NATIONAL FINAL REPORT

Cross-Site At Home/Chez Soi Project

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NATIONAL AT HOME/CHEZ SOI FINAL REPORT
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AT HOME/CHEZ SOI FINAL REPORT **CROSS-SITE**

TABLE OF CONTENTS

TABLE OF CONTENTS

MAIN MESSAGES

FROM THE CROSS-SITE AT HOME/CHEZ SOI PROJECT

After successfully engaging and following more than 2,000 participants for two years, the results for At Home/Chez Soi, the world's largest trial of Housing First (HF) in five Canadian cities, can now be reported.

1 **Housing First can be effectively implemented in Canadian cities of different size and different ethnoracial and cultural composition.** HF provides immediate access to permanent housing with community-based supports. The HF program participants in this study were provided with an apartment of their own, a rent supplement, and one of two types of support services: those with high needs received Assertive Community Treatment (ACT) and those with moderate needs received Intensive Case Management (ICM). HF programs were operated in a manner that was consistent with the HF model standards, but were tailored to best fit the local contexts in the five cities.

2 **Housing First rapidly ends homelessness.** Across all cities, HF participants obtained housing and retained their housing at a much higher rate than the treatment as usual (TAU) group. In the last six months of the study, 62 per cent of HF participants were housed all of the time, 22 per cent some of the time, and 16 per cent none of the time; whereas 31 per cent of TAU participants were housed all of the time, 23 per cent some of the time, and 46 per cent none of the time. Findings were similar for ACT and ICM participants. Among participants who were housed, housing quality was usually better and more consistent in HF residences than TAU residences. We now know more about the small group for whom stable housing was not achieved by HF, and about some additions or adaptations that may work better for them.

3 **Housing First is a sound investment.** On average the HF intervention cost $22,257 per person per year for ACT participants and $14,177 per person per year for ICM participants. Over the two-year period after participants entered the study, every $10 invested in HF services resulted in an average savings of $9.60 for high needs/ACT participants and $3.42 for moderate needs/ICM participants. Significant cost savings were realized for the 10 per cent of participants who had the highest costs at study entry. For this group, the intervention cost was $19,582 per person per year on average. Over the two-year period following study entry, every $10 invested in HF services resulted in an average savings of $21.72.

4 **It is Housing First, it is not housing only.** Most participants were actively engaged in support and treatment services through to the end of follow-up. The general shift away from crisis and institutional services to community-based services that was seen at 12 months continued for the duration of the study. Many individuals with previously unmet needs were able to access appropriate and needed services during the study.

5 **Having a place to live with supports can lead to other positive outcomes above and beyond those provided by existing services.** Quality of life and community functioning improved for HF and TAU participants, and improvements in these broader outcomes were significantly greater in HF, in both service types. Symptom-related outcomes, including substance use problems and mental health symptoms, improved similarly for both HF and TAU. However, since most existing services were not linked to housing, there was much lower effectiveness in ending homelessness for TAU participants.

6 **There are many ways in which Housing First can change lives.** While the HF groups, on average, improved more and described fewer negative experiences than the TAU groups, there was great variety in the changes that occurred. Understanding the reasons for differences of this kind will help to tailor future approaches.

7 **Getting Housing First right is essential to optimizing outcomes.** Housing stability, quality of life, and community functioning outcomes were all more positive for programs that operated most closely to HF standards. This finding indicates that investing in training and technical support can pay off in improved outcomes. Other important implications for policy are discussed in this report. In addition, lessons learned have now been incorporated into a toolkit to guide the planning and implementation of effective Housing First programs in Canada.

EXECUTIVE SUMMARY

FROM THE CROSS-SITE AT HOME/CHEZ SOI PROJECT

Homelessness is a serious public policy concern. Each year, up to 200,000 people are homeless in Canada — at an estimated cost of seven billion dollars.

In Canada, our current response relies heavily upon shelters for emergency housing and emergency and crisis services for health care. Typically, individuals who are homeless must first participate in treatment and attain a period of sobriety before they are offered housing. This is a costly and ineffective way of responding to the problem. Alternatively, Housing First (HF) is an evidence-based intervention model, originating in New York City (Pathways to Housing), that involves the immediate provision of permanent housing and wrap-around supports to individuals who are homeless and living with serious mental illness, rather than traditional "treatment then housing" approaches. HF has been shown to improve residential stability and other outcomes. Given the difference in social policy and health care delivery between the U.S. and Canada, it is vital that evidence about homelessness interventions be grounded in the Canadian context.

In 2008, the federal government invested $110 million for a five-year research demonstration project aimed at generating knowledge about effective approaches for people experiencing serious mental illness and homelessness in Canada. In response, the Mental Health Commission of Canada (MHCC) and groups of stakeholders in five cities (Vancouver, Winnipeg, Toronto, Montréal, and Moncton) implemented a pragmatic, randomized controlled field trial of HF. The project, called At Home/Chez Soi, was designed to help identify what works, at what cost, for whom, and in which environments. It compared HF with existing approaches in each city. The examination of quality of life, community functioning, recovery, employment, and related outcomes was unprecedented, as was the inclusion of two types of support services for individuals with high needs (Assertive Community Treatment, or ACT) and moderate needs (Intensive Case Management, or ICM). The study also used a standardized model of HF, conducted assessments of program fidelity to document the quality of program implementation, introduced quality assurance processes, and provided extensive training, technical assistance, and support.

A randomized trial design was used in the project because it could evaluate the effects of HF in groups that were virtually identical except for the intervention itself, thus giving the strongest evidence for policy. The study also included a qualitative research component to complement and better inform the quantitative results (mixed methods design). Data collection began in October 2009 and ended in June 2013. 2,148 individuals were enrolled for two years of follow-up and of those, 1,158 received the HF intervention. Follow-up rates at 24 months were between 77 and 89 per cent, which are excellent for a vulnerable and highly transient population.

This document reports on the main findings of the study for the full two years of follow-up. It builds on the At Home/Chez Soi Interim Report (September 2012), which presented the preliminary one-year results. Reports containing greater detail about local findings and implications for local practice and policy are also available for each of the five cities.

Program Implementation

The study demonstrated that HF can be implemented successfully in different Canadian contexts, using both ACT and ICM models for the service component. It also demonstrated that HF can be effectively adapted according to local needs, including rural and smaller city settings such as Moncton and communities with diverse mixes of people (e.g., Aboriginal or immigrant populations) like Winnipeg or Toronto.

Study Participants

Most At Home/Chez Soi study participants were recruited from shelters or the streets. The typical participant was a male in his early 40s, but there was a wide diversity of demographic characteristics. Women (32 per cent), Aboriginal people (22 per cent), and other ethnic groups (25 per cent) were well-represented. The typical total time participants experienced homelessness in their lifetimes was nearly five years. Participants were found to have had multiple challenges in their lives that contributed to their disadvantaged status. For example, 56 per cent did not complete high school, and almost everyone was living in extreme poverty at study entry. All had one or more serious mental illness, in keeping with the eligibility criteria of the study, and more than 90 per cent had at least one chronic physical health problem. Using qualitative interviews with a representative sample and quantitative measures, we have documented the early origins of homelessness in the life histories of participants, which very often included early childhood trauma and leaving home to escape abuse.

Housing Outcomes

HF was found to have a large and significant impact on housing stability. A substantial majority of participants maintained stable housing during the study period, indicating that the attention paid to client choice and service team support quickly resulted in securing desirable and affordable housing. In the last six months of the study, 62 per cent of HF participants were housed all of the time, 22 per cent some of the time, and 16 per cent none of the time; whereas 31 per cent of treatment as usual (TAU) participants were housed all of the time, 23 per cent some of the time, and 46 per cent none of the time. These significant gains in obtaining and retaining housing held for participants in both the ACT and ICM versions of HF. Over the course of the study, TAU participants spent significantly more time in temporary housing, shelters, and on the street than HF participants. The most dramatic effects were found in the first year, where the HF program "jumpstarts" getting housed. Many HF participants spoke of the importance of "having their own place" and described their housing as a safe and secure "base" from which to move forward with their lives. One noted, *"The security is a really big thing. I can just let go and I have no problem just lying down for 12 hours and I don't have to move or be on guard."* (Vancouver participant)

Clients with Additional or Other Needs

HF worked well for clients with diverse ethnocultural backgrounds and circumstances. We now know more about the small group (about 13 per cent) for whom HF as currently delivered did not result in stable housing in the first year. This group tended to have longer histories of homelessness, lower educational levels, more connection to street-based social networks, more serious mental health conditions, and some indication of greater cognitive impairment. Alternative approaches to addressing the unique needs of these clients were tried in some cities. Recommendations on these approaches will be available in the Housing First implementation toolkit.

Housing quality

Our field research teams systematically measured housing quality using standard ratings in a random sample of 205 HF and 229 TAU residences. The HF residences (unit and building combined) were found across sites to be of significantly greater quality and of much more consistent quality than those that TAU participants were able to get on their own or using other housing programs and services. There were moderate site differences in these findings.

Costs and Service Use

One of the advantages of stable housing for a group who have high levels of chronic mental and physical illness is the possibility of shifting their care from institutions to the community. Community services including visits from the HF service providers and phone contacts increased as intended and, particularly for the high needs group, inpatient and crisis-type service use fell. Most of the service use changes reflect appropriate shifts from crisis services to community services, but for some participants, involvement in the program likely resulted in the identification of unmet needs for more acute or rehabilitative levels of care in the short term. These shifts in service use create cost savings and cost offsets that can be taken into account when making decisions about where to target future programs and how to avoid future cost pressures.

The economic impact of HF was also studied, considering all costs incurred by society. HF cost $22,257 per person per year on average for high needs participants, and $14,177 per person per year for moderate needs participants. Program costs include staff salaries and expenses such as travel, utilities, and rent supplements. HF for high needs participants is more costly mainly because of the higher staff:participant ratio. Over the two-year period after study entry, HF services resulted in average reductions of $21,375 in service costs for high needs participants, and $4,849 for moderate needs participants. Thus, every $10 invested in HF resulted in an average savings of $9.60 for high needs participants and $3.42 for moderate needs participants. This net savings arises from a combination of decreases in the costs of some services (cost offsets), and increases in the costs of others. For high needs participants, the main cost offsets were psychiatric hospital stays, home and office visits to health or social service providers, and jail or prison stays. For moderate needs participants, the main cost offsets were shelter stays and stays in single room accommodations with support services. For moderate needs participants, cost increases were seen in general hospital stays in psychiatric units.

For the 10 per cent of participants with the highest service use costs at the start of the study, HF cost $19,582 per person per year on average. Receipt of HF services resulted in average reductions of $42,536 in the cost of services compared to usual care participants. Thus every $10 invested in HF services resulted in an average savings of $21.72. The main cost offsets were psychiatric hospital stays, general hospital stays (medical units), home and office visits with community-based providers, jail/prison incarcerations, police contacts, emergency room visits, and stays in crisis housing settings and in single room accommodations with support services. For this group, two costs increased: hospitalization in psychiatric units in general hospitals and stays in psychiatric rehabilitation residential programs.

Quality of Life, Functioning, Mental Health, and Substance Use Outcomes

Living in shelters and on the streets requires that enormous energy be put into basic survival. The circumstances are not conducive to participating in treatment and managing health issues. On average, participants had been homeless in their lifetime for just less than five years when they enrolled in the study, and many had a history of poverty and disadvantage reaching back to early childhood. For some, the road to recovery after housing can be rapid, but for most it is more gradual and setbacks are to be expected. In general, the study documented clear and immediate improvements, followed by more modest continuing ones for the remainder of the study period. Some outcomes, including mental health and substance use problems, improved by a similar amount in both HF and TAU. These improvements may be due to services that can be accessed by both groups, or may represent natural improvement after a period of acute homelessness. However, gains in participant-reported quality of life and observer-rated community functioning were significantly greater in HF (for both ACT and ICM) than in TAU. These differences were relatively modest, but still represent meaningful improvement in outcomes for HF compared to existing services, and indicate that HF can impact broader outcomes. One Toronto participant described their experience as: *"I am really proud of myself, with a lot of help I was...able to...not really get back to where I used to be, but in a better place."* (Toronto participant)

While the HF groups on average improved more on the major outcomes, the individual responses in both HF (ICM and ACT) and TAU over time were enormously diverse. Across all sites in the qualitative interviews, 61 per cent of the HF participants described a positive life course since the study began, 31 per cent reported a mixed life course, and eight per cent reported a negative life course. In contrast, only 28 per cent of TAU reported a positive life course, 36 per cent reported a mixed life course, and 36 per cent reported a negative life course. The study generated and consolidated rich information about different sub-populations, diverse responses, and how to successfully adapt the approach.

Housing stability, quality of life, and community functioning outcomes were all more positive for programs that operated most closely to HF standards, including the provision of rent subsidies. HF model standards were measured on 38 items in five domains for 12 programs at two time points in the study (early implementation and one year later). Overall there was strong fidelity to HF standards (with all items rated above 3 on a 4-point scale), and this improved over time (71 per cent in round one and 78 per cent in round two). This indicates that supporting all components of the HF model and investing in training and technical support can pay off in improved outcomes.

"I am really proud of myself, with a lot of help I was... able to...not really get back to where I used to be, but in a better place." (Toronto participant)

CHAPTER 1
INTRODUCTION

After successfully engaging and following more than 2,000 participants in five Canadian cities for two years, the results for the At Home/Chez Soi project, the world's largest trial of Housing First (HF), can now be reported.

This Final Report documents the main findings of the study, funded by Health Canada and implemented by the Mental Health Commission of Canada (MHCC), for the full two years of follow-up. Its key questions include the following:

- **Can HF be implemented in Canada, and can it respond to local and regional contexts and the unique needs of different sub-populations?**
- **What are the characteristics of individuals who participated in the At Home/Chez Soi study?**
- **How has HF affected participants' ability to get housing and stay stably housed, and what are participants' experiences with housing?**
- **What is the impact of HF on health, social, and justice/legal system service use and costs? Does continued investment in HF, as one innovative solution to chronic homelessness, make sense from social and economic perspectives?**
- **How has HF affected participants' quality of life, community functioning, and mental and physical health?**

This report builds on the Interim Report (September 2012), which presented the preliminary results after one year of follow-up. Final Reports are also available for each of the five cities that contain greater detail about local findings and implications for local practice and policy.

Across Canada, up to 200,000 people are homeless annually.

The Policy Issue

Homelessness is a serious public policy concern in Canada and elsewhere. Across Canada, up to 200,000 people are homeless annually[1]. Homelessness has a significant impact on individuals, families, and communities in Canada. It takes a toll on people's physical health, mental health, and quality of life. It can significantly reduce a person's life expectancy[2] and can exacerbate existing mental health problems. It also negatively affects a person's chances to engage in employment and positive family and social relations, and impacts the ability of communities to benefit from the full participation of all citizens. In contrast, access to safe, affordable, secure housing has been shown to improve people's health and wellbeing and reduce stress[3].

Homelessness is often the result of a mix of structural factors, and service and system failures, as well as social and individual factors (e.g., a lack of affordable housing and suitable support services, mental health and addictions issues, poverty, stigma and discrimination, violence and trauma).[4] In addition, certain populations experiencing homelessness (e.g., families, women, seniors, youth, new immigrants, Aboriginal people[5]) have unique needs requiring tailored solutions. Those with mental health issues, who are among all of these populations, are particularly vulnerable to housing instability and homelessness, and can become trapped in a cycle of poverty and poor health. It has been projected that up to 67 per cent of people who were homeless reported having a mental health issue in their lifetime,[6] which can increase the complexity and duration of their homelessness, resulting in many becoming chronically homeless.[7]

Housing First supports people who are homeless and living with mental illness by combining the immediate provision of permanent housing with wrap-around supports.

Housing First principles:

1. Immediate access to housing with no housing readiness conditions
2. Consumer choice and self-determination
3. Recovery orientation
4. Individualized and person-driven supports
5. Social and community integration

Housing First

While there are examples of programs across Canada that are helping to end homelessness and improve access to affordable housing, generally, our current response to homelessness relies heavily upon shelters for emergency housing and acute care services, such as emergency room visits, for health care. This is a costly and ineffective way of responding to the issue. In Canada, it is estimated that homelessness costs seven billion dollars each year in health care, justice and social service use.[8] Housing First (HF) is one of the effective approaches that is being implemented in Canada. It is an evidence-based intervention, originating in New York City (Pathways to Housing), that involves the immediate provision of permanent housing and wrap-around supports to individuals who are experiencing homelessness and living with serious mental illness. The HF approach is grounded in principles of immediate access to housing with no housing readiness conditions, consumer choice and self-determination, recovery orientation (including harm reduction), individualized and person-driven supports, and social and community integration.[9]

Housing First is becoming well-known internationally and it has been implemented in some Canadian cities with positive outcomes; for example, Toronto's Streets to Homes program is a well-established Canadian program based on the HF approach. However, most of the evidence to date on HF has been based on programs in large American cities. Given the differences in health care and social policies between the U.S. and Canada, it is vital that evidence about the HF approach be grounded in the Canadian context. As a result, in 2008, the federal government invested $110 million for At Home/Chez Soi, a five-year research demonstration project to help understand the potential of HF in Canadian communities.

