



RESEARCH REPORT

# Breaking the Homelessness-Jail Cycle with Housing First

## Results from the Denver Supportive Housing Social Impact Bond Initiative

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# Executive Summary

In 2016, the City and County of Denver launched a supportive housing initiative to increase housing stability and decrease jail stays among people who experienced long-term homelessness and had frequent interactions with the criminal justice and emergency health systems. The supportive housing program provided a housing subsidy and supportive services focused on helping residents stay housed. The initiative used a Housing First approach that aimed to quickly get people out of homelessness and into housing, without requiring that participants meet preconditions or requirements, and sought to provide participants with a foundation for improving their life outcomes.

The initiative was funded using a combination of financing from private investors—through a social impact bond—and public dollars leveraged through Medicaid and housing assistance programs. The city agreed to repay the private investors with a return if the program had successful outcomes. By making this investment with capital from private investors, the city aimed to shift funding from costly emergency services—jails, shelters, police, detoxification units, and hospitals—that failed to yield positive long-term outcomes for people to preventive interventions like housing and supportive services that could secure better outcomes and potentially realize future cost offsets or savings for taxpayer dollars. The Denver Supportive Housing Social Impact Bond Initiative (or the Denver SIB, as it has become known) was one of the first supportive housing programs funded through a social impact bond financing mechanism.

The initiative was implemented by Colorado Coalition for the Homeless and the Mental Health Center of Denver and supported by the Corporation for Supportive Housing and Enterprise Community Partners. The evaluation of the initiative was funded by the City and County of Denver.

## Findings

The Urban Institute, along with our partners at The Evaluation Center at the University of Colorado Denver, tracked the implementation of the initiative and evaluated the efficacy of supportive housing over a five-year period. This final report examines the impact of supportive housing on housing stability and shelter use; interactions with the criminal justice system, including arrests and returns to jail; and the use of emergency detoxification services.

The evaluation implemented a randomized controlled trial of 724 individuals. People eligible for the supportive housing program were randomly assigned to one of two groups; individuals in the treatment

group were offered supportive housing services, while individuals in the control group received usual care services in the community. A total of 363 people were randomized into treatment, while 361 were placed in the control group. Of those in the treatment group, 79 percent (285 people) were located, engaged, and housed. We found the following:

- Denver SIB supportive housing program participants spent significantly more time in housing than those in the control group, as measured by housing assistance. Those referred to SIB supportive housing received 560 more days of housing assistance over three years, compared with those who received services as usual in the community.
- After accessing supportive housing, most participants stayed housed over the long term. Excluding those who died during the observation period, 86 percent of participants remained in stable housing one year after entering housing. At two years, the housing retention rate for living participants was 81 percent. At year 3, the rate was 77 percent.
- Shelter stays for Denver SIB supportive housing program participants decreased dramatically. When counting all instances of shelter use—including during the day and at night—over a three-year period, those referred to supportive housing had 127 fewer shelter visits compared with their peers in the control group. This represents a 40 percent reduction in shelter stays because of supportive housing.
- Police interactions went down. People referred to supportive housing experienced eight fewer police contacts and four fewer arrests than those who received usual services in the community. This represents a 34 percent reduction in police contacts and a 40 percent reduction in arrests.
- The reductions in jail stays and jail days were notable. In the three years after randomization, participants referred for supportive housing had almost two fewer jail stays and spent an average of 38 fewer days in jail than those who received usual care in the community. This represents a 30 percent reduction in unique jail stays and a 27 percent reduction in total jail days.
- Denver SIB supportive housing program participants used short-term or city-funded detoxification services less often than those in the control group. In the three years after randomization, people referred for supportive housing had four fewer visits to a short-term or city-funded detoxification facility than those who received usual services in the community. This represents a 65 percent reduction in use of detoxification services. The differences between the two groups' uses of emergency medical services were not statistically significant.

# Conclusion

The impacts shown in this report demonstrate the Denver SIB's remarkable success. They disrupt the false narratives that homelessness is an unsolvable problem and that people who experience chronic homelessness choose to live on the street. The Denver SIB demonstrated that with the offer of housing first and the right supports, people can exit homelessness and remain housed, even after living on the streets or in shelters for years and grappling with mental health and substance use challenges. Furthermore, it showed that investment in supportive housing can decrease police interactions and arrests, disrupt jail cycling, and reduce the use of emergency detoxification facilities.

In the final year of the Denver SIB, against the backdrop of a pandemic and a racial justice reckoning spurred by the horror of systemic racism and the terrible consequences of excessive policing, these outcomes offer important lessons and an alternative to the status quo. Relying on police and emergency services to manage—not solve—the problem of homelessness produces bad outcomes for people and communities. But supportive housing, provided with a Housing First approach, can break the homelessness-jail cycle. Despite the replicated success of supportive housing models like the Denver SIB, hundreds of people remain chronically homeless on the streets of Denver and in other communities across the country. Expanding investments in supportive housing could end homelessness, break the jail cycle, and shift resources away from policing and other costly emergency services toward services that focus on housing, well-being, and the prevention of negative outcomes for residents and communities.





# Breaking the Homelessness-Jail Cycle with Housing First

In 2014, Denver Mayor Michael B. Hancock announced a plan to better serve some of the city's most vulnerable residents with supportive housing and intensive services. "It makes no sense to continue paying the high cost of ineffective remedial and emergency care systems when we can invest in proven programs that will set these individuals on a healthier path," Hancock said in a news release. "Now is the time to break the cycle from streets, to emergency rooms, to jails and back to the streets, and replace it with a long-term solution."<sup>1</sup> From 2016 to 2020, Denver's Supportive Housing Social Impact Bond Initiative (Denver SIB) fulfilled this commitment through innovative financing that funded supportive housing for hundreds of individuals who were experiencing chronic homelessness and having frequent interactions with police, jail, and the emergency room.

## Breaking the Cycle

In recent years, the number of people experiencing homelessness—and chronic homelessness in particular—in Denver County increased. To break the cycle of chronic homelessness, evidence shows that people need access to permanent, subsidized housing that is provided without preconditions or requirements and intensive services that are designed to maintain stability in housing. Through the years of the Denver SIB implementation, the criminal justice landscape and how it responded to people experiencing homelessness was changing. The Denver SIB was one of many approaches taken to decrease police interactions and days spent in jail for this vulnerable population.

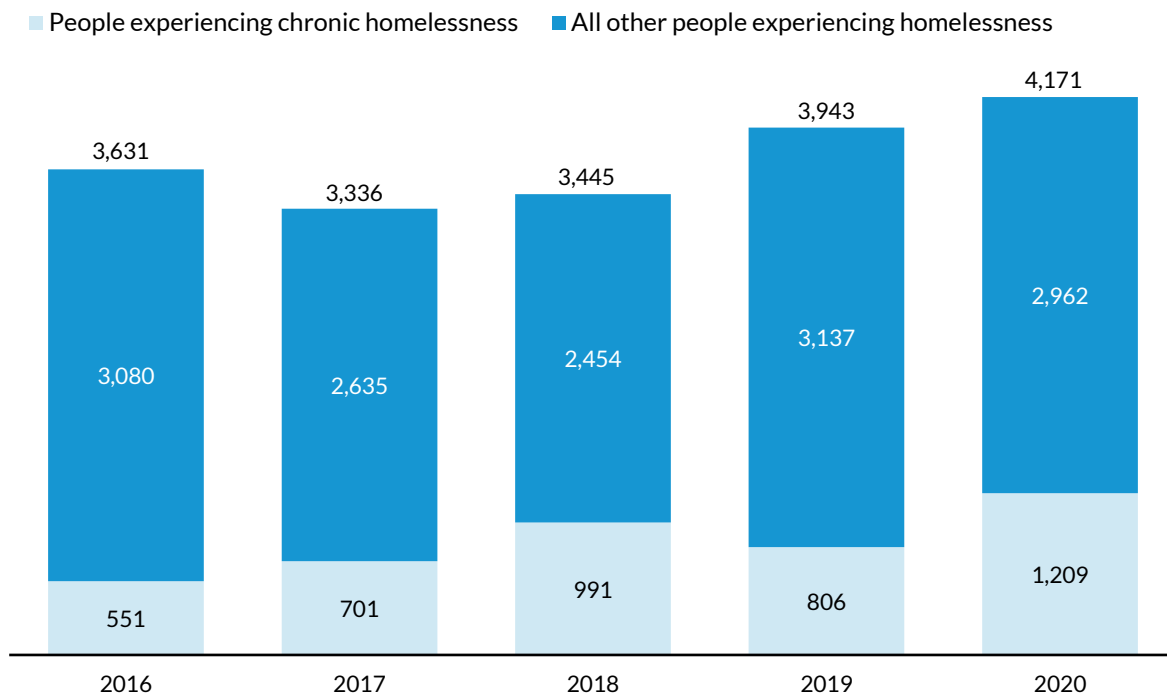
## Chronic Homelessness Trends

From 2016 to 2020, the number of people experiencing homelessness in Denver County increased, as did the share of that population who were experiencing chronic, or long-term, homelessness (figure 1). As in Denver, the number of people experiencing chronic homelessness has risen in the United States as a whole, driven largely by increases in housing costs and limited affordable housing, making housing unattainable. And in 2020, the count of people experiencing homelessness nationally found for the first time more individuals living unsheltered than living in shelter (Henry et al. 2021).

By definition, people experiencing chronic homelessness have been experiencing homelessness for at least one year and have a disability—a physical or mental disability, a substance use disorder, or some combination of those.<sup>2</sup> This combination of needs, if unmet, can result in frequent interactions with police and frequent use of other services and systems through visits to emergency rooms, hospitals, jails, detoxification centers, and other facilities that offer crisis and institutional care.

To break this cycle, evidence shows, people experiencing chronic homelessness need permanent, subsidized housing that is provided without preconditions or requirements and intensive services that are designed to maintain stability in housing (Aidala et al. 2014; Culhane, Metraux, and Hadley 2002; Cunningham and Batko 2018; Stergiopoulos et al. 2012; Tsemberis and Eisenberg 2000). However, supportive housing is not available at the scale necessary to end chronic homelessness. In the absence of supportive housing, people experiencing chronic homelessness often remain stuck in a cycle of negative outcomes that is harmful to their well-being and expensive for public budgets.

**FIGURE 1**  
**Total and Chronic Homelessness in Denver County**



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Source: “PIT Reports,” Metro Denver Homeless Initiative, [https://www.mdhi.org/pit\\_reports](https://www.mdhi.org/pit_reports).

Note: Chronic homelessness is defined as having experienced homelessness for at least one year and having a disability—a physical or mental disability, a substance use disorder, or some combination of those.

## Shifts in the Criminal Justice Landscape

The criminal justice system and homelessness are inextricably linked. People currently or previously involved in the justice system are often not connected to supports and face housing and job discrimination, which means they are more likely to experience homelessness. And people experiencing homelessness are forced to live outside, which makes them more likely to interact with the justice system through citations or arrests for low-level offenses like loitering or sleeping in parks. Previous reports on the Denver SIB detailed local legislation that affected how people experiencing homelessness and mental health challenges interacted with the criminal justice system both positively and negatively (Cunningham et al. 2019).

Throughout the criminal justice system—from the police and the jails, to the courts and community supervision—Denver has put in place policies and programs to shift the system’s approach to homelessness from punitive to preventive. The primary challenge continues to be the scale of the need compared with the scarcity of the resources, particularly community-based resources that support housing stability. As in other states, the state department of corrections is the largest mental health treatment provider in Colorado (Al-Rousan et al. 2017). And in the Denver metropolitan area, the Denver County jail is the largest mental health provider. Although mental health services are available within the jail, the needs far exceed the resources. For example, the jail has a high acuity treatment program for individuals with severe mental illness but can accept only 12 people at a time. Transition programs exist both within the jail system and in the community, but for many people experiencing homelessness, reentry planning is difficult when jail stays are short but frequent. Denver has several alternative, problem-solving courts—such as Outreach Court, Wellness Court, and Drug Court—to help people experiencing homelessness navigate citations and warrants. These courts cannot, however, connect participants with permanent housing or a long-term treatment plan.

One notable change in how people experiencing homelessness and the criminal justice system interact resulted from the 2016 launch of the co-responder program. Like the Denver SIB, the co-responder program recognized a collective desire to keep people out of jail and get them into mental health treatment when needed. The program’s goals were to reduce the number of people suffering from mental health challenges in the jail system, improve data and information sharing across systems, and reduce costs related to public services. The units consist of clinicians who work closely with Denver police officers responding to calls that involve people who are suffering from mental health challenges and/or co-occurring substance use disorders and are in crisis. As of 2020, the co-responder program had grown from 4 to 15 licensed mental health clinicians, staffed by the Mental Health Center of Denver. This expansion occurred through continued city funding and a \$1.2 million Medicaid carve-out

after the program demonstrated significant cost savings by diverting high users of services from hospitalization, emergency medical services transport, and jail. In 2018, the co-responder team made contact with 1,725 individuals—74 percent of whom were experiencing homelessness—and less than 70 of those individuals received a citation or arrest (MHCD 2018).<sup>3</sup>

Through the years of the Denver SIB implementation, the criminal justice landscape and how it responded to people experiencing homelessness was changing. In some ways, the Denver SIB was one of many approaches taken to decrease police interactions and jail days for this vulnerable population. However, the resources to support individuals experiencing chronic homelessness with permanent housing and intensive services for substance use, mental health challenges, or dual diagnoses remained scarce in Denver and Colorado. To address the root causes of homelessness and complete the shift from punitive to preventive approaches, these changes required housing and services not available at the scale needed to provide an effective alternative to the criminal justice system.

## **The Case for Supportive Housing**

Previous research points to supportive housing as a solution for both chronic homelessness and the negative system outcomes associated with chronic homelessness. Supportive housing combines a permanent housing subsidy with wraparound services to help bring more stability to people's lives. Supportive housing is often offered using a Housing First approach; this means participants are not required to meet preconditions such as entering treatment, achieving sobriety, or committing to ongoing service participation requirements. The logic model in table 1 illustrates how supportive housing can be an alternative to business as usual to break the cycle of homelessness, jail, and emergency health services. Previous research suggests that as many as 80 percent of people who are experiencing chronic homelessness and receive supportive housing remain housed after one year, and people in supportive housing use shelters significantly less than they did before entering the program (Byrne et al. 2014; Listwan and LaCourse 2017). In addition, studies have found that after a year in supportive housing, participants have fewer days in jail than they did before (Aidala et al. 2014; Culhane, Metraux, and Hadley 2002). However, the evidence base for supportive housing, especially studies that include outcomes related to the criminal justice and health care systems, has historically been limited by short follow-up periods and nonexperimental methods.

TABLE 1

Supportive Housing Logic Model

Intervention	Intermediate outcomes	Long-term outcomes
<p><i>Housing subsidy</i></p> <ul style="list-style-type: none"> <li>Provide rental assistance in a housing unit that is safe, sustainable, functional, and conducive to tenant stability</li> </ul>	<p><i>Increase housing stability</i></p> <ul style="list-style-type: none"> <li>Reduce homelessness</li> <li>Increase days in safe and healthy permanent housing</li> </ul>	<p><i>Decrease involvement with the criminal justice system</i></p> <ul style="list-style-type: none"> <li>Decrease arrests</li> <li>Decrease jail days</li> </ul>
<p><i>Supportive services</i></p> <ul style="list-style-type: none"> <li>Develop a treatment plan</li> <li>Facilitate access to benefits</li> <li>Provide referrals</li> <li>Coordinate care</li> </ul>	<p><i>Decrease crimes associated with homelessness</i></p> <ul style="list-style-type: none"> <li>Decrease, for example, trespassing and panhandling</li> </ul> <p><i>Increase access to health care</i></p> <ul style="list-style-type: none"> <li>Connect to mental and physical health care and substance use disorder treatment</li> <li>Increase continuity of care</li> </ul>	<p><i>Increase appropriate health care services</i></p> <ul style="list-style-type: none"> <li>Decrease avoidable emergency room and hospital visits</li> </ul> <p><i>Improve health</i></p> <ul style="list-style-type: none"> <li>Improve mental health</li> <li>Improve physical health</li> </ul>

Source: Mary Cunningham, Mike Pergamit, Sarah Gillespie, Devlin Hanson, and Shiva Kooragayala, *Denver Supportive Housing Social Impact Bond Initiative: Evaluation and Research Design* (Washington, DC: Urban Institute, 2016).

