{15-17} To appropriately target housing-focused SDH interventions, it may be useful to focus on neighborhoods with high levels of housing insecurity, health care utilization, and Medicaid enrollment. The following analysis identifies such neighborhoods in New York City, using neighborhood tabulation areas (NTAs) and several sources of data, described below and included in an appendix.
Figures 1 and 2 feature New York City neighborhood-level health and housing data sourced from the New York City Neighborhood Health Atlas. These include two indicators of housing insecurity: the percentage of the population living in crowded housing (more than one occupant per room), shown in Figure 1; and the percentage of the population experiencing rent burden (paying over 30% of pre-tax income towards monthly rent), shown in Figure 2. Each NTA was plotted by housing indicator (x-axis) and all emergency department (ED) visits per 100 population (y-axis) with the indicators’ citywide median values shown. Further, plot size shows the total number of Medicaid enrollees residing in each NTA (i.e., the larger the circle, the larger the Medicaid population in that NTA). See “Data Notes,” below, for more details about measure definitions. For a full listing of New York City neighborhoods and their indicator values, see the accompanying appendix.

From a policy and practice perspective, the neighborhoods with large plot size in each figure’s upper right quadrant are of greatest interest—these are neighborhoods where there are high levels of housing insecurity, ED visits, and Medicaid enrollees. Examples include Mount Hope in the Bronx, East New York in Brooklyn, and Jamaica in Queens.
Figure 2. Percent of Total Population Experiencing Rent Burden (30% or More of Pretax Income Spent on Rent) vs. All ED Visits (per 100) and Total Medicaid Population, by NYC NTA

Note: Bubble size indicates total number of Medicaid members per NTA and bold graph lines indicate median values.

Neighborhood Tabulation Areas

This brief primarily uses data drawn from the NYC Neighborhood Health Atlas (the Atlas), which was first released in 2018 by the New York City Department of Health and Mental Hygiene (NYC DOHMH) and created with funding from the Robert Wood Johnson Foundation’s national Data Across Sectors for Health (DASH) program. The Atlas identifies and calculates over 100 cross-sector health and social measures for 188 different NYC neighborhoods, referred to as “neighborhood tabulation areas” (NTAs).

NTAs are statistical areas first constructed by the NYC Department of City Planning to analyze and estimate the populations of small areas. NTAs currently range in size from approximately 13,000 to 137,000 total residents, with a median population of 39,088, based on the U.S. Census Bureau’s 2010-2014 American Community Survey’s five-year estimates. Each NTA consists of census tracts whose boundaries correspond to easily identifiable historical neighborhoods and lie strictly within the Census Bureau’s larger Public Use Microdata Areas (or PUMAs), which roughly correspond to NYC’s 59 Community Districts.

The Atlas data were developed through a collaboration of NYC DOHMH, the NYC Center for Innovation through Data Intelligence, the NYC Department of City Planning, the NYC Department for the Aging, the NYC Department of Correction, the New York Academy of Medicine, the Fund for Public Health in New York City, and the United Hospital Fund.
As the maps in Figure 3 demonstrate, such neighborhoods are often geographically clustered. For example, the neighborhoods surrounding Mount Hope are all in the top quartiles (across all NYC neighborhoods) for both crowded housing and all ED visits, and all but one of those neighborhoods are also in the top quartile for rent burden. Moreover, 16 of 30 neighborhoods (53%) highlighted with darker-colored shading in Figure 3 are highlighted on both maps in the figure, indicating top-quartile values for all ED visits and both housing indicators. These neighborhoods may offer good opportunities for developing or expanding housing interventions to help reduce enrollees’ ED visits and hospitalizations—including the potentially avoidable visits and the unavoidable visits associated with unstable housing. (Potentially avoidable visits may be driven by unstably housed individuals’ reduced access to routine care or poor management of chronic conditions—due to challenges with refilling or storing medication,\textsuperscript{19} for instance; unavoidable visits may be driven by such individuals sliding into homelessness and becoming vulnerable to conditions such as hypothermia, assault-related injuries, or exacerbated behavioral health needs.) In turn, addressing these drivers of ED and hospital utilization may help achieve VBP quality and cost goals.

**Figure 3. NYC NTAs with Both Housing Insecurity and ED Utilization Values Above the Median (Lighter Shading) or in the Top Quartile (Darker Shading), Relative to All NTAs**

Note: The above-median and top-quartile rankings are citywide comparisons, and not every borough has neighborhoods with top-quartile values for housing insecurity and ED utilization. For instance, all shaded NTAs in Staten Island are shown with lighter green, indicating both values above the citywide median but not in the top quartile.
There are several limitations to this analysis. Available housing and ED data are not exclusive to the Medicaid population; crowded housing and rent burden are incomplete proxies for housing insecurity, and do not capture housing quality or homelessness; and these analyses do not account for underlying poverty or other factors that may contribute to both housing insecurity and ED utilization.

