

Improving Health Care through Housing First

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Abstract

In 2016, the City and County of Denver launched the Denver Supportive Housing Social Impact Bond Initiative (Denver SIB), a supportive housing program designed to serve a chronically homeless population that frequently cycles in and out of jail. The Denver SIB's housing model used a Housing First approach, which placed no requirements or conditions on housing assistance. We conducted a randomized controlled trial evaluation of the Denver SIB supportive housing program, and this working paper explores the health care outcomes of Denver's Housing First approach to permanent supportive housing. Over two years, supportive housing increased office-based care for psychiatric diagnoses (primarily reflecting care provided by the supportive housing providers), decreased emergency department visits, and increased access to prescription medication.

Improving Health Care through Housing First

Housing First is an approach to homelessness that recognizes housing is a platform for improved health and other positive outcomes. In contrast to approaches that require people to receive treatment for mental health or substance use disorders before securing housing, Housing First is built on the idea that safe, secure, affordable, and permanent housing must be available before people can work on other challenges (Tsemberis and Eisenberg 2000). Housing First is often used in permanent supportive housing, which combines long-term rental assistance and supportive services designed to maintain housing stability. Evidence has been mounting on the effectiveness of permanent supportive housing for outcomes such as housing retention and reductions in jail time (Aidala et al. 2014; Culhane, Metraux, and Hadley 2002; Larimer et al. 2009), but evidence of its impact on health care outcomes has been too limited to draw compelling conclusions.

The National Academies of Sciences, Engineering, and Medicine’s (2018) Committee on Evaluation of Permanent Supportive Housing examined the impact of supportive housing on multiple categories of health and well-being, including sustained housing, health care use, physical health outcomes, mental health outcomes, substance use, general well-being, and social integration and quality of life. For most outcomes, however, the data were too limited to draw any conclusions. The committee repeatedly argued in favor of the logic that housing should improve the health of high-need individuals experiencing homelessness and that the lack of housing would worsen their condition, but it also documented “the inescapable finding” that there are not enough published studies to link stable housing to improved health outcomes.

In 2016, the City and County of Denver launched the Denver Supportive Housing Social Impact Bond Initiative (SIB), a supportive housing program designed to serve a chronically homeless population that frequently cycles in and out of jail. Other work has shown that it decreased criminal justice system involvement in the form of police contacts, arrests, and time in jail; the use of detoxification services; and the use of homeless shelters (Cunningham et al. 2021). This working paper explores the health care outcomes of Denver’s Housing First approach to permanent supportive housing.

Study Data and Methods

We conducted a randomized controlled trial evaluation of the Denver SIB supportive housing program. The target population included people with eight or more arrests, including three or more transient arrests (no address or shelter address given at time of arrest) over three years. An eligibility list was created in 2016 based on arrests from 2013 to 2015 and then updated every year to cover the three years prior. To refer people from the eligibility list to the study, the Denver Police Department provided a daily report that identified people from the eligibility list who had a police contact or an arrest in the previous 24 hours. When program slots were available, we used the list of individuals who had a police contact or arrest marked as transient in the day prior and who had not been previously randomized to conduct a lottery to randomly assign people to the treatment group or to the control group. The control group received services as usual in the community, which primarily included access to emergency shelter and some short-term housing assistance. The individuals assigned to the treatment group were referred to one of two supportive housing providers: Colorado Coalition for the Homeless or the Mental Health Center of Denver. If more than one provider had a program opening at the time of randomization, treatment individuals were randomly assigned to one of the two supportive housing providers. After receiving a referral with data available from the police report (name, date of birth, and location of police contact or arrest), the Denver SIB supportive housing providers were responsible for finding their assigned treatment participants in the community and engaging them in the program. Despite challenges, the providers located and engaged 82 percent of referred treatment individuals.