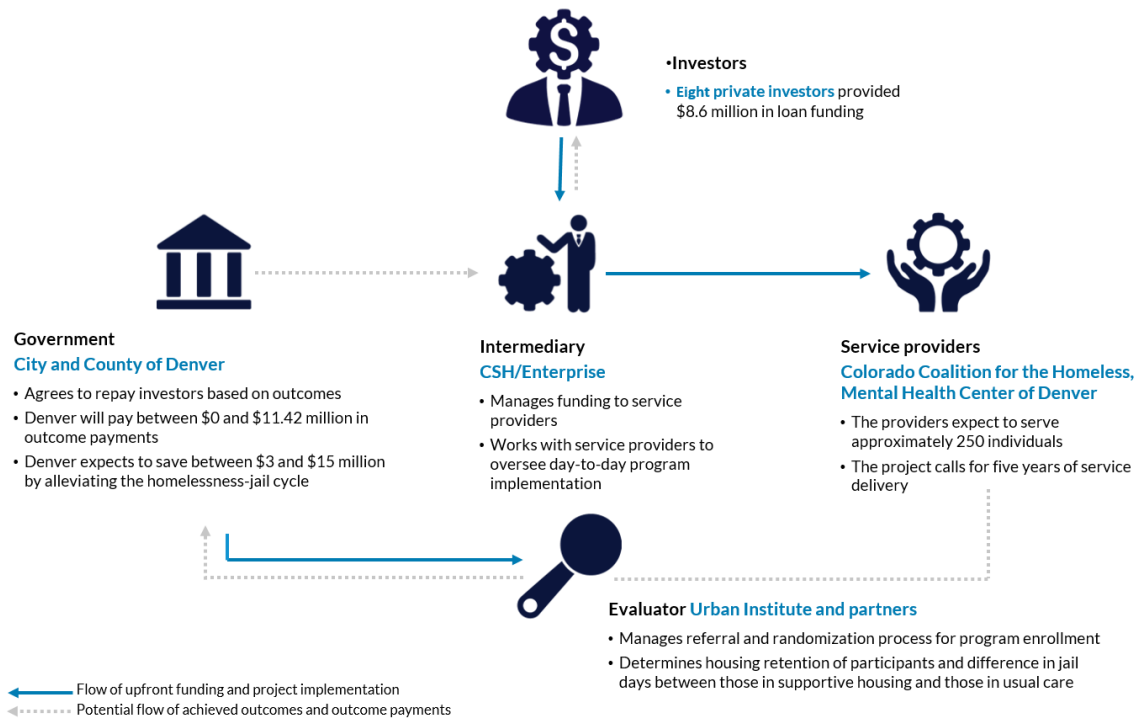
## The Denver SIB

The City and County of Denver launched the Denver SIB to respond to the need for supportive housing. The goals were to increase housing stability and decrease jail stays for 250 individuals who experienced long-term homelessness and had frequent interactions with the criminal justice and emergency health systems by providing them with supportive housing.

The city and eight private investors pooled resources to fund the initiative, which used an innovative mechanism called a social impact bond, or pay for success financing, to pay for part of the program. The city signed a performance-based contract to leverage \$8.6 million in up-front capital from the eight lenders to fund supportive services and a limited amount of flexible rental assistance, as needed.<sup>4</sup> In addition to that funding, the initiative leveraged state and federal housing resources and reimbursements for a share of Medicaid-covered supportive services. The city agreed that if the program worked, as indicated by performance measures outlined in the contract and validated by a rigorous evaluation, it would repay the private lenders, potentially with a positive return. The Denver SIB was one of the first supportive housing programs funded through a social impact bond financing mechanism. In shifting from providing participants with costly emergency services to preventive services, the city hoped to realize future cost offsets or savings.

In launching the program, the city developed an agreement with Denver PFS LLC, an entity established by the Corporation for Supportive Housing and Enterprise Community Partners, to execute the Denver SIB. Colorado Coalition for the Homeless (CCH) began providing supportive housing services in the program’s first year, and the Mental Health Center of Denver (MHCD) started doing the same in the second year. Denver’s Office of Behavioral Health Strategies (formerly the Denver Crime Prevention and Control Commission) provided staff for the program referral process, and several city and state agencies, as well as nonprofit and health care organizations, provided administrative data for the evaluation. The Urban Institute conducted a five-year randomized controlled trial evaluation and implementation study in collaboration with partners from The Evaluation Center at the University of Colorado Denver and, in the early years, the Center for Housing and Homelessness Research at the University of Denver. Figure 2 shows the basic structure of the Denver SIB project.

**FIGURE 2**  
**The Denver Supportive Housing Social Impact Bond Initiative Framework**



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**Source:** Adapted from US Government Accountability Office (GAO), “Pay for Success: A Look at a New Way for Government to Finance Prevention Programs Based on Measured Results” (Washington, DC: GAO, n.d.) and the Urban Institute Pay for Success Initiative.

# Research Questions and Methods

The Denver SIB evaluation, funded by the City and County of Denver, had several components, including a process study and an outcomes and impact study, which are the focus of this report (table 2).

The process study examined key process-related information, including the housing and referral pipeline, that is necessary for managing implementation and making midcourse corrections so the initiative stays on track to achieve long-term outcomes. Documentation of the program model and participant engagement, collected for the process study, also helped in interpreting the results of the impact evaluation. An engagement dashboard and housing enrollment pipeline were used to collect information about these domains.

The outcomes and impact study collected data needed to support interim investor payments, which were based on housing retention among housed participants. Over the study period, the evaluation tracked participant exits from housing, measured days spent in housing, and validated the data needed to support final investor payments.

The evaluation used a randomized controlled trial design. Eligible individuals were defined as those who had eight or more arrests over three years, including at least three arrests in which the individual was marked as transient, meaning they had no permanent address at the time of the police contact. People who were eligible for the supportive housing program were randomly assigned to one of two groups: one was offered supportive housing services as part of the initiative (treatment group), and the other received usual care services in the community (control group).

To evaluate the efficacy of supportive housing, we collected program data from the Denver SIB supportive housing providers, accessed administrative data from various sources, and conducted key informant interviews with service providers and other key stakeholders. Administrative data were used to measure the impact of the intervention on homelessness, housing assistance, jail stays, arrests, police contacts, prison stays, use of detoxification services, use of emergency medical services, and mortality. De-identified individual-level data were linked by a unique research ID for analysis while maintaining confidentiality. For a more detailed discussion of methodology, see appendix A.

The Urban Institute also analyzed differences in health care use by the study population, with funding from the Robert Wood Johnson Foundation (Hanson and Gillespie 2021), and estimated costs and cost avoidances associated with the Denver SIB, with funding from Arnold Ventures (Gillespie, Hanson, and Leopold 2021).

TABLE 2

Primary Evaluation Components for the Denver Social Impact Bond Initiative

Evaluation component	Research questions	Data sources
Process study	<ul style="list-style-type: none"> <li>■ How is the program implemented?</li> <li>■ How are eligible individuals located and engaged?</li> <li>■ How do participants take up housing and services?</li> <li>■ Do the housing and services align with the Corporation for Supportive Housing guidebook “Dimensions of Quality Supportive Housing”?</li> <li>■ Is there fidelity to the service model?</li> <li>■ How does this look different from usual care?</li> <li>■ What types of systems change and services integration were achieved?</li> <li>■ What are the key facilitators and challenges?</li> </ul>	<ul style="list-style-type: none"> <li>■ Engagement dashboard</li> <li>■ Housing enrollment pipeline</li> <li>■ Annual site visits and key informant interviews</li> <li>■ Review of program-related documents</li> </ul>
Outcomes and impact study	<ul style="list-style-type: none"> <li>■ Do housed participants retain housing?</li> <li>■ Does supportive housing increase housing stability and decrease the use of high-cost public services (e.g., jails, courts, detox centers, homeless shelters, and hospitals)?</li> </ul>	<ul style="list-style-type: none"> <li>■ Program housing retention data</li> <li>■ Administrative data from systems of interest</li> </ul>

Source: Mary Cunningham, Mike Pergamit, Sarah Gillespie, Devlin Hanson, and Shiva Kooragayala, *Denver Supportive Housing Social Impact Bond Initiative: Evaluation and Research Design* (Washington, DC: Urban Institute, 2016).

## Program Model and Implementation

The Denver SIB is a supportive housing initiative that combines a permanent housing subsidy with intensive wraparound services, including subsidized housing, a modified assertive community treatment (ACT) team, behavioral health services, links to community resources, and transportation assistance and referrals. One component of the process study was examining the program model and implementation, detailed below.

### Housing

The Denver SIB offered supportive housing using a Housing First approach, meaning that participants were subject to as few requirements and preconditions as possible. The Denver SIB leveraged various housing assistance funds, including vouchers from the Colorado Division of Housing and other sources. Immediately after engaging with service providers, Denver SIB participants were often offered bridge housing while they worked on the documentation necessary for a permanent voucher and lease agreement. Bridge housing was provided in motels and in congregate or single-room occupancy housing in buildings owned and operated by a Denver SIB service provider.



The Denver SIB used a combination of permanent housing types, including scattered-site units rented with a housing subsidy in the private market and single-site buildings with designated supportive housing units. At the end of the Denver SIB evaluation, 66 percent of participants still in housing lived in a single-site building, primarily the Sanderson Apartments, Renaissance Downtown Lofts, or Renaissance at North Colorado Station. Sanderson and Renaissance Downtown Lofts were developed specifically for the Denver SIB using the Low-Income Housing Tax Credit program. The other 34 percent of participants in housing at the end of the Denver SIB evaluation were in scattered-site units, about half of which were in Denver County and half of which were outside the county. The percentage breakdown between participants in single-site and scattered-site units was about the same for both Denver SIB service providers, although among scattered-site participants CCH had 50 percent more residents outside Denver County than MHCD did. The Denver SIB supportive housing providers reported benefits and challenges associated with each type of housing.

One benefit of the single-site buildings was that they were designed with trauma-informed spaces, and apartments were furnished according to residents' needs.<sup>5</sup> Providers also noted the advantage of offering more centralized support services. Case managers, counselors, peer specialists, psychiatrists, and nurses were often on site, and some type of support staff was available 24 hours a day. The buildings also served as a hub for community gatherings, events, groups, classes, and other supportive services. With many residents in one location, engaging participants in prosocial activities and community building was relatively easy. Some buildings engaged residents to develop community norms and held tenant conferences to address behaviors that went against those norms, which aligns with a Housing First perspective. Another benefit of single-site housing that providers reported was the strong relationship they had with the managers of the properties and the shared understanding of the Denver SIB program and its goals. In 2018, CCH implemented an eviction prevention program for its Renaissance housing locations in partnership with the property management team. As part of this program, a housing retention committee meets with residents to develop plans to resolve problems and support residents, with the goal of mitigating lease violations and resolving them as quickly as possible. Other benefits of single-site housing included more control over building access and guest policies and more central locations within Denver, with easier access to transportation, health services, and food pantries.

Given the benefits of single-site housing, both Denver SIB providers reported that participants with the most acute needs often resided in these buildings. However, providers also noted some challenges associated with the single-site locations, including the lack of anonymity and the significant stigma that residents must deal with. Providers noted that single-site locations may become known as “troubled buildings” and therefore garner greater attention from neighbors, generating more frequent visits from law enforcement. One service provider noted an “extreme bias toward our clients and not just from

property managers or law enforcement.” The provider continued: “The societal viewpoint that people choose to be homeless or are lazy and do not want to work contributes to public attitudes, including neighbors being much more likely to call the police, rather than deciding on a different intervention.” The locations of single-site housing can also be a challenge. According to SIB providers, CCH’s Denver SIB buildings put residents close to challenging substance use and mental health behaviors visible in some downtown locations, and this can impede recovery for some residents who want to leave that environment. MHCD’s Denver SIB building is farther from these downtown challenges but lacks accessibility to transportation, health care, and other services.

Scattered-site housing had its own benefits and challenges, both for the Denver SIB participants and the service providers. For participants with less acute needs, the option to live in the community allowed them to take into account factors that affected where they wanted and needed to live. For example, a resident may have wanted to live closer to work or family, outside Denver County, or farther from people and places associated with past behaviors. But residents in scattered-site housing also had to travel to engage with many types of services. Providers strove to offer a consistent level of support regardless of where a client lived but noted the additional time and energy required to reach out to residents of scattered-site units. In addition, providers could not readily intervene when police responded to a scattered-site housing unit, and property managers typically called police before notifying providers or trying other strategies to avoid criminal justice involvement.

Ultimately, both Denver SIB service providers emphasized that no one housing location was better than another. Most important was finding the right housing for a client, a key tenet of the Housing First approach. This included considering a client’s housing preferences and acuity of need, as well as the alignment between housing subsidy requirements and the client’s characteristics and background. Balancing these factors and removing barriers to housing for as many Denver SIB clients as possible required a variety of housing types and flexible subsidies. It also required the service providers to work with clients who needed to move when an initial housing situation was no longer appropriate. Client moves were common and prioritized when there was a clinical necessity or a resident felt unsafe. In other cases, residents preferred a different location or had a difficult relationship with a landlord. Both Denver SIB providers worked to move clients to alternative locations as they became available.

In addition to moves, Denver SIB participants sometimes exited and reentered housing—for example, after a stay in jail. In these cases, Denver SIB providers worked to reengage with clients and navigate new housing situations that would support clients’ housing stability. When participants could reenter housing depended on many variables, such as the crime they were charged with and the availability of housing. Service providers reported that competency holds were a primary reason that a small share of Denver SIB participants spent long periods of time incarcerated (box 1). Competency restoration often takes a long

time and was a challenge to maintaining housing for some Denver SIB participants affected by them. Service providers often visited clients in jail, and Denver SIB participants were encouraged to visit providers immediately after their release to plan for new housing arrangements.

One Denver SIB provider shared that it used federal fair housing laws to request voucher extensions, arguing that if someone was involved in an incident related to a disability, including a mental health crisis, the property manager was required to accommodate the resident. In another case, a representative of a Denver SIB provider reported that the organization had worked with reentering residents to acquire another housing voucher. “We are going to do whatever we can to get them back in housing immediately,” the representative said.

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#### BOX 1

##### **Competency Holds**

If someone who has been accused of a crime is thought to be unable to understand the charges filed against them or if their mental health is thought to be compromised, they may be placed on a “competency hold” so their mental state can be assessed. If the person is deemed incompetent, court proceedings are suspended while the person receives mental health treatment and competency restoration services, like education and training. If the person is deemed competent, court proceedings continue.

People facing low-level charges typically spend 24 to 48 hours in jail before being released. However, because of the limited mental health resources in Colorado, some Denver SIB participants who had been jailed could wait 60 to 90 days for their competence to be evaluated at one of the two state-run mental health facilities, in Pueblo and at Fort Logan. In some cases, people spent months in 23-hour lockdown without being convicted of a crime.

In early 2019, to alleviate a backlog, both state-run mental health facilities in Colorado temporarily limited competency evaluations to people being held in state prisons. After several months, the facilities again began evaluating other people, including those being held in county jails.

A longer-term solution to the backlog of competency holds has not been implemented, but several local programs and pieces of legislation were in development to address the problem and to streamline the process for people in need of mental health assessments. One program, known as Bridges, would fund the assignment of several caseworkers to each court in an attempt to streamline competency holds. A recently settled federal lawsuit should also result in an increase in the number of people hospitals can admit for competency evaluations within a smaller window of time; however, local stakeholders in Denver were skeptical that this could be done without a significant increase in resources.

## Supportive Services

The Denver SIB offered supportive services through a modified ACT model of intensive clinical treatment, support, and case management for residents living in supportive housing. 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. Denver SIB teams practiced a modified ACT model that, in some cases, allowed the client-to-staff ratio to be slightly higher than the 10:1 ratio required in ACT, to account for different client needs and resource and funding constraints. In addition, the Denver SIB provided care to everyone in the program, regardless of diagnosis, unlike the typical ACT model, which is designed to help people with specific mental health diagnoses. Denver SIB services were funded largely by the pay for success contract, as well as by leveraging Medicaid reimbursement for a targeted share of supportive services.

At the end of the Denver SIB evaluation, ACT team composition was similar across both providers, and staffing levels reflected the difference in the number of clients being served by CCH and MHCD (tables 3 and 4). Each ACT team provided a variety of services, some of which are discussed below.

Through the ACT team, CCH reported offering pharmaceutical, mental health, substance use, and other clinical services. Case managers were trained in behavioral health interventions, and services included assistance applying for benefits and, for residents able to work, vocational services. Peer support, prosocial activities, community events, food services, and incentive programs were also part of the ACT team's services. A unique part of the CCH approach to the Denver SIB program was the separation of the housing intake and placement team from the ACT team. After engagement, Denver SIB clients first worked with an intake coordinator and an outreach behavioral health navigator on the housing intake and placement team to complete the documentation necessary for securing housing and to create an initial service plan. Once in housing, the housing intake and placement team provided a warm handoff to the ACT team to ensure a smooth transition at the client's pace. The housing and clinical teams worked hand in hand to support the ongoing housing stability of clients.

The MHCD team offered mental health services, case management, vocational services, social outings, community events, and housing supports such as help acquiring birth certificates and other documentation. For clinical services, the Denver SIB team partnered with other MHCD clinical staff and providers at Denver Health and Hospital Authority. Along with peer support, the MHCD team provided food service through partnerships with churches and food banks and items such as clothing and hygiene products.

**TABLE 3**

**Assertive Community Treatment Team Composition for Denver SIB Service Providers**

Position	Educational background	Full-Time Equivalents for Denver SIB	
		Colorado Coalition for the Homeless	Mental Health Center of Denver
Clinical social worker/ case manager	Master of social work or related degree	4.00	1.00
Case manager	Bachelor’s degree or higher	6.00	4.00
Peer specialist	Lived experience with homelessness, addiction, or mental health diagnosis	2.00	1.00
Psychiatrist	Medical school or advanced practice nursing	1.00	0.25
Nurse	Bachelor of science in nursing	2.00	n/a
Program manager	Master of social work or related degree (e.g., licensed clinical social worker)	2.00	n/a

**Sources:** Key respondent interviews and program data from Colorado Coalition for the Homeless and the Mental Health Center of Denver.

