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Center for Human Services Research, University at Albany

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CENTER FOR HUMAN SERVICES RESEARCH  
UNIVERSITY AT ALBANY State University of New York

## MRT Supportive Housing Evaluation:

# Enrollment in Supportive Housing Reduces Medicaid Spending and Service Utilization Significantly More than for a Matched Comparison Group

### Overview

The New York State Medicaid Redesign Team (MRT) was created in 2011 to develop a multi-year reform plan to address unprecedented healthcare cost growth and improve healthcare quality. One innovation tested under this Redesign is the investment in supportive housing, or affordable housing paired with supportive services (e.g., on-site case management, referrals to community-based services). High-cost, high-need Medicaid recipients who were homeless, unstably housed, or living in treatment facilities providing a higher level of care than needed were targeted for enrollment. This investment was anticipated to improve quality of life and health outcomes for enrolled clients, thus decreasing utilization of especially expensive forms of healthcare (inpatient hospitalizations, emergency department visits, and nursing home stays), increasing usage of primary care services, improving housing stability, and potentially reducing overall healthcare spending. **This Research Brief examines changes in Medicaid spending and utilization from one year before to one year after program enrollment, versus changes in a matched group of similar but not-enrolled individuals.**

### Client Sample and Research Approach

The study utilized a Propensity Score Matching approach, a rigorous statistical technique that estimates the effect of an intervention when random assignment is not possible by comparing a treatment group with a statistically matched comparison group. For this study, the intervention group was comprised of 2,037 Medicaid clients enrolled in one of 17 MRT Supportive Housing Programs. All Supportive Housing clients had at least some recorded spending in the year before enrollment (Pre-Period), had data available for at least one year after enrollment (Post-Period), and had a Pre-Period diagnosis of a serious mental illness (77%), substance use disorder (51.5%), "other chronic condition" (49%),<sup>1</sup> or HIV (5%). The matched Comparison group included 2,037 New York State Medicaid clients who met the same coverage, spending, and diagnostic criteria.<sup>2</sup>

Medicaid fee-for-service claims (excluding capitation payments) and managed care plan encounter data were examined. Medicaid use was analyzed both overall and by category of service, or claim domain. Clients were analyzed by ten

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<sup>1</sup> The "other chronic condition" category was comprised of the twelve other most common chronic conditions, and included hypertension, asthma, diabetes, osteoarthritis, coronary heart disease, chronic kidney disease, chronic obstructive pulmonary disease, cerebrovascular disease, congestive heart failure, cancer, angina, and acute myocardial infarction.

<sup>2</sup> For complete inclusion criteria and details of the Propensity Score Matching approach, please see the MRT Supportive Housing Evaluation Comparison Group or Cost Report 2: Volume 2 reports.

spending groups based on their Pre-Period Medicaid spending; Supportive Housing-Comparison client pairs were required to fall within the same decile, and thus did not have significantly different Pre-Period spending.

## Key Findings

### Total Cost Savings for Supportive Housing versus Comparison

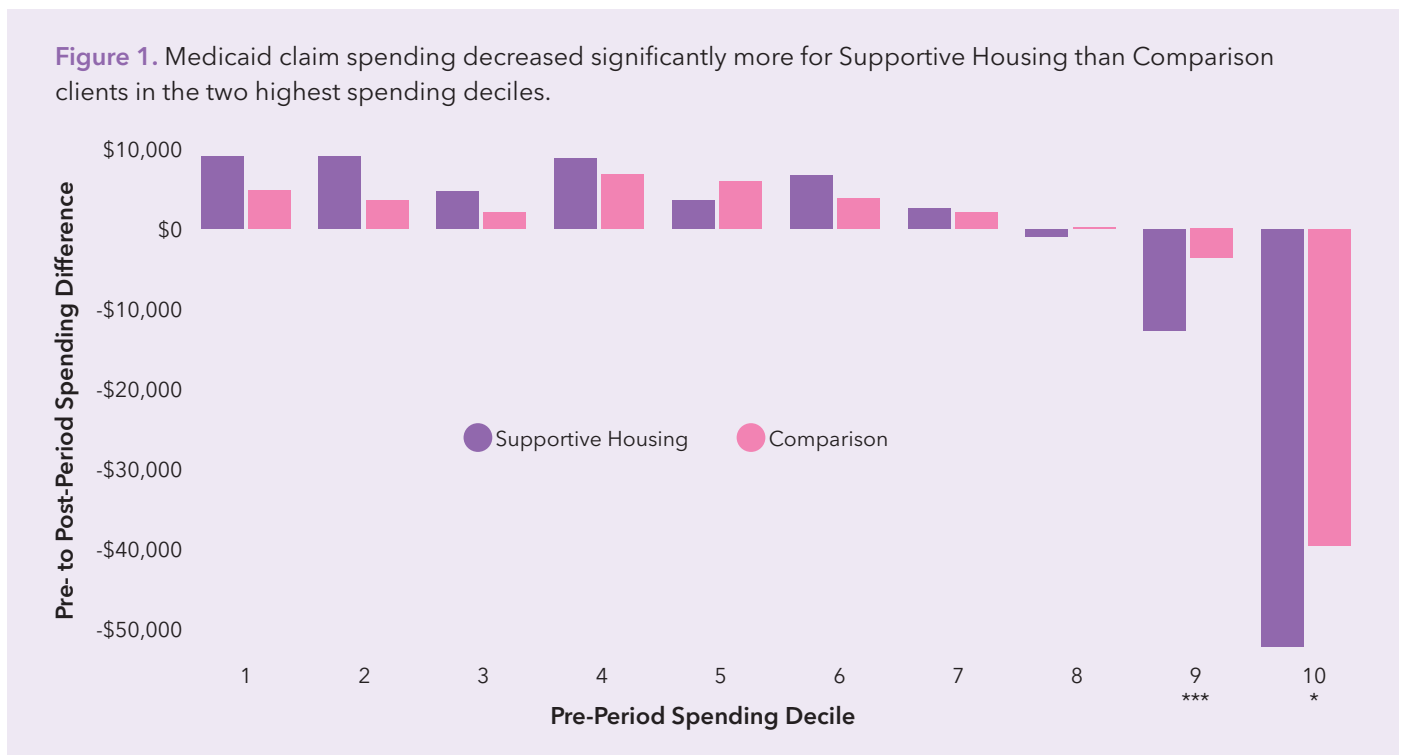
Both groups demonstrated decreased spending over time, **but Supportive Housing clients showed a larger spending decrease than did Comparison, for an average treatment effect of the treated of about \$4,780.** This decrease resulted in a total comparative savings of over \$6.3 million.