Drawing from the Canadian-based evidence produced by At Home/Chez Soi to date, the federal government announced, in its 2013 budget, an investment of $600 million over five years (beginning in 2014) through the Homelessness Partnering Strategy. This investment will support communities to reduce homelessness and facilitate the implementation of the Housing First approach across Canada.

> "*We have the mental health commission showing us that intensive work with these people helps keep them housed and on track,*" the mayor said. "*We have a successful model here, and we're going to keep pressing the government on more investment in this approach.*"

Source: Vancouver Sun Gregor Robertson makes mental health Vancouver's new priority. Read more: http://bit.ly/1jAovg5

CHAPTER 2
STUDY BACKGROUND AND IMPLEMENTATION OF THE HOUSING FIRST INTERVENTION IN THE **FIVE CITIES**

In this chapter, we describe how the study was implemented, including adaptation of the model to local contexts and the processes used to ensure service quality. The chapter addresses the question: **Can HF be implemented in Canada, and can it respond to local and regional contexts and the unique needs of different sub-populations?**

At Home/Chez Soi Background

To learn more about how to address homelessness for Canadians living with serious mental health issues and the potential of Housing First (HF) in particular, the federal government invested $110 million in 2008 for a five-year research demonstration project. In response, the Mental Health Commission of Canada (MHCC) and stakeholders in five cities (Vancouver, Winnipeg, Toronto, Montréal and Moncton) implemented a pragmatic randomized controlled field trial of HF (see Appendix A for study design details). The project, called At Home/Chez Soi, was designed to help identify what works, at what cost, for whom, and in which environments. It compared HF with existing services in each city. The inclusion of two levels of intensity of support services for individuals with high needs (Assertive Community Treatment or ACT) and moderate needs (Intensive Case Management or ICM) was unprecedented. The study also used a standardized model of HF; extensive training, technical assistance, and support was provided; assessments of program fidelity to document the degree of program implementation were conducted; and quality assurance processes were instituted. In addition to the overall study questions, research teams in each of the five cities investigated additional questions of local interest and importance.

The Research Process

In order to provide the strongest evidence for policy decision-making, At Home/Chez Soi used a randomized controlled trial design. This is an optimal research design for measuring the impacts of an intervention, with all other things that could affect outcomes being equal. In the study we collected quantitative data (in the form of numbers and scales) and also extensive qualitative data (in the form of text and stories) to complement and inform the quantitative results. Interviews were conducted with participants at entry to the study and every three months for up to two years. In addition, information was collected from the programs and from national and provincial administrative data sources for health and justice service use. Results in this report are mostly based on housing stability, service use and costs, community functioning, and quality of life, over the two years of the study as reported by participants and observed by the research team. More detailed and extensive findings are being reported in scientific publications, and further findings, especially those from administrative data sources, will be reported in subsequent publications.

The Intervention - Housing First and Treatment as Usual

More than 2,000 eligible participants were first grouped into high needs and moderate needs categories, based on mental health and service use history, and then randomized into the applicable ACT or ICM HF intervention group or the associated treatment as usual group (TAU). In addition, each site was offered the opportunity to develop a locally adapted HF intervention (often called the "Third Arm Intervention"), which resulted in some unique team and program structures in each city.

Participants in the intervention group received housing and services based on the HF model, which provides immediate access to permanent housing. Housing was provided through rent subsidies, with participants paying up to 30 per cent of their income towards their rent. Participants had a choice around the housing and supports they needed, with a requirement that participants meet with a member of their support team at least once a week. The majority of the housing was provided through private market rental units, although, where available, participants were also offered a choice of supportive and/or social housing. Individualized, recovery-oriented supportive services were provided according to two levels of need by ACT (high need) and ICM teams (moderate need).

- The ACT programs were provided by multi-disciplinary teams that included a psychiatrist, nurse, and peer specialist among others. The ACT teams had a staff to participant ratio of 1:10. The ACT teams met daily, and staff was available seven days per week with crisis coverage around the clock.[10]
- The ICM programs were provided by teams of case managers who worked with individuals and brokered health and other related services as needed. The staff to participant ratio was initially 1:20 but was later changed to 1:16 because the needs of the moderate needs group were greater than expected. ICM teams held case conferences at least monthly and services were provided seven days a week, 12 hours per day[11].

By comparison, the treatment as usual group had access to the existing housing and support services in their communities. In some cities, this included a range of options, with other supportive housing programs and treatment resources available, while in other cities there were fewer options.

Implementing At Home/Chez Soi – Overview of the Five Cities

Lessons from Implementation

In addition to researching the outcomes achieved through HF, we were also interested in documenting and understanding how HF was implemented across the project sites to learn about how it could be adapted within a Canadian context to meet unique local needs. A series of qualitative reports have been released which explore the key lessons from the conception, planning and implementation of the project.[12] The following key elements were identified as being important to implementation of HF locally and nationally:

- having a strong mix of partners and stakeholders engaged in the project;
- understanding the value of having champions and leadership come from unexpected places;
- navigating the complexity of cross-ministerial and cross-departmental government collaboration;
- ensuring there is clarity of purpose and deliverables along with a clear definition of HF and fidelity standards;
- valuing the importance of training and technical assistance.

Understanding Local Variations

At Home/Chez Soi demonstrated that HF can be implemented in Canada and successfully adapted to local contexts. Each of the five At Home/Chez Soi sites operated within a unique local context that influenced both the experience of the TAU group as well as the way the HF intervention was implemented. The following section describes some of these variations in the local contexts.

- **Population Characteristics** – Moncton is the smallest of the five sites, and included a rural pilot study to improve understanding of rural homelessness. Montréal is a larger city that has a diverse population and has a strong history of supporting social housing as its preferred model. Toronto is the largest of the five sites and has the highest population of people who identify as being from an ethnoracial community.[13] Vancouver is the next largest site and it is characterized by its concentration of people experiencing homelessness in the Downtown East Side community, where serious drug use is highly prevalent. Winnipeg is a moderate-sized city that has a large Aboriginal population, a group that is over-represented within Canada's homeless population.
- **Housing Contexts** – Each site is characterized by varying levels of access to affordable housing, but all sites have many people living in core housing need (defined as housing that is not adequate, suitable or affordable [14]). As well, most sites have low vacancy rates and relatively high rental costs that are eroding the affordability of available rental housing (see Appendix B for related details). Most sites also have long waiting lists for access to social housing or other housing options.
- **Service Contexts** – Sites also varied in the levels and types of services and supports available. Moncton had the lowest number of community mental health services available and no ACT teams. In Montréal, Winnipeg, and Vancouver, access to ACT or ICM services was limited; however, there were other shelter, housing, and mental health services available. Of all the sites, Toronto had the greatest availability of mental health services, but even those existing services are considered insufficient to meet the range of service needs in the city. [15]

Assessment of Fidelity to the HF Model

The At Home/Chez Soi service teams were offered training and technical assistance to ensure that services were "true" to the program model (also called fidelity) and that core standards were common across all programs. Local adaptations to the program model were also encouraged to meet local needs. All sites received two fidelity visits (at the end of the first year and another near the end of the second year) that reviewed both adherence to the HF model and local adaptations (see Appendix C for details). Although there is some debate on this,[16] adaptations to local context are possible and desirable and can occur without compromising the essential principles or functions of the intervention.[17] This fits with our experience in the At Home/Chez Soi study.

The Pathways HF Fidelity Scale was used to assess program fidelity.[18] Two versions of the Pathways HF Fidelity Scale were developed – one for ACT and one for ICM (provided in Appendix C). Each scale measured 38 items across five domains – housing choice and structure, separation of housing and services, service philosophy, service array, and program structure – all of which are key elements of HF.

Fidelity and Site Program Variations

Overall, At Home/Chez Soi achieved a high level of fidelity to the HF model. There was good consistency of program structure and commitment to core principles. Teams were successful in balancing their local context and needs and aligning those with the HF model. Program variations, i.e., third-arm interventions in each site, are outlined below. Individual site reports are also available on the MHCC's website and provide greater detail about local findings and policy implications.

Vancouver

One hundred participants were provided HF through a congregate site model at the Bosman Hotel, which is operated by the Portland Hotel Society. Participants had their own room and washroom, and access to individualized on-site health, mental health, and addictions services, including clinical care (nursing care, medication support), social support (groups, programming), and case management. Staff was available 24 hours a day, seven days a week and two meals were provided daily. Findings for those who received the congregate living "third arm" in Vancouver (at the Bosman) are excluded from this report because the program model differed in important ways from the main intervention. Findings for the congregate intervention are outlined in the Vancouver Final Report.

Winnipeg

The Aboriginal Health and Wellness Centre offered the Ni-Apin Program as the site-specific intervention. It was an ICM-based model and included a day program. Ni-Apin delivered HF based on the Medicine Wheel philosophy and Indigenous Framework. Elders were part of the service team and were accessible for individual meetings and for sharing and teachings circles.

Toronto

The site-specific intervention targeted the needs of people from racialized groups who were experiencing homelessness and mental illness, and was informed by Anti-Racism/Anti-Oppression (AR/AO) principles. The organization Across Boundaries delivered the program that assisted immigrants and people from racialized groups with housing and clinical supports. In addition, the HF fidelity scale was supplemented with measures of AR/AO principles.

Montréal

Some interested participants in Montréal were offered access to the Individualized Placement and Support (IPS) model to help them find and maintain competitive employment. Participants were provided with personalized employment supports (e.g., assistance writing résumés, introductions to potential employers, and preparing for job interviews). IPS staff also worked directly with employers to find appropriate job opportunities and to educate them on how to support their new employees.

Moncton

Because of smaller numbers, the Moncton site's HF program used an ACT team only. Moncton also studied the impact of a rural ACT team, which provided housing, services and support for 24 people living in rural southeastern New Brunswick. Prior to joining the program, participants lived either in Special Care Homes, with their families, in rooming houses, or were homeless. The rural arm of the ACT team operated with a participant to staff ratio of approximately 8:1, a common standard for rural ACT services. The rural study findings employed a different study design and those findings are reported separately in the Moncton Final Report.

One goal of the At Home/Chez Soi project was to understand if the HF approach could be implemented in Canadian communities and if adaptations to local contexts were possible. Implementation and fidelity research in the study demonstrated clearly that both are possible. The context and implementation findings noted here provide a foundation for understanding participant outcomes, which are discussed in the following chapters.

CHAPTER 3
STUDY PARTICIPANTS

This chapter provides detail for the question: **What are the characteristics of individuals who participated in the At Home/Chez Soi study?**

The Sample

All 2,148 participants were divided into one of two categories.

2,148 individuals were enrolled in the study across all five sites and, of those, 1,158 received the HF intervention and 990 were randomized to TAU. Follow-up rates at 24 months were between 77 and 89 per cent (up to 91 per cent in one site), which are excellent for a vulnerable and often transient population (see Appendix D for a definition of the eligibility criteria, and follow-up details). Sixty-two per cent of participants met the definition for moderate needs and 38 per cent for high needs, and, as such, were eligible for ICM or ACT respectively. All findings in this report (unless otherwise noted) are based on these 2,148 participants. In addition, qualitative data were collected for a subsample of participants (219 at baseline and 197 at 18 months), that represented the larger sample.

Levels were determined by the variety of needs of the participants.

In the next sections, the sample is described for demographic, homelessness history, health, and social circumstances. Tables that include more detailed information are provided in Appendix E.

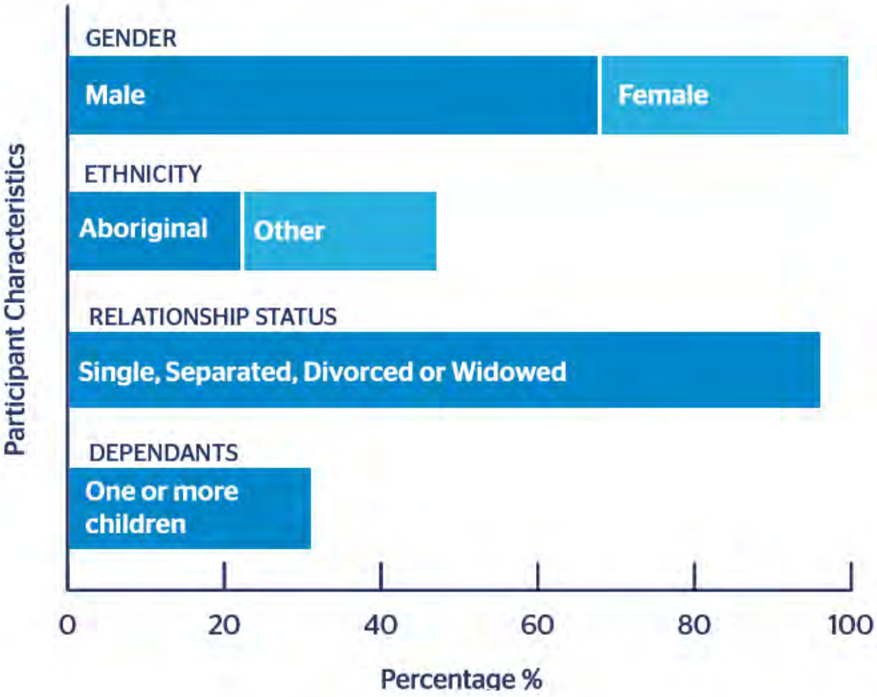
Demographic Characteristics

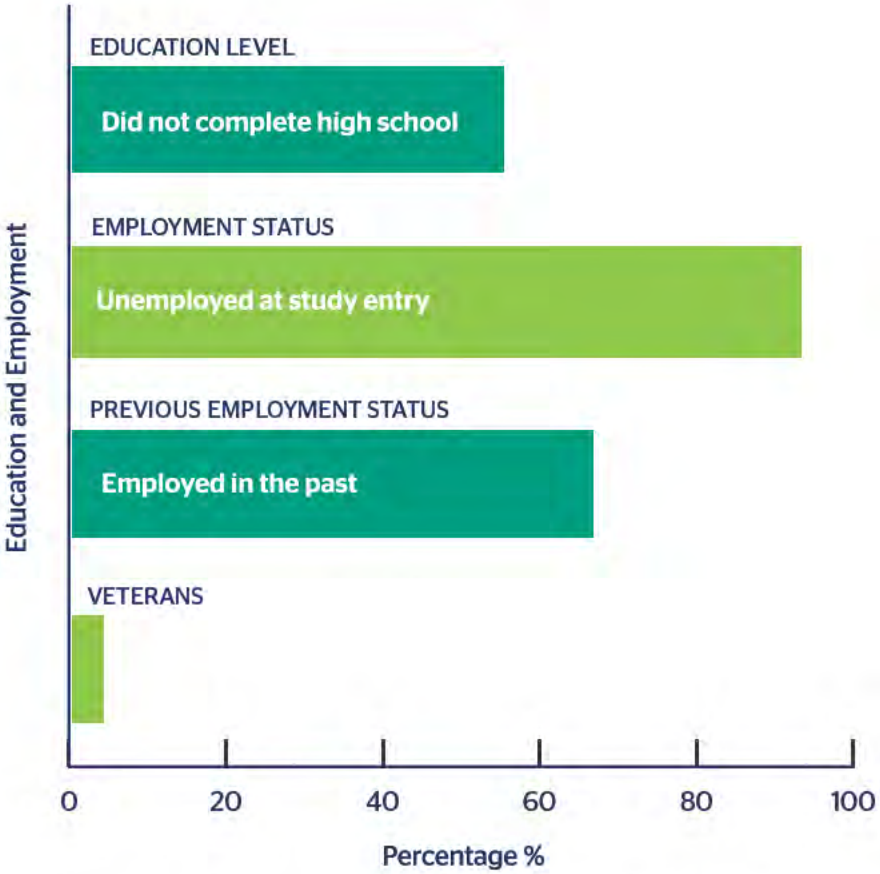
The "typical" participant was a male in his early 40s, but there was enormous diversity in demographic characteristics across the sample. 67 per cent of participants were male, 32 per cent were female, and one per cent identified as "other." Twenty-two per cent of participants identified as being Aboriginal and 25 per cent identified as being from another ethnic group. Participants in the high needs (HN) group tended to be younger, with 39 per cent of participants aged 34 or younger compared to 29 per cent of participants aged 34 or younger in the moderate needs (MN) group. Almost all participants (96 per cent) were single, separated, divorced or widowed. Many

AVERAGE LIFETIME HOMELESSNESS

4.8

YEARS





were parents, with 31 per cent reporting having one or more children, though few of these children were living with the participant at the time of study entry.

The findings underscored the fact that participants had and were facing multiple challenges in their lives that contributed to their marginalized status. For example, 55 per cent did not complete high school, and nearly all were living in extreme poverty. The HN group had a greater percentage of participants who did not complete high school (59 per cent). The average income reported for the month prior to study entry was less than $685 per month, and 15 per cent of participants reported an income of less than $300 per month. While 93 per cent were unemployed at the time of study entry, more than 66 per cent had worked steadily in the past. A small but important proportion (four per cent) of participants were veterans, having reported wartime service for Canada or an allied country.

