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Ali Jadidzadeh and Ronald D. Kneebone

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EXECUTIVE SUMMARY

Calgary is one of many cities internationally that has implemented a Housing First (HF) model for reducing homelessness. The HF model is based on the philosophy that stable housing, provided without preconditions, is a necessary prerequisite for helping someone deal with the issues that have caused them to become homeless. The original HF model, New York City's Pathways Housing First (PHF) model, has been closely studied with the use of controlled experiments involving clients whose personal characteristics match those for whom the model is designed. Based on the favourable evidence drawn from these controlled experiments, many jurisdictions have implemented HF programs. These include many programs that have drifted a considerable distance from the design of the Pathways model. Despite this drift in program design, HF programs continue to find support from governments comforted by the favourable results of controlled experiments.

In this paper we evaluate HF programs implemented in a real world, non-experimental setting over many years. Evaluating HF programs as they are implemented in large scale non-experimental settings is important for determining their practical usefulness to system operators and policymakers. Using richly detailed administrative datasets, we evaluate the success of HF programs as implemented in Calgary over the period 2012 to 2018. We identify the extent of the drift of these HF programs from the original Pathways model and show how the personal characteristics of people chosen for HF programs influence the rate of program success.

We find that HF programs in Calgary have proven very successful in graduating people to permanent housing and reducing the number of people returning to homelessness.

Fifty-five per cent of clients enrolled in HF programs, many of whom are dealing with the debilitating effects if mental health challenges, substance abuse, and prolonged periods of homelessness, remained housed in HF programs or graduate to permanent housing without case management support. We argue that this rate of success is comparable to that claimed for PHF programs evaluated under controlled conditions and for much shorter periods.

Although the devil is in his usual place when it comes to evaluating the success of any HF program, our results are suggestive that limited deviations from the Pathways model, such as those we observed in Calgary, do not significantly affect the rates of success reported from controlled experiments.

1. INTRODUCTION

The homeless-serving sector in Calgary has adopted a Housing First approach to addressing homelessness. The basic insight of the Housing First approach is that while individuals remain without a home they fare poorly in dealing with the issues leading them to experience homelessness in the first place. Stability of housing provides the foundation upon which people can resolve the issues that led to their housing instability. Rather than treating stable housing as the reward for resolving the issues leading to homelessness, housing is a tool provided to people to help them resolve those issues.

In Calgary, as elsewhere, the exact application of the Housing First (HF) approach is one that has been adapted to local conditions and constraints. As we show in this paper, the HF approach adopted in Calgary has not been completely faithful to the Pathways Housing First (PHF) model, the first application of the HF philosophy. Introduced in New York City in 1992, the PHF model has clearly defined criteria for access to its housing program (Tsemberis et al. 2004). Individuals must be homeless and have a psychiatric disability and/or substance-use disorder. Priority is given to the most vulnerable people, including the street homeless, women, seniors, and people who have physical health problems. The practices of many HF programs are not always consistent with those defined by Pathways.[1] This "drift" from the PHF model is the consequence of applying the general philosophy of HF to a broader population than originally envisioned. The application of HF in Calgary differs from the PHF model in ways that can be observed from who is chosen for the program.

A large literature exists that provides evaluations of the success of HF programs, but contributions to this literature are evaluations of HF programs that closely match the design of the PHF model and are derived in controlled settings. These contributions are, therefore, evaluating the results of controlled experiments conducted on programs designed for highly vulnerable people experiencing homelessness and dealing with a psychiatric disability and/or substance-use disorder.[2] The conclusion to be drawn from this literature is that the PHF model is effective at reducing homelessness when enrollment in the program is limited to people whose personal characteristics closely match those for whom the PHF program is designed.

But what of HF programs that have not strictly adhered to the PHF model? If HF models have drifted away from the PHF model, then references to the success of PHF programs cannot be used to justify investments in HF programs that may be substantial deviations from that model. As Pleace (2011) and O'Flaherty (2019) note, there is now a plethora of HF programs, some of which have drifted a good distance from the PHF model.[3] It is important

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1 This drifting away from the PHF model has prompted Pathways to issue detailed guidance on what it now refers to as Pathways Housing First services and to offer "fidelity visits" to ensure adherence to the PHF model. See https://www.pathwayshousingfirst.org/.

2 A prominent study in this literature is the At Home/Chez Soi demonstration project funded by the Canadian government to evaluate the effectiveness of the Housing First approach (Goering et al. 2014). The intent of the At Home/Chez Soi demonstration project was to test the Pathways model in Canada. Aubry, Nelson, and Tsemberis (2015) provide a review of the literature measuring outcomes of the At Home/Chez Soi study and other HF programs true to the PHF model.

3 The lauded success of HF in reducing homelessness in Finland, for example, is due to a program that repurposes shelters and hostels and can most accurately be described as a program designed to expand the stock of low-cost housing. It has little in common with the PHF model. For a description and a comparison to the PHF model, see Housing First in Finland (n.d.).

to determine whether variants of the HF approach work well and for whom.[4] Evaluating HF programs as they are implemented in a non-experimental setting is important for determining their practical usefulness to system operators and policy-makers.

In this paper we evaluate the success of housing programs as they have been implemented by the homeless-serving sector in Calgary over the period 2012 to 2019. Since 2007, housing programs in Calgary have been true to the philosophy of HF programs, namely that housing should be provided without preconditions (Gaetz, Scott and Gulliver 2013). They have not, however, necessarily remained faithful to the original PHF model. To assess the success of Calgary's housing programs, we employ linked administrative data sets describing the experiences of people with a wide variety of personal characteristics and homeless experiences. The length and breadth of the data available provide us with the opportunity to associate success in establishing and retaining housing with the personal characteristics and experiences of those chosen for HF programs. This is important because the "business case" presented to governments funding HF programs is that the substantial costs of these programs are wholly or in part offset by savings realized by the health and justice systems and government-funded shelter operators. The size of these cost offsets depends of course on whether people chosen for HF programs have high or low interactions with the health, justice and shelter systems. We report the frequency of these interactions by people chosen for HF programs and comment on the implications of these choices for cost savings realized by the rest of the social safety net.