**Table 1.** Supportive Housing clients demonstrated a larger Pre- to Post-Period spending decrease than did Comparison clients.<sup>3</sup>

Group	Mean Pre-Period Spending	Mean Post-Period Spending	Main Effect of Group	Mean Cost Difference
Supportive Housing	\$34,173	\$27,350	**	-\$6,822
Comparison	\$35,828	\$32,130		-\$3,699
Main Effect of Time		***		Interaction **

**This effect was driven by the two highest spending groups.** The significantly greater decrease found for Supportive Housing clients can be attributed to enrollment in MRT Supportive Housing. The slightly increased spending for Supportive Housing clients in the lower spending deciles may demonstrate improved access to needed services after enrollment.

**Figure 1.** Medicaid claim spending decreased significantly more for Supportive Housing than Comparison clients in the two highest spending deciles.



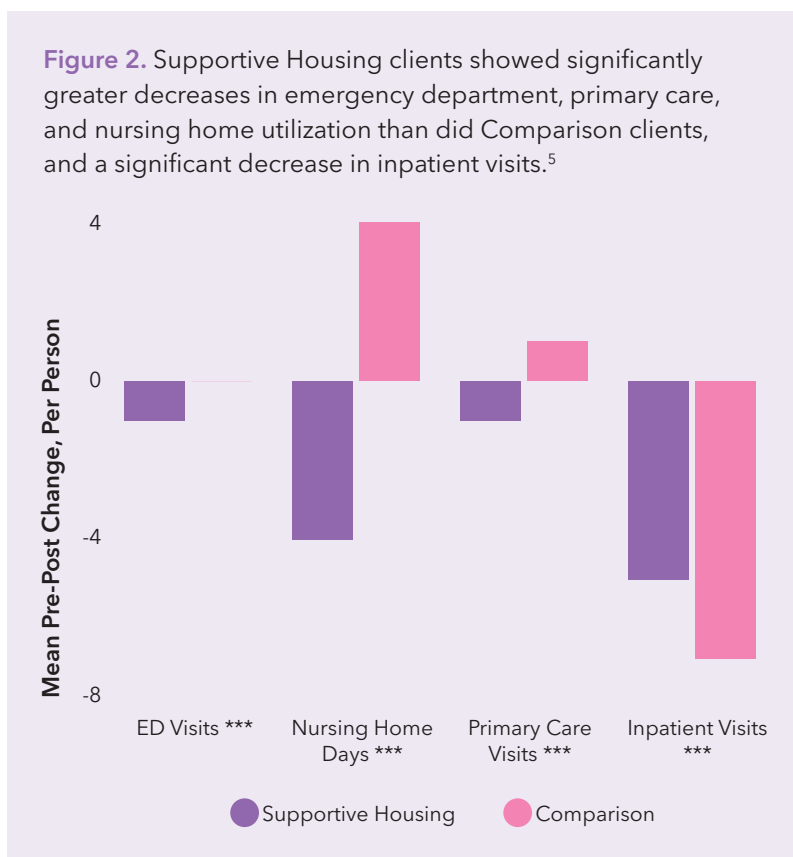
<sup>3</sup> 2 (group: Supportive Housing, Comparison) x 2 (timepoint: Pre, Post-Period) Repeated Measures ANOVA: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

## Differences in Savings and Utilization Within Client Subgroups

Supportive Housing-Comparison client pairs were not required to match on Pre-Period within-category spending and utilization, diagnosis, or housing history. Significant changes within these key domains may still be useful for determining the drivers behind the overall spending effects, identifying groups for whom Supportive Housing might be especially effective, and informing future research on this topic, though caution must be used when interpreting these results.