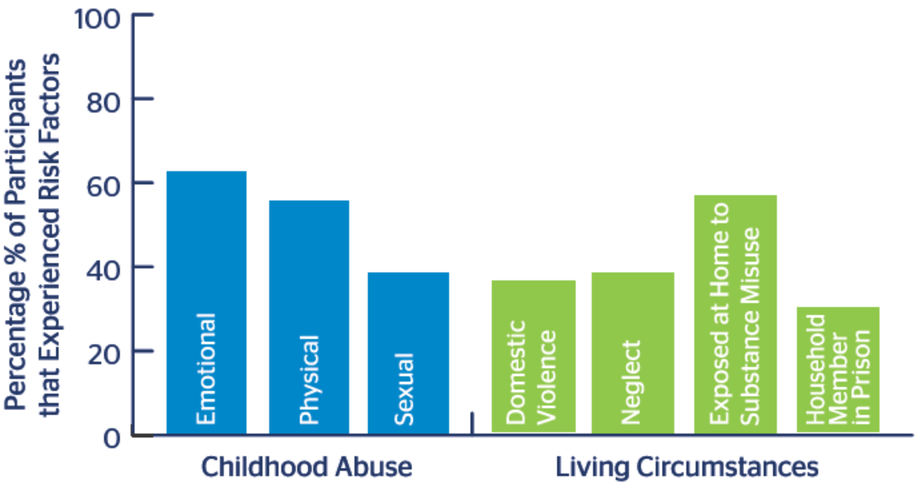
Homelessness History

Most study participants were recruited from shelters or the streets, with 82 per cent absolutely homeless and 18 per cent in precarious living situations (refer to Appendix D for definitions of "absolute" and "precarious" homelessness). Many reported histories of ongoing homelessness. The average total time homeless over participants' lifetimes was slightly less than five years. The typical age of first homelessness was 31, but more than 40 per cent reported having their first episode of homelessness before the age of 25. In general, those who were in the HN group were homeless earlier and at a younger age, had a longer average period of homelessness, and had a greater total lifetime homelessness than those who were in the MN group.

Past-Current: Personal, Health, and Social Circumstances

All participants had one or more serious mental illness, in keeping with the eligibility criteria of the study. At entry, participants reported symptoms consistent with the presence of the following mental illnesses: 34 per cent had a psychotic disorder, 71 per cent had a non-psychotic disorder, and 67 per cent reported substance-related problems. A substantial proportion (46 per cent) had more than one non-substance-related mental illness and a majority (73 per cent) had more than one mental illness including a substance-related illness (any of alcohol or drug dependence or use). Also in line with the definition of high versus moderate needs, psychotic

On average, participants reported 4-5 of these adverse childhood experiences, which are risk factors associated with mental illnesses and homelessness.



disorders were more common in HN than MN (52 per cent versus 22 per cent). Moreover, those in HN also reported more substance-related illnesses (73 per cent versus 62 per cent).

Risk factors associated with mental illness and homelessness are reflected in the life histories, recent experiences, and current circumstances of participants. For example, about 62 per cent, 55 per cent, and 38 per cent reported being emotionally, physically or sexually abused in childhood, respectively. Thirty-eight per cent reported "often or very often" not having enough to eat, having to wear dirty clothes, and not being protected. Substantial proportions of participants also reported experiencing domestic violence in the household (36 per cent), living with someone who had substance use problems (57 per cent) or having a household member in jail or prison (31 per cent). On average, participants reported between four and five of these adverse childhood experiences.

Nearly 40 per cent of participants reported having learning problems in school. This percentage was higher in those in the HN group (45 per cent versus 39 per cent in MN). Sixty-six per cent had a history of one or more traumatic head injuries involving unconsciousness. More than 90 per cent of participants reported at least one chronic physical health problem. Common serious physical health conditions included asthma (24 per cent), hepatitis C (20 per cent), chronic bronchitis/emphysema (18 per cent), epilepsy/seizures (10 per cent), diabetes (nine per cent), and heart disease (seven per cent). Thirty-seven per cent of participants had two or more annual hospital admissions for a mental illness in one or more of the five years before study enrolment. These figures were higher in the HN group compared to the MN group (54 per cent and 24 per cent, respectively).

Over one-third (36 per cent) reported involvement with the criminal justice system in the six months prior to the study, having been arrested, incarcerated or served probation one or more times. The HN group reported more involvement with the justice system than the MN group (43 per cent versus 30 per cent). With respect to the type of legal system involvement, 24 per cent of participants reported being detained or moved along by police, 22 per cent reported being held by police for less than 24 hours, 27 per cent reported being arrested, 30 per cent reported having had a court appearance, and 11 per cent reported participation in a justice service program in the prior six months. Many participants also experienced victimization in the six months prior to study entry: 32 per cent reported being robbed or threatened to be robbed, 43 per cent reported being threatened with physical assault, and 37 per cent reported being physically assaulted.

While all participants had some degree of disability, nine per cent had high levels, 45 per cent had moderate disability, and 46 per cent had lower levels of disability according to our standard observer-rated community functioning scale (the Multnomah Community Ability Scale — see Appendix A for more information). Participants in the HN group had lower average scores on this scale (54 versus 65), which was expected given that the cut-off score for determining need level was 62. Participants also often lacked basic social support — around half reported having no one to confide in. General distress levels were also high, with 36 per cent reporting symptoms consistent with moderate to high suicide risk. *(Note that there were standard referral processes that were followed in the study if a participant was deemed at risk of suicide.)*

As intended, the At Home/Chez Soi study enrolled a group of the most vulnerable Canadians — all with serious mental health and/or substance-related issues and relatively long-standing homelessness histories. Substantial proportions of the participants had suffered early life trauma and victimization, had hidden cognitive and learning disabilities, and, though a minority, a large group had recent involvement with the justice system. Even so, many have worked steadily in the past, formed families, or served their country in the military.

In the next chapter, we will report on the impact that HF had on our participants with respect to housing.

CHAPTER 4
HOUSING OUTCOMES

The primary objective of HF is to assist a person in finding and staying in permanent housing, and as such, ending chronic homelessness for that person. In this chapter, we report on and discuss the housing outcomes for At Home/Chez Soi participants, and thereby address the primary research question: **How has HF affected participants' ability to get housing and stay stably housed, and what are participants' experiences with housing?**

Over the course of the At Home/Chez Soi study, more than 200 service providers were involved, over 260 landlords and property management companies recruited, and over 1,200 housing units located. This intensive effort had enormous direct impact on the housing circumstances of participants. 1,158 individuals randomly allocated to the HF group received housing and comprehensive supports. The 990 participants who were randomized to TAU had access to the range of treatment and housing services available in their communities. At the time of randomization, those who were randomized to TAU were routinely and actively offered information by study research teams about existing services. The housing (and other) differences reported herein do not represent outcomes of a new service versus no service; instead, they represent the value-added benefit of the HF approach against an array of existing services that participants could access or might be offered.

Housing Stability Outcomes

In terms of housing stability, HF was found to be unequivocally more effective than existing programs accessed by TAU participants for finding housing and staying housed. We examined stable housing (two years after enrolment) in two ways. First, we looked at the last six months of the study, and measured the proportions of people who spent every night in stable housing, who spent at least some of this time in stable housing (See Appendix D), and who were never housed over this period. The results are shown in Figure 1.

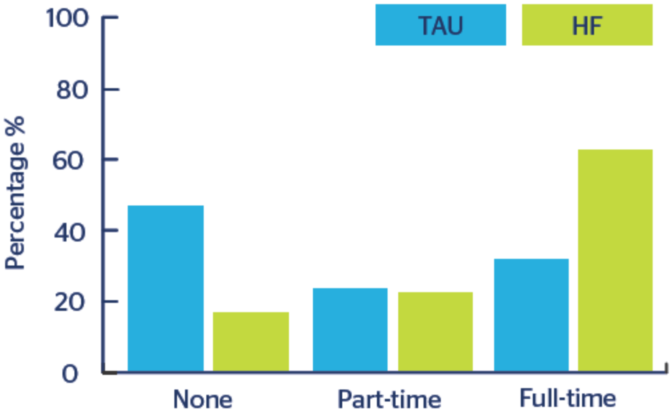


Figure 1. Percentages of participants housed for various periods of time: last six months of the study

As shown, across all cities and both HN and MN groups, in the last six months of the study, 62 per cent of HF participants were housed all of the time, 22 per cent some of the time, and 16 per cent none of the time; whereas 31 per cent of TAU participants were housed all of the time, 23 per cent some of the time, and 46 per cent none of the time. Findings were similar for HN and MN participants. For the HN group, 60 per cent of participants were housed all of the time compared to 29 per cent of TAU; for the MN group, 64 per cent of HF participants were housed all of the time compared to 32 per cent of the TAU group.

The second way we examined housing outcomes was the average percentage of days spent in stable housing for individuals in each group for each three-month period of follow-up. As shown in Figure 2, across all sites and in both HN and MN groups the differences were marked. Over the two years of the study, participants in HF spent an average of 73 per cent of their time in stable housing compared with 32 per cent in TAU. In scientific terms, these differences are considered to be highly significant; that is, they are large differences between groups with virtually no likelihood of being due to chance. Specifically, since the study used a randomized design and all other characteristics that could result in stable housing were equivalent between groups except the intervention, the finding can be reasonably and confidently attributed to the intervention.

Patterns were very similar in both treatment groups. In ACT, the average time stably housed was 72 per cent in HF and 33 per cent in TAU. In ICM, it was 72 per cent in HF and 30 per cent in TAU. Housing outcomes were also very similar for

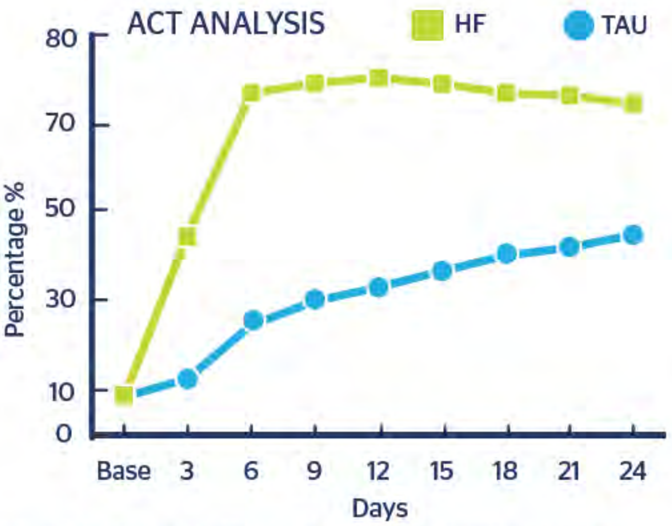


Figure 2. Per cent of follow-up days spent in stable housing by study group over 24 months over three-month periods.

all sites, but there were some minor differences that can be explained in terms of the differences in site samples, housing stock, rental vacancy rates, core housing need (i.e., per cent of housing falling below acceptable standards of adequacy, affordability or suitability) and the degree to which programs were "true" to the model – that is, the quality/fidelity of program delivery. These details are presented in site reports.

The per cent of days housed graph (Figure 2) also illustrates the impact of HF on the dynamic of becoming housed over time. The focus on immediate housing with no preconditions seemed to "jumpstart" housing stability. The most dramatic changes in the HF group occurred in the first six months. While more days spent stably housed are seen over time in the TAU group, these rates did not come close to the HF housing stability rates.

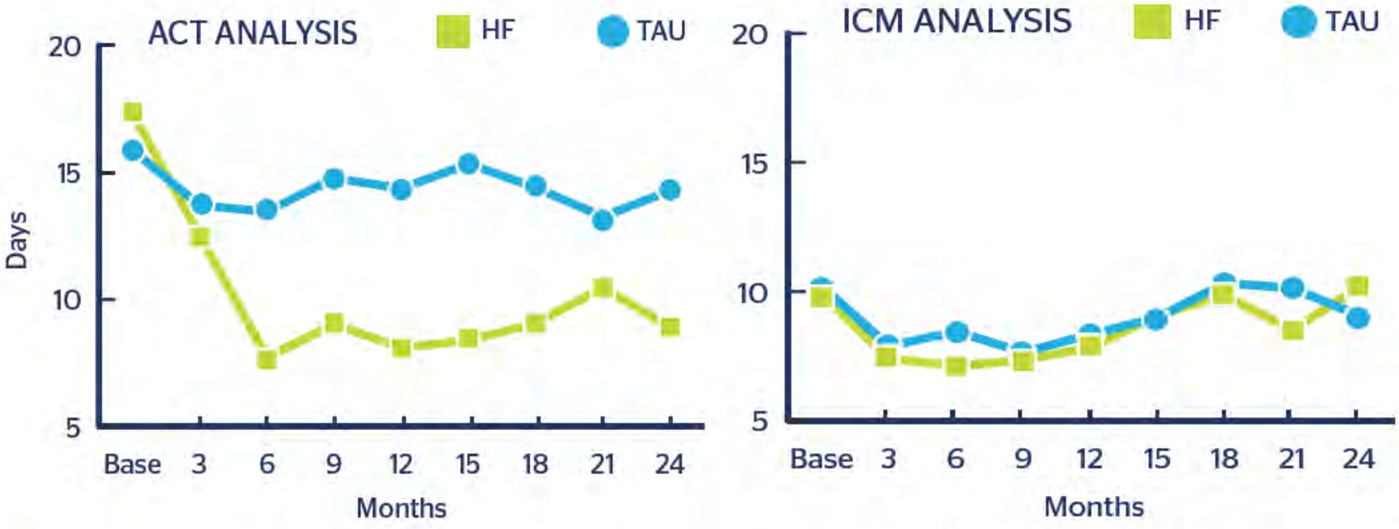
We also examined housing outcomes using qualitative interviews with a subsample of participants from both the HN and MN groups and from all sites. These participants were broadly similar to the wider sample, but had somewhat higher levels of substance use problems and higher incomes at baseline. Their improvement in housing over the course of the study was similar to the full sample, and the group spoke to the impact housing has had in their lives. Many in the HF group spoke of the importance of "having their own place" and described their housing as a safe and secure "base" from which to move forward with their lives. One noted, "*The security is a really big thing. I can just let go and I have no problem just lying down for 12 hours and I don't have to move or be on guard.*" (Vancouver participant). According to participants, a prominent reason for their housing stability was that housing catalyzed hope that they could "get back on track," which provided them with the motivation to "do what it takes" to keep their housing and get their lives back. In other words, housing itself was intrinsically motivating to participants, since it inspired people to behave in a way that would maintain their tenancies, and allow them to reclaim their lives. Housed participants from the HF group reported more choice over where they lived, including the choice to live in a place where they felt safe, and in some cases away from previous problematic social circles. Finally, housed participants in the HF group often expressed a feeling of stability and permanence. In contrast, TAU participants who were able to obtain housing often reported less choice over where they lived, and a lesser sense of safety.

Differences in Types of Shelter

While stable housing was the most important outcome we examined, we also looked at patterns in various types of shelter used over time and by study group. Over the course of the study, people in TAU spent about 33 per cent of their time in temporary housing, 16 per cent in emergency shelters, 11 per cent in institutions, and eight per cent living on the street. Participants in HF spent less time in each of these settings: 12 per cent in temporary housing, six per cent in shelters, nine per cent in institutions, and three per cent on the street.

Use of various types of shelter is where the picture for HN and MN participants begins to vary in ways that are consistent with their pre-study service use and levels of need. For example, we see both more use and more of a contrast between intervention and TAU groups in time spent in institutions (including hospitals, prisons,

Figure 3. Days in institutions by study group and type of program.



jails, and addiction treatment facilities) within the HN participants served by ACT and somewhat greater prior use and contrast for MN participants served by ICM with shelter days. These service use differences by program have implications for the economic analyses, as we will see later in Chapter 6.

Housing Quality

The physical quality of participants' housing was measured systematically using a rating scale developed and standardized for the study. Ratings were made by two trained members of field research teams in a random sample of 205 HF and 229 TAU residences that were of a type that could be occupied on a long-term basis. The housing quality scores for HF residences (unit and building combined) were found to be of greater quality and much more consistent quality for those housed for at least two months on average across sites (which held for four of five sites). Additional detail is provided in site reports. Good housing quality (that is, residing in a good neighbourhood, where there was a good "fit") was also found to be a contributor to housing stability in the qualitative analysis.

Participants with Additional or Other Needs

In general, despite the fact that participants had diverse ethnocultural and demographic backgrounds and different circumstances, HF participants were able to achieve housing stability. For example, HF worked about equally well among men and women, and was particularly effective among older participants; younger participants were slightly less likely to remain in stable housing. Moreover, those with substance use problems at baseline maintained stable housing to a similar degree as the overall sample.

However, even though the majority of HF participants became stably housed, housing stability was not achieved for a small group (13 per cent). This group was found to have longer lifetime histories of homelessness, to be less likely to have completed high school, to report a stronger sense of belonging to their street social network/better quality of life while homeless, and to present with more serious mental health conditions.

> ...those with substance use problems at baseline maintained stable housing to a similar degree as the overall sample.