The Denver SIB's housing model used a Housing First approach, which placed no requirements or conditions on permanent housing assistance. Participants were housed in either a scattered-site unit rented with a housing subsidy in the private market or a single-site building with designated supportive housing units. Denver SIB services were similar to the assertive community treatment (ACT) model of intensive clinical treatment, support, and case management. The core components of the ACT model are smaller, shared caseloads; a multidisciplinary team approach; clinical services provided in the home; and an unlimited time frame. For this project, ACT teams included clinical social workers, case managers, peer specialists, psychiatrists, and nurses. ACT services for the Denver SIB were funded in large part

by the City and County of Denver through an outcomes-based contract and by leveraging Medicaid reimbursement for a targeted share of supportive services. The two Denver SIB providers had different experiences using Medicaid for supportive services, but both improved Medicaid use over the five years of project implementation for mental health, substance use, and pharmaceutical and other supportive services for those enrolled in the treatment group and receiving SIB housing and services. Any ACT services billed to Medicaid are included in the outcome measures of Medicaid services.

Data Collection and Variables

We used data from the Denver Police Department to measure demographics and frequency and types of contacts and arrests with the Denver Police Department. We used data from the Denver Sheriff Department to measure time spent in jail. This is a key piece of information because most health care received in jail is not captured in Medicaid claims and this population spends approximately two months in jail per year. In addition, we have shown that the Denver SIB supportive housing program reduced time in jail by about 28 days over two years, which may affect how well we can observe individuals in the Medicaid claims. We also have data on any prison stays from the Colorado Department of Corrections, data on homelessness services from the Metro Denver Homeless Initiative, and data on deaths from the Colorado Department of Public Health and Environment's Vital Statistics Program. Finally, we used Medicaid claims and encounter data to measure health care received in the community. We used encounter data from Colorado Access, a managed-care organization for both behavioral and medical care, and Denver Health and Hospital Authority, another comprehensive medical managed-care program.

Statistical Analysis and Outcomes

We conditioned the sample based on any Medicaid enrollment in the year before randomization (figure 1). Our primary outcomes of interest were use of office-based health services, emergency services, and hospital-based services. We defined our outcomes as Medicaid use in the two years after randomization.¹ Secondary outcomes of interest were Medicaid enrollment and mortality.

¹ We ran the same regressions measuring visits or services per member month (member months are the number of months a person is enrolled in Medicaid minus the number of months that person spent in jail). The top-level findings do not change.

To identify the effects of the supportive housing program, we estimated the intent-to-treat effect using ordinary least squares regressions or linear probability models for each outcome.² We also estimated a treatment-on-the-treated effect using an instrumental variables approach for which assignment to the treatment group was an instrument for being housed in the supportive housing program (Angrist, Imbens, and Rubin 1996). Regressions controlled for age, race/ethnicity, gender, the number of days in jail in the three years before randomization, the number of arrests in the three years before randomization, and the value of the outcome in the year before randomization.³ In all analyses, we used a significance level of 0.10 to determine statistical significance.

Limitations

The primary limitation of our analysis is data related. First, the data were matched on first name, last name, and date of birth. Although we believe the match was relatively successful, there was room for error, especially given that this population is known to use aliases. We may therefore be missing some observations because of an inability to match on name and date of birth. This should affect both the treatment and control groups equally. Second, although we believe we have all Medicaid encounters, some individuals could have been Medicaid members outside Denver or received care not captured in Medicaid claims. Finally, our data sources limit our outcomes to measures of health service use and lack other measures of health and well-being.

Study Results

In the sections below, we first present results on housing for the treatment group and then present estimates of the effect of supportive housing on health care use outcomes and mortality.