Importantly, our evaluation of HF programs is measured over many years, which enables us to measure the success of HF program participants at maintaining housing over a much longer period than typically reported.[5] This longer period of assessment also enables us to identify the success program participants have in re-establishing housing outside of the homeless-serving sector. Finally, we use our results to comment on what they mean for meeting the goals of the federal government's National Housing Strategy (Government of Canada 2017). The National Housing Strategy specified a target, a time frame and a budget for addressing homelessness using the HF approach. This has implications for local planners charged with directing the resources provided to meet that target, time frame and budget. Understanding how success depends on the personal characteristics and the histories of homelessness of people eligible to be chosen for HF programs becomes important under constraints like these.

In the next section, we describe the data we have available for describing the characteristics of people chosen for HF programs in Calgary. These data are used to describe program participants by their age, sex, ethnicity and their experience with the homeless-shelter system. The data also provide measures of the mental health and substance addictions, and extent of interactions with the health and justice systems, by people chosen for HF programs. We use these data to show how these characteristics are associated with HF success rates and discuss what this means for making the choice of whom to house in HF programs.

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[4] Jadidzadeh and Falvo (2019) use survival analysis to identify which clients in Calgary's HF programs are most likely to self-report graduation from the program. Their data did not allow them to confirm whether clients reporting success returned to homelessness nor did it explain the nature of their HF success or failure.

[5] As noted by Aubry, Nelson, and Tsemberis (2015), the short length of follow up means that the success identified for the HF studies they review does not provide useful information about the longer-term outcomes of HF programs.

2. METHODOLOGY AND DATA

We conduct a secondary analysis of administrative data describing the use of homeless shelters and enrollment in HF programs by single adults in Calgary. The Calgary Homeless Foundation (CHF), the city's homeless-services system planner, collects and maintains individual-level information on Calgary's homeless-serving system of care. Two data sets are maintained. One, what we will refer to as *shelter data*, contains data describing how individuals use the city's shelter system. The other, what we will refer to as *Housing First data*, contains data describing individuals chosen to participate in HF programs. Individuals are identified by unique IDs, enabling staff at the CHF to link these two administrative data sets. These data were provided to us as anonymized data.

The Housing First data includes information on single adults chosen to participate in HF programs. The information is collected by CHF using a standardized form at move-in. The move-in assessment contains information on age, sex, ethnicity, employment, education level, mental and physical health status, history of family violence, and past interaction with the justice and health systems. All variables in the Housing First data are self-reported by the client but recorded by a case manager who typically has some familiarity with the participant, so there is some vetting of responses. These assessments are used to determine who is chosen for placement in an HF program. An exit assessment provides information on the reason for exiting the program and destination upon exit.[6] These data span the period from April 1, 2012 to March 31, 2019.

To provide sufficient time to evaluate a client's success in a program, the move-in data were truncated to limit our observations to participants who had the opportunity to stay in an HF program for at least one year. Thus, all new move-ins are excluded after and including April 1, 2018. The purpose of limiting our attention to the outcomes realized by clients who have stayed in an HF program for at least 12 months is to derive a fair assessment of the ability for HF programs to graduate clients into permanent housing and to prevent them from returning to homelessness. This has implications for how we define a rate of success for an HF program, something we discuss in more detail below. After truncating the data, the Housing First data set contains information on a total of 3,396 participants in HF programs spanning the period April 1, 2012 to March 31, 2018.

Table 1. List of non-housing programs and corresponding sample information

Program type	Number of programs	Unique individuals	No. of observations	Date (year:month)
Single-adult shelters	4	50,657	4,540,556	2005:05 to 2019:03
Family shelters	2	2,327	3,422	2009:01 to 2019:03
Detox	3	5,261	11,730	2012:04 to 2019:03
Outreach	10	23,362	543,115	2012:04 to 2019:03
Coordinated Access and Assessment	1	6,825	9,665	2013:09 to 2019:03
Safe Communities Opportunity and Resource Centre	1	11,913	42,206	2013:09 to 2019:03

[6] Further information and the forms themselves can be found here: http://calgaryhomeless.com/agencies/hmis/user-information-tools/.

The shelter data, summarized in Table 1, provide information on people using the shelter system. The shelter system includes all single-adult and family shelters, three detox programs, 10 outreach programs, Coordinated Access and Assessment (CAA), and the Safe Communities Opportunity and Resource Centre (SORCe). We link these data to the Housing First data described earlier to observe movements of HF program participants in and out of the homeless-serving system of care. In this way, we can observe how well HF participants are able to retain housing. These data are daily, spanning the period 2005–19, and contain information on the shelter use of 72,241 unique individuals.

3. THE CHARACTERISTICS OF HOUSING FIRST CLIENTS

In this section, we describe the characteristics of clients chosen for participation in Calgary's HF programs. We do so along several dimensions, beginning with demographic characteristics and history of shelter use.

3-1. WHO HAS BEEN HOUSED IN CALGARY'S HOUSING FIRST PROGRAMS?

Table 2 uses data from the Housing First data set to summarize the demographic characteristics and patterns of emergency-shelter use of the 3,396 single adult clients who were placed in Calgary's HF programs over the period April 1, 2012 to March 31, 2018.

More than half of the clients chosen for HF programs were male, more than half self-identified as Caucasian, and more than half were middle-aged (40–59 years old). Just over half of HF clients were clients with a history of shelter use. It is noteworthy that the percentages of people chosen for entry into HF programs as identified by sex, age and self-reported ethnicity is consistent with the percentage of each group identified as experiencing homelessness as determined by the Calgary's 2018 point-in-time count (Calgary Homeless Foundation 2018). For example, in 2018, 28 per cent of people experiencing homelessness self-identified as Indigenous, which was nearly the same percentage of clients chosen for entry into HF programs over the period 2012–18. Similarly, Jadidzadeh and Kneebone (2021) report that over the past four point-in-time counts in Calgary (2014–18), homelessness meant a stay in an emergency shelter for just over 50 per cent of single adults, which was nearly the same percentage of single adults with a history of shelter use that were chosen for participation in HF programs.