**Note:** Data reflect assertive community treatment team composition at the time of the interviews in late 2020.

**TABLE 4**

**Ratio of Assertive Community Treatment Team Members to Denver SIB Clients, by Service Provider**

	Colorado Coalition for the Homeless	Mental Health Center of Denver
ACT team full-time equivalents	17.00	6.25
Denver SIB residents	218	83
Ratio	1:13	1:13

**Sources:** Key respondent interviews and program data from Colorado Coalition for the Homeless and Mental Health Center of Denver.

**Note:** Data reflect assertive community treatment team composition and Denver SIB residents at the time of the interviews in late 2020.

In addition to providing typical ACT services, Denver SIB providers helped clients navigate the criminal justice system. Both CCH and MHCD had connections to jail staff members and developed processes for finding out when clients had been arrested. Subsequently, Denver SIB staff advocated for their clients with attorneys and the courts and were involved in court proceedings. Denver SIB providers reported that presenting to the court the importance of retaining a resident’s housing voucher was typically effective and had an impact on court decisions. Table 5 outlines some strategies that providers reported using to help clients navigate the criminal justice system and maintain housing stability, although many more were used than could be captured in the table.

TABLE 5

**Denver SIB Service Provider Strategies to Help Residents Navigate the Criminal Justice System**

Colorado Coalition for the Homeless	Mental Health Center of Denver
<ul style="list-style-type: none"> <li>▪ Developed relationship with judge as champion of program early on</li> <li>▪ Facilitated learning about the Denver SIB program, including coordination with problem-solving courts</li> <li>▪ Focused on advocacy and coordination with public defenders, district attorney’s office, probation officers, and police</li> <li>▪ Routinely checked with police, hospitals, morgue, and community partners to locate clients</li> <li>▪ Engaged in immediate advocacy on behalf of residents during police contacts</li> <li>▪ Worked with co-responders and crisis intervention teams as alternatives to police contact</li> </ul>	<ul style="list-style-type: none"> <li>▪ Met regularly with district attorney’s office</li> <li>▪ Met monthly with District 4 police team</li> <li>▪ Coordinated weekly visits with probation officers to advise residents</li> <li>▪ Worked closely with Denver Health and Hospital Authority to locate and care for clients</li> <li>▪ Worked with Mental Health Center of Denver staff members co-located in jail to coordinate care</li> <li>▪ Accompanied and advocated for clients in problem-solving courts; worked closely with Wellness Court; attended other court hearings and appointments with probation and parole</li> </ul>

**Sources:** Key respondent interviews and program data from Colorado Coalition for the Homeless and Mental Health Center of Denver.

**Implementation during the COVID-19 Pandemic**

The fifth and final year of the Denver SIB’s implementation was marked by the COVID-19 pandemic. Since March 2020, the health and economic effects of the pandemic and the policies implemented in response have drastically changed the lives of Coloradans, especially individuals experiencing homelessness. For participants in Denver SIB supportive housing and those receiving usual care in the community, the pandemic affected their interactions with the criminal justice system and their access to shelter and services.

After the first officially documented case of COVID-19 in Colorado was announced on March 5, 2020,<sup>6</sup> the state experienced a rapid increase in cases and began responding with policies intended to contain the spread of the virus. By March 16, 2020, Denver District Court had issued an order that recommended the early release from the county jail system of some people who had less than 30 days left in their sentences or whose risk for developing serious illness from the novel coronavirus was particularly high.<sup>7</sup> According to interviews with representatives from the Denver Sheriff Department, which runs the county jail system, the criteria for release started with people at high risk of serious illness related to COVID-19, people older than 60, individuals with preexisting conditions such as a heart condition or chronic lung disease, and pregnant women. The people next considered for release were those with low bond amounts, nonviolent offenses, and offenses without a victim. The Denver Sheriff Department reported that as of July 2020, the Denver jail population was almost 50 percent lower than the daily average before the pandemic began.

The court's order also suggested limiting arrests as a way to reduce the jail population. Although arrests are the purview of the Denver Police Department (DPD), the Denver Sheriff Department reported that police made an effort to issue more summonses, rather than take people into custody, particularly for low-level, nonviolent offenses and sometimes for open warrants as well. As a result, police contacts and arrests among people eligible for the Denver SIB declined dramatically during the pandemic's early months.

With the onset of the COVID-19 pandemic, Denver's homelessness assistance system also went through several significant shifts. The shelter system reduced capacity to allow for adequate social distancing and opened new shelters to bridge the gap. In April 2020, the National Western Complex, an event venue, was turned into a shelter that could house as many as 765 men. Additionally, the Denver Coliseum was opened as a 300-bed shelter for women and transgender people. In a departure from many of Denver's pre-pandemic shelters, which were open only overnight, both facilities were open 24 hours a day, seven days a week. Both shelters provided an array of services, including medical care by CCH, showers, meals, and COVID-19 testing. Case workers were available to help people access resources. Screening protocols were in place to monitor people's temperatures, and each bed had its own 6 foot by 10 foot space. Although these structures provided much-needed shelter, they did not increase Denver's overall bed count considerably because some other shelters either closed or reduced their capacity.

In addition to opening the two large, 24-hour shelters, the city partnered in April 2020 with five facilities to provide 700 protective action rooms, hotel or motel rooms for people who were experiencing homelessness and were older or at a higher risk for developing complications from COVID-19. These rooms were in addition to the 220 hotel and motel rooms that had already been designated as activated respite rooms for people experiencing homelessness and symptoms of COVID-19.<sup>8</sup> The protective action rooms could be accessed either through shelter systems or referrals from Stout Street Health Center or Denver Health and Hospital Authority. The rooms came with basic cooking supplies, cell phones when necessary, and various medical, behavioral health, and case management services. The city added rooms throughout 2020, and a \$16.9 million contract was awarded to CCH in August 2020 to cover the cost of protective action and activated respite rooms. Additionally, \$7.2 million was awarded to the Salvation Army to cover costs for running shelter space and to provide meals.<sup>9</sup> The Denver City Council also approved an agreement to use a space in the Park Hill neighborhood as a 24-hour shelter with upwards of 450 beds and expanded emergency overflow shelter space to two additional locations in the city.<sup>10</sup>

Despite the increasing challenge of providing shelter and services for people experiencing homelessness and guidance from the Centers for Disease Control and Prevention to avoid moving encampments during the pandemic, city-enforced sweeps of encampments continued for reasons the city argued were justified.<sup>11</sup> Following criticism, Mayor Hancock announced support for Colorado Village Collaborative’s proposal for “safe outdoor space” that would create managed campsites for some of the approximately 1,300 people who were sleeping in tent encampments across the city in mid-2020.<sup>12</sup> As of the beginning of December 2020, the city had identified two locations for sanctioned campsites: First Baptist Church of Denver, for up to 30 women and transgender people, and an area near Denver Community Church. The plan was for both sites to shelter people in insulated tents with heating mats and to provide access to showers, laundry, and health services/referrals, with staff on site 24 hours a day.<sup>13</sup> Denver also began to investigate options for “safe parking,” or long-term parking spots set aside for people living in vehicles.<sup>14</sup>

Some plans to increase permanent housing options in Denver were announced during the pandemic. In 2020, CCH announced plans to build a 98-unit, recuperative care and supportive housing complex next to Stout Street Health Center.<sup>15</sup> CCH also celebrated the opening of the Renaissance Veterans Apartments at Fitzsimons, a 60-unit complex to house veterans experiencing homelessness and veterans with low incomes.<sup>16</sup> In November 2020, Denver voters approved a measure to increase the sales tax rate by 0.25 percentage points as of January 2021 to fund the Homelessness Resolution Fund. Estimates say this fund could generate around \$40 million a year to support housing development, expansions of shelter capacity and coverage, rental assistance, and supportive services for people experiencing homelessness.<sup>17</sup>

At the close of 2020, state-level plans did not designate people experiencing homelessness as a priority group to receive COVID-19 vaccinations. Previous plans had prioritized people living in shelters, prisons, and jails, and the decision to remove people experiencing homelessness drew criticism from organizations across the state.<sup>18</sup> According to Denver Public Health, there were 1,046 cases of COVID-19 among people experiencing homelessness from March 2020 to March 2021 (1.7 percent of all cases in Denver).<sup>19</sup> Of these cases, 27 percent resulted in hospitalization, more than three times the share of cases that resulted in hospitalization among people not experiencing homelessness (8 percent). And 1.4 percent resulted in death—the same mortality rate as among people not experiencing homelessness.



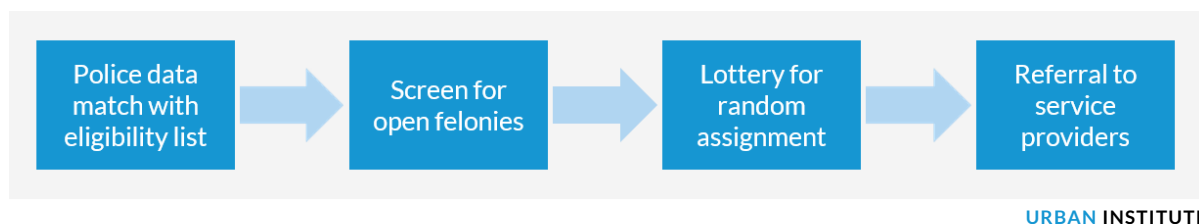
## Study Population

The Denver SIB targeted people who were experiencing homelessness and other challenges that result in frequent use of the criminal justice and other public systems. To create a list of eligible people, project partners defined the target population as all people who had eight or more arrests with the DPD over three consecutive years. Three of the arrests had to be marked as transient, meaning that the person had no address or gave a shelter address. The DPD identified eligible people through a data pull and created a master eligibility list that was updated once or twice a year to include newly eligible people.

To refer people from the eligibility list to the supportive housing program, the DPD established an automated report that matched daily police data with the eligibility list to identify people from the list who had had a police contact or arrest in the previous 24 hours. This process ensured that those who were referred were still in the community and interacting with police. The city also helped screen out people with open felonies from the previous two years because they were awaiting sentencing and would likely receive lengthy prison terms, precluding them from accepting the offer of supportive housing.

Next, the Urban Institute conducted a lottery to randomly assign people to the treatment group (to participate in the supportive housing program) or to the control group (whose members did not participate in the program). Because there was not enough housing for all who were eligible, a lottery was a fair way to allocate housing and conduct a rigorous evaluation. The individuals assigned to the supportive housing program were referred to CCH or MHCD, which were responsible for finding them in the community and engaging them in the program. The referral process is detailed in figure 3.

**FIGURE 3**  
**Denver Social Impact Bond Supportive Housing Program Referral Process**



Referrals to the supportive housing program were made on a rolling basis starting in January 2016, and the evaluation tracked participants through December 31, 2020. This report focuses on the 724 individuals who were referred to the program (either CCH or MHCD) or randomized into the control group before January 1, 2018—363 people were randomized into treatment and 361 into the control group—and uses data on the three years after the individuals were randomized to understand their progress toward engagement and housing.

Of the 724 individuals in the combined treatment and control groups, most were men (85 percent), and the median age was 44 years (table 6). Forty-seven percent of the people randomized into either the treatment or control group were white, 34 percent were Black, 13 percent were Latinx, and 6 percent were Native American. People in the combined treatment and control groups had high rates of arrest, with an average of 4 arrests per person in the year before randomization. They also had high rates of engagement with the homelessness services system in Denver. In the year before randomization, nearly 70 percent of the study group had at least one shelter stay, and the combined group's average number of days in a shelter was 158.

**TABLE 6**  
**Characteristics of the People in the Combined Treatment and Control Groups**  
**in the Year before Randomization**

	Treatment and Control Groups, Combined
<b>Demographic characteristics</b>	
Age at randomization (mean)	44.20
Men	85%
<i>Race/ethnicity* +</i>	
Black	34%
White	47%
Asian	0%
Native American	6%
Latinx	13%
<b>Criminal justice system involvement</b>	
Arrests (mean)	4.43
<i>Jail</i>	
Number of jail stays (mean)	2.58
Number of jail days (mean)	68.26
<i>Prison</i>	
Share with any prison stays	5%
Number of prison days (mean)	9.24
<b>Housing/homelessness assistance</b>	
Share with any shelter stays	68%
Number of days with any shelter stay (mean)	158.14

**Sources:** 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:** Sample for the study population is 724 people.

+ Significance is based on a chi-squared test.

\*/\*\*/\*\*\*\* Significant at the 0.10/0.05/0.01 level.

# Engagement and Housing Stability

Previous reports have detailed the processes that Denver SIB service providers used to locate people who were referred to the supportive housing program; the providers often found people in the community using just their name, date of birth, and most recent contact with police (Gillespie et al. 2017). The Denver SIB's Housing First program model focused on engaging and housing participants in the program as quickly as possible, and service providers began providing supportive services to participants as soon as they were located. In this section, we examine the program's success in engaging participants and the housing stability of participants. Overall, we found very high levels of take-up among participants offered supportive housing.

## Participant Engagement

After participants were referred to the program, CCH and MHCD assisted participants in moving from homeless to housed. Urban tracked the following four key milestones:

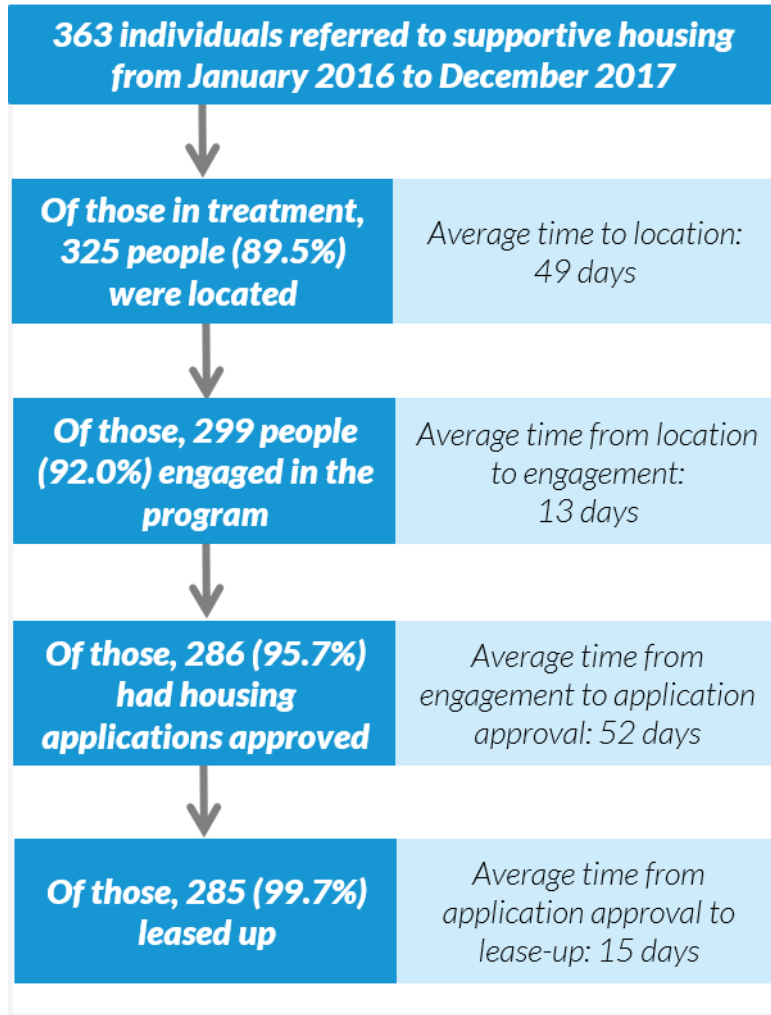
- participant location (the date that CCH or MHCD made initial, direct contact with the participant)
- participant engagement in the program (the date CCH or MHCD conducted a housing screening to verify the participant's homelessness status and the participant agreed to move forward in the housing process)
- housing application approval (the date a participant received approval for housing)
- lease-up in housing (the date a participant moved into a housing unit)

We analyzed the share of participants who achieved each milestone within three years of being referred to the program. Figure 4 shows the share of participants who reached each milestone and the average time between each milestone.

Of the 363 participants randomized into the treatment group before January 1, 2018, 79 percent (285 people) were located, engaged, and housed. In the first step of the process, 90 percent (325 people) of the 363 randomized people were located. Locating someone who had been referred to the program took a service provider an average of 49 days. Of the treatment individuals who were located, 92 percent (299 people) were engaged in the program. The average amount of time between location and engagement was 13 days. Ninety-six percent of the participants who were engaged in the program had their housing applications approved, and the average amount of time between engagement and

approval was 52 days. Nearly all participants whose housing applications were approved moved into housing, and the average amount of time between approval and lease-up was 15 days.

**FIGURE 4**  
**Conditional Analysis of Participant Engagement in the Denver SIB Supportive Housing Program**



URBAN INSTITUTE

**Source:** Colorado Coalition for the Homeless and Mental Health Center of Denver program data from January 1, 2016, to December 31, 2020.

**Note:** The data cover the three years after referral to the program.

## Housing Stability

Housing stability for the Denver SIB was measured by whether a participant was still housed and receiving services—meaning they had never exited housing or had exited and reentered housing—as of various milestones (i.e., one year, two years, or three years after their first entry into housing). The evaluation also measured exits from housing. We defined unplanned exits as exits that resulted from incarceration or any other unplanned interruption that caused the participant to be out of housing for more than 90 days. Participants could reenter housing at any time after an unplanned exit, and this was counted as a separate stay in housing. Participants also left Denver SIB housing because they moved to other permanent housing situations or died, neither of which were considered unplanned exits. Given the number of participant deaths, we also examined housing stability (including Denver SIB and other permanent housing) among living participants at each milestone.