Take-Up

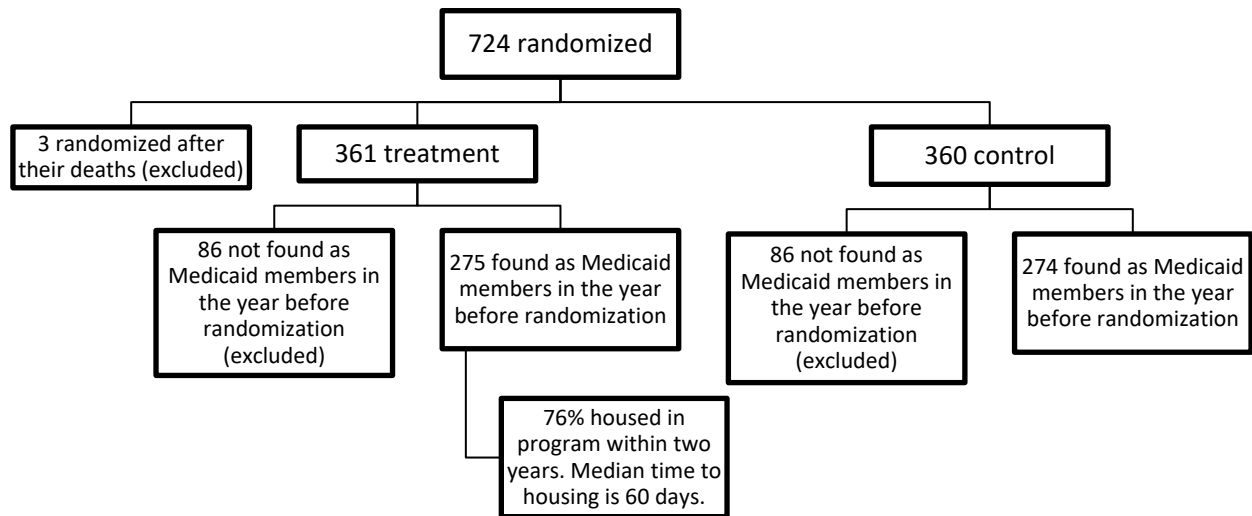
The randomized controlled trial used administrative data to randomly assign individuals to supportive housing or services as usual without any contact with the individual (figure 1). Three randomized individuals died immediately before their randomization (two treatment individuals

² We also ran probit models for binary outcomes, and the results do not change.

³ We have Medicaid data available only for one year before randomization.

and one control), as confirmed by Colorado vital statistics, and were excluded from the analysis. Of those in the treatment group, 275 were Colorado Access or Denver Health and Hospital Authority members at some point in the year before randomization. Similarly, 274 people from the control group were Colorado Access or Denver Health and Hospital Authority members in the year before randomization. Once individuals are assigned to the treatment group, providers must locate, engage, and house them. Of those in the treatment group who were Medicaid members before randomization, 76 percent were housed within two years of randomization, with a median time of 60 days from randomization to signing a lease agreement. We included those who did not enter housing in our analysis.

Figure 1. Randomization and Take-Up



Baseline Equivalence

The study sample consists primarily of men (86 percent), most of whom are white (48 percent) or Black (34 percent) (table 1). The population has frequent interactions with the criminal justice system, with an average of four arrests in the year before randomization. These arrests resulted in an average of 68 days in jail over an average of three separate stays in the year before randomization. Before randomization, Medicaid claims showed high rates of services for mental health diagnoses (37 percent) and substance use diagnoses (67 percent), as well as services related to wounds (36 percent). At baseline, we found few significant differences between the treatment and control groups. There is a significant difference in number of arrests, number of

jail stays, having a posttraumatic stress disorder diagnosis, having a substance use diagnosis for an “other” substance, having any physical health diagnosis, having a physical health diagnosis related to wounds, some types of office-based visits, emergency department visits, ambulance rides, and other care.