Table 2. Demographic composition and shelter history of HF clients at move-in

	Number	%
Gender:		
Male	2,119	62%
Female	1,277	38%
Ethnicity:		
Caucasian	2,153	63%
Indigenous	855	25%
Other	388	11%
Age Groups:		
Youth (16–19 years)	33	1%
Young adult (20–39 years)	1,211	36%
Middle age (40–59 years)	1,877	55%
Senior (60 years and older)	272	8%
Clients by history of shelter use:		
No shelter history	1,513	45%
Shelter users	1,883	55%
Transitional	1,041	55%
Episodic	701	37%
Chronic	141	7%

Of those HF clients with a history of shelter use, just over half (55 per cent) can be classified as "transitional" users of shelter: clients who, in Calgary over the period 2005–19, averaged just 1.9 episodes of shelter stay, averaging just 23.5 days per episode.[7] "Episodic" users of shelters, those who averaged 11.6 episodes averaging 30.6 days per episode, defined 37 per cent of HF clients with a history of shelter use. Finally, only seven per cent of HF clients chosen from clients with a history of shelter use could be classified as "chronic" shelter users.[8] Those individuals averaged 5.3 episodes over the period 2005–19, with an average episode lasting 762.8 days.

3-2. HF CLIENTS BY ADDICTION AND MENTAL HEALTH CHARACTERISTICS

Prior to entry into HF programs, clients are asked: "Do you have an ongoing mental health condition?" and "Have you recently (in the past 12 months) been released from a mental health facility?" With respect to addiction, clients are asked: "Do you have an addictions/substance abuse issue?" and "Have you recently (in the past 12 months) been released from a residential addiction facility?"

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[7] See the appendix, where we report the results of a K-means cluster analysis of the emergency-shelter use of 50,657 single adults in Calgary over the period 2005–19. Single adults found in the Housing First data who are also found in the shelter data are identified as transitional, episodic, or chronic users of shelters based on their pattern of shelter use relative to all single adult users of shelters.

[8] Benjaminsen (2018) studies the Danish homelessness strategy as applied from 2009 to 2016 and finds a similar result. He reports that only 11 per cent of those enrolled in Housing First programs were chronic shelter users.

Table 3. Self-Reported mental health and addiction status prior to program entry[9]

		Mental health		
		No	**Yes**	**Total**
Addiction	**No**	14%	14%	**29%**
	Yes	24%	48%	**71%**
	Total	**38%**	**62%**	**100%**

Calculations presented in Table 3 summarize the answers for these questions using a two-way contingency table. Only 14 per cent of clients chosen for HF programs self-reported neither a mental health problem nor a problem with addiction. The remaining 86 per cent reported either an addiction or an issue with their mental health. Nearly half (48 per cent) of clients chosen for HF reported issues with both mental health and addiction.

Table 4 shows the self-reported addiction and mental health status of HF participants according to their primary residence prior to entry into an HF program. For those entering an HF program from a shelter, we report data by the client's history of shelter use. Interestingly, the table shows that chronic shelter users chosen for HF programs had less exposure to substance abuse and suffered less from mental health than any other category of client; less than people chosen from non-shelters and less than transitional and episodic shelter users. This is evidence that homeless-sector planners were focused on high-acuity individuals experiencing homelessness in Calgary, regardless of their length of stay in the shelter system.

Table 4. Association among primary residence of housed clients with substance abuse and mental health

	Substance abuse		Mental health		Both		Sample size
From non-shelters	916	63%	863	60%	602	42%	1,445
From shelters	1,452	78%	1,195	64%	983	53%	1,868
Transitional	744	72%	676	65%	526	51%	1,034
Episodic	618	89%	461	66%	417	60%	696
Chronic	90	65%	58	42%	40	29%	138

Note: "Both" in the third column means those with a history of both addiction and mental health issues. Missing data resulted in the loss of 68 observations on the substance abuse and mental health of people with a history of shelter use and 15 people without a history of shelter use.

[9] The Housing First data set is missing the self-reported mental health and addiction histories for 83 of the 3,396 clients. The calculations in this table are based on the self-reported mental health and addiction status of 3,313 individuals.

3-3. HF CLIENTS BY HEALTH- AND JUSTICE-SYSTEM INTERACTIONS

More of the characteristics of those chosen to participate in Calgary's HF programs can be defined by looking at their level of interaction with the health and justice systems prior to move-in. At the time of entry into an HF program, clients were asked to self-report the number of hospital visits, the number of emergency room visits, and the number of interactions with authorities they identified as being police over the previous 12 months. The questions asked were: "How many times have you been hospitalized in the past 12 months?", "how many times have you been to a hospital emergency room in the past 12 months?" and "how many times have you had interactions with the police in the past 12 months?"

Table 5. Health- and justice-system interactions of HF clients prior to program entry[10]

	Minimum	1st quartile	Median	Mean	3rd quartile	Maximum
Hospital visits	0.00	0.00	0.00	1.78	2.00	150.00
Emergency department visits	0.00	0.00	1.00	2.25	2.00	150.00
Police interactions	0.00	0.00	0.00	5.35	2.00	365.00

Calculations in Table 5 report summary statistics on the number of self-reported interactions with the health and justice systems over the 12 months prior to entry into a housing program. These statistics, particularly those showing the distribution of responses by quartile, show that relatively few individuals report the majority of interactions. The large number of police interactions may be explained in part by the fact that self-reported incidence can include those with authority figures clients may erroneously identify as police. For example, they may include interactions with police officers, transit police, bylaw-enforcement officers, and security guards or "mall cops."