In particular, participants who did not achieve housing stability in the first year reported having been homeless for 6.04 years over their lifetime compared to 4.73 years for those participants achieving housing stability. Almost two-thirds (66 per cent) of participants in the non-stable housing group had not completed high school compared to 55 per cent of participants who achieved stable housing in the first year.

Individuals identified in the unstable housing group also indicated knowing more people and having more contact with them, as well as reporting higher levels of satisfaction with their circumstances than individuals achieving stable housing in the first year. A possible explanation for these differences is that individuals in the unstable housing group had more difficulty detaching themselves from their social networks, which were made up of other individuals who are homeless or unstably housed.

As well, individuals in the unstable housing group were more likely to be assessed as having a psychotic disorder (45 per cent) and less likely to be assessed as having a panic disorder (24 per cent) or post-traumatic stress disorder (31 per cent). This is compared to individuals in the stable housing group who were assessed with a psychotic disorder (35 per cent), panic disorder (15 per cent), or post-traumatic disorder (20 per cent). However, this group was similar to those who achieved stable housing in many other ways. Notably, there were no differences in terms of gender, ethnic origin, diagnosis of depression, substance use, arrests, contact or detention by police, or

Figure 4. Days in emergency shelters by study group and type of program.

community functioning. This underscores the importance of considering need on an individual basis and the complexity of trying to predict the subgroup of individuals who will encounter continued housing instability while receiving HF services.

Some alternative approaches to addressing the unique housing needs of these participants were piloted during the course of the study. For example, in Moncton, peer-staffed congregate housing was found to be necessary for some of those who had additional needs and were not doing well in independent apartments despite several relocations. Another approach in Winnipeg involved the use of transitional apartments on one floor of a secure residential apartment building for those who had to learn how to prevent unwanted guests from intruding and creating difficulties with neighbours and for the tenant. This confirms that further adaptations of the model are warranted and feasible. The adaptations of the HF approach in Winnipeg and Moncton showed this responsiveness to need while still maintaining a high level of the fidelity to the main domains of the HF model (e.g., housing choice and structure, separation of housing and clinical services). More detail is provided in site reports.

HF in its classic format is not a panacea — a small number of individuals' mental health and medical needs, and/or level of functioning are such that they are best served in living arrangements where a more intense level of support and more structure can be provided.

Over 260 landlords and property management companies were involved.

Landlord Engagement

The HF approach is unique among housing interventions in that units are sought from, in most cases, private sector landlords. Feasibility and effectiveness of the model depends on the ability to engage landlords and respond to their concerns. Over the course of the study, over 260 landlords and property management companies participated in the study, which is quite remarkable given the vacancy rates and the flexibility landlords generally have in terms of tenant choice. Only a minority opted to leave the program. Qualitative data about their experiences was collected from 57 landlords. We found that across sites, these landlords relayed positive relationships with the At Home/Chez Soi housing and clinical teams, as well as positive relationships with tenants. In Moncton, landlords stated that program tenants were, in many instances, as good as or better than other tenants. Landlords in Vancouver had positive experiences with the "fit" of tenants in their buildings, and landlords in Winnipeg talked about having good relationships with the housing team despite considerable tenancy challenges. The takeover of apartments by former acquaintances, who then engaged in drug and alcohol related activities that were disruptive for the tenant and neighbours and damaged the property, is an example of a tenancy challenge that support staff and landlords had to manage. Much was learned about how to work in partnership with landlords and these learnings are outlined in the forthcoming Housing First Toolkit.

In summary, the At Home/Chez Soi study has demonstrated substantially improved housing stability for participants across all five cities and in both program types, compared to those receiving existing housing and mental health services. The quality of housing was similar or better than that of individuals in the TAU group that found housing. More is now known about the small proportion of intervention participants for whom housing stability did not ensue, and several adaptations to address their needs were explored. The majority of recruited landlords stayed involved with the programs, and while there were housing challenges, their experiences on the whole seemed to be positive.

CHAPTER 5
SERVICE USE AND COST OUTCOMES

One of the advantages of stable housing for a group who have high levels of chronic mental and physical illness is the possibility of shifting their care from institutions and crisis-related services to more appropriate planned visits and regular follow-up with community-based services. In this chapter, we examine the research questions: **What is the impact of HF on health, social, and justice/legal system service use and costs? Does continued investment in HF, as one innovative solution to chronic homelessness, make sense from social and economic perspectives?**

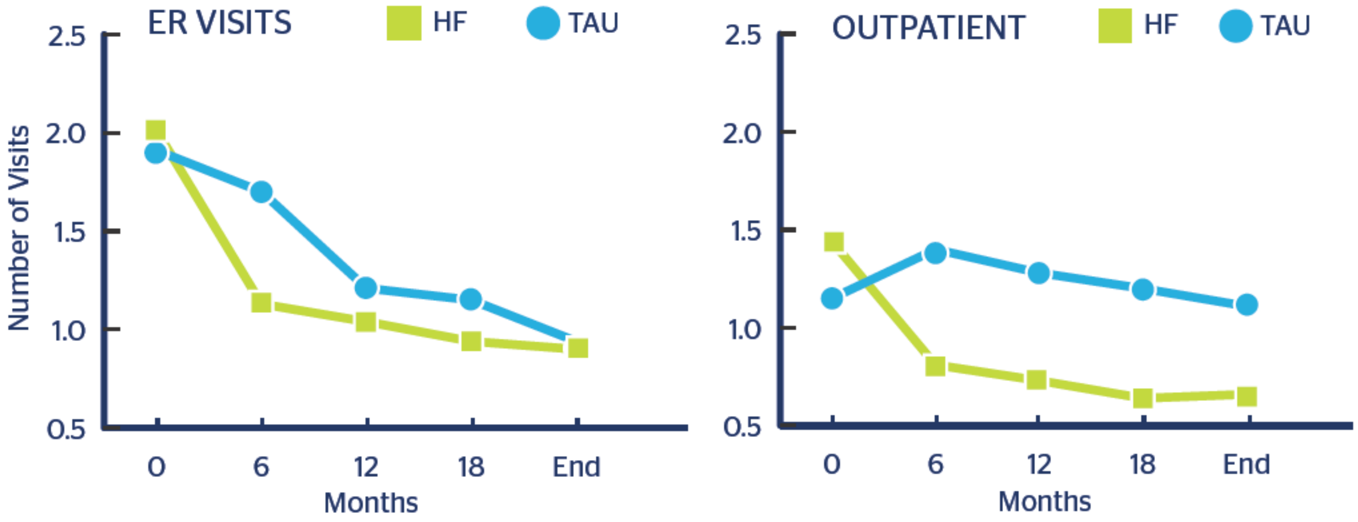
At each interview, HF and TAU participants were asked standard questions about all the types of health, social, and justice services they had accessed in the previous time period. Since these findings are not the main outcomes of the study and have not been formally tested statistically, and self-report information might be inaccurate due to imperfect recall, the findings reported in this chapter are a first round. They will be complemented by additional analyses currently underway to examine the service use differences in greater detail, including the use of administrative data received directly from health and justice service providers in each province.

Health Service Use

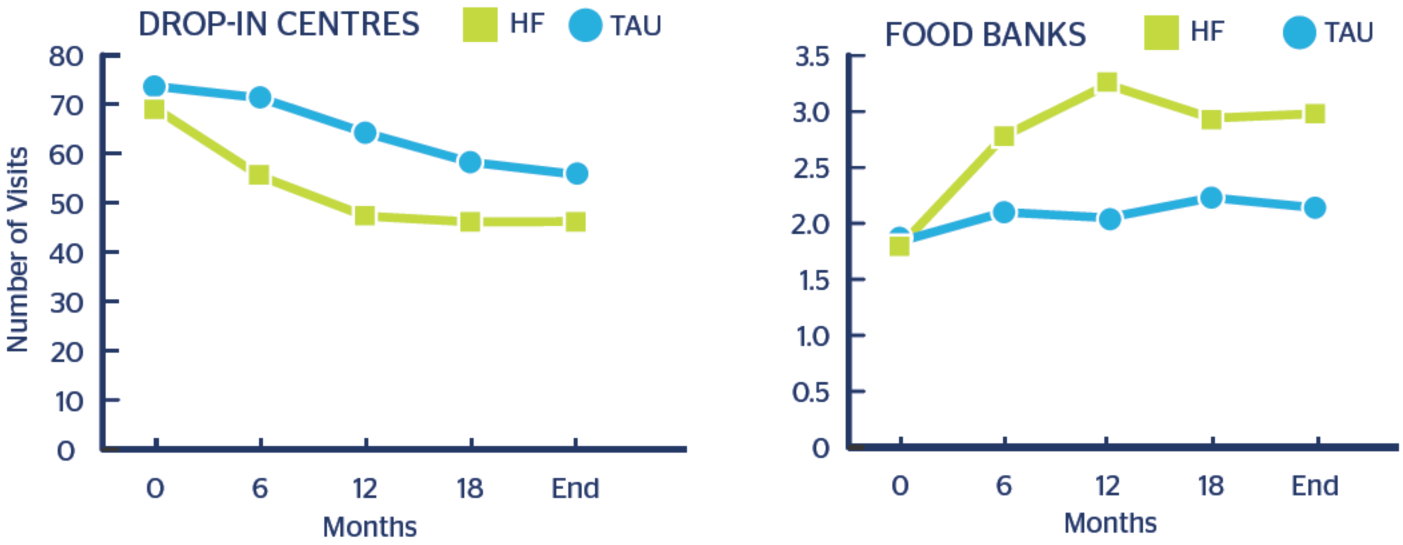
In Chapter 4, we noted substantial reductions in overnight stays in shelters and institutions (hospitals, prisons, jails, and addiction treatment facilities). We also found some encouraging patterns in the types of health and social services used, which are illustrated for both need groups in the following four graphs. Both HF and TAU groups reported declines in emergency room (ER) visits (Figure 5) with lower levels among HF participants over the course of the study. This difference was mostly attributable to the MN group in relation to TAU. HF participants also had lower levels of visits to hospitals for outpatient care (these included day hospital visits but not visits for laboratory or diagnostic tests) shown in Figure 6. Differences in outpatient visits were very large for HN participants and moderate for MN participants.

Lower use of drop-in centres for meals and other services needed by participants was also noted for the HF group (Figure 7); however, the use of food banks appeared to be higher for both HN and MN participants (Figure 8). This is not surprising, given that many food banks require a fixed address in order to provide a hamper. Also, housed individuals were able to store food and

Figures 5 and 6. Shifts away from ER services and outpatient visits.



Figures 7 and 8. Differences in drop-in centre and food bank use



prepare meals. Across sites, many HF participants found that having stable housing (and, for many, associated financial stability) was paramount to improving their eating patterns, since they could finally purchase and store food and supplies for themselves.

Given that community-based service delivery by providers (e.g. in-person visits and phone calls) was an intentional and essential part of the intervention, we expected to find greater frequencies of these events in the HF group relative to TAU, and that is what was found. The details of these service patterns are not provided here, but they are included in the comprehensive economic analysis in the next section.

In this chapter, the findings presented are based on self-reported health service use. Because self reports and administrative records do not always paint the same picture, we have made initial comparisons between HF and TAU groups regarding the similarity of information collected from these two sources for three sites (Winnipeg, Montréal and Vancouver).* In these analyses, we examined days in hospital, emergency room visits, and ambulance trips.

Although the number of events reported by participants was often lower or higher than the number of events in administrative records, there do not appear to be any important differences between the HF and TAU groups in these reporting differences over the study period and across these three sites. This means that we can have confidence that the comparisons between groups in the self-report data are reasonably valid. More analysis on health service use outcomes based on administrative data is in progress and will be reported separately in 2014.

Justice Service Use

Over the complete follow-up period, contact with the justice system was common for both the HF and TAU groups. During this period, the majority (89 per cent) had at least one interaction with police officers, which could involve help-seeking, information requests or criminal activity. Around one third of participants were actually arrested during the study timeframe. Both HF and TAU groups reported substantial declines in their contacts with justice services (police, security services, courts, and other justice services), with no significant difference between the groups. When reasons for arrests were investigated, however, HF participants reported fewer arrests for public nuisance offences and drug-related offences over time, whereas TAU participants reported no such decline. This is consistent with the increase in residential stability for HF participants, who might then be less likely to be arrested for engaging in activities meeting basic needs, such as sleeping in public spaces or washing in public bathrooms.

There are several possible reasons for the small effect of HF on study participants regarding justice contacts. First, justice-involved individuals with mental illness are not a homogeneous group. In fact, there are distinct subgroups. HF, as implemented, did not specifically target criminal justice involvement; there may be benefit in further adaptations to suit the specific needs of legally involved participants. Second, criminal justice involvement is complex and a proportion of service events (e.g., court appearances) may be attributable to criminal behaviour that occurred several months or even years before the study began. For example, we noted that some participants were arrested because of warrants for offences that occurred in the past. A two-year follow-up period might not be sufficient to show

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*Members of the validation analysis committee are acknowledged for this work, and can be contacted for further details. They are Mark Smith, Carol Adair, Brianna Kopp, Laurence Katz, Daniel Rabouin, Julian Somers, Akm Moniruzzaman, Angela Ly, Guido Powell, and Jimmy Bourque.

the downstream effects of housing stability on justice system involvement. Finally, data thus far is limited to self-report; a team of study investigators is currently in the process of accessing and analyzing administrative data from courts, police services, corrections, and forensic services across the country, and more definitive findings will be provided subsequently.

Cost Analysis

As noted earlier in this report, the HF intervention had important effects on the types of services that participants used: fewer nights in shelters, fewer ER visits, greater use of food banks, etc. By housing participants, HF obviously has a direct impact on emergency shelter use. HF also has indirect effects on the use of other services. Being housed, with their own kitchen, yet with low incomes, HF participants would be expected to make greater use of food banks. A person who is more stable and better cared for is less likely to need to go to an ER, but regular contact with a consistent clinical team may also lead to appropriate receipt of health care, for example, which might not happen if they were still homeless. In addition, the HF clinical teams may help participants access welfare or disability benefits. Being housed and benefiting from the regular, holistic care that HF teams offer may also ultimately result in HF participants increasing their participation in the labour force, reducing their need for public support.

At the same time, the HF intervention itself is costly: $22,257 per person per year on average for HN/ACT participants and $14,177 per person per year for MN/ICM participants. These costs include salaries of all front-line staff and their supervisors, additional program expenses such as travel, rent, utilities, etc., and rent supplements. The intervention for HN participants is more costly because, while an ICM team, as implemented in At Home/Chez Soi, includes one case manager for at least every 16 participants, the ACT team includes one service provider for every 10 participants.

It is then natural to ask how overall costs, including those of the intervention, as well as those of resources such as shelters, change when a person starts to receive HF services. To address this question, we took into account, in a comprehensive way, the costs of the HF intervention, as well as those of other social, health and justice services, such as shelters, drop-in centres, physician visits, and police arrests, welfare and disability income, and any offsetting employment income.

Thus, every $10 invested in HF services resulted in an average reduction in costs of other services of $9.60 for HN participants and $3.42 for MN participants.

As illustrated in Figures 9 and 10, by comparing the costs of services incurred by HF participants with TAU participants over the two-year period following participant study entry, and by taking into account differences in costs that existed between the groups at baseline, we estimate that receipt of HF services for HN participants resulted in average reductions of $21,375 in the cost of other services being used by this group. For MN participants receiving HF services, we found an average reduction of $4,849 in the cost of other services being used. Thus, every $10 invested in HF services resulted in an average reduction in costs of other services of $9.60 for HN participants and $3.42 for MN participants.

TAU participants also experienced reductions in costs after study entry. This is similar to the findings for housing stability (Chapter 4), community functioning and quality of life (Chapter 6). Participants were recruited to the study at a time when most were in crisis; and, most TAU participants also accessed services, so a natural reduction in severity of circumstances is to be expected.

While costs went down for both groups, the reduction in the costs of services other than the intervention itself was greater for the HF groups. Total costs avoided arise from a combination of decreased costs for some types of service use (cost offsets), and, to a much smaller extent, increased costs for others. These offsets, along with one significant increase, are illustrated in Figures 11 and 12. For HN participants, the greatest cost offset is an estimated reduction

Figure 9. Annualized average costs per person for **HN** participants, by experimental group, baseline vs experimental study period.