To the extent that more precise data than this brief’s housing insecurity measures are available to target housing interventions in neighborhoods like those highlighted in Figure 3, such data might also assist plans and VBP contractors with selecting appropriate forms of housing assistance. Options include those currently listed on the Department of Health’s menu of evidence-based SDH interventions, such as respite care, rental assistance, legal services, housing-related case management, and supportive housing. Several housing and health interventions are already underway in New York City; VBP contractors may also wish to consider other regional and national models with innovative design components. Examples include:

**Targeting Members with Housing Insecurity.** As a Medicaid Accountable Care Organization (ACO) operating in Minnesota, Hennepin Health uses a method of proactive risk identification to target high-cost, high-need members that may benefit most from coordinated efforts to address medical, behavioral, and social problems, including housing instability and homelessness. For example, they have used electronic health records supplemented with housing provider data to flag members with multiple address changes as potentially unstably housed, finding that up to 50 percent of members were unstably housed or homeless.

**Implementing Medical Respite Models.** Under the New York Delivery System Reform Incentive Payment (DSRIP) program (Project 2.b.vi.), Finger Lakes PPS’s Transitional Supportive Housing Project has fostered a partnership between two regional health systems and a community-based organization to develop temporary psychiatric and medical step-down beds for unstably housed Medicaid members, allowing hospitals to discharge individuals into environments that better meet their needs. This initiative has contributed to improved member health, reduced hospitalizations, and subsequent cost savings.

**Financing Services for Housing-Insecure Members Through Shared-Savings Arrangements.** Some Arizona Medicaid managed care plans have established value-based payment models and shared-savings arrangements with community health organizations like Circle the City, which complement traditional fee-for-service billing in financing an array of non-traditional services. Circle the City provides services like mobile clinics, medical respite care, and preventive and primary care for individuals and families experiencing homelessness.

**Utilizing Homelessness Prevention Partners.** Over three years, the Boston Foundation has committed $600,000 to each of four housing and health partnerships addressing stable housing and children’s health outcomes. One of these partnerships, the Chelsea Health Starts at Home initiative,
housing and health providers to stabilize family housing and measure children’s resulting accrued health benefits. The providers screen families for housing instability as a part of regular care, referring them to co-located services that include short-term rental assistance and long-term stabilization supports like housing counseling or workforce development resources.30

When considering housing assistance as a method for improving Medicaid member health, several challenges exist:

**Restrictions on Federal Financing.** Currently, federal law prohibits federal reimbursement of state Medicaid spending on housing (i.e., “room and board”) except for expenditures on institutional services, such as nursing home stays, and expenditures on certain other types of housing-related services (such as transition services, housing and tenancy sustaining services, and housing-related planning and coordination).31,32 Due to these restrictions, New York has primarily financed its MRT Supportive Housing Initiative with State-only dollars.33

**Strategic Decisions for Medicaid Managed Care Plans.** Managed care plans may face complex strategic decisions when providing housing-related services – such as questions about potential return on investment, or categorization of services under managed care contracts (e.g., “value added” or “in-lieu-of” services—see endnote for more detail).14 These decisions can affect plans’ flexibility to provide such services, the inclusion of services in capitation rates, or plans’ ability to meet medical loss ratio requirements.35,36

**Considerations for Medicaid Providers.** Health care providers in VBP arrangements may face several challenges when implementing housing interventions: selecting housing assistance models appropriately aligned with patients’ needs and providers’ resources; targeting interventions through effective patient screening and case management; establishing strong partnerships with community-based organizations that provide housing services; and selecting appropriate outcomes by which to measure success. Like managed care plans, VBP-contracting providers will also need to evaluate potential returns on investment to ensure sustainable funding among different types of housing interventions, both in terms of shared savings and the ability to meet health care quality targets tied to financial incentives or penalties.37,38

**Scarcity of Affordable Housing.** Underneath the challenges faced by health plans and providers remains the long-standing shortage of affordable housing in New York City—an issue that both drives housing insecurity and obstructs potential solutions, and one that cannot be tackled by health and housing providers alone.39

Despite these challenges, New York Medicaid’s VBP initiative has the potential to promote new cross-sector partnerships between health plans, providers, and housing and human services organizations. The success of such partnerships will depend on adequately balancing each sector’s goals and share of investment return; yet cost savings alone are an insufficient measure of success. As Kertesz et al. have argued, the evidence on health
care savings resulting from housing interventions is mixed, and savings may only occur among a narrow subgroup of the costliest patients. Instead, housing interventions’ clearest value may be in preventing the dire health consequences resulting from current and future homelessness, and in providing stable living arrangements that facilitate consistent access to routine care, regular adherence to medications, and more effective management of chronic conditions—all of which may improve patient outcomes and VBP contractors’ performance on quality measures. Ultimately, New York’s SDH requirements in VBP may yield many models demonstrating the promises and pitfalls of addressing health through housing for Medicaid’s highest-cost, highest-need members—potentially producing numerous best practices and lessons for the field.