3-4. VARIETIES OF HF PROGRAMS

Finally, the Housing First data set describes the allocation of clients into place-based and scattered-site programs. Place-based programs provide clients housing in apartment-style locations with support services on site. In Calgary, only 30 per cent of HF clients (n=1,024) were housed in this way. Scattered-site programs allow clients to rent in private units, with support services offered at off-site locations. Most HF clients in Calgary (70 per cent, n=2,372) were housed through scattered-site programs.[11]

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[10] Answers regarding hospital and emergency department (ED) visits are missing for 144 (of 3,396) housing clients. Answers regarding police interactions are missing for 147 clients. The calculations in this table are based on the self-reported hospital and ED visits of 3,252 individuals and the self-reported police interactions of 3,249 individuals.

[11] Anderson-Baron and Collins (2019) note that the dependence on scattered-site programs has created challenges for HF programs in Calgary due to high rents and low vacancy rates. This has required HF administrators to devote considerable resources to improving and maintaining positive relationships with landlords supportive of HF programs. Their results serve as a reminder that local housing and labour market conditions can play important roles in the success of HF programs.

4. SUCCESS, FAILURE, AND IN PROGRESS

In this section, we turn to the question of identifying the success of the HF approach implemented in Calgary over the period 2012–18. This involves observing and evaluating HF outcomes.

4-1. VARIETIES OF SUCCESS

To determine exit outcomes of HF participants, we use the responses to the HF exit-interview questions "Why is the client leaving the program?" and "What is the client's destination?" Table 6 identifies the various types of outcomes and shows the number of clients falling into each category.

Table 6. Housing First outcomes, all clients (2012–17)

	Number	Rate
Graduated to Housing	**820**	**24%**
Completed program	810	
Family re-unification	10	
In Progress	**752**	**22%**
Return to Homelessness	**1,265**	**37%**
System return	830	
Re-enter	358	
Non-compliance	39	
Criminal activity/violence	38	
Unknown	**431**	**13%**
Unknown/Disappeared	102	
Referred to another program	184	
Needs could not be met	55	
Nonpayment of rent	37	
Disagreement with rules/persons	17	
Moved out of service area	15	
Other	21	
Died	**128**	**4%**
Total	**3,396**	

Of the 3,396 clients enrolled in HF programs in Calgary since 2012, 820 (24 per cent) no longer required housing support (case management) and had moved into a more permanent form of housing. They are identified as having *graduated* to housing.[12] Almost all these clients graduated to housing after completing the HF program. Ten clients found housing by reuniting with family members.

[12] Graduation is similarly defined in Wong et al. (2006) and in Gaetz, Scott, and Gulliver (2013).

If a client remains in an HF program, that person is housed but continues to receive case management. If such a client has stayed housed for at least one year without exiting, they are identified as being in progress. At the end of the 2012–17 period, 752 clients (22 per cent) were in progress. There is still uncertainty with respect to whether these clients will graduate to a more permanent form of housing.

We identify clients as having *returned to homelessness* if they: reappear in the shelter data ("system return"); re-enter an HF program 30 days or more after they exited ("re-enter"); were found by case managers to have been in non-compliance with the HF program; or were removed from the program due to criminal activity or violence.13 Over the period 2012–17, there were 1,265 HF clients (37 per cent) who we describe as returning to homelessness in one of these ways.

Of the 3,396 clients enrolled in HF programs in Calgary over the period 2012–17, 431 clients (13 per cent) exited from an HF program in a way we are unable to identify ("unknown"). These clients include those who were referred to other non-HF programs or moved out of the service area, possibly to reunite with family in housing or to re-enter homelessness. Finally, 128 clients (four per cent) died while enrolled in an HF program.

It is important to recognize that program participants entered HF programs over the entire 2012–18 period. Early entrants were able to be observed over several years to see whether they returned to homelessness or whether they graduated to housing We could not observe later entrants for as long. Those who entered an HF program in 2017, for example, could be observed only until the end of 2018. Those individuals could be observed for up to two years depending on when in 2017 they entered the housing program. On the other hand, we were able to observe those who entered an HF program in 2012 for up to seven years (to the end of 2018) depending, again, on when in 2012 they entered the housing program. Figure 1 reports stay and exit rates by year of entry into an HF program as well as those for the entire period of analysis.

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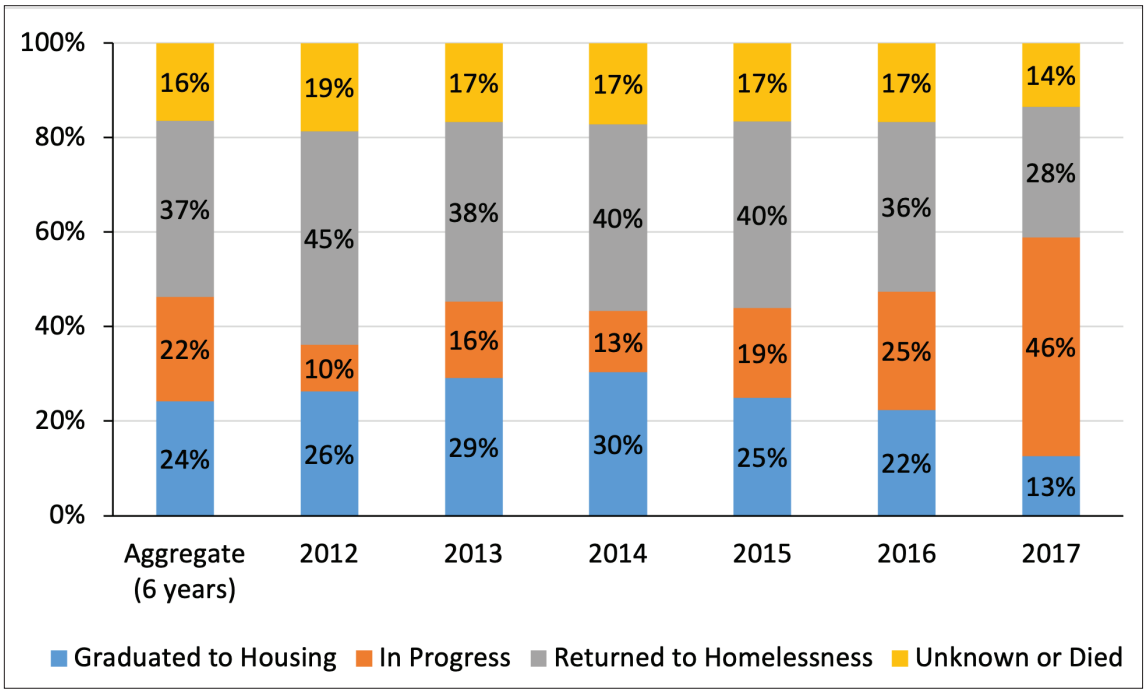
[13] To determine the *system return* we, arbitrarily, assume the following cases as a return after the first exit from the Housing First programs: The exited client stays five days or more at the shelters; she/he ends up on the Coordinated Access and Assessment (CAA) triage list to be considered for re-housing; she/he utilizes the detox programs three times or more; she/he utilizes the outreach programs five times or more; and finally she/he receives housing services or shows up five times or more at the Safe Communities Opportunity and Resource Centre (SORCe).