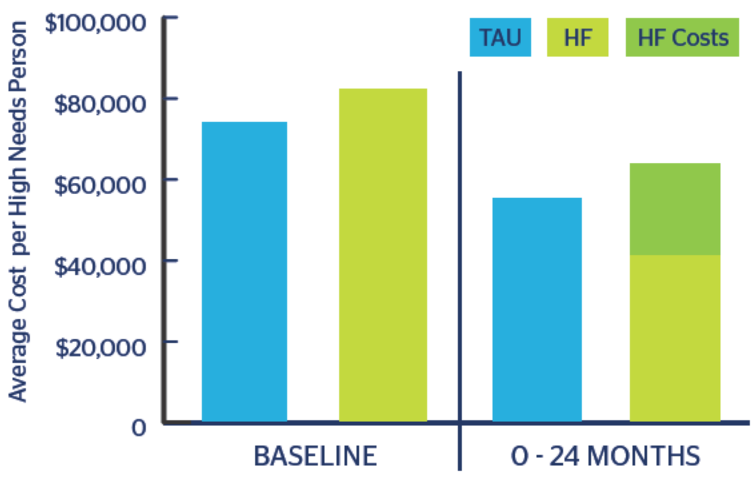
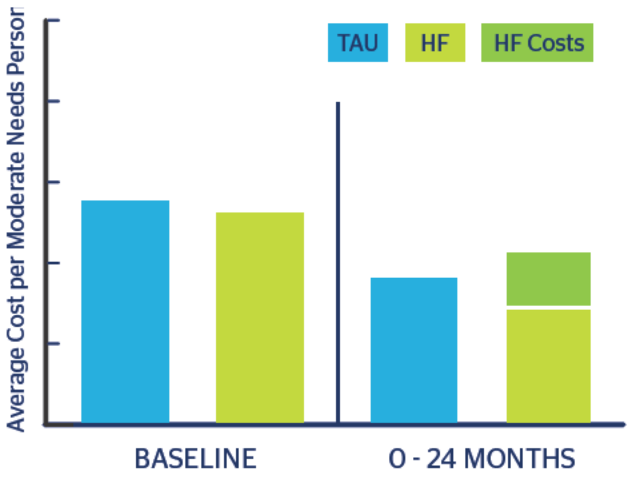


Figure 10. Annualized average costs per person for **MN** participants, by experimental group, baseline vs experimental study period.



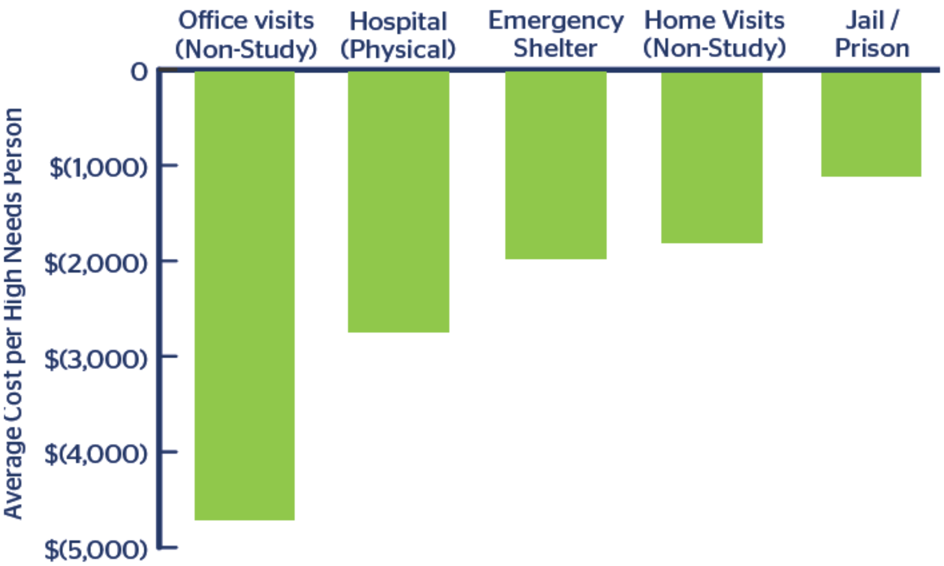


Figure 11. Annualized average cost offsets per person for HN participants.

of about $4,700 in the costs of non-study office visits (not including hospital outpatient clinics but including visits to doctors in their own office, and visits to community clinics). The costs of the HF intervention, have thus partially replaced the costs of such services that participants normally receive. For MN participants receiving HF, in contrast, this type of cost increases, on average, by slightly more than $1,000 per participant per year. Because ICM teams do not include any medical personnel, this result suggests that case managers on ICM teams facilitated access to such services. In fact, this is consistent with the role of case managers who provide ICM and assist individuals with access to needed services.

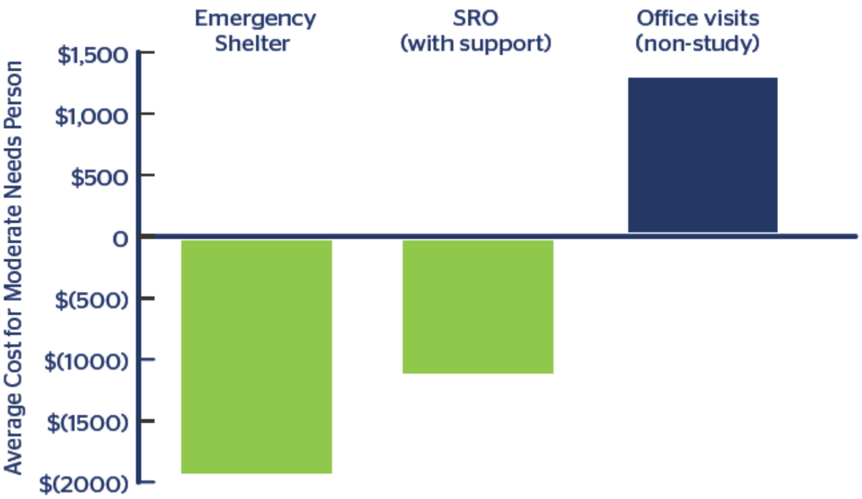
As shown, cost offsets are much greater for HN participants, even considering the cost of the intervention. This pattern was consistent across the sites (more detail is available in site reports). We attribute this finding to greater opportunities for changing costly service use patterns in HN participants, given their higher service use levels at study entry.

This finding suggests that, if services were focused on participants who cost the most at baseline, the cost offsets would be even greater, and might even exceed the cost of the intervention. We identified the 10 per cent of participants who cost the most at baseline (i.e., in the year prior to entering the study). It is important to note that 67 per cent of this high service use group was made up of HN participants and 33 per cent was MN. This group was similar to the full sample in many ways – 55 per cent were between 35 and 54 years old, 65 per cent were male, 47 per cent had less than a high school education, and their income and prior employment status are similar, yet a smaller proportion of this group is Aboriginal. In terms of homelessness history, they were more likely to be absolutely homeless at study enrolment but did not have as long a period of homelessness as the rest of the sample. They were more likely to have a psychotic disorder, and a history of more hospitalizations, but lower suicide risk. When they were recruited, these participants had been incurring costs on average at a rate of about $225,000 per year per person. In this top 10 per cent, both HF and TAU groups experienced a very large reduction in costs during study follow-up, but the reduction was clearly greater for the HF group. In fact, the reduction is more than twice as great as the cost of the intervention itself: for this group of participants, every $10 invested in an HF intervention resulted in $21.72 in avoided costs.

The total costs offset for this group, along with one significant increase, are illustrated in Figure 14. The most significant cost offset is psychiatric hospitalizations: the HF intervention is able to prevent subsequent psychiatric hospitalizations to a much greater extent than usual services. This is not surprising, as many studies have shown that ACT teams, in particular, are consistently effective at reducing both numbers of admissions and length of stay for people who tend to spend a considerable amount of time in psychiatric wards.[19] At the same time, this high cost group tended to have more stays in psychiatric residential facilities.

Overall, from a cost perspective, HF services have substituted for other services, notably hospitalizations, emergency shelters, jail/prison, and home or office visits to different providers. On average, the intervention comes close to paying for itself among

Figure 12. Annualized average cost offsets and increases per person for MN participants.



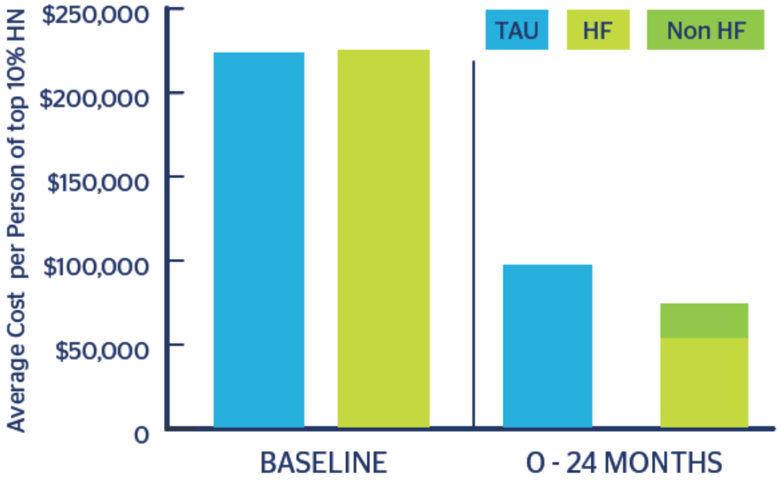


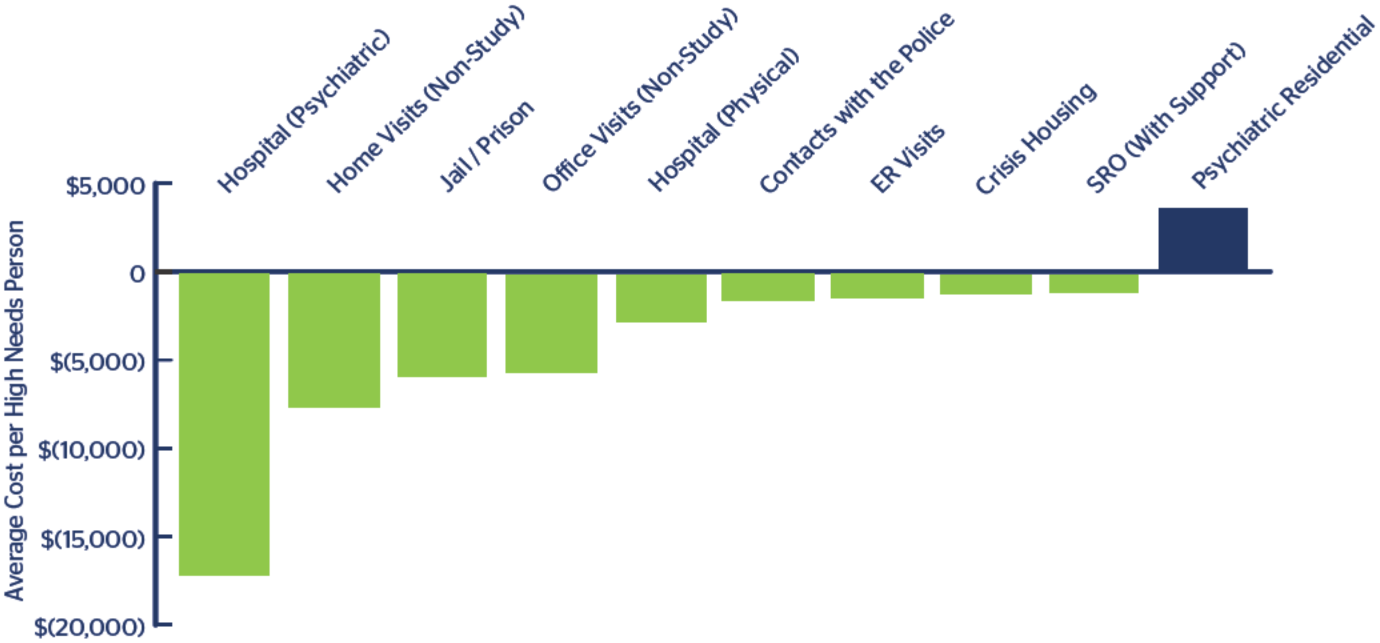
Figure 13. Comparison of TAU group and HF group cost offsets on annualized average costs per person for 10 per cent of participants with highest costs at baseline.

HN participants, but the cost offsets are more modest for MN participants. That the intervention does not more than pay for itself, on average, should not be surprising as people were recruited to the study on the basis of need, not on the basis of how costly they were. As a result, some of the people recruited were highly marginalized and were not accessing shelters and other services at study entry. The analysis of the effects of the intervention for the most costly 10 per cent of participants at baseline indicates that targeting HF services at high cost users could easily pay for itself, but would miss meeting the needs of these other vulnerable participants.

It should be noted that "paying for itself" in this context does not mean that a government that paid for HF services would see a corresponding reduction in its expenditures on other services. There are at least three reasons for this. First, if HF prevents an individual from being hospitalized, for example, the hospital bed that this person does not occupy will almost inevitably, be filled by another patient, and the hospital may see no difference in its expenditures. Nonetheless, a costly resource has been freed, which benefits another patient; the gap between available supply and demand has been decreased slightly. Second, we estimated unit costs taking into account not only the portion of costs borne by governments, but also those covered by private donations and even some volunteering, particularly for homeless shelters. Thus, the reduction in use of shelters may partly benefit government funders, and partly private donors and volunteers. Third, while the great majority of the avoided costs benefit provincial governments (often different ministries, such as justice and health, within a provincial government), some benefit municipal governments and the federal government (e.g., federal penitentiaries). Even so, real cost reductions in some types of service use, such as shelters, are probably achievable and allow for reallocation if HF is part of a comprehensive homelessness strategy.

Finally, the duration of our study was only two years. We do not know whether a longer follow-up period would have increased or decreased the magnitude of cost offsets, for a given group of participants. However, some of our results suggest that the cost offsets would increase over time. Detailed analysis of

Figure 14. Annualized average cost offsets and increases per person for the 10 per cent of participants with highest costs at baseline.



the qualitative interviews in particular indicates that the lives of participants receiving HF services were, for the most part, improving. As their lives become more ordered, many may need less intensive clinical supports. Some may become able to re-integrate into the labour force and, as such, not only no longer need welfare or disability benefits, but also contribute to the economy through their work. Their physical and mental health may stabilize. Longer-term follow-up of the participants would provide valuable information in terms of costs as well as of other outcomes, and each site is currently undertaking a four-year follow-up with results to be reported in peer reviewed publications.

In summary, using information reported by participants, we found some very substantial differences in patterns of some types of service use. The overall picture is that the HF intervention (for both need groups) produces more appropriate community-based service use and better responsiveness to the needs of participants, all of whom were experiencing homelessness and living with mental illness, most had chronic physical health conditions, a substantial proportion had substance-related problems, and many had underlying cognitive and learning disabilities at the beginning of the study. These service use changes translated into some very promising patterns of cost shifts, with most cost offsets seen for higher need participants and a subgroup with the highest service use costs at study entry.

CHAPTER 6
SOCIAL AND HEALTH OUTCOMES

At the time of enrolment into the study, the average At Home/Chez Soi participant had experienced homelessness for a total of about five years, and most had an even longer history of social and physical disadvantage — often reaching back to early childhood. Street and shelter life is harsh, and most activities of daily living are centred on basic survival: finding food, shelter, and places to rest; avoiding harassment and victimization; and, for some, seeking and using substances as a way to cope. These circumstances are not conducive to participating in treatment for mental health or addictions issues, or to managing physical health problems. For some, improvement after becoming stably housed can be rapid. For most, however, recovery is gradual, and often halting. In this chapter, we report findings for the research question: **How has HF affected participants' quality of life, community functioning, and mental and physical health?**

Quality of Life and Community Functioning

To measure quality of life, we used the Quality of Life Index (QOLI 20), which is based on participant self-report. To measure community functioning, we used the Multnomah Community Ability Scale (MCAS), which is based on observation by a research assistant (more details of the methods for this chapter can be found in Appendix A).

Based on these scales, improvements in community functioning and quality of life were somewhat greater in HF than in TAU for the total cross-site group. The study documented immediate increases in both, followed by more gradual continuing improvements (as shown in Figures 15 and 16). TAU participants also improved, but did not achieve the levels of functioning or quality of life that the HF group did. While encouraging, these differences are not as large as the differences in housing stability, but they were examined using statistical tests and can be considered due to the intervention and not a chance occurrence.

The largest treatment effect on functioning was on the "behaviour" scale of the MCAS, which includes items on cooperation with treatment providers (including medication compliance), substance use, and impulse control. Participants' ability and willingness to interact with others, as measured by the "social skills" scale, also improved more in the HF group. The intervention also seemed to improve life skills like money management, independence, and acceptance of illness (the "adaptation" subscale), but only in the ICM group. For this subscale, we saw no difference between TAU and HF among the people receiving ACT. There was also no evidence that the intervention improved interviewer-rated mental or physical health items on the MCAS; there were improvements in this area, but they were the same in HF and TAU. Men tended to have more improvement on the MCAS compared to women, but the MCAS scores for women in both TAU and HF were very similar, resulting in little treatment effect. We also found that participants in their 40s and 50s had a bit more improvement in MCAS scores than younger participants.

The intervention improved participants' reported quality of life. The biggest

Figure 15. Differences between HF and TAU in Community Functioning over the Study Period.