One year after entering Denver SIB housing, 83 percent of people were still in SIB housing, and 4 percent had died (table 7). This means that 86 percent of living participants remained in housing at the one-year milestone. Two years after entering Denver SIB housing, 75 percent were still in Denver SIB housing, and 8 percent had died. This means that 81 percent of living participants remained in housing at the two-year milestone. And three years after entering Denver SIB housing, 68 percent were still housed, 12 percent had died, and 1 percent had moved to other permanent housing. This means that 77 percent of living participants remained in some type of permanent housing at the three-year milestone.

The distressing rate of mortality among SIB participants in housing highlighted the vulnerability of this population. Table D.7 in the appendix shows that mortality was similar across the treatment and control groups in the evaluation.

Most unplanned exits stemmed from incarceration; across all milestones, incarcerations accounted for roughly two-thirds of all unplanned exits (table 8). Other unplanned exits resulted from lease violations, the loss of a voucher, and miscellaneous reasons such as unexpected moves or disengagement from Denver SIB service providers for long periods.

TABLE 7

## Housing Retention and Exits

	1 Year after Entering Housing <sup>a</sup>		2 Years after Entering Housing <sup>b</sup>		3 Years after Entering Housing <sup>c</sup>	
	Number	Share	Number	Share	Number	Share
<b>Still in Denver SIB housing</b>	<b>234</b>	<b>83</b>	<b>204</b>	<b>75</b>	<b>165</b>	<b>68</b>
Never exited	227	80	185	68	142	58
Exited and reentered housing	7	2	19	7	23	9
Moved to other permanent housing	0	0	0	0	2	1
Died	11	4	21	8	28	12
Had unplanned exit	45	16	67	25	71	29
<b>Still housed, living participants</b>		<b>86</b>		<b>81</b>		<b>77</b>

Source: Colorado Coalition for the Homeless and Mental Health Center of Denver program data from January 1, 2016, to December 31, 2020.

Notes: This table represents different cohorts of participants based on when an individual entered housing. “1 year after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2020; “2 years after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2019; and “3 years after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2018. People are considered “still housed” if they were in housing or had reentered housing as of one year, two years, or three years after they initially entered housing. Unplanned exits include any interruption that caused the participant to be out of housing for more than 90 days, most commonly because of incarceration.

<sup>a</sup> N = 283.

<sup>b</sup> N = 273.

<sup>c</sup> N = 243.

TABLE 8

## Breakdown of Unplanned Exits

Unplanned exit	1 Year after Entering Housing		2 Years after Entering Housing		3 Years after Entering Housing	
	Number	Share	Number	Share	Number	Share
Incarceration	29	64	43	64	45	63
Lease violation	1	2	2	3	3	4
Voucher loss	2	4	4	6	4	6
Other	13	29	18	27	19	27
Total	45	100	67	100	71	100

Source: Colorado Coalition for the Homeless and Mental Health Center of Denver program data from January 1, 2016, to December 31, 2020.

Notes: Unplanned exits include any interruption that caused a participant to be out of housing for more than 90 days. “1 year after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2020; “2 years after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2019; and “3 years after entering housing” applies to people who were randomized into the supportive housing program on or before January 1, 2018, and entered housing before January 1, 2018. If a participant had more than one unplanned exit, only the reason for the first exit was counted.

# Impact of the Denver SIB

This section discusses the Denver SIB's impact on housing stability, as measured by participants' use of shelters and access to permanent housing; on criminal justice involvement, as measured by participants' interactions with the system; and on the use of intensive services. It also examines the impact that Denver SIB supportive housing had during the first 10 months of the pandemic. Additional analyses examining the Denver SIB's impact on mortality and prison days (it was not statistically significant in either case) and outcomes at one, two, three, and four years after randomization and by provider are in the appendixes. For each outcome, we present and discuss the adjusted intent-to-treat (ITT) estimate, which is the size of the difference between the treatment and control groups as assigned. In the tables below, we also report the treatment-on-the-treated (TOT) estimate, which measures the difference between individuals who were housed and individuals in the control group. See appendix A for more on the methodology.

## Homelessness and Housing

The Denver SIB's theory of change identified a lack of stable housing among the target population as the root cause of their frequent arrests, jails stays, emergency room visits, and other negative outcomes that affect their well-being and result in an inefficient use of resources. This section examines the impact the Denver SIB had on housing stability as measured by participants' use of shelters and access to permanent housing.

Compared with their peers receiving services as usual in the community, those referred to supportive housing spent 95 fewer days in shelter, on average, during the three-year observation period, or about 32 fewer days a year (table 9). Some people used multiple shelters in a day—for example, they may have slept in an emergency shelter overnight and used a day shelter for food, showers, laundry, or other services. In this example, a person using both an emergency shelter overnight and a day shelter would be counted as having one day with a shelter stay and two unique shelter visits. When counting all instances of shelter use over a three-year period, those referred to supportive housing had 127 fewer unique shelter visits, on average, compared with their peers. This represents a 40 percent reduction in shelter visits because of supportive housing.

Qualitatively, Denver SIB service providers reported that some participants may have continued to use shelters while they were connecting and engaging with providers and considering the offer of supportive housing. They may also have visited shelters to reconnect with their communities before or after moving into Denver SIB housing. Some SIB participants experienced difficulty settling into their new apartments for various reasons: some felt closed in, others missed their friends on the street, and still others felt guilty that they had a home while their friends did not. Service providers noted the

trauma experienced by people who endure long-term homelessness and the lengthy process of moving past survival mode.

Finally, we know from the homelessness verification process for Denver SIB eligibility that even though all participants met the US Department of Housing and Urban Development’s criteria for homelessness, not all had previous shelter stays recorded in the homeless management information system. Many slept on the streets, in cars, or in shelters that did not report to the system.

Permanent supportive housing assistance is a scarce resource in Denver and in communities across the country. The Denver SIB used a lottery to provide access to supportive housing, but the referral process identified thousands more people who met the eligibility criteria and needed housing assistance. Those referred to Denver SIB supportive housing received, on average, 560 more days of housing assistance over three years, compared with their peers receiving services in the community. Those being served as usual received an average of 94 days of permanent housing assistance over three years. These data confirm that, despite the scale of need, permanent supportive housing assistance is an extremely scarce resource. Without priority access, people in need, particularly those in the Denver SIB’s target population, are unlikely to receive housing assistance. People not in Denver SIB supportive housing may find other options, such as staying with family or friends, but these data demonstrate the role that permanent housing assistance could play in improving multiple system outcomes.

**TABLE 9**  
**Denver SIB Supportive Housing Program’s Impact on Shelter and Permanent Housing Assistance Three Years after Randomization**

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
Days with any shelter stay	174.77	269.47	-94.70*** (23.11)	149.09	269.31	-120.22*** (29.74)
Shelter visits	193.83	320.98	-127.14*** (30.39)	159.36	320.77	-161.41*** (39.09)
Housing assistance days	653.94	94.28	559.66*** (26.41)	805.69	95.20	710.48*** (26.41)

**Sources:** Denver Police Department, Denver Sheriff Department, Metro Denver Homeless Initiative, Denver Housing Authority, Colorado Division of Housing, Colorado Coalition for the Homeless, and Mental Health Center of Denver.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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



## Criminal Justice Involvement

A primary goal of the Denver SIB was to reduce criminal justice involvement among the target population by providing supportive housing. The target population was people who were experiencing homelessness and had been arrested at least eight times in the three years before their referral. During the same period, this group spent an average of 183 days in jail. In this section, we examine whether receiving supportive housing services as part of the Denver SIB affected participants' interactions with the criminal justice system.

Compared with people who received services as usual in the community, those referred to supportive housing services experienced eight fewer police contacts and four fewer arrests, on average, in the three years after referral to the program (table 10). This represents a 34 percent reduction in police contacts and a 40 percent reduction in arrests. Those who met Denver SIB eligibility criteria were arrested most often for crimes that fall into a category for minor offenses such as trespassing (“all other crimes” in the table), rather than for offenses against people, society, or property.

In the three years after referral to the program, arrests still took place among the supportive housing participants, but the types of arrests often associated with a lack of housing occurred much less frequently. For example, compared with people receiving services as usual in the community, those referred to supportive housing had fewer arrests for trespassing, drug or narcotics violations, liquor law/drunkenness, warrants, and other low-level crimes (see table 11 for arrest reasons with significant differences; see table C.3 in appendix C for all arrest reasons). This shift led to a drop in court costs and the number of court proceedings, as detailed in Gillespie, Hanson, and Leopold (2021).

Appendix D includes additional analysis on the roles that Denver SIB participants played during interactions with the police (e.g., suspect, victim, witness), as well as on the reasons for police contact (e.g., disturbance, illegal camping, welfare checks). In the three years after randomization, people referred to supportive housing were less likely to be the suspect or the arrestee when interacting with police than people receiving services as usual in the community. Those referred to supportive housing were also slightly less likely to have a contact with the police because of acting suspicious, a general disturbance, detoxification, illegal camping, welfare checks, or being around a residence, business, or alley.

TABLE 10

**Denver SIB Supportive Housing Program's Impact on Arrests and Police Contacts  
Three Years after Randomization**

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
Arrests	6.31	10.58	-4.28*** (0.66)	5.15	10.58	-5.43*** (0.85)
Custodial arrests	3.75	5.42	-1.68*** (0.33)	3.29	5.42	-2.13*** (0.42)
Noncustodial arrests	2.56	5.16	-2.60*** (0.45)	1.86	5.16	-3.30*** (0.57)
Arrests for crimes against people	0.44	0.53	-0.09 (0.07)	0.41	0.53	-0.12 (0.08)
Arrests for crimes against society	0.88	1.36	-0.48*** (0.17)	0.75	1.35	-0.61*** (0.22)
Arrests for crimes against property	0.50	0.75	-0.25** (0.10)	0.43	0.75	-0.32** (0.13)
Arrests for all other crimes	4.50	7.95	-3.46*** (0.57)	3.56	7.95	-4.39*** (0.73)
Contacts	16.15	24.35	-8.20*** (1.68)	13.92	24.33	-10.41*** (2.16)

**Sources:** Denver Police Department and Denver Sheriff Department.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. Custodial arrests are those for which someone is booked into jail.

IV = instrumental variables.

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

TABLE 11

### Denver SIB Supportive Housing Program's Impact on the Reasons for Arrests Three Years after Randomization

Arrest reasons	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
<b>Arrests for crimes against people</b>						
Intimidation	0.09	0.17	-0.08** (0.03)	0.07	0.17	-0.10** (0.04)
<b>Arrests for crimes against society</b>						
Drug/narcotics violations	0.78	1.26	-0.48*** (0.17)	0.65	1.26	-0.61*** (0.21)
<b>Arrests for crimes against property</b>						
Larceny	0.26	0.44	-0.19** (0.08)	0.21	0.44	-0.24** (0.10)
Stolen property	0.01	0.02	-0.01* (0.01)	0.00	0.02	-0.02* (0.01)
<b>Arrests for all other crimes</b>						
Criminal trespassing	0.81	1.75	-0.94*** (0.21)	0.56	1.75	-1.19*** (0.27)
Curfew	0.00	0.04	-0.04*** (0.01)	-0.01	0.04	-0.05*** (0.02)
Liquor law/ drunkenness	0.94	1.87	-0.93*** (0.27)	0.69	1.86	-1.18*** (0.34)
Warrant	1.93	2.82	-0.89*** (0.18)	1.69	2.81	-1.13*** (0.23)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

People referred to supportive housing also had fewer unique jail stays and fewer cumulative days in jail compared with those receiving usual services in the community. In the three years after randomization, participants referred to supportive housing services had almost two fewer jail stays and spent an average of 38 fewer days in jail than those who received usual care in the community (table 12). This represents a 30 percent reduction in unique jail stays and a 27 percent reduction in total jail days.

TABLE 12

**Denver SIB Supportive Housing Program’s Impact on Jail Days and Stays Three Years after Randomization**

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
Jail days	100.48	138.34	-37.86*** (10.76)	90.21	138.28	-48.07*** (13.54)
Jail stays	4.09	5.82	-1.73*** (0.33)	3.62	5.81	-2.20*** (0.42)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

**Public Safety**

The Denver SIB also aimed to use permanent housing and intensive services as a strategy to reduce the burden on the city’s public safety system, particularly on costly detoxification services that were directly funded by the city budget. These detoxification services were primarily used for short-term sobering and did not have the resources necessary to offer long-term treatment or follow-up care, in contrast with the services available to participants in supportive housing. In the three years after randomization, people referred to supportive housing services had four fewer visits to a short-term or city-funded detoxification facility than those who received usual services in the community (table 13). This represents a 65 percent reduction in use of detoxification services. Participants referred to supportive housing also experienced fewer emergency medical services responses from the public safety system three years after referral to the program, although the differences were not statistically significant. While not using city-funded detoxification services as frequently, those in supportive housing were accessing more preventive, community-based care and less emergency medical care, as detailed in Hanson and Gillespie (2021).

TABLE 13

**Denver SIB Supportive Housing Program’s Impact on Detox and Emergency Medical Service Responses Three Years after Randomization**

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
Detox responses	2.38	6.75	-4.37*** (1.36)	1.20	6.74	-5.54*** (1.74)
Emergency medical service responses	8.08	9.59	-1.51 (1.53)	7.67	9.59	-1.92 (1.95)

**Source:** Denver Police Department, Denver Sheriff Department, and Denver Department of Public Safety.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

**During the COVID-19 Pandemic**

As noted earlier, the COVID-19 pandemic disrupted the final year of the Denver SIB’s implementation. In March 2020, to allow for more social distancing and to curb the spread of COVID-19, the city began releasing people from jail early, and police modified their practices around taking people into custody. As a result, police contacts and arrests among the full population of people eligible for the Denver SIB program dramatically declined in the pandemic’s early months. The homelessness assistance system, meanwhile, opened new shelters in response to shifts in capacity that shelters made to facilitate social distancing.

To examine the impact that Denver SIB supportive housing had during the pandemic, we compared the outcomes of the treatment and control group during the first 10 months of the pandemic (March 2020 through December 2020) with the same period in the year before the pandemic (March 2019 through December 2019).

Before the pandemic, the differences in shelter stays between the treatment and control groups were dramatic. However, they were even bigger during the first 10 months of the pandemic, when participants in supportive housing spent an average of 31 days in shelter and those receiving other community services spent an average of 79 days in shelter (table 14). Overall, shelter days increased for

both groups during the pandemic. This is likely because of changes to local policies—for example, allowing 24-hour operations and letting people stay inside during the day—that were intended to help people, including those in the treatment group who had not leased up in Denver SIB housing, access shelter and services.

The average number of arrests and police contacts dropped for both the treatment and control groups during the pandemic, and the gap between the two groups narrowed (table 15). Similarly, the average number of jail stays and jail days went down for both groups during the pandemic, but instead of narrowing the gap between the treatment and control groups, the impact on jail days grew during the pandemic (table 16). In the pre-pandemic period, the treatment group had 25 percent fewer days in jail. During the pandemic, this percentage difference became larger, with the treatment group having 51 percent fewer jail days. Although these data do not explain the reasons for the difference in the impact, we know from the implementation study that Denver SIB service providers consistently advocated for clients who had been arrested to be released back to supportive housing. Perhaps policy changes made by the city during the pandemic allowed the jail to be more responsive to this advocacy than it could be before the pandemic, further reducing the number of days that participants in the Denver SIB supportive housing program spent in jail.

The difference in the average number of emergency medical service responses between the treatment and control group was not significant in either the pandemic or the pre-pandemic time period, and the difference in the average number of detoxification visits by the two groups narrowed during the pandemic (table 17).

Overall, the pandemic brought about policy changes to the status quo in policing and shelter practices, and these changes decreased arrests and jail stays for everyone in the study and increased access to shelter.