Figure 1. Outcomes by year of entry into Housing First[14]



The results reported in Figure 1 show that as time passes, the percentage of clients identified as being "in progress" steadily falls with those clients either returning to homelessness or graduating to housing. An assessment of program outcomes requires many years of observation.

4-2. RATES OF SUCCESS

We define rates of success by identifying the number of HF clients able to maintain housing relative to the number of HF clients for whom we can identify clear outcomes. Thus, we omit from our measured rates of success those clients who died while in program or who exited the program in a way we are unable to classify as remaining housed or returning to homelessness.[15] As reported in Table 6, using results calculated over the entire period 2012–17, this is a total of 559 clients, meaning we are defining rates of success for 2,837 HF clients. At the end of the 2012–17 period, 1,572 of 2,837 clients (55 per cent) remained housed either in HF programs or in permanent housing. Over this same period, 45 per cent of 2,837 clients had returned to homelessness.

[14] The years identified on the horizonal axis define 12-month periods starting April 1. Thus, the label 2012 defines the 12-month period from April 1, 2012 to March 31, 2013, and similarly for other years.

[15] This is consistent with how the results of the At Home/Chez Soi demonstration project have been evaluated. See, for example, Aubry et al. (2015) who, in a 12-month follow-up to the demonstration project, define the rate of success of program participants at maintaining housing as the number of participants still in housing relative to the number of program participants whose housing outcomes they could continue to observe.

These measures of success (remained housed in HF programs or in permanent housing) and failure (returned to homelessness) can also be reported by cohort. Thus, clients admitted to an HF program in:

- 2012 realized a success rate of 44 per cent after up to seven years of observation;
- 2013 realized a success rate of 54 per cent after up to six years of evaluation;
- 2014 realized a success rate of 52 per cent after up to five years of evaluation;
- 2015 realized a success rate of 52 per cent after up to four years of evaluation;
- 2016 realized a success rate of 57 per cent after up to three years of evaluation;
- 2017 realized a success rate of 68 per cent after up to two years of evaluation.

After four years of observation, approximately 50 to 55 per cent of HF clients successfully maintain housing.

4-3. RATES OF SUCCESS BY CLIENT CHARACTERISTICS

Table 7 reports, by demographic and other characteristics of clients chosen for HF programs, how clients with these characteristics fared in those programs. We report the success rate for each client characteristic.[16] As explained in the previous section, this is defined as the percentage of HF clients who by the end of the 2012–18 period had remained housed, either by graduating to permanent housing or by remaining in an HF program (in progress), relative to the total number of clients for whom we have a clear indication of success or failure.

The calculations in Table 7 show that female clients realized a slightly higher success rate than males, the result of both a higher rate of graduation to permanent housing and a lower rate of return to homelessness. When identified by ethnicity, clients who self-identified as Indigenous[17] exhibited a lower rate of success than clients who self-identified as Caucasian or "other." This is due to a lower graduation rate into permanent housing, a lower rate of retention in HF programs, and a higher rate of return to homelessness. The highest success rate by age group was for seniors (aged 60 years and above) who realized a 73-per-cent success rate. This was mainly due to a higher rate of retention in HF programs and a lower rate of return to homelessness relative to other age groups.

For clients without a history of either addiction or mental health conditions, the success rate in HF was high (68 per cent). Clients who reported histories of both addiction and mental health conditions realized a success rate noticeably less than that. This was due to both a low rate of success of graduating into permanent housing and a high rate of return to homelessness. In comparing clients with a history of one of either addiction or mental health conditions, the former is associated with a noticeably lower rate of success than the latter. This is mainly due to a relatively higher rate of return to homelessness.

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[16] In a recent publication, Hanauer et al. (2021) report results from a small, controlled experiment involving 69 clients enrolled in an HF program in Indiana. Clients were limited to those experiencing chronic homelessness and who self-reported substance abuse and/or mental health disorders. The authors sought to identify client characteristics most likely to be associated with securing housing after six months. They report older clients in better mental health and who recently received care for acute conditions were most likely to find success.

[17] Indigenous is a broad category within which people self-identified as First Nations, Métis or Inuit.