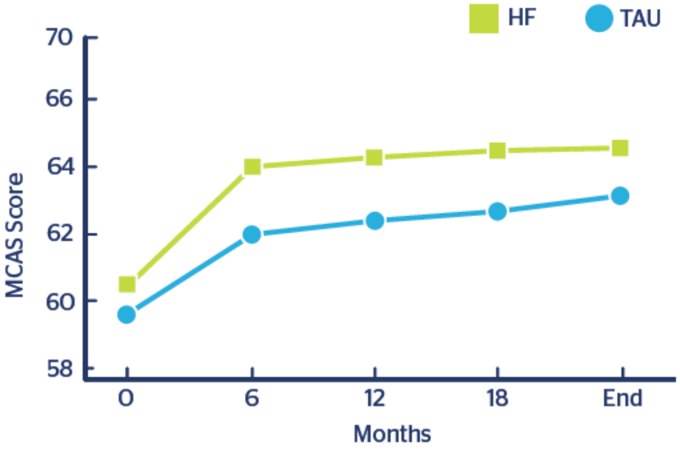
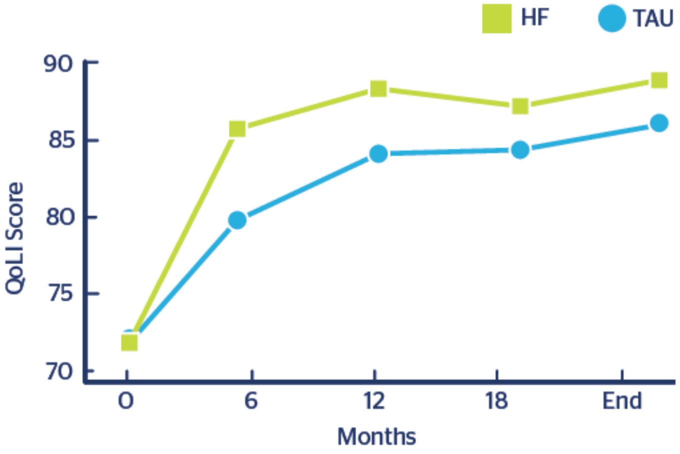


Figure 16. Differences between HF and TAU in Quality of Life over the Study Period.



change was, unsurprisingly, in the “living” subscale, which asks about satisfaction with their homes and neighbourhoods. We also saw smaller group differences in perceived safety and in satisfaction with finances, which may also be directly related to the provision of housing. There were fewer signs that the intervention improved participants’ satisfaction with their social lives or relationships with family; as elsewhere, these things did improve, but they improved by about the same amount in HF and TAU. In general, the effects of the intervention were slightly larger among the MN group than the HN group. This was especially true for the items on leisure activities and perceived safety. Some variation in quality of life and community functioning outcomes is seen for specific programs in specific sites and is further elaborated in the site reports. We did not find differences in quality of life by sex or age.

In summary, although generally both HF and TAU groups improved in these measures, the HF groups improved more and more quickly than TAU groups on measures of quality of life (by the participants’ own reports) and community functioning (by observer’s ratings).

The qualitative research allowed participants to tell us, in their own words, what was happening in the same areas measured by the scales. In general, this qualitative information showed that the quality of participants’ daily lives changed from being survival-oriented to being “more secure,” “peaceful,” and “less stuck,” which enabled them to move forward in their lives. At baseline, participants tended to describe their daily lives using phrases such as “killing time” and “shuffling around.” After becoming housed, they talked about more meaningful activities (e.g., “establishing a nice routine” and “doing things that matter”). As one Toronto participant stated: “*I am really proud of myself, with a lot of help I was...able to...not really get back to where I used to be, but in a better place.*”

Getting people into housing represents an important success, however, and we were able to show that it does produce real improvements in community functioning and quality of life. We hope that sustained improvements in mental health and substance use will follow.

Health and Substance-Related Outcomes

We saw improvements in participants’ mental health and substance-related problems (based on the Colorado Symptom Index [CSI] for mental health and the Global Assessment of Individual Needs Substance Problem Scale [GAIN SPS] [see Appendix A]), but these changes were similar among participants in all groups. The intervention itself did not seem to hasten improvements in these areas over the two years of the study. On the other hand, placing people in housing with no readiness requirements did not put them at higher risk and their outcomes were as good as those of the usual care system.

There are several possible reasons we did not find greater improvements in these areas. From other research, we know that many of these illnesses can be lifelong. Recovery from these illnesses often involves improvement in symptoms, but it also requires learning to manage those symptoms in healthy ways. This allows people, ultimately, to reclaim important social roles (neighbour, family member, friend, coworker). Housing and services provide the minimum prerequisite for this kind of recovery, but they do not guarantee that it will immediately follow. For many people, it is a very long process. For most participants, symptoms were uncontrolled for many years; two years of housing (less, in most cases, as it took time to locate apartments and move people in) and contact with care providers may simply have begun the process. Getting people into housing represents an important success, however, and we were able to show that it does produce real improvements in community functioning and quality of life. We hope that sustained improvements in mental health and substance use will follow.

For most outcomes, we also saw improvements in the TAU group. This was expected. Before they entered the study, many participants had better and worse periods — times when they were absolutely homeless and in desperate circumstances, and others when they had somewhere to stay and were able to function reasonably well. Most participants were recruited to the study in one of their crisis periods. As a result, we expected to see improvements, on average, simply because many people would naturally move from the current emergency to a somewhat better state. Statisticians call this “regression to the mean,” and it is one of the reasons why it was important to conduct a randomized controlled trial: if we randomly decide who gets Housing First, and compare those people to a group who don’t, then we can be fairly sure that any differences that emerge between the two groups are due to the intervention we provided. If we had no one to compare the HF participants to, we would probably end up overestimating the program’s effectiveness.

Measures of physical health remained about the same in both groups over the course of the study. While access to physical health care may have been improved by housing and contact with service teams, it was generally not provided directly, and many participants were already regular users of emergency rooms or other services. Many also

After becoming housed, they talked about more meaningful activities (e.g., “establishing a nice routine” and “doing things that matter”)

HF participants were more than twice as likely to have a positive life course over time, compared with TAU participants. Moreover, TAU participants were more than four times as likely to show a negative life course over time.

had chronic health problems, like lung conditions, hepatitis C, arthritis and diabetes, which cannot be rapidly cured and, in some cases, can only be managed with difficulty. With these chronic illnesses, observing steady state, rather than further declines, is good news.

How Life Courses Differed Between Groups

The information gathered in the qualitative interviews was analyzed by classifying participants' stories into one of three life courses: positive, negative or mixed/neutral (shown in Figure 17). To ensure that these findings were reliable, classifications were done by two raters for each participant; agreement was found to be very good. This integrated picture of social and health outcomes illustrates effects that more closely match the housing outcomes. HF participants were more than twice as likely to have a positive life course over time, compared with TAU participants. Moreover, TAU participants were more than four times as likely to show a negative life course over time.

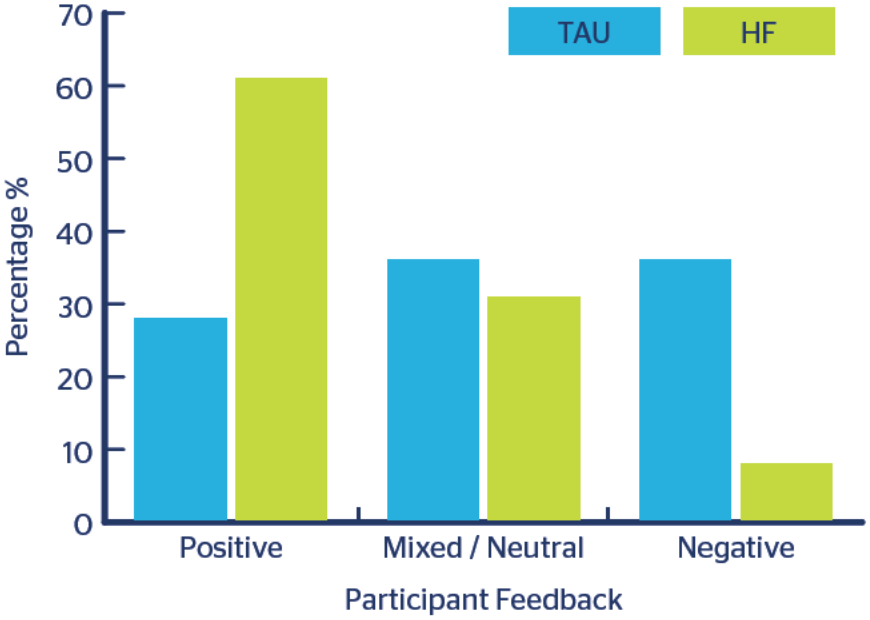


Figure 17. Differences between HF and TAU in life courses.

Participants' comments suggest that becoming housed spurs hope for recovery of both personal and social aspects of identity, as well as motivation for some to "do what it takes" to reclaim those aspects of their lives, including beginning to "focus on (them)selves" and their mental health. It is also important to underscore that these findings reflect group averages. The individual responses in both HF (ICM and ACT) and TAU over time were enormously diverse.

Participants' comments suggest that becoming housed spurs hope for recovery of both personal and social aspects of identity, as well as motivation for some to "do what it takes" to reclaim those aspects of their lives, including beginning to "focus on (them) selves" and their mental health.

Factors Related to Positive Life Courses

Stable housing was an important factor associated with individuals who had positive life courses. The acquisition of stable housing gave participants both hope and confidence, and provided opportunity for participants to take on new social roles. A second factor was *positive social contacts*, which was multifaceted and varied across sites. In Toronto, participants who had positive or improving relationships with family tended towards positive life courses; the same was true in Winnipeg of Aboriginal participants who connected with their cultural traditions and supportive communities. Across sites, it was the support garnered from positive *social contacts* that was key to understanding how this factor contributed to positive life courses. Supportive social contacts were associated with *reduced substance use*. It is difficult to ascertain the direction of the relationship between these factors – whether decreased substance

Housing stability, quality of life and community functioning outcomes were all more positive for programs that operated most closely to the following HF principles:

1. Immediate access to housing with no housing readiness conditions
2. Consumer choice and self-determination
3. Recovery orientation
4. Individualized and person-driven supports
5. Social and community integration

use was caused by or resulted from changes in social contacts. It was clear, however, that *reductions in substance use* were associated with positive life courses. Finally, *new social roles* were an important factor in positive life courses across sites. In Vancouver, Toronto, and Moncton, many participants changed their daily activities to include things like volunteering, coaching softball, working, attending school or becoming peer support workers. These activities gave participants opportunities to take on new social roles that expressed a positive social identity.

Factors Related to Negative Life Courses

Precarious housing – losing housing; living in shelters, housing of poor quality or unstable housing; or negative experiences with housing – was associated across sites with negative life courses. It should be noted that *precarious housing* might represent uneven implementation of the model in sites where the housing stock is of more variable quality (e.g., Winnipeg). Housing is central to the Housing First model and recovery, so it is unsurprising that precarious housing is a crucial factor associated with negative trajectories. *Negative social contacts and isolation* were also associated with negative trajectories. While negative social contacts affected both housed and unhoused participants, isolation was typically – although not exclusively – associated with housed participants. In both instances, participants lacked the supportive social contacts that are important in helping to make difficult life changes. *Increased or continued heavy substance use* was associated with negative trajectories and likely associated with individuals remaining involved in social groups who use substances. Finally, *hopelessness* was an important factor associated with negative trajectories. Hopelessness was presented across sites as the pervasive belief that things would not improve for the individual. Hopelessness was associated with both histories of social marginalization as well as perceived failures and disappointments of participants in the face of life challenges. One common example scenario that preceded hopelessness was losing housing. One participant in Vancouver who faced an eviction presented her circumstances in the following terms: *"I'm an addict – I screwed up. I was clean for eight months and then I relapsed... Maybe I'm not good enough to have an apartment. I'm thinking that now."*

Factors Related to Mixed or Neutral Life Courses

Mixed trajectories were associated with substance use as well as *perceived failures and disappointments*. In this trajectory, participants made uneven progress with a split of roughly equal positive and negative gains. Similar to negative trajectories, participants with mixed experiences showed sustained *substance use* and setbacks due to relapse. *Perceived failures and disappointments* is the most salient factor associated with mixed trajectories. Similar to hopelessness for those individuals with negative trajectories, participants with mixed trajectories often made attempts to make life changes but had difficulty following through when faced with setbacks. The subsequent cycle of hope and disappointment was emblematic of mixed trajectories. One salient example of a mixed trajectory was a participant from Vancouver who attempted to return to school and resume contact with family. Both pursuits did not go well, leaving the participant feeling depressed and hopeless and subsequently self-isolating.

The Relationship between Program Fidelity and Key Study Outcomes

We examined whether participants in programs with higher fidelity had better outcomes. Housing stability, quality of life, and community functioning outcomes were all more positive for programs that operated most closely to HF standards. We also found that participants who enrolled later in the study did somewhat better, and this may be related to the increase in program fidelity over time. These findings indicate that supporting all components of the HF model and investing in training and technical support can pay off in improved outcomes. They also suggest that somewhat better overall outcomes may be achievable for long-running programs; in our study, fidelity improved as new programs worked out problems and gained experience, and better fidelity predicted better outcomes. This finding also helps to validate the HF approach. That is, if the intervention was not effective, better fidelity to it would not improve outcomes.

In summary, the findings for health and social outcomes indicate that participants in both groups improved after a period of acute homelessness or crisis. Like the housing outcomes, we know that most of the TAU participants also had access to and received a range of treatment interventions in each city, many of which had positive impact. While it appears to be the case that HF had a similar impact in mental health and substance use problems, the findings on quality of life and community functioning indicate that HF can produce *additional improvements in broader life domains* that hold promise for more positive outcomes and recovery over the longer term.

CHAPTER 7
IMPLICATIONS FOR PRACTICE AND POLICY

At Home/Chez Soi offers an evidence base to inform effective HF policy and program development for people experiencing homelessness and mental health and/or substance use issues.

The knowledge generated through this study is now available and data will continue to be analyzed and shared to support the implementation of evidence-informed HF programs. There is growing momentum across the country as governments and communities are considering how to implement HF programs, adapt it to their local contexts and use it to enhance their existing programs and services. A number of communities have already implemented HF programs and can continue to expand and strengthen them. In an important policy shift towards HF, the federal government renewed funding for the Homelessness Partnering Strategy with a focus on HF, which will allow for further development of HF in Canada. The At Home/Chez Soi findings add to this growing Canadian HF expertise by providing strong research evidence and experience in implementation to help guide HF policy and program development.

KEY FINDINGS

1. **Housing First can be effectively implemented in Canadian cities of different size and different ethnoracial and cultural composition**. Across all the five cities, HF programs were operated in a manner that was consistent with the HF model standards, but were tailored to best fit the local contexts. The HF approach was successfully adapted to serve Aboriginal, immigrant, and other ethnoracial groups in a culturally sensitive manner. (Chapter 2)

2. **Housing First rapidly ends homelessness.** Across all cities, HF participants in At Home/Chez Soi rapidly obtained housing and retained their housing at a much higher rate than the treatment as usual (TAU) group. (Chapter 4)

3. **Housing First is a sound investment**. The economic analysis found some cost savings and cost offsets. (Chapter 5)

4. **It is Housing First, but not Housing Only**. The support and treatment services offered by the HF programs contributed to appropriate shifts away from many types of crisis, acute, and institutional services towards more consistent community and outreach-based services. This shift supports and encourages more appropriate use of health and shelter services. (Chapter 5)

5. **Having a place to live and the right supports can lead to other positive outcomes above and beyond those provided by existing services**. HF participants also demonstrated somewhat better quality of life and community functioning outcomes than those receiving existing housing and health services in each city. (Chapter 6)

6. **There are many ways in which Housing First can change lives**. The HF groups, on average, improved more and described fewer negative experiences than TAU (Chapter 6). Understanding the reasons for differences of this kind will help to tailor future approaches, including understanding the small group for whom HF did not result in stable housing. (Chapter 4)

7. **Getting Housing First right is essential to optimizing outcomes**. Housing stability, quality of life, and community functioning outcomes were all more positive for programs that operated most closely to Pathways HF standards. (Chapter 6)

POLICY IMPLICATIONS

1 **Housing First is an effective, pragmatic, and humane intervention to address homelessness.** There are few interventions or strategies designed to address homelessness that can truly be described as best practices; Housing First is one of them. A solid research base provides evidence for the effectiveness of the approach. At Home/Chez Soi successfully implemented HF in five cities in Canada and demonstrated that HF has the ability to end homelessness for people who are chronically homeless and living with serious mental health, addiction, and other complex issues.

2 **Housing First improves access to community services and can contribute to cost containment.** The findings from At Home/Chez Soi indicate that there are measurable cost offsets associated with HF. In the area of health care, HF contributes to cost containment as it improves access to needed health services and contributes to a shift from institutions and crisis-related services to more appropriate and planned visits and regular follow-up with community-based services. HF, therefore, helps to ensure more appropriate use of hospital and community health care resources.