TABLE 14

## Impact of the COVID-19 Pandemic on Shelter Days and Visits

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
<b>Days with any shelter stay</b>						
Pandemic	31.49	78.96	-47.48*** (10.04)	18.62	78.89	-60.27*** (12.81)
Pre-pandemic	17.48	40.00	-22.52*** (5.58)	11.37	39.97	-28.59*** (7.14)
<b>Shelter visits</b>						
Pandemic	25.33	55.75	-30.41*** (6.57)	17.09	55.70	-38.61*** (8.39)
Pre-pandemic	17.17	35.64	-18.47*** (4.98)	12.16	35.61	-23.45*** (6.37)

**Sources:** Denver Police Department, Denver Sheriff Department, Metro Denver Homeless Initiative, Denver Housing Authority, and Colorado Division of Housing.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

TABLE 15

## Impact of the COVID-19 Pandemic on Arrests and Police Contacts

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
<b>Arrests</b>						
Pandemic	0.55	0.74	-0.19* (0.10)	0.50	0.74	-0.24* (0.13)
Pre-pandemic	1.15	2.13	-0.98*** (0.21)	0.89	2.13	-1.24*** (0.26)
<b>Custodial arrests</b>						
Pandemic	0.38	0.48	-0.10 (0.08)	0.35	0.48	-0.13 (0.10)
Pre-pandemic	0.76	1.15	-0.39*** (0.13)	0.65	1.15	-0.50*** (0.16)
<b>Noncustodial arrests</b>						
Pandemic	0.17	0.26	-0.09* (0.05)	0.15	0.26	-0.11* (0.06)
Pre-pandemic	0.39	0.98	-0.59*** (0.12)	0.23	0.98	-0.75*** (0.15)
<b>Police contacts</b>						
Pandemic	1.33	1.74	-0.40** (0.19)	1.22	1.74	-0.51** (0.25)
Pre-pandemic	2.30	4.24	-1.93*** (0.36)	1.78	4.23	-2.46*** (0.47)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. The results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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



TABLE 16

## Impact of the COVID-19 Pandemic on Jail Days and Stays

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
<b>Jail days</b>						
Pandemic	6.76	13.75	-6.98** (2.59)	4.87	13.73	-8.87** (3.28)
Pre-pandemic	19.86	26.50	-6.65* (3.79)	18.05	26.49	-8.44* (4.80)
<b>Jail stays</b>						
Pandemic	0.44	0.56	-0.12 (0.08)	0.41	0.56	-0.15 (0.10)
Pre-pandemic	0.89	1.27	-0.38** (0.13)	0.79	1.27	-0.48** (0.16)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

TABLE 17

## Impact of the COVID-19 Pandemic on Detox and Emergency Medical Service Responses

	Intent-to-Treat Regression Adjusted			Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treated group mean	Control group mean	Difference
<b>Detox responses</b>						
Pandemic	0.52	1.40	-0.87** (0.34)	0.29	1.39	-1.11** (0.43)
Pre-pandemic	0.38	1.74	-1.36*** (0.38)	0.01	1.74	-1.73*** (0.48)
<b>Emergency medical service responses</b>						
Pandemic	1.70	2.02	-0.31 (0.42)	1.62	2.02	-0.40 (0.53)
Pre-pandemic	1.84	2.18	-0.34 (0.38)	1.75	2.18	-0.43 (0.49)

**Source:** Denver Police Department, Denver Sheriff Department, and Denver Department of Public Safety.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

## Additional Analyses

Tables in the appendixes provide additional analyses of outcomes from data collected for the evaluation. Table C.6 examines the impact of the Denver SIB supportive housing program on mortality, and table C.7 examines the impact on prison days, neither of which were statistically significant. Although the tables in the body of this report focus on outcomes for the full sample of evaluation participants three years after randomization, tables in appendix D examine outcomes at one, two, three, and four years after randomization, most of which follow a steady trend. Although the Denver SIB's two supportive housing providers delivered a similar program model to all participants, earlier sections of this report describe some of the main differences in the providers' implementation of the program. Given these differences, appendix D also provides analyses of outcomes at the provider level (for CCH and MHCD), although few major differences were found. Two additional reports examine the impact of the Denver SIB on health care use (Hanson and Gillespie 2021) and cost offsets and savings realized by the SIB (Gillespie, Hanson, and Leopold 2021). Finally, the Denver SIB contract required specific

calculations to determine the outcome payments related to housing stability and reductions in jail days from the City and County of Denver to the investors. More information can be found in the final brief to the Denver SIB Governance Committee (Gillespie et al. 2021).

## Conclusion

The findings in this report demonstrate the Denver SIB's remarkable success and disrupt the false narratives that homelessness is an unsolvable problem and that people who experience chronic homelessness choose to live on the street. The Denver SIB showed that with the offer of housing first and the right supports, people can exit homelessness and remain housed, even after living on the streets or in shelters for years and grappling with mental health and substance use challenges. Furthermore, the Denver SIB proved that investment in supportive housing can decrease police interactions and arrests, disrupt jail cycling, and reduce the use of emergency detoxification facilities.

In the final year of the Denver SIB, against the backdrop of a pandemic and a racial justice reckoning spurred by the horror of systemic racism and the terrible consequences of excessive policing, the outcomes described in this report offer important lessons and an alternative to the status quo. Relying on police and emergency services to manage—not solve—the problem of homelessness produces bad outcomes for people and communities. But supportive housing, provided with a Housing First approach, can break the homelessness-jail cycle. Despite the replicated success of supportive housing models like the Denver SIB, hundreds of people remain chronically homeless on the streets of Denver, with thousands more in other communities across the country. Expanding investments in supportive housing could end homelessness, break the jail cycle, and shift resources away from policing and other costly emergency services toward services that focus on housing, well-being, and the prevention of negative outcomes for residents and communities.

# Appendix A. Methods

The Denver SIB evaluation had two primary components: an outcomes and impact study and a process study. The evaluation used a mix of quantitative and qualitative methods, detailed below.

## Outcomes and Impact Study

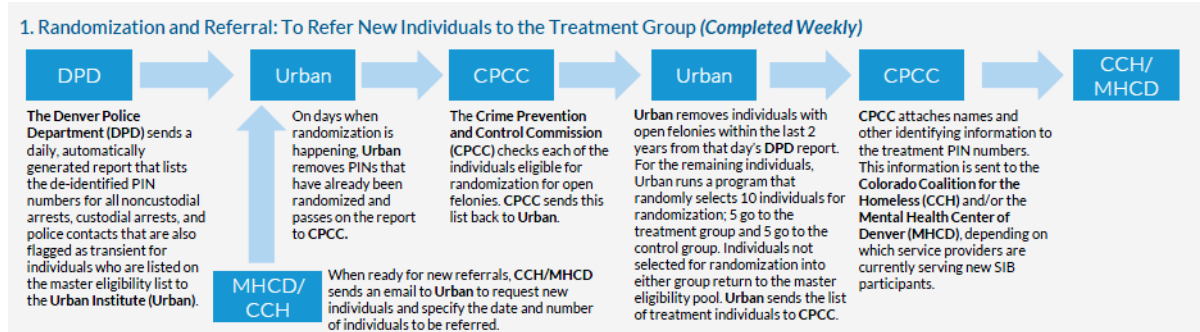
The outcomes and impact study measures the housing stability of Denver SIB participants and the impacts of the program on homelessness, arrests, jail days, detoxification center visits, and the use of emergency medical services. In addition, we estimate the impact of the program on prison stays and mortality.

The evaluation used a randomized controlled trial design. It randomly assigned eligible individuals to either a treatment group, whose members were referred for supportive housing, or a control group, whose members received services as usual in the community. Eligible individuals were defined as those who had eight or more arrests over three years, including at least three arrests in which they were marked as transient, meaning they had no permanent address at the time of the police contact. DPD identified eligible individuals through a data pull and created a de-duplicated, de-identified, electronically maintained eligibility list for the initiative, assigning a unique ID to each individual on the list. DPD matched the eligibility list with daily arrest and contact lists. For individuals on the Denver SIB master eligibility list, DPD generated a daily report that listed de-identified PIN numbers for all people with noncustodial arrests, custodial arrests, and police contacts and flagged whether they were marked as transient (figure A.1). On days the Denver SIB partners randomized new individuals into the evaluation, Urban removed from the report the PINs that had already been randomized and passed on the report to the referral coordinator within the city. The referral coordinator researched each PIN number eligible for randomization that day and documented the date and charges of any open felonies within the previous two years. She sent this documentation to Urban, and Urban removed PIN numbers with open felonies within the previous two years from that day's eligibility list. For the remaining PIN numbers, Urban ran a program that randomly selected PIN numbers based on the number of individuals the Denver SIB partners chose to randomize into the evaluation that day. Half of those new PIN numbers were randomized to the treatment group and half to the control group, stratified by the type of intake (custodial arrest, noncustodial arrest, or police contact). PIN numbers not selected for randomization into either group were returned to the master eligibility pool and were eligible for subsequent randomization. Urban sent the list of new treatment PIN numbers to the referral

coordinator. She reattached names and other identifying information to the treatment PIN numbers and sent this information to the service providers for outreach.

FIGURE A.1

Denver SIB Randomization and Referral Process Map



Source: Mary Cunningham, Mike Pergamit, Sarah Gillespie, Devlin Hanson, and Shiva Kooragayala, *Denver Supportive Housing Social Impact Bond Initiative: Evaluation and Research Design* (Washington, DC: Urban Institute, 2016).

If both CCH and MHCD had supportive housing slots available, Urban randomly assigned the treatment individuals to the providers. The two service providers sometimes transferred individuals based on existing client relationships. Outreach workers attempted to locate each referred individual within 24 hours to minimize location challenges. Service providers spent a minimum of three months attempting to begin the process of getting a referred individual into supportive housing before requesting a new referral.

Estimation Methods

The intent-to-treat (ITT) estimate is defined as the difference between the average outcomes of those referred to the treatment group and those in the control group, adjusting for covariates measured before randomization.

All eligible people randomized into the treatment group were counted in the treatment population, regardless of whether they engaged with the service provider, passed the housing screen, or obtained housing. All eligible people randomized into the control group were counted in the control population even if they enrolled with the service provider or obtained housing.

Specifically, the ITT estimate,  $\pi_Y$ , was measured using the following regression equation:

$$Y_i = \alpha + \beta^T T_i + \sum_{n=1}^N \beta^n X_i^n + \varepsilon_i$$

In the equation,  $Y_i$  is the outcome of interest (e.g., the number of jail days) for each individual,  $i$ , who was randomly assigned.  $T_i$  is an indicator equal to 1 for individuals assigned to the treatment group and to 0 for individuals assigned to the control group.  $\beta^T$  is the parameter of the ITT effect on the outcome ( $Y_i$ ).  $X^n$  is a vector of pre-randomization covariates, and  $\beta^n$  is the vector of coefficients on the covariate,  $X^n$ .  $\varepsilon$  is the regression error term. The inclusion of the pre-randomization covariates was intended to improve the precision of the estimates. We chose to control for pre-randomization variables that showed differences between the two groups at  $p = 0.05$  using the DPD and Denver Sheriff Department as data sources. The covariates we control for in the model are

- race/ethnicity,
- age at randomization,
- gender,
- number of jail days in the three years before randomization,
- number of jail stays in the three years before randomization,
- number of arrests in the three years before randomization, and
- number of custodial arrests in the three years before randomization.

We ran the regressions with several different specifications to test the robustness of our results, including controlling for the pre-randomization values of the outcomes and shelter days. Although we used ordinary least squares regressions, including linear probability models, for the regressions in this report, we also ran probit models for any binary outcomes. None of the other specifications made any substantial differences to our estimates of the effect of treatment on the outcomes.

The treatment-on-the-treated estimate presents the impact of the Denver SIB on individuals who became housed compared with individuals who did not become housed, regardless of which group they were assigned to. The TOT estimate was calculated using an instrumental variables (IV) estimate (Angrist, Imbens, and Rubin 1996). The IV estimate is per person served, among those who complied with their referral assignment; this accounts for the fact that some people referred to the Denver SIB supportive housing program may not have enrolled and that some people in the control group may have ended up receiving services from the program (this did not occur during our observation period, however). Study participants are one of three types: (1) those who enrolled in the Denver SIB supportive housing program regardless of whether they were referred to it; (2) those who did not enroll in the supportive housing program even if they were referred to it; and (3) those who complied with the referral assignment they were given (to enroll in the housing program or to remain in the control group).

The IV estimate represents the effect of enrollment in the housing program on outcomes among this third group, the compliers. In the special circumstance where decisions to comply or not are independent of the study outcomes, the IV estimate also represents the average treatment effect.

The IV estimate scaled up the ITT estimate by the difference between the treatment group's and the control group's fractions enrolled in the Denver SIB supportive housing program. Conceptually, we estimated the effect of referring an individual to the housing program on enrollment in the program in exactly the same way we calculated the ITT above, except that the dependent variable in the model was enrollment:

$$P_i = \alpha + \delta^T T_i + \sum_{n=1}^N \delta^n X_i^n + \varepsilon_i$$

In this equation,  $P_i$  is 1 if the individual,  $i$ , enrolled in the program, regardless of whether they were in the treatment group or the control group. Enrollment is defined as the participant's having an initial housing lease-up (enrollment) date in Denver SIB housing.  $T_i$  is an indicator equal to 1 for individuals assigned to the treatment group and 0 for individuals assigned to the control group.  $\delta^T$  is the parameter of the effect of being randomly assigned into treatment on actual enrollment ( $P_i$ ).  $X^n$  is a vector of pre-randomization covariates, and  $\delta^n$  is the vector of coefficients on the covariates,  $X^n$ .  $\varepsilon$  is the regression error term. The IV estimate is the ratio of the two estimates:

$$\text{TOT estimate} = \frac{\beta^T}{\delta^T}$$

The two equations were estimated simultaneously using a two-stage least squares estimation procedure. In the first stage, the dependent variable (enrolling in the program) was regressed on the exogenous covariates plus the instrument (randomization into treatment). In the second stage, fitted values from the first-stage regression were plugged directly into the structural equation in place of the endogenous regressor (enrolling in the program). We included the same covariates used in the ITT regression.

## Data

Administrative data were used to measure the impact of the intervention on homelessness services, housing assistance, jail stays, arrests, police contacts, prison stays, use of detoxification services, use of emergency medical services, and mortality. These measures directly related to the intermediate outcomes and long-term outcomes outlined in the theory of change. Table A.1 outlines the data sources and variables used to analyze each outcome. De-identified individual-level data were linked by a unique research ID to facilitate analysis while maintaining confidentiality. Denver Housing Authority data only

included active vouchers as of January 2021. Exit dates were imputed if they were missing for shelter stays (5 percent of emergency shelter stays and 21 percent of day shelter stays).

**TABLE A.1**  
**Data Sources and Measures for Other Impacts**

<b>Outcome</b>	<b>Data source</b>	<b>Variables</b>
Housing stability	Colorado Coalition for the Homeless and Mental Health Center of Denver	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Random assignment date</li> <li>■ Client location and date</li> <li>■ Client housing screen outcome and date</li> <li>■ Client agreement to housing and date</li> <li>■ Voucher application outcome and date</li> <li>■ Housing orientation and date</li> <li>■ Voucher issuance date</li> <li>■ Voucher denial date</li> <li>■ Voucher denial reason</li> <li>■ Lease-up date</li> <li>■ Voucher loss reason and date</li> </ul>
Jail days	Denver Sheriff Department	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Jail entry date</li> <li>■ Jail exit date</li> <li>■ Facility</li> </ul>
Homelessness services	Metro Denver Homeless Initiative homeless management information system	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Program entry date</li> <li>■ Program exit date</li> <li>■ Program type</li> <li>■ Program name</li> </ul>
Housing assistance	Colorado Division of Housing and Denver Housing Authority	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Subsidy program type</li> <li>■ Subsidy start date</li> <li>■ Housing assistance payment</li> <li>■ Tenant rent contribution</li> <li>■ Subsidy end date</li> </ul>
Arrests	Denver Police Department	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Demographics</li> <li>■ Contact dates</li> <li>■ Street check reason</li> <li>■ General occurrence role</li> <li>■ Arrest date</li> <li>■ Arrest reason</li> <li>■ Indicator of transient arrest</li> <li>■ Indicator of custodial arrest</li> </ul>
Detox visits	Denver Department of Public Safety	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Detox response date</li> <li>■ Detox transportation flag</li> </ul>
Use of emergency medical services	Denver Department of Public Safety	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ EMS response date</li> <li>■ EMS transportation flag</li> </ul>



Outcome	Data source	Variables
Mortality	Colorado Department of Public Health and Environment	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Death date</li> <li>■ Manner of death</li> </ul>
Prison days	Colorado Department of Corrections	<ul style="list-style-type: none"> <li>■ Unique research ID</li> <li>■ Prison entry date</li> <li>■ Prison exit date</li> <li>■ Facility</li> </ul>

**Source:** Mary Cunningham, Mike Pergamit, Sarah Gillespie, Devlin Hanson, and Shiva Kooragayala, *Denver Supportive Housing Social Impact Bond Initiative: Evaluation and Research Design* (Washington, DC: Urban Institute, 2016).

**Note:** Denver Housing Authority data include only current stays.

## Process Study

Key process-related information, including the details of the housing and referral pipeline, was necessary to manage implementation of the Denver SIB initiative and to make midcourse corrections to keep the initiative on track to achieve long-term outcomes. Process information also helped us interpret the results of the impact evaluation, which was based on documentation of the program model and participant engagement practices. To collect information about these different domains, we managed an engagement dashboard and a housing enrollment pipeline. We conducted annual site visits and interviews with service providers and other stakeholders.

Our qualitative analysis is based on semistructured interviews with program partners. Each year, The Evaluation Center at the University of Colorado Denver conducted 10 to 15 in-depth, semistructured interviews with representatives of CCH, MHCD, the Corporation for Supportive Housing, and other key partners. The interviews addressed support services, housing stability, Denver SIB residents' involvement in the criminal justice system, and the impacts of housing location such as single and scattered sites.

To learn more about the impacts of and the policies that resulted from the COVID-19 pandemic, The Evaluation Center conducted a document review using publicly available data and interviewed representatives of the following agencies: Department of Finance, City and County of Denver; Department of Housing Stability, City and County of Denver; Denver Sheriff Department; Denver Health and Hospital Authority; and the Corporation for Supportive Housing. The interviews were conducted in person or by phone and, with permission from the interviewees, were audio-recorded and professionally transcribed. The evaluators used NVivo 12 to analyze interviews. The analysis was based on a structured coding scheme, and researchers conducted emergent coding within key codes to inform the qualitative findings.

