

CSH Social Innovation Fund Initiative

Evaluating Supportive Housing as a Solution for People with Complex Health Care Needs

Summary of Findings

November 27, 2017



CSH’s Social Innovation Fund Initiative

Spurred by FY11 Social Innovation Fund (SIF) appropriations from the Corporation for National and Community Service, CSH has been leading a five-year national demonstration to create and evaluate supportive housing as a solution to addressing the needs of healthcare’s highest need, highest cost beneficiaries experiencing homelessness. Using public and private resources to find and grow community-based nonprofits with evidence of results, SIF recipients received funding to scale innovative programs that focus on the development and scaling of innovative approaches to address the most challenging social problems with a focus on economic opportunity, healthy futures, and youth development.

Total Number Housed	Housing Retention Rate <i>Based on program data</i>	Primary Health Insurance Retention Rate <i>Based on program data</i>
726	86%	93%

CSH’s SIF initiative seeks to build credible evidence regarding the effectiveness of supportive housing for improving health and reducing public costs for homeless high utilizers, to raise public awareness of this approach, and to create a blueprint for scaled replication through collaborative multi-sector policymaking and resource integration.

Through a competitive selection process, CSH initially awarded grants to nonprofits in four communities to implement this enhanced supportive housing model: Tenderloin Neighborhood Development Corporation (TNDC) in San Francisco (SF), AIDS Connecticut in Hartford (CT), Economic Roundtable in Los Angeles (LA), and Catholic Social Services of Washtenaw County in Ann Arbor (MI). As the demonstration progressed from tenant selection and triage, the lead agency in LA transitioned from Economic Roundtable to the local implementing providers (Housing Works, Ascencia and Homeless Health Care Los Angeles) in order to build the capacity of these agencies to sustain activities upon completion of the demonstration. The lead agency in MI also changed to Avalon Housing in order to support sustainability of the effort past the grant period. It should also be noted that while AIDS Connecticut was the lead agency in CT, implementation occurred through partnerships with regional supportive housing providers (Columbus House, Supportive Housing Works, Journey Home Inc., and the New London Homeless Hospitality Center).

Core Components of the SIF Model of Enhanced Supportive Housing

Programs across all four sites implemented an enhanced version of supportive housing that encompassed the following five elements found to be essential to the achievement of the initiative goals:



Although all four sites follow the same program model, there are key differences in the design and implementation of these core components across sites. Each site trialed the identification of high medical cost homeless individuals through the use of empirical data and adopted a supportive housing model with explicit integration of primary health care in the services clients received once housed. However, CSH purposefully choose to work with sub grantee sites that differed in terms of size of population, type of jurisdiction, housing market and service and policy landscape in order to see how these components were adapted at the local level and to test the impact of supportive housing on a national scale. Table 1 provides a matrix highlighting the way in which each site planned to implement the core components of the program. It should be noted that as implementation began and as the program model matured, adjustments were made to the original program design and structure in each site.

Table 1.

Target Geography	San Francisco, CA	Connecticut (statewide)	Los Angeles County, CA	Washtenaw County/Ann Arbor, MI
Target Number of Individuals to be Served/Housed	172	160	107	110
Data Driven Approach to Client Identification	Analysis of ED/hospitals records & top 200 users of county health plan services	Data match between Medicaid and HMIS to identify top 10% highest users	Predictive algorithm to identify highest decile of costs of crisis health service use	Data match between HMIS, hospital claims data and community mental health agency data to identify homeless high utilizers
Outreach and Recruitment	Street outreach and in-reach into hospitals, emergency rooms, detox	Street outreach and in-reach into hospitals, shelters, detox facilities	Hospital-based screening and in-reach into hospitals, street outreach	Street outreach/ in-reach into emergency rooms, hospitals, shelters, jails,
Housing Model	Single-site supportive housing building	Scattered-site and single-site; State funded Rental Assistance Program Vouchers	Single-site and scattered-site; PHA vouchers	Scattered-site; supportive housing units and PHA vouchers
Planned Primary and Behavioral Health Service Partners	On-site FQHC operated by City of San Francisco Housing and Urban Health	Five regional partnerships between FQHCs and LMHAs	Several FQHCs	University of Michigan Hospital, St. Joseph Mercy Health System, Packard Health
Planned Integration of Health and Housing	Integrated services team (case managers, public health nurse, money manager) TNDC and SF Dept. of Public Health	Federally Qualified Health Center (FQHC) based patient navigators/boundary spanners	Integrated Team of Health and Housing Case Managers	Integrated, multi-agency housing and health care team

CSH SIF Evaluation and Summary of Results

This briefing summarizes the results of the five year Randomized Control Trial evaluation of the initiative. The evaluation was conducted by an interdisciplinary team of researchers from New York University, led by Principal Investigator Beth C. Weitzman, PhD, and included several key components used to assess both program implementation and impacts across sites. These evaluation activities, which were staggered at appropriate intervals throughout the five-year study period, included a series of three site visits to all program sites, a pre/post participant survey, a cost effectiveness analysis, and an impact analysis. This evaluation is the first RCT evaluation of a national supportive housing demonstration of this scale.