Table 1. Baseline Equivalence

	Sample	Treatment	Control	Difference
Sample size	549	275	274	
Demographic characteristics				
Age at randomization (mean)	44.07	43.56	44.58	-1.020
Men	86%	88%	84%	0.044
<i>Race or ethnicity</i>				
Black	34%	35%	34%	0.017
White	48%	44%	51%	-0.067
Asian	0%	0%	0%	-0.000
Native American	6%	7%	5%	0.018
Latinx	12%	13%	10%	0.032
Criminal justice system involvement 1 year before randomization				
Number of arrests (mean)	4.34	4.09	4.60	-0.515*
Number of custodial arrests (mean)	2.29	2.19	2.39	-0.201
Number of crimes against people (mean)	0.21	0.24	0.18	0.061
Number of crimes against society (mean)	0.64	0.59	0.70	-0.115
Number of crimes against property (mean)	0.25	0.21	0.29	-0.077
Number of other crimes (mean)	3.24	3.05	3.43	-0.383
Number of jail stays (mean)	2.55	2.40	2.70	-0.297*
Number of jail days (mean)	68.43	67.81	69.05	-1.244
Share with any prison stays	6%	7%	6%	0.003
Number of prison days (mean)	11.19	12.34	10.04	2.298
Homelessness assistance 1 year before randomization				
Share with any shelter stays	69%	68%	70%	-0.021
Shelter days (mean)	163.95	155.26	172.67	-17.413
Diagnosis 1 year before randomization				
<i>Mental health diagnosis</i>				
Any mental health diagnosis	37%	36%	38%	-0.016
Anxiety	10%	11%	9%	0.021
Depression	10%	9%	11%	-0.022
Schizophrenia and other psychotic disorders	19%	19%	20%	-0.015
Developmental disorder	1%	1%	0%	0.011
PTSD	5%	7%	3%	0.040**
Bipolar	9%	10%	8%	0.018
Other mental health disorders	1%	2%	1%	0.007
<i>Substance use diagnosis</i>				
Any substance use diagnosis	67%	68%	66%	0.019
Alcohol	55%	54%	56%	-0.020
Cocaine	5%	5%	4%	0.011
Opioids	9%	9%	8%	0.018
Other substance	18%	21%	15%	0.065**

	Sample	Treatment	Control	Difference
<i>Physical health diagnosis</i>				
Any physical health diagnosis	45%	49%	41%	0.079*
COPD/asthma	8%	9%	7%	0.018
Connective tissue disorders	0%	0%	0%	0.000
Diabetes	4%	5%	3%	0.018
Cardiovascular diagnosis	5%	5%	4%	0.007
Osteoarthritis	4%	5%	3%	0.014
Seizure disorder	3%	4%	3%	0.007
<i>Communicable diseases</i>				
HIV	1%	1%	1%	-0.004
Hepatitis	0%	0%	0%	0.004
Other STDs	0%	0%	0%	0.004
<i>Injuries (wounds, fractures, burns)</i>				
Injuries and poisonings	36%	40%	33%	0.068*
Burns	0%	0%	0%	-0.004
Frostbite	3%	4%	2%	0.018
Poison	13%	14%	12%	0.021
Other	9%	11%	8%	0.029
<i>Co-occurrences</i>				
Both mental health and substance use	28%	28%	28%	-0.001
Both behavioral and physical health diagnoses	19%	20%	17%	0.028
Medicaid services 1 year before randomization				
<i>Any office-based care visits (mean)</i>	11.75	13.20	10.29	2.912
with primary SUD diagnosis (mean)	9.23	10.07	8.40	1.668
with primary psychiatric diagnosis (mean)	1.46	1.89	1.02	0.873
with other diagnosis (mean)	1.28	1.57	1.00	0.571**
<i>Any emergency department visit (mean)</i>	3.89	4.83	2.96	1.873**
Preventable (mean)	1.94	2.54	1.34	1.199*
<i>Any hospitalizations (mean)</i>	2.76	3.47	2.05	1.422
with primary SUD diagnosis (mean)	0.40	0.52	0.28	0.232
with primary psychiatric diagnosis (mean)	1.26	1.73	0.79	0.939
with other diagnosis (mean)	1.34	1.52	1.15	0.363
Ambulance (mean)	2.02	2.50	1.54	0.962**
Other services (mean)	4.71	5.80	3.62	2.180**
Medication (mean)	4.76	4.49	5.04	-0.546

Sources: Medicaid data are from Colorado Access and Denver Health and Hospital Authority. Demographic and arrest data are from the Denver Police Department. Jail stay data are from the Denver Sheriff Department. Housing and homelessness assistance data are from the Metro Denver Homeless Initiative, Denver Housing Authority, and Colorado Division of Housing.

Notes: COPD = chronic obstructive pulmonary disease; PTSD = posttraumatic stress disorder; STD = sexually transmitted disease; SUD = substance use disorder.

*/**/** Difference is significant at the 0.10/0.05/0.01 level.