# Appendix B. Baseline Equivalence

TABLE B.1

Demographic, Homelessness, and Criminal Justice Characteristics 1 Year Before Randomization

	Full sample	Treatment	Control	Difference
<b>Demographic characteristics</b>				
Age at randomization (mean)	44.20	44.12	44.27	-0.15
Men	85%	87%	83%	0.04
<i>Race/ethnicity* +</i>				
Black	34%	32%	35%	-0.03
White	47%	45%	49%	-0.04
Asian	0%	0%	0%	-0.00
Native American	6%	8%	4%	0.04***
Latinx	13%	15%	11%	0.03
<b>Criminal justice system involvement</b>				
<i>Arrests</i>				
Number of arrests (mean)	4.43	4.19	4.67	-0.48*
Number of custodial arrests (mean)	2.32	2.23	2.41	-0.18
Number of crimes against people (mean)	0.21	0.24	0.18	0.05
Number of crimes against society (mean)	0.66	0.60	0.73	-0.13
Number of crimes against property (mean)	0.26	0.23	0.30	-0.07
Number of other crimes (mean)	3.29	3.13	3.46	-0.33
<i>Jail</i>				
Number of jail stays (mean)	2.58	2.46	2.70	-0.25
Number of jail days (mean)	68.26	67.00	69.53	-2.53
<i>Prison</i>				
Share with any prison stays	5%	6%	5%	0.00
Number of prison days (mean)	9.24	10.01	8.45	1.56
<b>Housing/homelessness assistance</b>				
Share with any homelessness services	44%	45%	43%	0.02
Number of homelessness services days (mean)	115.93	121.61	110.22	11.39
Number of homelessness services (mean)	140.53	144.80	136.23	8.57
Share with any shelter stays	68%	67%	70%	-0.03
Number of days with any shelter stay (mean)	158.14	148.36	167.99	-19.63*
Number of shelter stays (mean)	191.08	174.76	207.49	-32.73**
Share with any housing assistance	7%	7%	6%	0.01
Number of housing assistance days (mean)	17.27	13.98	20.58	-6.60

**Sources:** 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:** Sample for the study population is 724 people: 363 in the treatment group and 361 in the control group.

+ Significance is based on a chi-squared test.

\*/\*\*/\*\* Significant at the 0.10/0.05/0.01 level.

# By Provider

TABLE B.2

## Demographic, Homelessness, and Criminal Justice Characteristics, Colorado Coalition for the Homeless

	Full sample	Treatment	Control	Difference
<b>Demographic characteristics</b>				
Age at randomization (mean)	44.60	45.09	44.22	0.87
Men	84%	87%	82%	0.05
<i>Race/ethnicity** +</i>				
Black	33%	30%	35%	-0.06
White	46%	43%	48%	-0.05
Asian	0%	0%	0%	0.00
Native American	6%	8%	4%	0.03*
Latinx	15%	19%	12%	0.07**
<b>Criminal justice system involvement</b>				
<i>Arrests</i>				
Number of arrests (mean)	4.44	4.12	4.69	-0.57*
Number of custodial arrests (mean)	2.29	2.11	2.43	-0.32*
Number of crimes against people (mean)	0.19	0.21	0.18	0.03
Number of crimes against society (mean)	0.69	0.60	0.75	-0.14
Number of crimes against property (mean)	0.26	0.20	0.30	-0.10*
Number of other crimes (mean)	3.31	3.11	3.47	-0.36
<i>Jail</i>				
Number of jail stays (mean)	2.55	2.32	2.73	-0.41**
Number of jail days (mean)	68.07	67.54	68.48	-0.94
<i>Prison</i>				
Share with any prison stays	6%	6%	6%	0.00
Number of prison days (mean)	9.93	11.68	8.58	3.10
<b>Housing/homelessness assistance</b>				
Share with any homelessness services	45%	47%	43%	0.04
Number of homelessness services days (mean)	117.99	127.17	110.85	16.32
Number of homelessness services (mean)	142.76	152.10	135.49	16.61
Share with any shelter stays	69%	69%	70%	-0.01
Number of days with any shelter stay (mean)	165.15	159.70	169.39	-9.69
Number of shelter stays (mean)	203.50	193.91	210.96	-17.05
Share with any housing assistance	6%	6%	6%	0.00
Number of housing assistance days (mean)	15.05	12.09	17.35	-5.26

**Sources:** 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:** All data are from one year before randomization. For Colorado Coalition for the Homeless, the full sample is 537 people: 235 in the treatment group and 302 in the control group.

+ Significance is based on a chi-squared test.

\*/\*\*/\*\* Significant at the 0.10/0.05/0.01 level.

TABLE B.3

## Demographic, Homelessness, and Criminal Justice Characteristics, Mental Health Center of Denver

	Full sample	Treatment	Control	Difference
<b>Demographic characteristics</b>				
Age at randomization (mean)	43.08	42.35	43.58	-1.22
Men	88%	88%	88%	-0.01
<i>Race/ethnicity</i> ++				
Black	34%	36%	34%	0.02
White	51%	49%	52%	-0.03
Asian	0%	0%	0%	0.00
Native American	5%	8%	3%	0.05*
Latinx	9%	7%	11%	-0.04
<b>Criminal justice system involvement</b>				
<i>Arrests</i>				
Number of arrests (mean)	4.46	4.30	4.56	-0.26
Number of custodial arrests (mean)	2.48	2.45	2.51	-0.06
Number of crimes against people (mean)	0.25	0.29	0.22	0.07
Number of crimes against society (mean)	0.59	0.58	0.60	-0.02
Number of crimes against property (mean)	0.31	0.27	0.34	-0.06
Number of other crimes (mean)	3.31	3.16	3.41	-0.24
<i>Jail</i>				
Number of jail stays (mean)	2.76	2.71	2.80	-0.08
Number of jail days (mean)	67.37	66.02	68.28	-2.26
<i>Prison</i>				
Share with any prison stays	7%	5%	8%	-0.03
Number of prison days (mean)	9.89	6.95	11.86	-4.91
<b>Housing/homelessness assistance</b>				
Share with any homelessness services	44%	43%	44%	-0.01
Number of homelessness services days (mean)	107.22	111.41	104.42	6.99
Number of homelessness services (mean)	129.45	131.41	128.14	3.26
Share with any shelter stays	66%	63%	69%	-0.05
Number of days with any shelter stay (mean)	147.92	127.52	161.59	-34.06**
Number of shelter stays (mean)	165.84	139.59	183.42	-43.83**
Share with any housing assistance	8%	10%	7%	0.03
Number of housing assistance days (mean)	21.34	17.45	23.94	-6.50

**Sources:** 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:** All data are from one year before randomization. For Mental Health Center of Denver, the full sample is 319 people: 128 in the treatment group and 191 in the control group.

++ Not significant based on a chi-squared test.

\*\*/\*\* Significant at the 0.10/0.05/0.01 level.

# Appendix C. Outcomes Regressions

## Homelessness and Housing

TABLE C.1

Denver SIB Supportive Housing Program's Impact on Shelter and Permanent Housing Assistance One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Days with any shelter stays</b>										
1 year post	94.02	128.33	-34.31***	95.17	127.18	-32.01*** (10.99)	0.21^	82.34	127.16	-44.82*** (15.50)
2 years post	146.10	213.57	-67.47***	147.64	212.02	-64.38*** (18.85)	0.25^	128.37	211.95	-83.58*** (24.72)
3 years post	173.39	270.86	-97.47***	174.77	269.47	-94.70*** (23.11)	0.30^	149.09	269.31	-120.22*** (29.74)
<b>Shelter visits</b>										
1 year post	103.03	149.96	-46.93***	104.83	148.14	-43.31*** (13.41)	0.24^	87.48	148.12	-60.65*** (18.95)
2 years post	159.51	249.77	-90.27***	162.07	247.20	-85.13*** (23.62)	0.27^	136.59	247.10	-110.51*** (30.99)
3 years post	191.70	323.12	-131.43***	193.83	320.98	-127.14*** (30.39)	0.31^	159.36	320.77	-161.41*** (39.09)
<b>Housing assistance days</b>										
1 year post	194.88	22.36	172.53***	195.29	21.95	173.33*** (8.57)	1.48^^^	264.73	22.04	242.69*** (8.53)
2 years post	424.22	53.50	370.71***	425.39	52.33	373.06*** (17.36)	1.58^^^	537.04	52.75	484.29*** (17.18)
3 years post	651.28	96.95	554.33***	653.94	94.28	559.66*** (26.41)	1.55^^^	805.69	95.20	710.48*** (26.41)

Sources: Metro Denver Homeless Initiative, Denver Housing Authority, Colorado Division of Housing, Denver Police Department, and Denver Sheriff Department.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# Criminal Justice

TABLE C.2

Denver SIB Supportive Housing Program's Impact on Arrests and Police Contacts One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Arrests</b>										
1 year post	2.93	4.87	-1.94***	3.04	4.76	-1.72*** (0.31)	0.41^	2.35	4.76	-2.40*** (0.43)
2 years post	4.71	8.35	-3.64***	4.91	8.16	-3.25*** (0.51)	0.46^	3.94	8.15	-4.21*** (0.67)
3 years post	6.06	10.84	-4.78***	6.31	10.58	-4.28*** (0.66)	0.46^	5.15	10.58	-5.43*** (0.85)
<b>Custodial arrests</b>										
1 year post	1.73	2.48	-0.75***	1.78	2.43	-0.65*** (0.15)	0.29^	1.52	2.43	-0.91*** (0.22)
2 years post	2.82	4.22	-1.40***	2.89	4.14	-1.25*** (0.25)	0.35^	2.52	4.14	-1.62*** (0.33)
3 years post	3.66	5.52	-1.86***	3.75	5.42	-1.68*** (0.33)	0.36^	3.29	5.42	-2.13*** (0.42)
<b>Noncustodial arrests</b>										
1 year post	1.20	2.39	-1.19***	1.26	2.33	-1.07*** (0.22)	0.35^	0.83	2.32	-1.49*** (0.31)
2 years post	1.90	4.14	-2.24***	2.02	4.02	-2.00*** (0.36)	0.39^	1.42	4.01	-2.60*** (0.47)
3 years post	2.40	5.32	-2.92***	2.56	5.16	-2.60*** (0.45)	0.39^	1.86	5.16	-3.30*** (0.57)
<b>Contacts</b>										
1 year post	8.30	11.93	-3.63***	8.70	11.53	-2.83*** (0.85)	0.25^	7.57	11.53	-3.96*** (1.19)
2 years post	12.47	19.98	-7.50***	13.11	19.33	-6.22*** (1.41)	0.33^	11.25	19.32	-8.07*** (1.85)
3 years post	15.43	25.07	-9.65***	16.15	24.35	-8.20*** (1.68)	0.36^	13.92	24.33	-10.41*** (2.16)

Sources: Denver Police Department and Denver Sheriff Department.

**Notes:** Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

**TABLE C.3**

**Denver SIB Supportive Housing Program’s Impact on the Reasons for Arrests One, Two, and Three Years after Randomization**

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Arrest groups</b>										
Crimes against people	0.44	0.53	-0.09	0.44	0.53	-0.09 (0.07)	0.10	0.41		-0.12 (0.08)
Crimes against society	0.80	1.43	-0.62***	0.88	1.36	-0.48*** (0.17)	0.19	0.75		-0.61*** (0.22)
Crimes against property	0.49	0.75	-0.26**	0.50	0.75	-0.25** (0.10)	0.18	0.43		-0.32** (0.13)
All other offenses	4.32	8.13	-3.81***	4.50	7.95	-3.46*** (0.57)	0.42^	3.56		-4.39*** (0.73)
<b>Arrest reasons</b>										
<i>Crimes against people</i>										
Murder	0.00	0.00	-0.00	-	-	-	-	-	0.00	-
Aggravated assault	0.13	0.14	-0.01	0.13	0.14	-0.01 (0.03)	0.03	0.12	0.14	-0.02 (0.04)
Forcible sex offenses	0.00	0.01	-0.01	-	-	-	-	-	-	-
Kidnapping/abduction	0.00	0.00	0.00	-	-	-	-	-	-	-
Simple assault	0.00	0.01	-0.00	-	-	-	-	-	-	-
Intimidation	0.21	0.20	0.01	0.21	0.20	0.01 (0.04)	0.02	0.21	0.20	0.01 (0.05)



	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<i>Crimes against property</i>										
Arson	0.00	0.01	-0.00	-	-	-	-	-	-	-
Bribery	0.01	0.00	0.00	-	-	-	-	-	-	-
Burglary	0.02	0.04	-0.02	0.02	0.04	-0.02 (0.01)	0.11	0.02	0.04	-0.02 (0.02)
Counterfeiting/forgery	0.00	0.00	0.00	-	-	-	-	-	-	-
Criminal mischief/ damaged property	0.15	0.14	0.01	0.15	0.13	0.01 (0.05)	0.02	0.15	0.13	0.02 (0.06)
Fraud	0.02	0.02	-0.00	0.02	0.02	-0.00 (0.01)	0.00	0.02	0.02	-0.00 (0.02)
Larceny	0.25	0.45	-0.19**	0.26	0.44	-0.19** (0.08)	0.18	0.21	0.44	-0.24** (0.10)
Motor vehicle theft	0.01	0.03	-0.02	0.01	0.03	-0.02 (0.01)	0.12	0.01	0.03	-0.02 (0.01)
Robbery	0.02	0.04	-0.02	0.02	0.04	-0.02 (0.01)	0.11	0.02	0.04	-0.03 (0.02)
Stolen property	0.01	0.02	-0.01*	0.01	0.02	-0.01* (0.01)	0.09	0.00	0.02	-0.02* (0.01)
<i>Crimes against society</i>										
Drug/narcotics violations	0.71	1.33	-0.62***	0.78	1.26	-0.48*** (0.17)	0.19	0.65	1.26	-0.61*** (0.21)
Gambling	0.00	0.00	-0.00	0.00	0.00	-0.00 (0.00)	0.00	0.00	0.00	-0.00 (0.00)
Child pornography	0.00	0.01	-0.01	-	-	-	-	-	-	-
Prostitution	0.03	0.04	-0.01	0.04	0.04	0.00 (0.02)	0.00	0.04	0.04	0.00 (0.02)
Weapon law violations	0.06	0.05	0.02	0.06	0.05	0.01 (0.02)	0.04	0.06	0.05	0.02 (0.02)
<i>All other crimes</i>										
Curfew	0.00	0.04	-0.04***	0.00	0.04	-0.04*** (0.01)	0.22^	-0.01	0.04	-0.05*** (0.02)

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
Disorderly conduct/ disturbing the peace	0.13	0.20	-0.06	0.14	0.19	-0.05 (0.04)	0.09	0.13	0.19	-0.07 (0.05)
Family offenses/ nonviolent	0.00	0.00	0.00	-	-	-	-	-	-	-
Liquor law/ drunkenness	0.87	1.94	-1.07***	0.94	1.87	-0.93*** (0.27)	0.22^	0.69	1.86	-1.18*** (0.34)
Other sex offenses	0.02	0.04	-0.01	0.03	0.04	-0.01 (0.02)	0.05	0.02	0.04	-0.01 (0.02)
Violation of a restraining/court order	0.06	0.08	-0.02	0.07	0.07	-0.01 (0.03)	0.02	0.07	0.07	-0.01 (0.04)
DUI	0.01	0.01	-0.00	-	-	-	-	-	-	-
Criminal trespassing	0.79	1.78	-0.99***	0.81	1.75	-0.94*** (0.21)	0.36^	0.56	1.75	-1.19*** (0.27)
All other offenses	0.46	1.07	-0.61***	0.49	1.04	-0.55*** (0.11)	0.35^	0.34	1.04	-0.70*** (0.13)
Traffic	0.04	0.07	-0.03	0.04	0.07	-0.03 (0.02)	0.11	0.03	0.07	-0.03 (0.03)
Marijuana open/ public consumption	0.05	0.05	-0.01	0.05	0.05	-0.01 (0.02)	0.04	0.04	0.05	-0.01 (0.02)
Warrant	1.90	2.85	-0.95***	1.93	2.82	-0.89*** (0.18)	0.36^	1.69	2.81	-1.13*** (0.23)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

TABLE C.4

Denver SIB Supportive Housing Program’s Impact on Jail Days and Stays One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Jail days</b>										
1 year post	45.45	66.34	-20.88***	46.14	65.65	-19.51*** (5.12)	0.25^	38.32	65.64	-27.32*** (7.07)
2 years post	80.02	110.58	-30.56***	81.29	109.29	-28.00*** (8.40)	0.22^	72.91	109.26	-36.35*** (10.80)
3 years post	98.63	140.20	-41.56***	100.48	138.34	-37.86*** (10.76)	0.24^	90.21	138.28	-48.07*** (13.54)
<b>Jail stays</b>										
1 year post	1.95	2.76	-0.81***	2.00	2.71	-0.71*** (0.15)	0.31^	1.72	2.71	-0.99*** (0.22)
2 years post	3.12	4.54	-1.42***	3.19	4.47	-1.28*** (0.25)	0.35^	2.81	4.47	-1.66*** (0.32)
3 years post	4.01	5.90	-1.89***	4.09	5.82	-1.73*** (0.33)	0.36^	3.62	5.81	-2.20*** (0.42)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# Public Safety