The evaluation aimed to test the theory that when individuals with significant health costs who also experience homelessness are identified and have access to permanent, affordable housing and wrap around services, they will experience increased housing stability and improved health, and decrease the use of costly, crisis health care services.

This theory was tested through the exploration of three core questions:

1. Does the intervention result in a decreased use of crisis health care services (i.e. emergency room and inpatient hospitalizations) and an increase in primary care services as compared with the control/comparison group? If there is a difference between the two groups, what is the subsequent impact on public costs?
2. Does the intervention increase housing stability and reduce homelessness?
3. Does the program improve physical and mental health, including measurable improvements in specific chronic conditions?

While the evaluation officially concluded in July 2017, the evaluation team continues to analyze the available data to best understand the impacts of this housing model. The results are demonstrating new and significant contributions to the field on supportive housing's impact for high-utilizer populations. Four key takeaways listed below have come out of the project and the evaluation, thus far.

1. It is possible to develop and deliver a supportive housing program oriented toward improving healthcare and targeted at homeless individuals who are high utilizers of health care using a data-driven approach.
2. Program implementation and capacity for impact are both heavily influenced by local context and state and federal policies.
3. Supportive housing can reduce utilization of shelters and costly health care in *some* populations, and these reductions can substantially offset program costs.
4. While, on average, the program was associated with reduced costs and utilization, in some sites, and improvements in self-reported quality of life and access to care across sites, many participants were still experiencing deep and complex health problems one year into the program.



Discussion

- 1. It is possible to develop and deliver a supportive housing program oriented toward improving healthcare and targeted at homeless individuals who are high utilizers of health care using a data-driven approach.**

Data driven strategies were used to identify and enroll high-cost, high need individuals across all four sites. Three of the four sites used cross-system data matching procedures between the homeless (Homeless Management Information System) and health care systems (Medicaid or health/hospital system) to generate lists of people defined as high utilizers of healthcare and of the local homeless system. Program staff then received the 'match lists' and attempted to locate and engage potential clients. LA was unique in its 'point-of-care' approach in which cross system administrative data was used to develop a predicative algorithm for high utilization and create a triage tool to assess eligibility. This triage tool was used in hospital settings to identify and refer potential participants to a housing navigator. While the tool was a highly effective strategy for locating and engaging clients, it was not used for a randomized study design due to the difficulty of random assignment at the point of eligibility.

Both programmatic experience and the evaluation data tell us that the data-driven targeting methods were successful in identifying and targeting participants with high costs to their healthcare systems. While characteristics of the treatment group were comparable across all three sites with randomized assignment, average annual costs in the year prior to participation across the sites ranged from \$30,000 in SF and MI to \$61,000 in CT. While the exact reason for this difference is not known, it could be due to the way in which CT targeted the top 20% of utilizers using Medicaid data, the potential inclusion of additional health care costs included in the CT analysis, or poorer health and the need for more care in the treatment group in CT. Of note, CT drew participants from a large underlying population of homeless people and this, too, can help explain these differences when compared to a site like MI.

		Connecticut (CT)	Washtenaw County, MI (MI)*	San Francisco (SF)
Number of treatment participants		430	242	102
Age	Mean (SD)	46.0 (10.9)	N/A	50.5 (9.9)
Gender	Male Female	68% 32%	N/A	60% 40%
Race	White Black Hispanic Other	53% 25% 21% 1%	N/A	41% 41% 5% 12%
Medical hospitalizations	Mean (SD)	2.0 (2.0)	1.7 (2.1)	1.6 (1.3)
Total hospital days	Mean (SD)	13.6 (14.5)	9.0 (14.3)	6.9 (8.7)
ED visits	Mean (SD)	8.0 (8.1)	9.6 (7.4)	6.8 (7.2)
Psychiatric hospitalizations	Mean (SD)	0.5 (0.9)	0.3 (0.6)	0.3 (0.6)
Outpatient visits	Mean (SD)	38.9 (24.8)	5.9 (7.8)	7.0 (7.1)
Costs of care (dollars)	Mean (SD)	\$60,669 (36,500)	\$29,086 (45,012)	~30,000** (n/a)