Table 7. Housing First outcome rates based on demographics and program types

	Graduated to housing	In progress	Returned to homelessness	Unknown or died	Success rate
Gender:					
Male	23%	23%	40%	14%	54%
Female	26%	21%	33%	21%	59%
Ethnicity:					
Caucasian	26%	24%	34%	16%	60%
Indigenous	16%	18%	47%	18%	42%
Other	29%	22%	34%	15%	60%
Age groups:*					
Youth (16–19)	33%	9%	33%	24%	56%
Young adult (20–39)	23%	19%	41%	17%	50%
Middle age (40 –59)	25%	23%	37%	16%	56%
Senior (60+)	23%	35%	22%	20%	73%
Having a history of addiction and/or mental health:**					
None	37%	18%	26%	20%	68%
Both	19%	23%	43%	16%	49%
Only mental health	32%	21%	27%	20%	66%
Only addiction	24%	19%	42%	15%	51%
Health-system interactions:***					
Below 3rd quartile	26%	23%	35%	16%	58%
3rd quartile and above	20%	19%	42%	19%	48%
Legal-system interactions:					
Below 3rd quartile	27%	21%	35%	17%	58%
3rd quartile and above	17%	25%	42%	16%	50%
Programs by spatial distribution of housing:					
Place-based	17%	27%	34%	22%	57%
Scattered site	27%	20%	39%	14%	55%
History of shelter use:					
No history of shelter use	32%	25%	24%	19%	70%
History of shelter use	18%	20%	48%	14%	44%
Transitional	25%	23%	35%	18%	58%
Episodic	8%	14%	68%	10%	24%
Chronic	14%	31%	43%	11%	51%
All Clients:	**24%**	**22%**	**37%**	**17%**	**55%**

Calculations are based on 3,396 individuals unless otherwise stated.

* Housing First data are missing the date of birth for three clients (n=3,393).

** Housing First data are missing the self-reported mental health and addiction history for 83 clients (n=3,313).

*** Health-system interactions include both emergency room and overnight hospital stays.

The success rate for clients whose reported number of interactions with the health-care system prior to entry into a housing program was below the third quartile of all interactions was noticeably better than that for clients whose number of interactions were in the third quartile and above. A similar result is observed with respect to self-reported client interactions with police. Fewer interactions with police prior to entry into a housing program were associated with a higher rate of housing success, particularly in terms of graduating to permanent housing. Clients placed in programs employing scattered-site housing realized virtually the same rate of housing success as clients placed in programs employing place-based housing. Where the two groups differed is with respect to graduation to permanent housing, where clients housed in scattered-site programs fared much better.

Comparing all HF clients who had a history of shelter use (n=1,883) to all those without such a history (n=1,513), the rate of success for those without a history of shelter use (70 per cent) was much higher than those whose history of homelessness involved using emergency shelters (44 per cent). For those clients whose shelter history can be described as transitional (few stays of short duration), the success rate (58 per cent) was much higher than for clients with whose shelter history can be described as episodic (24 per cent) and somewhat higher for chronic shelter users (51 per cent). Transitional shelter users realized much higher rates of success in graduating to permanent housing than either episodic or chronic shelter users.

5. DISCUSSION

5-1. REVEALED PREFERENCES

The characteristics of clients chosen for HF programs can reveal what targets program administrators are trying to hit. As noted earlier, the demographic characteristics of people chosen for HF programs correspond closely to the demographic shares of people experiencing homelessness in Calgary. Similarly, half of HF clients were chosen from people with a history of emergency-shelter use, the same proportion reported in point-in-time counts as the number of people experiencing homelessness in Calgary. Finally, among HF clients with a history of shelter use and so for whom homeless chronicity can be measured, the majority chosen for HF programs can be identified as experiencing transitional homelessness, with only a minority of those chosen seen to have experienced episodic or chronic homelessness. This is consistent with what we found in our cluster analysis reported in the appendix. By all these measures then, these is no evidence to suggest administrators sought to take advantage of higher rates of success for some demographic groups, for those with no history of shelter use, or for those with infrequent shelter use, as ways of bolstering HF program success rates by selectively choosing clients.

On the other hand, as reported in Table 3, in Calgary only 14 per cent of individuals chosen for HF programs self-reported neither a substance abuse nor an issue with mental health. Sixty-two per cent of clients reported mental health issues, 71 per cent reported problems with addiction, and 48 per cent reported problems with both. We do not have information of the prevalence of substance abuse or mental health issues in the population of people experiencing homelessness in Calgary, but Quayum et al. (2021) report that, based on a survey of participants in the 2018 national point-in-time count, just over a quarter of

respondents reported addiction or substance abuse sufficiently severe as to cause housing loss.[18] Homeless Hub (n.d.) suggests that 30 to 35 per cent of people experiencing homelessness have issues with their mental health and 20 to 25 per cent suffer from concurrent disorders of both severe mental health issues and addictions. Using these estimates, and assuming they apply to the incidence of addiction and mental health issues among the population of people experiencing homelessness in Calgary, the data reported in Table 3 suggest program administrators chose to significantly overrepresent clients with mental health and addiction issues in HF programs. This overrepresentation suggests administrators were endeavouring to adhere, perhaps to a considerable degree, to the principles of the PHF model and target mid- and high-acuity individuals.

The choices made by HF administrators matter for external observers. These external observers include the health and justice systems, with which people experiencing homelessness interact, and the emergency-shelter system that provides shelter when they fail to establish housing.

5-2. HF CHOICES AND SHELTER OPERATORS

Advocates for HF programs emphasize that there are significant cost savings to be had when formerly homeless people can secure housing. This is most obviously the case for shelter operators, as people chosen for HF programs no longer require their services while in the program and, possibly, permanently. The size of these cost savings depends on which of their shelter clients are chosen for HF programs. For example, as reported in Table A1 in the appendix, successfully housing the relatively few shelter users who are chronic users has the potential for closing a third of shelter beds in Calgary. As shown in Table 2, however, nearly half of HF clients have no history of shelter use and those chosen for HF programs who had a history of shelter use were rarely chronic users of shelters.

5-3. HF AND THE HEALTH AND JUSTICE SYSTEMS

For the health and justice systems, the benefits of successful HF programs come in the form of fewer interactions with people who were formerly homeless, and in the form of the better health outcomes that are expected to be the result of HF programs.[19] Choosing clients with fewer interactions with the health and justice systems increases the rate at which clients graduate to housing, but lowers the benefits realized by the health and justice systems. On the other hand, if we presume that the benefits to the health and justice systems of HF programs are greatest when people with greater-than-average mental health and addiction issues are chosen as clients, then the choice of HF programs to overrepresent people with mental health and addiction issues may maximize the savings to be realized by the health and justice systems. What matters for determining the benefits of HF to the health and justice systems is both the frequency of interactions and the seriousness of those interactions, a total effect we cannot identify in our data.