TABLE C.5

Denver SIB Supportive Housing Program’s Impact on Detox and Emergency Medical Service Responses One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Detox responses</b>										
1 year post	0.61	1.56	-0.95***	0.64	1.53	-0.90*** (0.35)	0.19	0.28	1.53	-1.26*** (0.49)
2 years post	1.54	4.35	-2.81***	1.59	4.30	-2.70*** (0.85)	0.24^	0.78	4.29	-3.51*** (1.11)
3 years post	2.38	6.75	-4.37***	2.38	6.75	-4.37*** (1.36)	0.25^	1.20	6.74	-5.54*** (1.74)
<b>EMS responses</b>										
1 year post	2.84	3.66	-0.82	2.96	3.53	-0.57 (0.60)	0.07	2.73	3.53	-0.80 (0.84)
2 years post	5.44	7.10	-1.67	5.66	6.88	-1.22 (1.21)	0.07	5.29	6.88	-1.59 (1.58)
3 years post	7.87	9.81	-1.94	8.08	9.59	-1.51 (1.53)	0.07	7.67	9.59	-1.92 (1.95)

Source: Denver Department of Public Safety.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# Mortality

TABLE C.6

Denver SIB Supportive Housing Program’s Impact on Mortality One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
1 year post	0.03	0.02	0.01	0.03	0.03	0.00 (0.01)	0.00	0.03	0.03	0.01 (0.02)
2 years post	0.07	0.05	0.02	0.07	0.05	0.02 (0.02)	0.08	0.08	0.05	0.03 (0.02)
3 years post	0.10	0.07	0.03	0.09	0.07	0.02 (0.02)	0.07	0.10	0.07	0.03 (0.03)

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

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. Three-year outcomes include outcomes measured during the COVID-19 pandemic. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# Prison

TABLE C.7

Denver SIB Supportive Housing Program’s Impact on Prison Days and Stays One, Two, and Three Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Prison days</b>										
1 year post	7.81	9.70	-1.89	7.39	10.12	-2.73 (3.35)	0.07	6.30	10.12	-3.82 (4.69)
2 years post	27.38	29.61	-2.23	25.84	31.15	-5.31 (7.79)	0.05	24.25	31.14	-6.89 (10.09)
3 years post	43.21	49.15	-5.94	40.80	51.58	-10.78 (11.04)	0.07	37.87	51.56	-13.69 (13.99)
<b>Prison stays</b>										
1 year post	0.08	0.08	0.00	0.08	0.08	-0.01 (0.02)	0.03	0.07	0.08	-0.01 (0.03)
2 years post	0.13	0.14	-0.01	0.12	0.14	-0.02 (0.03)	0.05	0.11	0.14	-0.03 (0.04)
3 years post	0.18	0.19	-0.01	0.17	0.20	-0.03 (0.04)	0.06	0.16	0.20	-0.03 (0.05)
<b>Any prison stays</b>										
1 year post	0.07	0.07	-0.00	0.06	0.08	-0.01 (0.02)	0.04	0.06	0.08	-0.02 (0.03)
2 years post	0.10	0.11	-0.01	0.09	0.11	-0.02 (0.02)	0.07	0.09	0.11	-0.03 (0.03)
3 years post	0.12	0.14	-0.01	0.12	0.14	-0.03 (0.02)	0.09	0.11	0.14	-0.03 (0.03)

Sources: Colorado Department of Corrections, Denver Police Department, and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# During the COVID-19 Pandemic

TABLE C.8

Impact of the COVID-19 Pandemic on Shelter Days and Visits

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Days with any shelter stays</b>										
Pandemic	32.52	77.93	-45.41***	31.49	78.96	-47.48*** (10.04)	0.36^	18.62	78.89	-60.27*** (12.81)
Pre-pandemic	17.58	39.91	-22.33***	17.48	40.00	-22.52*** (5.58)	0.30^	11.37	39.97	-28.59*** (7.14)
<b>Shelter visits</b>										
Pandemic	25.81	55.27	-29.46***	25.33	55.75	-30.41*** (6.57)	0.35^	17.09	55.70	-38.61*** (8.39)
Pre-pandemic	17.27	35.53	-18.26***	17.17	35.64	-18.47*** (4.98)	0.28^	12.16	35.61	-23.45*** (6.37)

Sources: Metro Denver Homeless Initiative, Denver Housing Authority, Colorado Division of Housing, Denver Police Department, and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE C.9

Impact of the COVID-19 Pandemic on Police Contacts and Arrests

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Arrests</b>										
Pandemic	0.54	0.75	-0.21*	0.55	0.74	-0.19* (0.10)	0.13	0.50	0.74	-0.24* (0.13)
Pre-pandemic	1.13	2.16	-1.02***	1.15	2.13	-0.98*** (0.21)	0.35^	0.89	2.13	-1.24*** (0.26)
<b>Custodial arrests</b>										
Pandemic	0.37	0.48	-0.11	0.38	0.48	-0.10 (0.08)	0.09	0.35	0.48	-0.13 (0.10)
Pre-pandemic	0.76	1.15	-0.39***	0.76	1.15	-0.39*** (0.13)	0.23^	0.65	1.15	-0.50*** (0.16)
<b>Noncustodial arrests</b>										
Pandemic	0.17	0.26	-0.10*	0.17	0.26	-0.09* (0.05)	0.13	0.15	0.26	-0.11* (0.06)
Pre-pandemic	0.37	1.01	-0.63***	0.39	0.98	-0.59*** (0.12)	0.35^	0.23	0.98	-0.75*** (0.15)
<b>Contacts</b>										
Pandemic	1.31	1.76	-0.45**	1.33	1.74	-0.40** (0.19)	0.15	1.22	1.74	-0.51** (0.25)
Pre-pandemic	2.25	4.29	-2.05***	2.30	4.24	-1.93*** (0.36)	0.39^	1.78	4.23	-2.46*** (0.47)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.



TABLE C.10

Impact of the COVID-19 Pandemic on Jail Days and Stays

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Jail days</b>										
Pandemic	6.95	13.56	-6.61**	6.76	13.75	-6.98*** (2.59)	0.20^	4.87	13.73	-8.87*** (3.28)
Pre-pandemic	19.70	26.66	-6.97*	19.86	26.50	-6.65* (3.79)	0.13	18.05	26.49	-8.44* (4.80)
<b>Jail stays</b>										
Pandemic	0.44	0.56	-0.12	0.44	0.56	-0.12 (0.08)	0.11	0.41	0.56	-0.15 (0.10)
Pre-pandemic	0.89	1.27	-0.38***	0.89	1.27	-0.38*** (0.13)	0.22^	0.79	1.27	-0.48*** (0.16)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE C.11

Impact of the COVID-19 Pandemic on Detox and Emergency Medical Service Responses

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Detox response</b>										
Pandemic	0.56	1.36	-0.80**	0.52	1.40	-0.87** (0.34)	0.20^	0.29	1.39	-1.11** (0.43)
Pre-pandemic	0.41	1.72	-1.31***	0.38	1.74	-1.36*** (0.38)	0.28^	0.01	1.74	-1.73*** (0.48)
<b>EMS response</b>										
Pandemic	1.74	1.98	-0.23	1.70	2.02	-0.31 (0.42)	0.05	1.62	2.02	-0.40 (0.53)
Pre-pandemic	1.82	2.20	-0.39	1.84	2.18	-0.34 (0.38)	0.06	1.75	2.18	-0.43 (0.49)

Source: Denver Department of Public Safety.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE C.12

Impact of the COVID-19 Pandemic on Mortality

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
Pandemic	0.03	0.02	0.01	0.03	0.02	0.00 (0.01)	0.00	0.03	0.02	0.01 (0.01)
Pre-pandemic	0.02	0.03	-0.01	0.02	0.03	-0.01 (0.01)	0.07	0.01	0.03	-0.02 (0.01)

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

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE C.13

Impact of the COVID-19 Pandemic on Prison Days and Stays

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Prison days</b>										
Pandemic	11.80	11.16	0.64	10.96	12.01	-1.05 (3.73)	0.02	10.67	12.01	-1.33 (4.73)
Pre-pandemic	15.15	15.57	-0.41	14.15	16.57	-2.42 (4.23)	0.04	13.49	16.57	-3.07 (5.36)
<b>Prison stays</b>										
Pandemic	0.07	0.06	0.01	0.07	0.07	-0.00 (0.02)	0.00	0.07	0.07	-0.00 (0.02)
Pre-pandemic	0.10	0.11	-0.01	0.09	0.11	-0.02 (0.02)	0.06	0.09	0.11	-0.02 (0.03)

Sources: Colorado Department of Corrections, Denver Police Department, and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. The pandemic time period is March 2020 through December 2020. The pre-pandemic time period is March 2019 through December 2019. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

# Appendix D. Additional Analyses

## Arrests

TABLE D.1

Role in Arrest Contact, General Occurrences

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
Arrestee	4.37	8.30	-3.94***	4.59	8.08	-3.49*** (0.55)	0.44 <sup>^</sup>	3.65	8.07	-4.43*** (0.70)
Suspect/subject	0.35	0.46	-0.12**	0.35	0.46	-0.11** (0.06)	0.14	0.32	0.46	-0.14* (0.07)
Victim	0.54	0.51	0.03	0.55	0.50	0.04 (0.08)	0.04	0.56	0.50	0.05 (0.10)
Witness	0.27	0.28	-0.00	0.27	0.28	-0.00 (0.04)	0.00	0.27	0.28	-0.00 (0.06)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

<sup>^</sup>/<sup>^^</sup>/<sup>^^^</sup> Small/medium/large effect.

TABLE D.2

## Reason for Arrest Contact, Street Checks

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
Acting suspicious	1.59	2.61	-1.02***	1.67	2.53	-0.86*** (0.24)	0.25^	1.44	2.52	-1.09*** (0.31)
Alley	0.17	0.41	-0.24***	0.18	0.40	-0.22*** (0.06)	0.30^	0.12	0.40	-0.28*** (0.07)
Around business	0.88	1.55	-0.66***	0.91	1.52	-0.61*** (0.14)	0.34^	0.74	1.52	-0.78*** (0.17)
Around residence	0.24	0.44	-0.20***	0.24	0.43	-0.19** (0.07)	0.19	0.19	0.43	-0.24** (0.09)
Arrested	0.21	0.29	-0.09*	0.21	0.29	-0.08* (0.05)	0.12	0.19	0.29	-0.10* (0.06)
Detox	1.21	2.63	-1.42***	1.24	2.60	-1.36*** (0.35)	0.29^	0.87	2.60	-1.73*** (0.45)
Disturbance	1.18	1.66	-0.49***	1.20	1.64	-0.44** (0.17)	0.19	1.08	1.64	-0.56** (0.22)
Drug/narcotic involvement	1.59	1.46	0.13	1.78	1.27	0.51 (0.68)	0.06	1.92	1.27	0.65 (0.86)
Fits description of crime in progress	0.17	0.17	0.00	0.17	0.17	0.00 (0.04)	0.00	0.17	0.17	0.01 (0.05)
High crime area	0.67	0.70	-0.03	0.72	0.65	0.07 (0.20)	0.03	0.74	0.65	0.09 (0.26)
Illegal camping	0.48	1.45	-0.96***	0.51	1.42	-0.90*** (0.22)	0.28^	0.27	1.41	-1.15*** (0.29)
Other	0.28	0.30	-0.03	0.28	0.30	-0.02 (0.05)	0.03	0.27	0.30	-0.03 (0.07)
Traffic	0.17	0.15	0.02	0.17	0.15	0.02 (0.04)	0.03	0.18	0.15	0.03 (0.06)
Welfare check, adult	1.06	1.70	-0.64***	1.10	1.66	-0.56*** (0.21)	0.20^	0.95	1.66	-0.71*** (0.26)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Sample for the treatment group is 363 people. Sample for the control group is 361 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

# Analysis at One, Two, Three, and Four Years after Randomization

## Homelessness and Housing

TABLE D.3

Denver SIB Supportive Housing Program's Impact on Shelter and Permanent Housing Assistance One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Days with any shelter stays</b>										
1 year post	84.16	108.85	-24.70***	84.87	108.14	-23.27*** (8.20)	0.16	71.96	108.14	-36.19*** (12.83)
2 years post	131.74	186.47	-54.73***	133.13	185.08	-51.95*** (14.17)	0.22^	111.91	185.06	-73.16*** (20.12)
3 years post	173.39	270.86	-97.47***	174.77	269.47	-94.70*** (23.11)	0.30^	149.09	269.31	-120.22*** (29.74)
4 years post	315.33	444.57	-129.24**	313.74	446.20	-132.46** (63.19)	0.31^	298.92	446.28	-147.36** (70.51)
<b>Shelter visits</b>										
1 year post	92.43	125.74	-33.31***	93.32	124.84	-31.52*** (9.88)	0.18	75.84	124.84	-49.00*** (15.49)
2 years post	144.93	218.07	-73.14***	146.50	216.50	-70.00*** (17.80)	0.24^	117.90	216.48	-98.58*** (25.28)
3 years post	191.70	323.12	-131.43***	193.83	320.98	-127.14*** (30.39)	0.31^	159.36	320.77	-161.41*** (39.09)
4 years post	362.94	567.91	-204.97**	360.17	570.73	-210.56** (88.12)	0.35^	336.62	570.86	-234.24** (98.43)
<b>Housing assistance days</b>										
1 year post	172.42	19.17	153.25***	172.71	18.87	153.84*** (6.93)	1.29^^^	258.06	18.86	239.20*** (7.71)
2 years post	389.66	46.26	343.40***	390.72	45.19	345.52*** (14.32)	1.45^^^	531.88	45.28	486.60*** (14.78)
3 years post	651.28	96.95	554.33***	653.94	94.28	559.66*** (26.41)	1.55^^^	805.69	95.20	710.48*** (26.41)



	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
4 years post	1006.56	170.95	835.61***	1023.97	153.19	870.78*** (61.83)	1.90^^^	1121.38	152.64	968.74*** (58.75)

**Sources:** Metro Denver Homeless Initiative, Denver Housing Authority, Colorado Division of Housing, Denver Police Department, and Denver Sheriff Department.

**Notes:** Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

## Criminal Justice System Involvement

TABLE D.4

Denver SIB Supportive Housing Program's Impact on Arrests and Police Contacts One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Arrests</b>										
1 year post	3.06	4.35	-1.29***	3.16	4.25	-1.09*** (0.23)	0.26^	2.55	4.25	-1.69*** (0.36)
2 years post	4.74	7.51	-2.77***	4.89	7.35	-2.46*** (0.39)	0.36^	3.89	7.35	-3.46*** (0.55)
3 years post	6.06	10.84	-4.78***	6.31	10.58	-4.28*** (0.66)	0.46^	5.15	10.58	-5.43*** (0.85)
4 years post	8.38	14.66	-6.28***	8.83	14.20	-5.37*** (1.55)	0.46^	8.23	14.20	-5.97*** (1.71)
<b>Custodial arrests</b>										
1 year post	1.84	2.34	-0.51***	1.89	2.29	-0.40*** (0.12)	0.18	1.67	2.29	-0.62*** (0.19)
2 years post	2.85	3.98	-1.13***	2.93	3.91	-0.98*** (0.20)	0.27^	2.52	3.91	-1.39*** (0.28)
3 years post	3.66	5.52	-1.86***	3.75	5.42	-1.68*** (0.33)	0.36^	3.29	5.42	-2.13*** (0.42)
4 years post	4.60	6.44	-1.84**	4.68	6.36	-1.67** (0.74)	0.29^	4.49	6.36	-1.86** (0.82)
<b>Noncustodial arrests</b>										
1 year post	1.22	2.01	-0.79***	1.27	1.96	-0.69*** (0.16)	0.24^	0.89	1.96	-1.07*** (0.25)
2 years post	1.88	3.52	-1.64***	1.97	3.44	-1.47*** (0.26)	0.31^	1.37	3.44	-2.07*** (0.37)
3 years post	2.40	5.32	-2.92***	2.56	5.16	-2.60*** (0.45)	0.39^	1.86	5.16	-3.30*** (0.57)
4 years post	3.78	8.22	-4.44***	4.15	7.85	-3.69*** (1.11)	0.43^	3.74	7.85	-4.11*** (1.24)
<b>Contacts</b>										
1 year post	7.62	10.08	-2.46***	7.91	9.79	-1.88*** (0.59)	0.18	6.87	9.79	-2.92*** (0.91)

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
2 years post	11.65	17.21	-5.57***	12.10	16.76	-4.67*** (1.01)	0.27^	10.19	16.76	-6.57*** (1.43)
3 years post	15.43	25.07	-9.65***	16.15	24.35	-8.20*** (1.68)	0.36^	13.92	24.33	-10.41*** (2.16)
4 years post	25.06	39.98	-14.92***	26.55	38.46	-11.91** (5.16)	0.34^	25.22	38.47	-13.25** (5.75)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE D.5

Denver SIB Supportive Housing Program’s Impact on Jail Days and Stays One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Jail days</b>										
1 year post	46.14	59.55	-13.41***	47.59	58.10	-10.51*** (4.05)	0.14	41.76	58.10	-16.34*** (6.22)
2 years post	78.46	104.86	-26.40***	80.58	102.74	-22.17*** (6.96)	0.17	71.52	102.74	-31.22*** (9.71)
3 years post	98.63	140.20	-41.56***	100.48	138.34	-37.86*** (10.76)	0.24^	90.21	138.28	-48.07*** (13.54)
4 years post	102.94	148.65	-45.71*	105.14	146.41	-41.26* (23.37)	0.23^	100.53	146.43	-45.90* (25.88)
<b>Jail stays</b>										
1 year post	2.07	2.60	-0.53***	2.12	2.55	-0.43*** (0.13)	0.19	1.88	2.55	-0.67*** (0.20)
2 years post	3.17	4.29	-1.12***	3.24	4.22	-0.98*** (0.20)	0.27^	2.84	4.22	-1.38*** (0.29)
3 years post	4.01	5.90	-1.89***	4.09	5.82	-1.73*** (0.33)	0.36^	3.62	5.81	-2.20*** (0.42)
4 years post	4.95	6.96	-2.01**	5.01	6.90	-1.89** (0.76)	0.31^	4.80	6.90	-2.11** (0.84)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

## Public Safety

TABLE D.6

Denver SIB Supportive Housing Program's Impact on Detox and Emergency Medical Service Responses One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Detox responses</b>										
1 year post	0.88	1.30	-0.42	0.86	1.32	-0.46* (0.25)	0.10	0.60	1.32	-0.71* (0.39)
2 years post	1.88	3.42	-1.54**	1.84	3.45	-1.61*** (0.59)	0.16	1.19	3.45	-2.26*** (0.84)
3 years post	2.38	6.75	-4.37***	2.38	6.75	-4.37*** (1.36)	0.25^	1.20	6.74	-5.54*** (1.74)
4 years post	3.61	12.56	-8.95***	3.75	12.42	-8.67*** (3.00)	0.40^	2.78	12.42	-9.64*** (3.36)
<b>EMS responses</b>										
1 year post	2.71	3.19	-0.48	2.73	3.16	-0.43 (0.45)	0.06	2.49	3.16	-0.68 (0.70)
2 years post	5.15	6.24	-1.09	5.19	6.21	-1.02 (0.93)	0.07	4.77	6.21	-1.44 (1.31)
3 years post	7.87	9.81	-1.94	8.08	9.59	-1.51 (1.53)	0.07	7.67	9.59	-1.92 (1.95)
4 years post	11.39	16.83	-5.44	11.58	16.63	-5.06 (3.73)	0.19	11.01	16.64	-5.62 (4.13)

Sources: Denver Police Department, Denver Sheriff Department, and Denver Department of Public Safety.