Primary Outcomes

Our primary outcomes of interest were use of office-based health services, emergency services, and hospital-based services. Two years after randomization, we find significant differences in the number of office-based care visits. The treatment group had 8 more office-based visits with a psychiatric diagnosis, and the treated group had 10 more office-based visits with a psychiatric diagnosis (table 2). Most of these additional services can be attributed to the ACT clinical services provided through the Denver SIB housing model. In addition, the treatment group had 6 fewer emergency department visits over two years, and the treated group had 8 fewer emergency department visits. Similarly, those in treatment had significantly fewer preventable emergency department visits, defined as emergency visits caused by asthma, substance use, or dental issues. The treatment group received 3 more unique prescription medications over two years, and the treated group received nearly 4 more. Those in treatment also received more other services, primarily laboratory claims.

Table 2. Supportive Housing Impact on Medicaid Services 2 Years after Randomization, by Type of Health Care Visit

	ITT Regression Adjusted			TOT Regression Adjusted
	Treatment (mean)	Control (mean)	Difference	Difference
Office-based care visits				
Any	42.48	37.82	4.66 (5.63)	5.98 (7.19)
Primary SUD diagnosis	26.32	28.86	-2.54 (5.47)	-3.26 (7.02)
Primary psychiatric diagnosis	12.71	4.98	7.72*** (1.44)	9.91*** (1.81)
Other diagnosis	5.40	4.82	0.58 (0.86)	0.75 (1.10)
Emergency department visits				
Any	9.15	15.16	-6.01*** (2.16)	-7.65*** (2.78)
Preventable	4.45	8.21	-3.77** (1.63)	-4.80** (2.09)
Hospitalizations				
Any	5.54	4.16	1.37 (1.02)	1.76 (1.30)
Primary SUD diagnosis	0.74	0.87	-0.13 (0.28)	-0.17 (0.36)
Primary psychiatric diagnosis	1.60	0.86	0.75 (0.60)	0.96 (0.77)
Other diagnosis	3.72	2.81	0.92 (0.74)	1.17 (0.95)
Ambulance	8.80	10.56	-1.77 (2.60)	-2.25 (3.32)
Number of medications	13.03	10.12	2.91*** (1.05)	3.73*** (1.33)
Other care	29.70	17.44	12.26*** (3.03)	15.71*** (3.81)

Sources: Medicaid encounter data are from Colorado Access and Denver Health and Hospital Authority. Demographic and arrest data, used as controls in the regression, are from the Denver Police Department. Jail stay data, used as controls in the regression, are from the Denver Sheriff Department.

Notes: ITT = intent to treat; SUD = substance use disorder; TOT = treatment on the treated. Sample for the treatment group is 275 people. Sample for the control group is 274 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The ITT approach compared outcomes of a treatment group of individuals who were selected for supportive housing (but who may or may not have received housing) with those of a control group of individuals who were not selected for supportive housing. The TOT approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with outcomes of those in the control group. The regression-adjusted models included the following control measures: age, gender, race/ethnicity, days in jail in the three years before randomization, and number of arrests in the three years before randomization. In addition, each regression controlled for the value of the outcome in the year before randomization.

*/**/*** Difference is significant at the 0.10/0.05/0.01 level.

When we looked at Medicaid services by diagnosis, we found those in the supportive housing program had large increases in the share of services for mental health diagnoses (34 percentage points), including anxiety (13 percentage points), psychotic disorders (9 percentage points), posttraumatic stress disorder (24 percentage points), and bipolar disorder (6 percentage points) (table 3). We also found a small decrease in services related to a diabetes diagnosis (3 percentage points) and a large decrease in poisonings (including overdoses) among those in supportive housing (6 percentage points).

Table 3. Supportive Housing Impact on Medicaid Services 2 Years after Randomization, by Diagnosis