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[18] This estimate is consistent with McCarty et al. (1991), who note that credible estimates suggest that alcohol abuse affects 30 to 40 per cent and drug abuse 10 to 15 per cent of homeless persons.

[19] For estimates of these cost savings, see Jadidzadeh, Falvo and Dutton (2020) and Jadidzadeh et al. (2022).

5-4. HF AND FUNDING

Near the end of our sample period, in 2017, the Canadian federal government released its National Housing Strategy (NHS), in which it announced its intention to provide funding over 10 years in support of reaching a target to reduce chronic homelessness by 50 per cent (Government of Canada 2017). The NHS defined those who are chronically homeless as "individuals, often with disabling conditions (e.g., chronic physical or mental illness, substance abuse problems), who are currently homeless and have been homeless for six months or more in the past year (i.e., have spent more than 180 cumulative nights in a shelter or place not fit for human habitation)" (Employment and Social Development Canada 2014). This definition of chronic homelessness overlaps the shelter-use characteristics of people we identify as episodic and chronic users of shelters reported in Table A1 in the appendix.

Defining homelessness-reduction targets for people with specific characteristics has implications for local planners charged with directing the resources provided to them to meet the NHS target. The CHF, through the choices we observe that it made over the 2012–18 period, revealed its preference to focus on clients whose experience with homelessness includes dealing with addiction and mental health problems. This means it was making choices consistent with what would be the new government program. However, it did not emphasize, perhaps as much as the new federal funding program might prefer, people whose experience with homelessness can be considered chronic. The calculations reported in Table 7 suggest that a greater emphasis on enrolling people who are chronically homeless will lower program success rates and make it more challenging for the federal homelessness-reduction target to be met.

Our evidence suggesting that HF success rates are lowered when greater focus is placed on enrolling people whose history of homelessness can be described as chronic is consistent with results reported by Chen, Cooper and Rivier (2021). They find that the likelihood of exiting from an emergency shelter into housing varies negatively with the length of time someone spends in shelters, and interpret their results as reinforcing the need for early interventions. This is consistent with the idea that longer shelter stays may gradually worsen one's opportunities, one's addictions or one's mental health challenges, making it more and more difficult to transition to housing and perhaps to succeed in HF programs.[20]

5-5. EVALUATING RATES OF SUCCESS

Finally, it is worth commenting on the rates of success we have reported. We have set a high bar for defining the rate of success for an HF program. We have done so by truncating our Housing First data to ensure we only observe clients who have had the opportunity to stay in an HF program for a minimum of 12 months. Thus, we impose a higher bar than that applied in measuring success in the At Home/Chez Soi study, where maintaining housing for six months was identified with program success (Goering et al. 2014). As noted

[20] See, for example, Fountain et al. (2003) who report that in London (U.K.), 80 per cent of respondents indicated they had started using at least one new drug only after becoming homeless. Similarly, a large longitudinal study of 1,399 homeless adults in California found that, while 45.6 per cent had no medical or psychiatric illness upon becoming homeless, 9.3 per cent of these became alcohol misusers, 4.4 per cent became users of illegal drugs and 0.9 per cent were hospitalized in a psychiatric facility within 12 months (Winkleby and White 1992).

previously, researchers interested in the longer-term success of the At Home/Chez Soi study have waited 12 months before assessing program success (Aubry et al. 2015). In our study we have been able to evaluate the success of housing programs over an even longer period than this. This has enabled us to identify not only the number of clients able to maintain housing, but to also identify the number able to graduate to permanent housing without case managements supports.

We know of no studies like ours that examine a community-based, non-experimental HF program in such a way as to determine the rate of success over a long period of time at enabling formerly homeless people to remain in HF programs or to meet the still-higher standard of establishing permanent housing without ongoing case management.[21] We believe that it is impressive for such a program to be able to claim that 55 per cent of its formerly homeless and mainly high-acuity clients—48 per cent of whom self-reported as having both mental health issues and substance abuse problems and 71 per cent reported as having one or the other—remain housed even after a long period of assessment. We believe it is particularly impressive for such a program to claim that nearly a quarter of clients would eventually be able to establish permanent housing where they would no longer require ongoing case management.

6. CONCLUSION

We have provided descriptions of the characteristics of people in Calgary who have been chosen to participate in HF programs. We have described them by demographic characteristics (age, gender and ethnicity), by their history of emergency-shelter use, and by their history of interactions with the health and justice systems. We have found that HF programs in Calgary have chosen people for participation in programs largely in proportion to their representation in the population of people experiencing homelessness. The one exception is the decision of program administrators to overrepresent clients with addiction and/or mental health conditions in HF programs. The overrepresentation of clients with addiction and/or mental health conditions is consistent with the approach of the PHF model of Housing First and may represent an effort of planners in Calgary to adhere to that program. On the other hand, the relative lack of emphasis on choosing clients whose histories of homelessness can be described as chronic indicates some drift from that model.

The size of our data sets and the span of time over which we observe HF outcomes have enabled us to measure rates of success not typically available from controlled experiments of short-lived interventions. It has allowed us to identify rates of success not only in keeping people housed, but in moving people who were formerly homeless into permanent housing without ongoing case management. The choices made in Calgary on the question of whom to house in Housing First programs and the high rates of success of those programs offer useful lessons to program administrators elsewhere.

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[21] A direct comparison of our success rate with that reported for the At Home/Chez Soi study is difficult. Goering et al. (2014) report that, in the last six months of the At Home/Chez Soi study, 62 per cent of HF participants remained housed all the time, an improvement over the 31 per cent of the time that the treatment-as-usual cohort remained housed all the time. They cannot report what percentage of clients remained housed beyond that six-month period of assessment.