**Note that data on race was not available in the MI dataset*

***Actual cost data not available. This estimate was provided by the SFHP*

While the sites had success in identifying and supporting high cost, high needs individuals, most sites found there was substantial effort required to match data between homelessness and healthcare systems to generate target lists. Additionally, while targeting the program only to a named list of individuals ensured that those who needed the program most were offered participation, this approach required intensive outreach and engagement efforts that are more time intensive than traditional models of enrolling individuals at the point of care. As the sharing of data between local systems becomes more commonplace, challenges associated with generating data-driven lists are likely to decrease.

2. Program implementation and capacity for impact are both heavily influenced by local context and state and federal policies.

Although all sites adhered to the core components of the supportive housing pilot, the evaluation revealed the extent that federal, state and local policies, resources, and existing housing and service environments influenced program implementation and capacity for impact in each community. Two of the sites - SF and CT - dedicated new housing resources as part of their SIF application. Given that these resources were already committed to the initiative they were not impacted by external factors, such as sequestration. In the other two sites availability of housing was dependent on leveraging existing resources through the local public housing authority (PHA). The national budget sequestration in 2013 impacted the ability of these two sites to access these resources for the program when PHA resources were decreased and housing vouchers were not available for a period of time in the early startup phase of the project. However, each of the sites worked diligently and successfully to leverage other state and local housing resources and exceed their housing targets by the end of the demonstration period.

There were also differences in the availability and accessibility of appropriate community based services, specifically mental health and substance abuse services, among the sites. In each site, providers had different levels of experience implementing Housing First models, and their connections to services were influenced by this approach. More significantly, Medicaid policies varied greatly from state to state and affected the services and care offered to clients. For example, in one site the most prevalent source of mental health services was the county mental health system; private providers accepting Medicaid were extremely rare. But clients with a primary diagnosis of substance abuse were excluded from the county mental health system and had to receive services through one of the two substance abuse programs in the county, leading to delays and even an inability to access services. Without access to community based services it is likely that participants would continue to utilize emergency services for their care, which might have influenced the evaluation results.

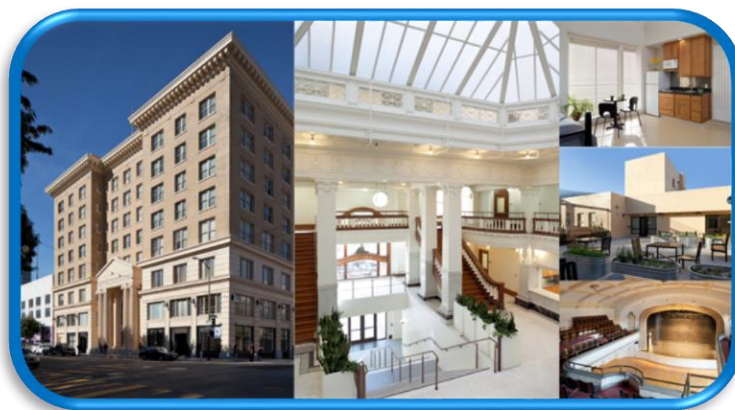
3. Supportive housing can reduce utilization of shelters and costly health care in some populations, and these reductions can substantially offset program costs.

The evaluation used a Randomized Control Trial design to determine supportive housing's impact on healthcare services and shelter usage across three of the four sites. Two methods of analysis were employed:

- 1) 'Intent-to-Treat' (ITT): Measures the difference between clients who were randomized to the program versus those who were not.
- 2) 'Treatment on the Treated' (TOT): Measures the difference between those who received the treatment to a matched group within those assigned to the control condition.

While findings differed between these methods, the overall finding of the evaluation is that supportive housing **can reduce utilization of shelters and costly health care in some populations, and these reductions can substantially offset program costs.**

The only statistically significant findings regarding utilization in the ITT analysis were around medical hospitalizations and shelter days in SF. However, the TOT analysis revealed further reductions in SF regarding Emergency Department (ED) and psychiatric hospitalizations as well as reductions in CT for medical hospitalization and days, ED visits, and shelter days. The only statistically significant finding in MI was a small increase in outpatient visits in the TOT analysis. There are several potential reasons for the difference in findings between ITT and TOT analysis. One of the most common in projects like these can be that not all of the clients randomized into the treatment group received the housing intervention. Oversampling is necessary in order to ensure the programs have enough people to fill all housing units. However, when a large subset of the treatment group does not receive the intervention, the likelihood of finding an impact with the ITT method is diminished.