### Cost Savings and Utilization Differences by Category of Service

- **Emergency department spending decreased significantly more for Supportive Housing than Comparison clients.** Similarly, **Supportive Housing showed a greater reduction in the average number of ED visits per person**, including fewer visits for potentially preventable (e.g., routine complaints; non-emergent, emergent but primary care-treatable, avoidable, and alcohol-related)<sup>4</sup>, substance use-related, and housing-sensitive (e.g., infections associated with congregate living situations, environmental heat- and cold-related) conditions. While not as large a cost driver as other categories, this pattern still points to improved client well-being after enrollment.
- **Supportive Housing clients showed significant decreases in nursing home spending and fewer days in this setting in the Post-Period, while Comparison showed increased utilization and spending over this same interval.** Nursing home settings are particularly expensive; thus, Supportive Housing’s aim of moving appropriate clients from nursing homes to more independent environments or preventing such stays altogether results in major cost savings.
- **Supportive Housing clients showed significantly greater reductions in average number of primary and preventive care visits, and on clinic and outpatient spending, than did Comparison.** While increased utilization was expected for Supportive Housing clients, this reduction may reflect a lower incidence of minor medical complaints requiring primary care.
- Due to the high cost they tend to incur, changes in inpatient claims were of particular interest. Though **Supportive Housing clients showed significant decreases in inpatient use, Comparison clients demonstrated greater decreases in inpatient spending and utilization, though they also started significantly higher** and thus had more “room for improvement.” The impact of MRT Supportive Housing on inpatient care thus requires more focused research.
- Additionally, **Supportive Housing clients also showed decreased “other” claim spending in the Post-Period, while Comparison spending was steady.** “Other” claims typically stemmed from OMH residential treatment facilities, recovery services, and graduate medical education; Supportive Housing clients may need less of these services after enrollment and thus incur fewer charges, while Comparison clients continue to need these services.



<sup>4</sup> <http://brand.excellusbcbs.com/infographics/er.php>, <http://www.ajmc.com/journals/issue/2014/2014-vol20-n4/emergency-department-visit-classification-using-the-nyu-algorithm>

<sup>5</sup> 2 (group) x 2 (timepoint) Repeated Measures ANOVA: \*\*\*  $p < 0.001$ .

## Cost Savings and Utilization Differences by Client Diagnosis and Housing History

- **The subgroup of Supportive Housing clients with a serious mental illness, substance use disorder, or other chronic condition showed greater overall savings and greater reductions in inpatient care than did Comparison clients with such diagnoses;** participants with HIV did not show any significant spending changes. Supportive Housing clients with three or more diagnoses also showed greater savings and reductions in inpatient care, though their pre-period spending was also significantly higher.
- **Supportive Housing clients with a Pre-Period history of homeless shelter (where data was available), OMH residential facility, or nursing home stays showed greater overall savings, greater reductions in inpatient care, and greater decreases in setting use than did Comparison clients.**

## Conclusions

The overall treatment effects represent a promising result for this intervention: **enrollment in MRT Supportive Housing resulted in greater Medicaid savings and greater reductions in utilization in the first year after enrollment, as compared to a matched Comparison group of similar clients.** These decreases were particularly driven by clients who were especially high spenders before enrollment, and likely stem from decreases in emergency department, nursing home, and “other” service category use. This decreased utilization was also found for primary and preventive care; while unexpected, participants may have had less need for routine condition-related care after enrollment. And while Comparison clients showed a greater decrease, Supportive Housing clients also had a significant reduction in inpatient spending and utilization. Further, Supportive Housing clients with a serious mental illness, substance use disorder, or other chronic condition, or with a history of homeless shelter, OMH residential facility, or nursing home stays, also showed significantly greater reductions in Medicaid claims and lessened Post-Period usage of these facilities. These results indicate the propriety of the MRT Supportive Housing programs aiming to enroll clients meeting the above criteria and indicate the positive impact of program enrollment on participant quality of life, though further evaluation is needed to better establish these patterns as these findings stem from analysis of subgroups of clients within whom the matching process was not optimized.

New York has recognized housing as a critical health intervention. These data demonstrate that providing housing, particularly for high-utilization clients with serious health conditions and unstable housing situations, may indeed result in reduced healthcare spending and improved client quality of life and health outcomes. Supportive housing may even reduce need, and thus spending, for other state-funded housing-related services, including homeless shelters, mental health facilities, and nursing homes. **As such, participation in supportive housing may lead to a more efficient use of healthcare resources.**

For full analyses and details, please see the ***MRT Supportive Housing Evaluation Cost Report 2: Volume 2 and Outcomes Report 2: Volume 2.***

### About the Center for Human Services Research

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