Actual cost savings are more likely to be achieved in shelter expenditures with the expansion of the Housing First model within a larger strategy to end homelessness, leading to decreases in chronic homelessness and potentially less need for shelter beds. Given the pressures that growing community populations with high unmet needs place upon acute and inpatient health services, it is difficult for beds to be closed and dollars to be shifted to other sectors. In smaller locations where there is a critical mass of HF capacity, the closure of shelter beds may be realized more quickly. In larger urban areas, it may be more reasonable to talk about cost avoidance rather than cost savings. Reductions in the use of resources by people who are homeless can alleviate existing pressures on the respective shelter and health services. These findings are particularly of note in light of the finding that only 15 per cent of people who are homeless are chronically or episodically homeless (the rest are transitionally homeless) yet take up over half of homelessness resources such as emergency shelter beds and day programs.[20]

3 **To achieve the best outcomes, HF programs should demonstrate high fidelity to the core aspects of the model, even for programs that have been adapted to different settings.** With the increasing interest and uptake of HF, there is a risk that HF may be defined in different ways and that the core principles may be ignored or only partially implemented.[21] HF has been defined as having the following core elements: immediate access to housing with no housing readiness requirements, consumer choice and self-determination, recovery orientation (including harm reduction), individualized and client-driven supports, and social and community integration).[22] At Home/Chez Soi demonstrated that adherence to the core HF principles, with room for adaptation, was an element of program success. A key element of fidelity is the capacity to deliver strong, evidence-based services and supports. At Home/Chez Soi found that housing stability, quality of life, and community functioning outcomes were all more positive for programs that operated most closely to HF standards. Understanding the core elements of HF is an important element of program development and implementation, and investing in ongoing training and technical support and program evaluation/quality assessment can pay off in improved outcomes.

4 **To effectively implement Housing First, partnership and collaboration across government, communities and service sectors is required.** The qualitative findings from At Home/Chez Soi help us understand some of the key ingredients needed to successfully implement HF in Canada. One of the vital lessons is that while At Home/Chez Soi has demonstrated that Canadian communities can successfully implement HF programs, to fully address the complexity of chronic homelessness in our communities, strong leadership and partnerships across departments, sectors, government and communities is needed to build bridges across fragmented systems and programs. At Home/Chez Soi has examples of the kind of cross-sector collaboration that helped participants navigate across these systems.

5 **Housing First may need to be adapted to meet the needs of specific sub-populations.** We need to better understand the potential benefits and challenges of implementing Housing First with other populations who are at risk of homelessness (e.g., families, women, seniors, youth, or those experiencing short-term homelessness). The basic principles of Housing First show promise for application to these other groups, but variations in the model may be warranted, such as adjusting the composition of the service and support teams to meet the needs of the population served. It will be beneficial to better understand who benefits from Housing First and who does not, and if variations to the model are needed for other groups. Further work is required to determine the best approaches to respond to homelessness among the approximately 13% of people who are not successful with traditional Housing First interventions.

6 Policies and funding that address the lack of affordable housing (including HF and rent supplements) across the nation is needed to end homelessness in Canada. At Home/Chez Soi was implemented successfully in each of the five sites, using a rent supplement approach. Participants were largely able to choose the neighbourhood and type of housing they wanted, as At Home/Chez Soi was grounded in the HF principle of choice and self-determination as the foundation of recovery. HF operates on the assumption that people know their own needs best, including where they want to live and the kinds of services they would like to access. Our findings in At Home/Chez Soi are consistent with the evidence that housing choice improves housing stability and quality of life and that, given a choice, many would choose to live in independent permanent housing over congregate/social housing models.[23] This suggests that the development of a full range of housing and support options that include rent supplements would allow people to direct their own opportunities and find a place to call home that best suits their needs. However, communities across Canada, including the five At Home/Chez Soi Sites, are facing a lack of access to affordable housing generally and, in particular, a lack of access to good quality, affordable, independent units for people experiencing mental illness and homelessness. For the expansion of HF across Canada to be successful and to be able to end homelessness in our communities, access to good quality, affordable housing needs to be improved across the country.

WHAT'S NEXT?

To support communities interested in implementing Housing First, the lessons learned from At Home/Chez Soi and other Canadian HF programs have now been incorporated into a toolkit to guide the planning and implementation of effective Housing First programs in Canada; this toolkit will be available in the Spring 2014. The Mental Health Commission of Canada is also working with partners to develop and offer training and technical assistance to a number of communities interested in implementing Housing First.

In the future, the MHCC website will be a central mechanism for the dissemination of At Home/Chez Soi reports and articles. We are also actively engaged with other homelessness and mental health forums to share knowledge. The Final Report provides a high-level view of a multi-faceted project and more detailed analysis will continue to be done for scientific papers (e.g., two-year outcomes for the Assertive Community Treatment and Intensive Case Management service delivery models will be submitted for publication shortly). Local Site Reports are also available and report on the unique characteristics and program outcomes in their settings.

CONCLUSION

At Home/Chez Soi demonstrated that implementing HF in Canada is possible and that there are benefits for the people who receive HF as well as for the service system and the community. The many service and housing providers who worked on At Home/Chez Soi developed new skills and increased the capacity in their communities for the delivery of recovery-oriented services. Out of necessity, the project brought together community providers, stakeholders and governments from across sectors to work together around a complex issue – providing HF for people with serious mental health issues who are experiencing homelessness. While some questions remain regarding HF, it has well demonstrated its potential and At Home/Chez Soi has and will continue to contribute to the growing Housing First expertise in Canada and internationally.

> *"Now that my kids are in my life and [the At Home service team] brought me into the program and helped me out, I'm very grateful for whoever came up with this idea of (at) home, helping homeless people and I'm hoping and praying that they find other ways to keep things going like this, cause there is a lot of people still hurting right and...I still see them out there...and struggling."*
>
> (Winnipeg Participant)

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APPENDIX A
OVERVIEW OF STUDY DESIGN AND METHODS

Study Design

The At Home/Chez Soi study design is a randomized controlled pragmatic field trial.[1] Randomized means that participants were put into the Housing First (HF) intervention and treatment as usual (TAU) groups by chance. A computer program was used to assign participants to the study groups at random, with no influence by the study investigators, service providers, sponsors or anyone else. By *controlled* we mean that a "control" or comparison group that does not receive the intervention is used to make sure that any changes observed are due to the intervention and not some other influence. The term *pragmatic* means that the study involved individuals that would ordinarily present for a HF service in practice and that the services they and the TAU group received may vary as they would in real world circumstances. Finally, by *field trial* we mean that the intervention occurred in the same settings that the services might later be implemented if found to be effective. The study was also, by design, "multi-site" — that is, it was conducted in multiple sites — with four larger urban settings and one smaller urban/rural setting so that more could be learned about how HF programs fit or can be adapted to local contexts.

Why a randomized controlled trial?

Although there were a range of options for study designs, a randomized controlled trial was chosen because it is the best design for showing that participant changes are due to the intervention. This is because randomizing makes the two groups virtually equal on anything other than the intervention that could produce the outcomes. As such, a randomized controlled trial provides the strongest evidence for decision making.

How were data collected and how many participants completed data collection?

Data collection included interviews with participants at baseline and every three months for up to two years of follow-up, plus information from the programs (such as the number of service visits), and from national and provincial administrative data sources for health and justice service use before and after the beginning of the study. The first participant was enrolled in October 2009 and the last interview ended in June 2013. All participants were screened and grouped into high and moderate need groups (see Appendix D for definitions) before being randomized to HF and TAU groups. Participants were given honoraria (around $20 – 30) at each interview to encourage continued participation. Data were entered using laptops in the field to a highly secure national database approved by Research Ethics Boards at all sites. Data collection included both quantitative (information based on numbers) and qualitative (information based on text and stories) approaches. Qualitative methods complement the quantitative findings and enhance their interpretation. For the qualitative component, a sample of participants were interviewed in depth at the beginning of the study and at the 18-month point. One hundred and ninety-seven participants from both HF and TAU groups, roughly every 10th participant, were interviewed at both points. This sample was demographically similar in almost all respects with the overall quantitative sample, except for having a slightly higher income at baseline in the qualitative subsample; the demographic characteristics of TAU and HF groups were also equivalent.

2,148 individuals were enrolled and, of those, 1,158 received the HF intervention. Follow-up rates, defined as all those who completed at least one interview instrument at their final interview were between 77 and 89 per cent and as high as 91 per cent in one site, which are excellent for a vulnerable and often transient population (see Table A1 for details). These figures include those lost to follow-up for all reasons including the 85 participants known to have died during the study period. An analysis is currently underway using national mortality statistics to get complete information on the number of deaths and the causes of death.

What type of information was collected?

A comprehensive range of information was collected in the study at all sites including demographic information (such as age, sex and education), homelessness and service use history (e.g., emergency room visits, hospital admissions, jail stays, court

Table A1 – Follow-up Rates by Program

NATIONAL	COMPLETED FINAL INTERVIEW?		
	NO	YES	%
TAU in ACT analysis	112	369	77%
HF in ACT analysis	58	411	88%
TAU in ICM analysis	115	394	77%
HF in ICM analysis	73	616	89%
All TAU	227	763	77%
All HF	131	1027	89%
Study Total	**358**	**1790**	**83%**

appearances), adverse childhood experiences, mental and physical health status (including chronic illnesses and history of brain injury), work and income-related information, and extensive service cost information. The study is also the first to include a measure of Recovery and an observer-rated housing quality measure, to document in detail the role of peer support and fidelity to the program model, respectively (see Appendix C).

The primary outcomes measured at all sites were **housing stability, community functioning,** and **quality of life**. Key secondary outcomes were **mental illness** and **substance use problems**. These five variables are described in greater detail below. Interested readers are referred to the study protocol at the first reference below for greater detail on the full range of measures, and to the site reports for more information on additional site-specific data.

Housing (RTLFB) – information on the types and locations of stays (including any type of shelter or crisis housing, temporary or longer-term residences and street locations) for every day during the study period were collected every three months using the Residential Time-Line Follow-Back (RTLFB) instrument.[2] This involves the use of a calendar to systematically guide the participant in recalling all the locations and types of housing that he or she has resided in during the prior period. The RTLFB was developed for and has been validated in HF programs and clients. It was modified slightly to reflect the Canadian context.

Community Functioning (MCAS) – to assess community functioning, we used the Multnomah Community Ability Scale (MCAS),[3] a 17-item scale that covers mental and physical health, ability to cope with illness, social skills, and problem behaviours. The MCAS was developed and validated for individuals with long-term mental health issues and related disability. It produces a total score that has total scores ranging from 17 to 85. Score ranges that represent specific categories of functioning/disability and the proportions of our study participants who fell into each are outlined in Table A2.

While the other main instruments consist of questions answered by participants, the MCAS is completed by the interviewer, based on information collected through interviews, observed behaviour and current life circumstances. This approach was taken to ensure that outcomes reflected both participants' perspectives and objective ratings by study research staff.

Quality of Life – We measured participants' feelings about their quality of life with the Quality of Life Index (QOLI-20),[4] which asks about satisfaction with family relationships, social relationships, finances, leisure, living situation, and safety. This instrument was developed and validated with individuals with long-term mental health issues.

Mental Illness Symptoms – We assessed symptoms of mental illness using the Colorado Symptom Index (CSI),[5] a scale developed and validated for people experiencing homelessness. The CSI asks how often in the past month the participant experienced problems like depression, anxiety, strange behaviour, and poor concentration.

Substance Use Problems – To measure substance use problems, we used the short version of the Global Assessment of Individual Needs Substance Problems Scale (GAIN SPS).[6] The GAIN SPS asks people how recently they experienced problems like withdrawal, spending a lot of time finding or using substances, or getting into trouble because they were intoxicated.

Analysis Methods for Primary Outcomes

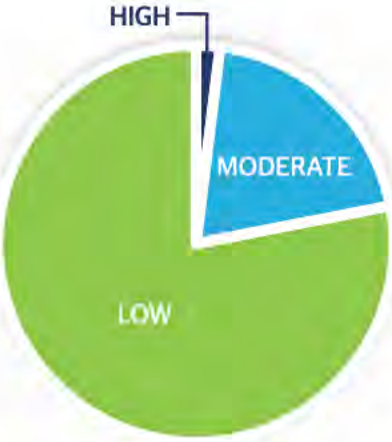
The following analytic methods were used for the purposes of this report for housing stability, quality of life, and community functioning.

Table A2. Categories of Disability on the MCAS and Percentages Overall and by Study Need Level

DISABLITY LEVEL	ALL	HN	MN
High (Score less than 47)	9%	18%	2%
Moderate (Score of 48–62)	45%	75%	20%
Low (Score of 63–85)	46%	7%	78%

All Participants Disability Needs

High Disabilty Needs



Moderate Disability Needs

To analyze housing stability, quality of life, and community functioning outcomes, we used mixed effects modeling. Mixed effects models make it possible to measure the associations between outcomes and predictor variables while taking into account the non-independence of observations. (In this case, non-independence is present because there are multiple interviews for each participant. Less importantly, participants were also grouped into treatment arms and cities.)

In each model, the main predictor of interest was group membership: whether a participant had been randomized to HF or TAU. In national-level models, we also controlled statistically for age, sex and the variables that played a role in determining the group assignment: city, aboriginal status, ethnoracial status and need level. We treated time as a categorical variable, essentially estimating group differences and treatment effects at every time point. To test group differences, we interacted the time and group variables, which produces estimates of group differences at each time point.

To measure the overall effect of the intervention, we considered (1) the group difference at the end of the study (after taking any baseline differences into account); and (2) the average difference across all interviews conducted after baseline. The first measure reflects the treatment effect at the last time point available for each person. The second reflects the overall benefit, if any, realized over the entire course of the two-year study. Because we performed an interim analysis with a p value of 0.01, we set the significance threshold at 0.04 in the final report.

Analysis Methods for Costing

The economic analyses were conducted from the point of view of society. Service use and residential questionnaires enabled us to assess quantities of a wide range of services used, as well as of income from various sources. We estimated unit costs (e.g., the average cost of an emergency room visit, of a police arrest, of a night in a shelter) city-by-city using the best available data. Nearly 400 distinct unit costs were estimated. In many cases, service providers were contacted to obtain their financial and activity reports and to help interpret them. When a program's expenditures included contributions by private donors as well as government sources, we included the value of private contributions as this represents the full cost of service delivery from the point of view of society. Welfare and disability payments were included as they represent costs that society must incur in order to enable individuals who are homeless to participate in and benefit from Housing First programs and other existing housing programs.[7] Income from employment was subtracted from overall costs as this represents the value of a contribution to society by the individual. Estimates of capital costs were included in all services. All costs were expressed in fiscal year 2010 – 2011 Canadian dollars. Due to the two-year follow-up period, we did not apply discounting.

Analysis Methods for Clients with Additional or Other Needs

A focused analysis was also undertaken on individuals in the HF group for whom housing stability was not achieved (13 per cent). This group was made up of HF participants who were housed less than 50 per cent of the time during the last nine-month period of the first year and not housed 100 per cent of the time in the last three months of the first year. Time in institutions such as jail or hospital was removed from total days for the calculation. Only HF participants who had at least six months of housing history data in the last nine months of the first year or had not been in jail or hospital for 66 per cent of the last nine months of the first year were considered in these analyses. Differences on demographic characteristics, clinical characteristics, quality of life, community integration, and community functioning at baseline and cognitive functioning at six months between those individuals failing to achieve housing stability and individuals who were considered stably housed in the first year of the study were examined. Findings of statistically significant between-group differences on these variables are reported.

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APPENDIX B
HOUSING-RELATED STATISTICS FOR AT HOME/CHEZ SOI SITES

STATISTIC	MONCTON	MONTRÉAL	TORONTO	WINNIPEG	VANCOUVER
Vacancy rate (%) (mid-study- Spring 2011)[1]	4.1	2.5	1.6	.7	2.8
% homes in core housing need 2009[2]	9*	13.1	17.8	9.5	20.5
Average rent for a one-bedroom apartment (mid-study – Spring 2011)[1]	$583	$626	$969	$657	$934

[1] Rental Market Statistics, Canada Mortgage and Housing Corporation, Spring 2012 (reporting on April 2011 values) http://www.cmhc-schl.gc.ca/odpub/esub/64725/64725_2012_B01.pdf?fr=1388695801870

[2] Core housing need means housing does not meet one or more of the adequacy, suitability, and affordability standards (30 per cent before-tax income to pay median rent incl. utilities); figures from Canadian Housing Observer, Canada Mortgage and Housing Corporation, 2012. http://www.cmhc-schl.gc.ca/odpub/pdf/67708.pdf
* only available for NB as a whole

APPENDIX C
FIDELITY ASSESSMENT METHODS AND SCALE

An important component of study methods was the measurement of how "true" the programs were to the principles and practice of Housing First (also called fidelity). These fidelity assessments were conducted with all the At Home/Chez Soi ACT and ICM teams in the five sites by a team made up of clinicians, researchers, housing experts, and a consumer representative. In site visits conducted near the end of the first year of the study and again one year later, the team reviewed data from multiple sources including interviews with staff, observation of program meetings, chart reviews, and consumer focus groups. A Housing First fidelity scale with versions for ACT and ICM program types was developed for the study, and used to rate programs on 38 items (listed below), including, for example, working effectively with hospital staff for people admitted as inpatients, using a harm-reduction approach to substance use, and allowing participants to help choose their housing. Each ACT and ICM team received a report about the assessment findings, including recommendations for improvement on standards where full implementation was not achieved.

Overall, there was good fidelity to the Housing First model: 71 per cent of items in the first round, and 78 per cent in the second, were rated 3 or 4 on a 4-point scale (the meaning of these ratings varies by item, but this corresponds generally to a "good" level of performance).