Notes: Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

## Mortality

TABLE D.7

### Denver SIB Supportive Housing Program's Impact on Mortality One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
1 year post	0.03	0.03	0.00	0.03	0.03	-0.00 (0.01)	0.00	0.03	0.03	-0.00 (0.02)
2 years post	0.07	0.05	0.01	0.07	0.05	0.01 (0.01)	0.04	0.07	0.05	0.01 (0.02)
3 years post	0.10	0.07	0.03	0.09	0.07	0.02 (0.02)	0.07	0.10	0.07	0.03 (0.03)
4 years post	0.12	0.07	0.05	0.11	0.08	0.03 (0.04)	0.10	0.12	0.08	0.04 (0.05)

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

**Notes:** Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. Three-year outcomes include outcomes measured during the COVID-19 pandemic. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

## Prison

TABLE D.8

Denver SIB Supportive Housing Program's Impact on Prison Days and Stays One, Two, Three, and Four Years after Randomization

	Unadjusted			Intent-to-Treat Regression Adjusted				Treatment-on-the-Treated IV Regression Adjusted		
	Treatment group mean	Control group mean	Difference	Treatment group mean	Control group mean	Difference	Standardized effect size	Treated group mean	Control group mean	Difference
<b>Prison days</b>										
1 year post	6.78	8.75	-1.97	6.64	8.90	-2.26 (2.25)	0.06	5.16		-3.73 (3.71)
2 years post	22.21	24.49	-2.28	21.75	24.95	-3.20 (5.08)	0.04	20.06		-4.89 (7.74)
3 years post	24.47	27.77	-3.30	24.17	28.07	-3.90 (6.25)	0.04	22.21		-5.85 (9.37)
4 years post	4.72	5.90	-1.19	4.73	5.89	-1.17 (3.26)	0.02	4.14		-1.75 (4.89)
<b>Prison stays</b>										
1 year post	0.07	0.07	0.00	0.07	0.07	-0.00 (0.02)	0.00	0.07		-0.00 (0.03)
2 years post	0.12	0.11	0.00	0.11	0.11	-0.00 (0.02)	0.00	0.11		-0.00 (0.03)
3 years post	0.10	0.11	-0.01	0.10	0.11	-0.01 (0.02)	0.02	0.09		-0.01 (0.03)
4 years post	4.72	5.90	-1.19	4.73	5.89	-1.17 (3.26)	0.02	4.14		-1.75 (4.89)
<b>Any prison stays</b>										
1 year post	0.06	0.06	-0.00	0.06	0.06	-0.00 (0.01)	0.00	0.06		-0.01 (0.02)
2 years post	0.09	0.09	-0.00	0.09	0.09	-0.00 (0.02)	0.00	0.09		-0.01 (0.02)
3 years post	0.07	0.08	-0.01	0.07	0.08	-0.01 (0.01)	0.04	0.07		-0.01 (0.02)
4 years post	0.01	0.01	-0.00	0.01	0.01	-0.00 (0.01)	0.00	0.01		-0.00 (0.01)

Sources: Colorado Department of Corrections, Denver Police Department, and Denver Sheriff Department.

**Notes:** Four years post-randomization, the sample is 100 people for the treatment group and 98 people for the control group. Three years post-randomization, the sample is 363 people for the treatment group and 361 people for the control group. Two years post-randomization, the sample is 534 people for the treatment group and 532 people for the control group. One year post-randomization, the sample is 569 people for the treatment group and 567 people for the control group. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.



# Effect by Provider

TABLE D.9

Denver SIB Supportive Housing Program’s Impact on Shelter Assistance Three Years after Randomization, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Days with any shelter stays	212.76	-65.41** (28.59)	200.65	-77.45** (34.05)	100.20	-152.57*** (28.53)	26.95	-226.34*** (45.29)
Shelter visits	238.77	-97.10** (38.88)	220.80	-114.97** (46.31)	104.01	-179.92*** (31.93)	17.63	-266.90*** (50.90)

Sources: Metro Denver Homeless Initiative, Denver Housing Authority, Colorado Division of Housing, Denver Police Department, and Denver Sheriff Department.

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

TABLE D.10

Denver SIB Supportive Housing Program’s Impact on Arrests and Police Contacts Three Years after Randomization, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Arrests	6.36	-4.15*** (0.70)	5.60	-4.91*** (0.83)	6.15	-3.30*** (0.96)	4.57	-4.89*** (1.47)
Custodial arrests	3.61	-1.71*** (0.38)	3.29	-2.02*** (0.45)	4.06	-1.19** (0.47)	3.49	-1.76** (0.72)
Noncustodial arrests	2.76	-2.44*** (0.44)	2.30	-2.89*** (0.53)	2.09	-2.11*** (0.66)	1.07	-3.13*** (0.99)
Arrests for crimes against people	0.38	-0.10 (0.07)	0.37	-0.12 (0.09)	0.53	-0.10 (0.11)	0.48	-0.15 (0.16)
Arrests for crimes against society	0.86	-0.54*** (0.21)	0.76	-0.64*** (0.24)	0.90	-0.07 (0.21)	0.87	-0.11 (0.31)
Arrests for crimes against property	0.55	-0.18 (0.12)	0.51	-0.21 (0.14)	0.43	-0.38*** (0.14)	0.25	-0.56*** (0.20)
Arrests for all other crimes	4.57	-3.33*** (0.58)	3.95	-3.94*** (0.69)	4.28	-2.74*** (0.86)	2.96	-4.07*** (1.31)
Contacts	17.88	-7.34*** (2.09)	16.53	-8.69*** (2.49)	12.77	-7.67*** (1.95)	9.09	-11.39*** (3.04)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For the Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

TABLE D.11

Denver SIB Supportive Housing Program’s Impact on Jail Days and Stays Three Years after Randomization, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Jail days	89.83	-41.50*** (11.85)	82.15	-49.14*** (13.93)	119.13	-30.15* (17.70)	104.65	-44.73* (25.94)
Jail stays	3.94	-1.76*** (0.38)	3.61	-2.08*** (0.45)	4.39	-1.27*** (0.47)	3.78	-1.89*** (0.72)

Sources: Denver Police Department and Denver Sheriff Department.

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^/^ Small/medium/large effect.

TABLE D.12

Denver SIB Supportive Housing Program’s Impact on Detox and Emergency Medical Service Responses Three Years after Randomization, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Detox responses	2.28	-4.21*** (1.41)	1.50	-4.99*** (1.68)	2.34	-3.58* (2.13)	0.62	-5.31* (3.18)
EMS responses	8.22	-1.77 (1.76)	7.89	-2.10 (2.08)	7.61	-0.30 (2.72)	7.46	-0.44 (4.04)

Sources: Denver Police Department, Denver Sheriff Department, and Denver Department of Public Safety.

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

TABLE D.13

Denver SIB Supportive Housing Program’s Impact on Mortality, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Deaths	0.09	0.01 (0.02)	0.09	0.01 (0.03)	0.10	0.04 (0.03)	0.12	0.06 (0.05)

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

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. Three-year outcomes include outcomes measured during the COVID-19 pandemic. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

TABLE D.14

Denver SIB Supportive Housing Program’s Impact on Prison Days and Stays, by Provider

	COLORADO COALITION FOR THE HOMELESS				MENTAL HEALTH CENTER OF DENVER			
	Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted		Intent-to-Treat Regression Adjusted		Treatment-on-the-Treated IV Regression Adjusted	
	Treatment group mean	Difference	Treated group mean	Difference	Treatment group mean	Difference	Treated group mean	Difference
Prison days	32.71	-18.49 (12.68)	29.29	-21.89 (15.02)	56.31	-4.34 (19.05)	54.23	-6.44 (28.18)
Prison stays	0.15	-0.04 (0.05)	0.14	-0.05 (0.05)	0.21	0.01 (0.06)	0.22	0.02 (0.09)
Any prison stays	0.15	-0.04 (0.05)	0.14	-0.05 (0.05)	0.21	0.01 (0.06)	0.22	0.02 (0.09)

Sources: Colorado Department of Corrections, Denver Police Department, and Denver Sheriff Department.

Notes: For Colorado Coalition for the Homeless, the sample for the treatment group is 235 people, and the sample for the control group is 302 people. For Mental Health Center of Denver, the sample for the treatment group is 128 people, and the sample for the control group is 191 people. Results were estimated using ordinary least squares. Robust standard errors are given in parentheses. The intent-to-treat 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 treatment-on-the-treated approach compared outcomes of those in the treatment group who were housed by the time the outcome was measured with those of the control group. The regression-adjusted models included the following control measures: age, gender, and race/ethnicity. In addition, the regressions control for days in jail, number of jail stays, number of arrests, and number of custodial arrests, all measured in the three years before randomization. IV = instrumental variables.

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

^/^^/^^^ Small/medium/large effect.

# Notes

- <sup>1</sup> Mayor's office, City and County of Denver, "Mayor Hancock Announces Plans to Connect Hundreds of Homeless to Supportive Housing," June 25, 2014, <https://denverfireonline.com/mayor-hancock-announces-plans-to-connect-hundreds-of-homeless-to-supportive-housing/>.
- <sup>2</sup> "Chronically Homeless," National Alliance to End Homelessness, updated March 2021, <https://endhomelessness.org/homelessness-in-america/who-experiences-homelessness/chronically-homeless/>.
- <sup>3</sup> In 2019, the co-responder program was expanded to create the Support Team Assisted Response team. More information is available at [https://wp-denverite.s3.amazonaws.com/wp-content/uploads/sites/4/2021/02/STAR\\_Pilot\\_6\\_Month\\_Evaluation\\_FINAL-REPORT.pdf](https://wp-denverite.s3.amazonaws.com/wp-content/uploads/sites/4/2021/02/STAR_Pilot_6_Month_Evaluation_FINAL-REPORT.pdf).
- <sup>4</sup> The investors are Arnold Ventures, the Ben and Lucy Ana Walton Fund of the Walton Family Foundation, the Colorado Health Foundation, the Denver Foundation, Living Cities Blended Catalyst Fund LLC, Nonprofit Finance Fund, the Northern Trust Corporation, and the Piton Foundation.
- <sup>5</sup> For more information on trauma-informed designs in MHCD's Sanderson Apartments, see "Sanderson Apartments," Mental Health Center of Denver, <https://mhcd.org/permanent-supportive-housing/>.
- <sup>6</sup> Colorado Governor Jared Polis, "Updated information on COVID-19," news release, March 5, 2020, <https://www.colorado.gov/governor/news/updated-information-covid-19>.
- <sup>7</sup> Second Judicial District, State Of Colorado (Denver County), "Administrative Order Regarding Court Operations under COVID-19 Advisory," March 20, 2020, [https://www.courts.state.co.us/userfiles/file/Court\\_Probation/02nd\\_Judicial\\_District/Denver\\_District\\_Court/Admin%20Order%20on%20Limited%20Court%20Operations%202020-01%20FINAL.pdf](https://www.courts.state.co.us/userfiles/file/Court_Probation/02nd_Judicial_District/Denver_District_Court/Admin%20Order%20on%20Limited%20Court%20Operations%202020-01%20FINAL.pdf).
- <sup>8</sup> Rae Solomon, "Emergency Preventative Housing Begins for Homeless Population in Denver," KUNC, April 16, 2020, <https://www.kunc.org/news/2020-04-16/emergency-preventative-housing-begins-for-homeless-population-in-denver#stream/0>.
- <sup>9</sup> Donna Bryson, "Head of Denver's Housing Department Says City Needs More Shelter Beds," Denverite, August 12, 2020, <https://denverite.com/2020/08/12/head-of-denvers-housing-department-says-city-needs-more-shelter-beds/>.
- <sup>10</sup> Óscar Contreras, "Denver City Council Approves Lease Agreement for New Homeless Shelter in the Park Hill Neighborhood," Denver7, updated September 1, 2020, <https://www.thedenverchannel.com/news/front-range/denver/denver-city-council-approves-lease-agreement-for-new-homeless-shelter-in-the-park-hill-neighborhood>; Danielle Chavira, "Denver Opens Emergency Overflow Shelters for Homeless," CBS Denver, October 26, 2020, <https://denver.cbslocal.com/2020/10/26/denver-homeless-shelter-wether/>.
- <sup>11</sup> Conor McCormick-Cavanagh, "Denver Clearing Homeless Encampments in Five Points Today," Westword, May 27, 2020, <https://www.westword.com/news/denver-republican-party-chair-pushing-homeless-encampment-ballot-initiative-11951317>; Michael Roberts, "Hancock: Denver Ready to 'Clean Up' Homeless Encampments," Westword, June 24, 2020, <https://www.westword.com/news/denver-ready-to-clean-up-homeless-encampments-mayor-hancock-says-11731683>; Conor McCormick-Cavanagh, "Denver Legal Motion Claims CDC Guidance Allows Encampment Sweeps," Westword, November 12, 2020, <https://www.westword.com/news/denver-argues-cdc-advice-allows-homeless-encampment-sweeps-11841268>.
- <sup>12</sup> Alan Gionet, "Following Camp Sweep, Questions Remain About Where Homeless Will Go," CBS Denver, July 29, 2020, <https://denver.cbslocal.com/2020/07/29/denver-homeless-sanctioned-camp/>.

- <sup>13</sup> Andrea Flores, "Sanctioned Camps Prepare to Open in Denver for Those Experiencing Homelessness," CBS Denver, December 4, 2020, <https://denver.cbslocal.com/2020/12/04/sanctioned-homeless-camp-denver-2/>.
- <sup>14</sup> Conor McCormick-Cavanagh, "Homelessness: Is Denver Ready for Safe-Parking Sites?" *Westword*, October 28, 2020, <https://www.westword.com/news/denver-could-soon-get-a-safe-parking-site-to-help-the-homeless-11832896>.
- <sup>15</sup> Donna Bryson, "Colorado Coalition for the Homeless Gets \$3.1 Million State Grant for Development near Stout Street Clinic," *Denverite*, August 28, 2020, <https://denverite.com/2020/08/28/colorado-coalition-for-the-homeless-gets-3-1-million-state-grant-for-development-near-stout-street-clinic/>.
- <sup>16</sup> Donna Bryson, "Some Veterans Will Start Moving Out of Homelessness and into an Apartment Complex in Aurora," *Denverite*, November 13, 2020, <https://denverite.com/2020/11/13/some-veterans-will-start-moving-out-of-homelessness-and-into-an-apartment-complex-in-aurora/>.
- <sup>17</sup> Moe Clark, "Here's How Officials Want to Use Denver's New Homelessness Resolution Fund," *Colorado Newslines*, December 7, 2020, <https://patch.com/colorado/denver/here-s-how-officials-want-use-denver-s-new-homelessness-resolution-fund>.
- <sup>18</sup> Andrew Kenney, "Colorado Won't Prioritize Homeless Shelters for Vaccines," *Colorado Public Radio News*, December 24, 2020, <https://www.cpr.org/2020/12/24/colorado-wont-prioritize-homeless-shelters-for-vaccines/>.
- <sup>19</sup> "People Experiencing Homelessness COVID-19 Dashboard," *Denver Public Health*, accessed February 15, 2021, <https://www.denverpublichealth.org/clinics-services/infectious-disease-clinic/coronavirus-disease-2019/monitoring-covid19-in-denver/people-experiencing-homelessness-covid19-dashboard>.



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## STATEMENT OF INDEPENDENCE

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