	ITT Regression Adjusted			TOT Regression Adjusted
	Treatment	Control	Difference	Difference
Any mental health diagnosis	75%	41%	0.34*** (0.04)	0.43*** (0.05)
Anxiety	27%	15%	0.13*** (0.03)	0.16*** (0.04)
Psychotic disorder	27%	18%	0.09*** (0.03)	0.12*** (0.04)
Developmental disorder	2%	1%	0.01 (0.01)	0.01 (0.01)
PTSD	32%	8%	0.24*** (0.03)	0.31*** (0.04)
Bipolar	19%	13%	0.06* (0.03)	0.07* (0.04)
Other	4%	5%	-0.02 (0.02)	-0.02 (0.02)
Any substance use diagnosis	75%	75%	0.01 (0.03)	0.01 (0.04)
Alcohol	53%	57%	-0.04 (0.03)	-0.05 (0.04)
Cocaine	9%	7%	0.02 (0.02)	0.02 (0.03)
Opiates	10%	10%	0.00 (0.02)	0.01 (0.03)
Other	29%	26%	0.03 (0.04)	0.03 (0.05)
Any physical health diagnosis	70%	71%	-0.02 (0.04)	-0.02 (0.05)
COPD	13%	12%	0.02 (0.03)	0.02 (0.03)
Connective tissue disorder	0%	0%	-0.00 (0.00)	-0.00 (0.00)
Diabetes	5%	8%	-0.03* (0.02)	-0.04* (0.02)

	ITT Regression Adjusted			TOT Regression Adjusted
	Treatment	Control	Difference	Difference
Osteoarthritis	8%	10%	-0.02 (0.02)	-0.02 (0.03)
Seizure	7%	8%	-0.01 (0.02)	-0.01 (0.03)
HIV	2%	2%	0.01 (0.01)	0.01 (0.01)
Hepatitis	2%	1%	0.01 (0.01)	0.01 (0.01)
Other communicable disease	0%	1%	-0.00 (0.01)	-0.00 (0.01)
Any injuries	64%	67%	-0.03 (0.04)	-0.04 (0.05)
Wounds	61%	62%	-0.01 (0.04)	-0.02 (0.05)
Burns	2%	2%	-0.00 (0.01)	-0.00 (0.02)
Frostbite	2%	3%	-0.02 (0.01)	-0.02 (0.02)
Poison	18%	24%	-0.06* (0.03)	-0.08* (0.04)
Other injuries	20%	22%	-0.03 (0.03)	-0.03 (0.04)

Sources: Medicaid encounter data are from Colorado Access and Denver Health and Hospital Authority.

Demographic and arrest data, used as controls in the regression, are from the Denver Police Department. Jail stay data, used as controls in the regression, are from the Denver Sheriff Department.

Notes: COPD = chronic obstructive pulmonary disease; ITT = intent to treat; PTSD = posttraumatic stress disorder; TOT = treatment on the treated. Sample for the treatment group is 275 people. Sample for the control group is 274 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The ITT approach compared outcomes of a treatment group of individuals who were selected for supportive housing (but who may or may not have received housing) with those of a control group of individuals who were not selected for supportive housing. The TOT approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with outcomes of those in the control group. The regression-adjusted models included the following control measures: age, gender, race/ethnicity, days in jail in the three years before randomization, and number of arrests in the three years before randomization. In addition, each regression controlled for the value of the outcome in the year before randomization.

*/**/** Difference is significant at the 0.10/0.05/0.01 level.

Secondary Outcomes

Our secondary outcomes of interest were Medicaid enrollment and mortality.

Medicaid Enrollment

Surprisingly, we found that treatment seemed to decrease the probability of any Medicaid enrollment and decrease the average number of months people were enrolled in Medicaid after randomization (table 4). The difference is small, however, and we do not see a decrease in the probability of receiving any Medicaid services. This suggests that the difference in Medicaid enrollment is driven by individuals who are enrolled in Medicaid but do not use services.

Although this may be a limitation of our data-matching process, one other hypothesis is that this may be related to the significant difference in time spent in jail between the two groups. Denver tries to enroll people in Medicaid before release from jail. Although Denver SIB supportive housing providers try to do the same, the engagement process is voluntary and focuses on residents' goals for themselves. Further research is needed to understand what may be driving this enrollment difference. But we do not see a corresponding decrease in the share of participants who receive treatment, so enrollment does not appear to affect access to services in this case.