We have provided evidence showing that the success of HF programs in meeting targets for homelessness reduction depends on the demographic composition of clients, their history of emergency-shelter use, and their history of addiction and mental health conditions. We have also shown how the cost savings to the health and justice systems that are claimed for HF programs are sensitive to who is chosen for entry into those programs. In all these ways, we show that choosing whom to house in HF programs depends on targets, goals and budgets.

There is sometimes agreement and sometimes conflict between the goal of maximizing HF success rates and maximizing cost savings to the wider system of social supports. For example, maximizing HF success rates may mean preferencing clients with no or minimal shelter histories. But that choice also minimizes the number of emergency-shelter beds that can be closed, and so minimizes the benefits of HF programs for shelter operators. On the other hand, preferencing clients with histories of addiction and mental health, while lowering HF success rates, is complementary to reducing the costs borne by the health and justice systems.

Finally, it is interesting to note that, because HF success rates vary by client characteristics and experiences, when government funding is tied to both a target for reducing homelessness and to the characteristics of clients to be housed, it can place constraints on HF administrators that may make it challenging to satisfy both conditions simultaneously. Adjusting who is chosen to be housed in Housing First may be an unintended consequence of imposing such targets.[22] Whether and how administrators might respond to such a quandary, and the appropriate design of homelessness-reduction targets, are the subjects of future research.

[22] Evidence that perhaps this has been the case and that communities have chafed under restrictions placed on the design of their HF programs comes from an evaluation of the homelessness-reduction strategy contained within the NHS and conducted in 2018 (Government of Canada 2018). That evaluation noted that "The program uses a definition of 'chronic' and 'episodic' which is perceived by communities as relatively restrictive and at times challenging to implement at the community level. By increasing the flexibility of who can access Housing First, the program would likely achieve better alignment with community priorities and increase its reach to serve greater proportions of the homeless population who are currently not included."

APPENDIX

CLUSTER ANALYSIS OF HOMELESS-SHELTER USE

Using the single-adult shelter data set, we employ *k-mean* clustering analysis to identify three unique clusters, each with standardized values for total days stayed and episodes in single-adult shelters. The unit of observation is daily. A typical observation might identify person X as entering the shelter system on January 21, exiting on March 25, re-entering on August 13, etc. The methodology involves examining the information provided on entries and exits by every individual using the shelter system over an entire, appropriately defined sample period. Based on these histories, individual shelter users are classified as transitional, episodic, or chronic users of shelters. The separation of individuals into these groups is determined endogenously. That is, the method "clusters" individuals into groups in such a way that the shelter use of adults allocated to each of the groups is clearly different in length of stay and frequency of use.

Applying the clustering methodology requires the clarification of some definitional issues. One must, for example, define a shelter "episode." We follow the practice in the literature of defining an episode as a period in a shelter that is separated from another period in a shelter by at least 30 days. The approach also requires truncating the data to ensure that, following first entry into the shelter system, enough time is allowed to ensure that an individual's pattern of shelter use is accurately assessed. Thus, we omit from the sample those clients whose first entry into the shelter system falls within a year of the end of our sample period.

We identify three clusters defining shelter users according to the frequency and length of stays in shelter. Following the terminology common in this literature, shelter users are identified as transitional, episodic and chronic. Building on the seminal study by Kuhn and Culhane (1998), many studies have employed this methodology to address the patterns of shelter users for different cities in the U.S., Canada and Europe, and for different demographic groups. Canadian studies include those by Aubry, Farrell, Hwang and Calhoun (2013), Kneebone et al. (2015), Rabinovitch et al. (2016), and Jadidzadeh and Kneebone (2018).

Table A1. Patterns of shelter stays in single-adult shelter users in Calgary (2005–19)

Clusters	Transitional	Episodic	Chronic
Sample Size	44,780	4,912	965
Percentage of Clients	88.4	9.7	1.9
Average number of episodes	1.90 (1.38)	11.58 (4.86)	5.32 (4.33)
Average number of days	45.42 (101.94)	309.35 (273.30)	1,900.61 (785.78)
Average number of days per episode	23.50 (59.19)	30.55 (31.85)	762.84 (888.05)
No. of occupied shelter beds	2,033,943	1,519,518	1,834,090
Percentage of occupied shelter beds	37.8	28.2	34.0

Note: Numbers in the parentheses are standard deviations.

Table A1 identifies the number of unique emergency-shelters clients whose shelter stays can be classified as transitional, episodic or chronic.[23] Transitional shelter users are those, on average, experiencing short stays (45.42 days) and a small number of episodes (1.90 episodes) in shelter use over an 11-year period. Episodic users are those experiencing relatively short stays (309.35 days), but a large number of episodes (11.58 episodes). Chronic shelter users are those with long stays (1,900.61 days) and a relatively small number of episodes (5.32 episodes). An important implication of these patterns for occupying shelter beds is that 34 per cent of shelter beds are occupied by just 1.9 per cent of shelter users identified as chronic users over the sample period. This pattern of results, in which the majority are transitional users of shelters and only a small minority are chronic users, is a common finding in this literature.

[23] All t-tests comparing the three clusters were highly supportive of the conclusion that the characteristics of transitional, episodic and chronic shelter users reported in Table A1 are significantly different. Results of these hypothesis tests are available on request.

ABOUT THE AUTHORS

Dr. Ali Jadidzadeh is an adjunct Professor at the University of Tehran and a Fellow at the School of Public Policy. The focus of his research is on understanding and developing effective solutions to social policy problems. His current research investigates the effective design of Housing First and emergency shelter programs intended to benefit and support those who are without permanent housing. His other research interests include issues related to monetary policy and energy prices.

Dr. Ron Kneebone is the Scientific Director of the Social Policy and Health research division at The School of Public Policy at the University of Calgary. His current research examines problems of homelessness and poverty. His other research interests include issues related to provincial government finances.

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The School of Public Policy
University of Calgary, Downtown Campus
906 8th Avenue S.W., 5th Floor
Calgary, Alberta T2P 1H9
Phone: 403 210 3802

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