Site	Intent-to-Treat Approach	Treatment on the Treated	Other Systems
San Francisco (SF)	Statistically significant reductions: <ul style="list-style-type: none"> • Total hospital days • Number of medical hospitalizations 	Statistically significant reductions: <ul style="list-style-type: none"> • Number of ED visits • Total hospital days • Number of medical hospitalizations • Number of psychiatric hospitalizations 	Statistically significant reduction in shelter days (ITT and TOT analyses); no impact on jail stays
Connecticut (CT)	No statistically significant findings	Statistically significant reductions: <ul style="list-style-type: none"> • Number of ED visits • Total hospital days • Number of medical hospitalizations • Number of psychiatric hospitalizations • Total cost 	Statistically significant reduction in shelter days (TOT analysis only); Jail N/A
Washtenaw County, MI (MI)	No statistically significant findings	Statistically significant increase in outpatient visits	No statistically significant finds for shelter days (ITT or TOT); Jail: N/A

**Note that figures are reflective of the period 6-18 months after random assignment*

In terms of total medical costs, it appears reductions were realized in CT but not MI. (Of note, no medical cost data was available for SF). While not significant for either site in the ITT analysis, the TOT analysis revealed a significant cost reduction in CT of around \$7,800 per person per year. Interestingly, cost impacts also varied with the level of costs incurred prior to program enrollment. In an ITT analysis, participants who were the least expensive at baseline experienced an increase in costs in both CT (~\$7,000) and MI (~\$4,000), suggesting that there was still unmet need in this high utilizing population. Alternatively, participants who were most expensive at baseline saw the highest net decreases in cost. In both MI and CT, the most expensive quartile of participants reduced their costs by approximately \$6,000 per person and \$13,000 per person, respectively. While these reductions were not statistically significant, it suggests that the highest of the high cost utilizers may benefit most

The TOT analysis revealed a significant cost reduction of \$7,800 per person per year in Connecticut.

from the care coordination approach of supportive housing and that supportive housing may play a vital role as a care coordination model for individuals with complex health care conditions experiencing homelessness.

4. While, on average, the program was associated with reduced costs and utilization in some sites, and improvements in self-reported quality of life and access to care across sites, many participants still experienced deep and complex health problems.

Alongside the healthcare impacts reported above, supportive housing also greatly improved quality of life and access to care for participants. An analysis of participant survey data was used to assess changes in participant responses before and after moving into housing. After a year of housing, many clients felt better about their lives, with noticeable and statistically significant improvements in quality of life and mental health, and had statistically significant improvements in self-reported access to care. Notably, there was a 53% reduction in participants

reporting the Emergency Department as their ‘usual place of care.’ However, despite these improvements in quality of life and access to care, participants did not note improvements in self-rated health, serious medical problems, or difficulty walking/climbing stairs.

Given this, the evaluation suggests that the continued existence of serious medical concerns one year into the program is likely to be due to deep and complex health problems (such as cancer, Parkinson’s and other chronic conditions) that the participants experienced prior to moving into housing and that will not change due to housing status but will continue through their lifespans. At baseline, the overwhelming majority of participants – 80-91% across three sites – reported having at least one chronic condition. Between 28% and 60% of participants in each site reported having three or more chronic conditions. It is therefore likely that while tenants experiencing serious medical problems may have noted improvements in their quality of life, their underlying chronic conditions persisted despite their housing.

However, these conditions do in fact respond to better management of care resulting in more appropriate treatment and health care utilization, which can lead to lowered costs. For example, individuals with renal failure showed statistically significant reductions in service usage and cost across some sites, suggesting that better management of care can stabilize service usage for all high cost utilizers of healthcare.

Conclusion

The evaluation of the CSH SIF Initiative is one of the first to rigorously investigate whether supportive housing has a significant impact on healthcare utilization and cost among homeless adults who are high utilizers of the health care system. It demonstrates that it is possible to create effective health care and supportive housing partnerships to better serve high cost high need populations, that supportive housing can reduce hospitalizations for some high cost high need populations and that savings from supportive housing could be achieved under the right conditions for the right people. Although it is clear supportive housing can provide the foundation for access to care that high need populations were unable to receive while experiencing homelessness, these findings also caution against basing policy decisions for this vulnerable population on narrow assessments of services and costs alone.

Policymakers should be giving sufficient weight to improvements in quality of life and the moral imperative to deliver improved health care to those in such need.

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