Table 4. Supportive Housing Impact on Medicaid Enrollment and Any Services

	ITT Regression Adjusted			TOT Regression Adjusted
	Treatment	Control	Difference	Difference
Any Medicaid enrollment				
1 year post-randomization	76%	81%	-0.060*** (0.018)	-0.080*** (0.024)
1 to 2 years post	76%	81%	-0.054** (0.022)	-0.071** (0.030)
2 years post	80%	84%	-0.052*** (0.019)	-0.069*** (0.025)
Months enrolled (mean)				
1 year post-randomization	8.74	9.19	-0.453** (0.199)	-0.584** (0.259)
1 to 2 years post	8.77	9.43	-0.664*** (0.257)	-0.858** (0.333)
2 years post	17.51	18.62	-1.117*** (0.424)	-1.442*** (0.551)
Any Medicaid services				
1 year post-randomization	75%	72%	0.028 (0.025)	0.036 (0.033)
1 to 2 years post	67%	66%	0.004 (0.031)	0.005 (0.040)
2 years post	78%	80%	-0.012 (0.023)	-0.016 (0.030)

Sources: Medicaid enrollment data are from Colorado Access and Denver Health and Hospital Authority. Demographic and arrest data, used as controls in the regression, are from the Denver Police Department. Jail stay data, used as controls in the regression, are from the Denver Sheriff Department.

Notes: ITT = intent to treat; TOT = treatment on the treated. Sample for the treatment group is 361 people. Sample for the control group is 360 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The ITT approach compared outcomes of a treatment group of individuals who were selected for supportive housing (but who may or may not have received housing) with those of a control group of individuals who were not selected for supportive housing. The TOT approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with outcomes of those in the control group. The regression-adjusted models included the following control measures: age, gender, race/ethnicity, days in jail in the three years before randomization, and number of arrests in the three years before randomization. In addition, each regression controlled for the value of the outcome in the year before randomization.

*/**/*** Difference is significant at the 0.10/0.05/0.01 level.

Mortality

Prior research has documented high rates of mortality among people experiencing homelessness (Baggett et al. 2013). We also found high rates of mortality—approximately 6 percent of all participants died in the two years after randomization. Mortality was about the same in both the treatment and control groups (table 5). Further research is needed to understand whether and how the causes of death may differ between the two groups.

Table 5. Supportive Housing Impact on Mortality 2 Years after Randomization

	ITT Regression Adjusted			TOT Regression Adjusted
	Treatment	Control	Difference	Difference
Mortality	7%	5%	0.021 (0.018)	0.027 (0.023)

Sources: Colorado Department of Public Health and Environment’s Vital Statistics Program, the Denver Police Department, and the Denver Sheriff Department.

Notes: ITT = intent to treat; TOT = treatment on the treated. Sample for the treatment group is 361 people. Sample for the control group is 360 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The ITT approach compared outcomes of a treatment group of individuals who were selected for supportive housing (but who may or may not have received housing) with those of a control group of individuals who were not selected for supportive housing. The TOT approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with outcomes of those in the control group. The regression-adjusted models included the following control measures: age, gender, race/ethnicity, days in jail in the three years before randomization, and number of arrests in the three years before randomization.

*/**/*** Difference is significant at the 0.10/0.05/0.01 level.

Discussion

Housing First embraces the idea that housing must come first as the platform for other positive outcomes. This study tested the Housing First approach to supportive housing as a platform to improve access to health care for people who experience homelessness, frequent interactions with the police, frequent jail stays, and significant health concerns, particularly mental health challenges and substance use disorders. In Denver, supportive housing broke this harmful cycle by increasing office-based care for psychiatric diagnoses, decreasing emergency department visits, and increasing access to prescription medication.

This research bears out the National Academies of Sciences, Engineering, and Medicine’s (2018) argument and the theory of change behind supportive housing, that housing should improve the health of high-need individuals experiencing homelessness. The findings from this study offer compelling evidence that supportive housing increases access to preventive

care to address underlying diagnoses and decreases the revolving door of emergency care. This not only represents greater access to services for participants, which should lead to improved health, but results in more efficient use of taxpayer dollars. Incarcerating a high-need population increases the cost of jail for local government, while in the community, these health services are paid for by Medicaid. Supportive housing provides an opportunity to shift local resources away from punitive approaches to homelessness to a Housing First solution that also increases access to more appropriate health care for the most vulnerable residents. Cunningham and colleagues (2021) present more results from the Denver SIB evaluation, including on program implementation, reductions in jail days, shelter use, and cost-effectiveness.

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