**DATA NOTES**
Sources: NYC Neighborhood Health Atlas data at the NTA-Level—Crowded Housing (American Community Survey 2010-14 five-year estimates); Rent Burden (American Community Survey 2010-14 five-year estimates)—calculated relative to gross rent (rent plus electricity and heating fuel costs); All ED Visits (SPARCS ED Visits, 2014)—crude rate of all emergency department visits per 100 population, all ages (consisting of both ED visits resulting in inpatient stays and “treat-and-release” ED visits not leading to inpatient admissions); Medicaid Enrollment—created by multiplying the percent of the population enrolled in Medicaid (Salient Interactive Miner, continuously enrolled for 11 months or more in CY 2015) by the total NTA population.

**ENDNOTES**


4. Consistent with these requirements and incentives, Level 2 and Level 3 VBP contractors are also required to contract with a Tier 1 community-based organization (CBO), defined as a non-profit, non-Medicaid billing, social and human service organization. Though VBP contractors in Level 2 and 3 arrangements are required to implement at least one SDH intervention, and contract with at least one Tier 1 CBO, the Tier 1 CBOS are not required to implement the SDH intervention. Source: presentation by Jason Helgerson and Liz Misa. “VBP Social Determinants of Health (SDH) & Community Based Organizations (CBOs) Informational Webinar.” Presented August 25, 2017. https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/vbp_library/docs/2017-08-25_sdh_cbo_slides.pdf


6. In addition to economic stability, the four other domains from which VBP contractors may select SDH interventions are: education, social, family, and community context; health and health care; and neighborhood and environment.


Several New York City neighborhoods with large Medicaid enrollment (i.e., large circle size in Figures 1 and 2) stand out as having relatively high levels of housing insecurity and low levels of ED utilization. Two such examples in Brooklyn, Borough Park and Sunset Park East, display these patterns. Further study in these neighborhoods may be instructive to uncover other factors possibly contributing to lower ED utilization in geographic areas with large Medicaid enrollment and concentrated poverty.


Several New York City neighborhoods with large Medicaid enrollment (i.e., large circle size in Figures 1 and 2) stand out as having relatively high levels of housing insecurity and low levels of ED utilization. Two such examples in Brooklyn, Borough Park and Sunset Park East, display these patterns. Further study in these neighborhoods may be instructive to uncover other factors possibly contributing to lower ED utilization in geographic areas with large Medicaid enrollment and concentrated poverty.


The outlying data points in these figures reflect how other, omitted factors affect neighborhood-level housing need and ED utilization. For example, several Manhattan neighborhoods—such as the Lower East Side and East Harlem South— have relatively lower levels of housing insecurity but high levels of ED utilization. This relationship may appear due to public housing developments in these neighborhoods, among other reasons: neighborhoods with a large percentage of the population residing in public housing developments may see mitigated housing insecurity for some residents, and yet still see poorer health outcomes due to underlying levels of poverty. (In the Lower East Side and East Harlem South, 25%–33% of the population was living in NYCHA public housing developments in 2015, compared to 4.7% citywide. See “Residents Living in Public Housing [Percent],” *New York City Neighborhood Health Atlas*. https://www1.nyc.gov/site/doh/health/neighborhood-health/nyc-neighborhood-health-atlas.page)


In 2015, the Centers for Medicare & Medicaid Services clarified that federal reimbursement is available for certain other types of housing-related services (e.g., screening, referral, and case management); individual housing and tenancy sustaining services (e.g., legal assistance and eviction prevention); and state-level housing-related collaborative activities, such as planning or coordination. Source: Centers for Medicare & Medicaid Services. June 2015. Coverage of Housing-Related Activities and Services for Individuals with Disabilities. https://www.medicaid.gov/federal-policy-guidance/downloads/cb-08-26-2015.pdf

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32 In 2015, the Centers for Medicare & Medicaid Services clarified that federal reimbursement is available for certain other types of housing-related services: individual housing transition services (e.g., screening, referral, and case management); individual housing and tenancy sustaining services (e.g., legal assistance and eviction prevention); and state-level housing-related collaborative activities, such as planning or coordination. Source: Centers for Medicare & Medicaid Services. June 2015. Coverage of Housing-Related Activities and Services for Individuals with Disabilities. https://www.medicaid.gov/federal-policy-guidance/downloads/cb-08-26-2015.pdf


34 Medicaid managed care plans also have some flexibility to spend capitation dollars on housing-related services, including: services covered under the Medicaid State Plan (such as certain case management); services provided in addition to covered services, to improve quality or reduce costs (“value-added” services); or services provided as cost-effective substitutes for other covered services (“in lieu of” services).


36 Based on the way a managed care plan categorizes housing services (e.g., categorizing housing-related services as “value-added” services that improve quality of care or reduce costs, versus categorizing services as “in lieu of” services that are medically appropriate, cost-effective substitutes for other state plan services), the categorization may affect whether such services are included in the numerator of a plan’s medical loss ratio (MLR), which can determine whether a plan meets federal MLR requirements—or, if failing to meet MLR, whether a plan is potentially exposed to state recoupment of funds.