FIDELITY ITEM	ACT FIDELITY SCALE	ICM FIDELITY SCALE
HOUSING CHOICE & STRUCTURE		
1. Housing Choice. Program participants choose the location and other features of their housing.	X	X
2. Housing Availability. Extent to which program helps participants move quickly into units of their choosing.	X	X
3. Permanent Housing Tenure. Extent to which housing tenure is assumed to be permanent with no actual or expected time limits, other than those defined under a standard lease or occupancy agreement.	X	X
4. Affordable Housing. Extent to which participants pay a reasonable amount of their income for housing costs.	X	X
5. Integrated Housing. Extent to which program participants live in scatter-site private market housing which is otherwise available to people without psychiatric or other disabilities.	X	X
6. Privacy. Extent to which program participants are expected to share living spaces, such as bathroom, kitchen or dining room with other tenants.	X	X
SEPARATION OF HOUSING AND SERVICES		
7. No Housing Readiness. Extent to which program participants are not required to demonstrate housing readiness to gain access to housing units.	X	X
8. No Program Contingencies of Tenancy. Extent to which continued tenancy is not linked in any way with adherence to clinical, treatment, or service provisions.	X	X
9. Standard Tenant Agreement. Extent to which program participants have legal rights to the unit with no special provisions added to the lease or occupancy agreement.	X	X
10. Commitment to Re-House. Extent to which the program offers participants who have lost their housing access to a new housing unit.	X	X
11. Services Continue Through Housing Loss. Extent to which program participants continue receiving services even if they lose housing.	X	X
12. Off-site, Mobile Services. Extent to which social and clinical service providers are not located at participant's residences and are mobile.	X	X

FIDELITY ITEM	ACT FIDELITY SCALE	ICM FIDELITY SCALE
SERVICE PHILOSOPHY		
13. Service choice. Extent to which program participants choose the type, sequence, and intensity of services on an ongoing basis.	X	X
14. No requirements for participation in psychiatric treatment. Extent to which program participants with psychiatric disabilities are not required to take medication or participate in psychiatric treatment.	X	X
15. No requirements for participation in substance use treatment. Extent to which participants with substance use disorders are not required to participate in treatment.	X	X
16. Harm Reduction Approach. Extent to which program utilizes a harm reduction approach to substance use.	X	X
17. Motivational Interviewing. Extent to which program staff use motivational interviewing in all aspects of interaction with program.	X	X
18. Assertive Engagement. Program uses an array of techniques to engage consumers who are difficult to engage, including (1) motivational interventions to engage consumers in a more collaborative manner, and (2) therapeutic limit-setting interventions where necessary, with a focus on instilling autonomy as quickly as possible. In addition to applying this range of interventions, (3) the program has a thoughtful process for identifying the need for assertive engagement, measuring the effectiveness of these techniques, and modifying approach where necessary.	X	X
19. Absence of Coercion. Extent to which the program does not engage in coercive activities towards participants.	X	X
20. Person-Centered Planning. Program conducts person-centered planning, including: (1) development of formative treatment plan ideas based on discussions driven by the participant's goals and preferences, (2) conducting regularly scheduled treatment planning meetings, (3) actual practices reflect strengths and resources identified in the assessment.	X	X
21. Interventions Target a Broad Range of Life Goals. The program systematically delivers specific interventions to address a range of life areas (e.g., physical health, employment, education, housing satisfaction, social support, spirituality, recreation & leisure, etc.).	X	X
22. Participant Self-Determination and Independence. Program increases participants' independence and self-determination by giving them choices and honoring day-to-day choices as much as possible (i.e., there is a recognition of the varying needs and functioning levels of participants, but level of oversight and care is commensurate with need, in light of the goal of enhancing self-determination).	X	X
SERVICE ARRAY		
23. Housing Support. Extent to which program offers services to help participants maintain housing, such as offering assistance with neighborhood orientation, landlord relations, budgeting and shopping.	X	X
24. Psychiatric Services. Psychiatric services are directly provided by the program.	X	Program successfully links participants who need psychiatric support with a psychiatrist in the community.
25. Integrated, Stage-Wise Substance Use Treatment. Integrated, stage-wise substance use treatment is directly provided by the program. Core services include: (1) systematic and integrated screening and assessment; interventions tailored to those in (2) early stages of change readiness (e.g., outreach, motivational interviewing) and (3) later stages of change readiness (e.g., CBT, relapse-prevention).	X	Program successfully links participants who need substance use treatment with such treatment community.
26. Supported Employment Services. Extent to which supported employment services are provided directly by the program. Core services include: (1) engagement and vocational assessment; (2) rapid job search and placement based on participants' preferences (including going back to school, classes); & (3) job coaching & follow-along supports (including supports in academic settings).	X	Supported employment services are provided directly or brokered by the program.

FIDELITY ITEM	ACT FIDELITY SCALE	ICM FIDELITY SCALE
27. Nursing Services. Extent to which nursing services are provided directly by the program. Core services include: (1) managing participants' medication, administering & documents medication treatment; (2) screening consumers for medical problems/side effects; (3) communicating & coordinating services with other medical providers; (4) engaging in health promotion, prevention, & education activities (i.e., assess for risky behaviors & attempt behavior change).	X	Nursing/Medical care. Program successfully links participants who need medical care with a physician or clinic in the community.
28. Social Integration. Extent to which services supporting social integration are provided directly by the program. (1) Facilitating access to and helping participants develop valued social roles and networks within and outside the program, (2) helping participants develop social competencies to successfully negotiate social relationships, (3) enhancing citizenship and participation in social and political venues.	X	X
29. 24-Hour Coverage. Extent to which program responds to psychiatric or other crises 24-hours a day.	X	X
30. Involved in Inpatient Treatment. Program is involved in inpatient treatment admissions and works with inpatient staff to ensure proper discharge.	X	X
PROGRAM		
31. Priority Enrollment for Individuals with Obstacles to Housing Stability. Extent to which program prioritizes enrollment for individuals who experience multiple obstacles to housing stability.	X	X
32. Contact with Participants. Extent to which program has a minimal threshold of non-treatment related contact with participants.	X	X
33. Low Participant/Staff Ratio. Extent to which program consistently maintains a low participant/staff ratio, excluding the psychiatrist & administrative support.	X	X
34. Team Approach. Extent to which program staff function as a multidisciplinary team; clinicians know and work with all program participants.	X	N/A
35. Frequent Meetings. Extent to which program staff meet frequently to plan and review services for each program participant.	X	
36. Daily Meeting (Quality): The program uses its daily organizational program meeting to: (1) Conduct a brief, but clinically-relevant review of all participants & contacts in the past 24 hours AND (2) record status of all participants. Program develops a daily staff schedule based on: (3) Weekly Consumer Schedules; (4) emerging needs, AND (5) need for proactive contacts to prevent future crises; (6) Staff are held accountable for follow-through.	X	Weekly Meeting (Quality): The program uses its weekly organizational program meeting to: (1) Conduct a high level overview of each participant, where they are at and next steps (2) a detailed review of participants who are not doing well in meeting their goals (3) review of one success from the past week and (4) program updates and (5) discuss health and safety issues and strategies.
37. Peer Specialist on Staff. The program has at least 1.0 FTE staff member who meets local standards for certification as a peer specialist. If peer certification is unavailable locally, minimal qualifications include the following: (1) self-identifies as an individual with a serious mental illness who is currently or formerly a recipient of mental health services; (2) is in the process of his/her own recovery; and (3) has successfully completed training in wellness and recovery interventions. Peer specialist has full professional status on the team.	X	Peer Specialist on Staff. The program has at least 1.0 FTE staff member who meets local standards for certification as a peer specialist.
38. Participant Representation in Program. Extent to which participants are represented in program operations and have input into policy.		

APPENDIX D
KEY DEFINITIONS

Eligibility

Inclusion Criteria:

- Legal adult status (aged 18 or older/19 in British Columbia)
- Housing status as absolutely homeless or precariously housed*
- The presence of a serious mental disorder^ with or without a co-existing substance use disorder, determined by DSM-IV[1] criteria on the Mini International Neuropsychiatric Interview (MINI)[2] at the time of study entry

Exclusion Criteria:

- Currently a client of another ACT or ICM program
- No legal status as a Canadian citizen, landed immigrant, refugee or refugee claimant
- Those who are relatively homeless*

Need Level

High need must have:

A score on the Multnomah Community Ability Scale (MCAS) of 62 or lower (functioning indicator) AND a Mini International Neuropsychiatric Interview (MINI) diagnosis of current psychotic disorder or bipolar disorder (MINI disorders 18, 21 or 22 on the Eligibility Screening Questionnaire) or an observation of psychotic disorder on the screener (at least two of Q 6e10 in Section DI) on the Eligibility Screening Questionnaire (diagnostic indicator) AND one of:

- YES (or don't know or declined) to item 20 on Demographics, Service & Housing History questionnaire; that is, two or more hospitalizations for mental illness in any one year of the last five (service use indicator) OR Comorbid substance use (any of MINI disorders 23, 24, 25 or 26 on the Eligibility Screening Questionnaire) (substance use indicator) OR recent arrest or incarceration.
- YES (or don't know or declined) to item 22 on Demographics, Service & Housing History questionnaire (legal involvement indicator).

Moderate need

- All others who have met eligibility criteria but do not meet the criteria above.

Absolutely Homeless / Precariously Housed*

Absolute homelessness

Homelessness refers to those who lack a regular, fixed, physical shelter. This (conservative) definition is known as absolute homelessness, according to the United Nations, and includes those who are living rough in a public or private place not ordinarily used as regular sleeping accommodation for a human being (e.g., outside, on the streets, in parks or on the beach, in doorways, in parked vehicles, squats, or parking garages), as well as those whose primary night-time residence is supervised public or private emergency accommodation (e.g., shelter, hostel).[iii] Specifically, being homeless is defined as currently having no fixed place to stay for more than seven nights and little likelihood of obtaining accommodation in the upcoming monthiv or being discharged from an institution, prison, jail or hospital with no fixed address.

Precariously housed

This refers to people whose primary residence is a Single Room Occupancy (SRO), rooming house or hotel/motel. In addition, precariously housed individuals in the past year have had two or more episodes of being absolutely homeless, as defined above, in order to meet the criteria for inclusion.

Relatively homeless

This includes people whose regular housing fails to meet basic standards, such as: (1) living in overcrowded or hazardous conditions; (2) those at risk of homelessness, such as people who reside informally/non-permanently with friends or relatives (e.g., doubling-up, couch surfing); (3) those in transition (e.g., women, youth fleeing to transition houses/shelters from domestic abuse); (4) those who are temporarily without a dwelling (e.g., home lost for a relatively short period of time due to disasters such as a fire, or a change in economic or personal situation, such as marital separation or job loss; and, (5) those living in long-term institutions.

Serious mental disorders^

Serious mental disorders are defined by diagnosis, duration, and disability using observations from referring sources, indicators of functional impairment, history of recent psychiatric treatment, and current presence of eligible diagnosis as identified by the Mini International Neuropsychiatric Interview (major depressive, manic or hypomanic episode, post-traumatic stress disorder, mood disorder with psychotic features, psychotic disorder).

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iii The UN definition of homelessness originally included individuals in transition using transition homes and hostels. The present project modified the definition to exclude this subgroup.
iv Definition adopted from Tolomiczenko, G. and Goering, P.3

Stable Housing

Stable housing was defined as living in one's own room, apartment, or house, or with family, with an expected duration of residence greater than or equal to six months and/or tenancy rights.

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APPENDIX E

DETAILS OF THE SAMPLE:

Demographic Characteristics, Homeless History, Past and Current Personal, Health, and Social Circumstances

Table 1 – Participant Demographic Characteristics*

	TOTAL SAMPLE N =2148 %	ACT ANALYSIS N =950 %	ICM ANALYSIS N =1198 %
AGE GROUPS			
34 or younger	33	39	29
35-54	57	54	59
55 or older	10	7	12
GENDER			
Male	67	68	66
Female	32	31	33
Other	1	1	1
COUNTRY OF BIRTH			
Canada	81	85	78
Other	19	15	22
Ethnic status^			
Aboriginal	22	19	24
Other ethnocultural	25	21	28
Marital status			
Single, never married	70	73	68
Married or common-law	4	4	4
Other	26	23	28
Parent status			
Any children	31	30	32
Education			
Less than high school	55	59	52
High school	19	19	18
Any post-secondary	26	22	30
Prior military service (for Canada or an ally)	4	4	4
Prior month income less than $300	24	24	25
Prior employment (worked continuously at least one year in the past)	66	62	69
Currently unemployed	93	94	92

* all information was reported by participants except where noted

^ many values will not reflect proportions in the general homeless population due to deliberate oversampling of some groups in some sites

Table 2 – Homelessness History*

	TOTAL SAMPLE N =2148 %	ACT ANALYSIS N =950 %	ICM ANALYSIS N =1198 %
HOMELESS STATUS AT ENROLMENT			
Absolutely homeless**	82	79	84
Precariously housed	18	21	16
FIRST TIME HOMELESS			
The year prior to the study	23	19	26
2008 or earlier	77	81	74
LONGEST PERIOD OF HOMELESSNESS IN MONTHS (lowest and highest rounded to next month)	31 (0-384)	34 (1-384)	29 (0-360)
TOTAL TIME HOMELESS IN LIFETIME IN MONTHS (lowest and highest rounded to nearest month)	58 (0-720)	62 (0-460)	55 (0-720)
AGE FIRST HOMELESS (lowest and highest rounded to nearest month)	31 (1-70)	28 (1-69)	37 (4-70)

* all information was reported by participants except where noted

** See http://bmjopen.bmj.com/content/1/2/e000323.full or Appendix D for definitions of absolutely homeless and precariously housed

Table 3 – Past and Current Personal, Health, and Social Circumstances*

	TOTAL SAMPLE N =2148 %	ACT ANALYSIS N =950 %	ICM ANALYSIS N =1198 %
NEED LEVEL (DETERMINED BY STUDY SCREENING)			
High need	38	87	0
Moderate need	62	13	100
ADVERSE CHILDHOOD EXPERIENCES (ACE)			
Mean score (out of a possible 10)	4.6	4.5	4.7
COGNITIVE IMPAIRMENT			
Got extra help with learning in school	41	45	39
Has a learning problem or disability	34	37	32
DIAGNOSIS AT ENROLMENT			
Psychotic disorder	34	52	22
Non-psychotic disorder	71	60	79
Substance-related problems	67	73	62
SUICIDE RISK AT ENROLMENT			
Moderate or high	36	36	36
COMMUNITY FUNCTIONING AT ENROLMENT			
(rated by interviewers)			
Average MCAS score[%]	60	54	65
(lowest and highest scores)	(33 – 80)	(33 – 80)	(37 – 79)
HOSPITALIZED FOR A MENTAL ILLNESS[&] (for more than 6 months at any time in the past 5 years)	6	12	2
HOSPITALIZED FOR A MENTAL ILLNESS[&]			
(2 or more times in any one year in the past 5 years)	37	54	24
SERIOUS PHYSICAL HEALTH CONDITIONS			
Asthma	24	24	25
Chronic bronchitis/emphysema	18	18	18
Hepatitis C	20	22	19
Hepatitis B	3	2	3
HIV/AIDS	4	3	4
Epilepsy/seizures	10	14	7
Heart disease	7	7	7
Diabetes	9	11	8
Cancer	3	3	2
TRAUMATIC BRAIN/HEAD INJURY			
Knocked unconscious one or more times	66	67	66
JUSTICE SYSTEM INVOLVEMENT			
(arrested > once, incarcerated or served probation in prior 6 months)	36	43	30

* all information was reported by participants except where noted

[%] Multnomah Community Ability Scale – reported by interviewers based on observations, interview responses and collateral information – higher scores indicate better functioning; a score of 62 and below represents moderate to high disability or moderate to poor functioning; items include daily living independence, money management, coping with illness, and social effectiveness

[&] self-report of psychotic disorders and related hospitalizations are likely to be underestimates due to the nature of the illness

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REVIEW ARTICLE

The CANMAT task force recommendations for the management of patients with mood disorders and comorbid medical conditions: Diagnostic, assessment, and treatment principles

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BACKGROUND: Medical comorbidity is commonly encountered in individuals with major depressive disorder (MDD) and bipolar disorder (BD). The presence of medical comorbidity has diagnostic, prognostic, treatment, and etiologic implications underscoring the importance of timely detection and treatment.

METHODS: A selective review of relevant articles and reviews published in English-language databases (1968 to April 2011) was conducted. Studies describing epidemiology, temporality of onset, treatment implications, and prognosis were selected for review.

RESULTS: A growing body of evidence from epidemiologic, clinical, and biologic studies suggests that the relationship between medical illness and mood disorder is bidirectional in nature. It provides support for the multiplay of shared and specific etiologic factors interlinking these conditions.

CONCLUSION: This article describes the complex interactions between medical illness and mood disorders and provides a meaningful approach to their comorbid clinical diagnosis and management.

KEYWORDS: major depressive disorder, mood disorder, bipolar disorder, comorbidity, medical illness

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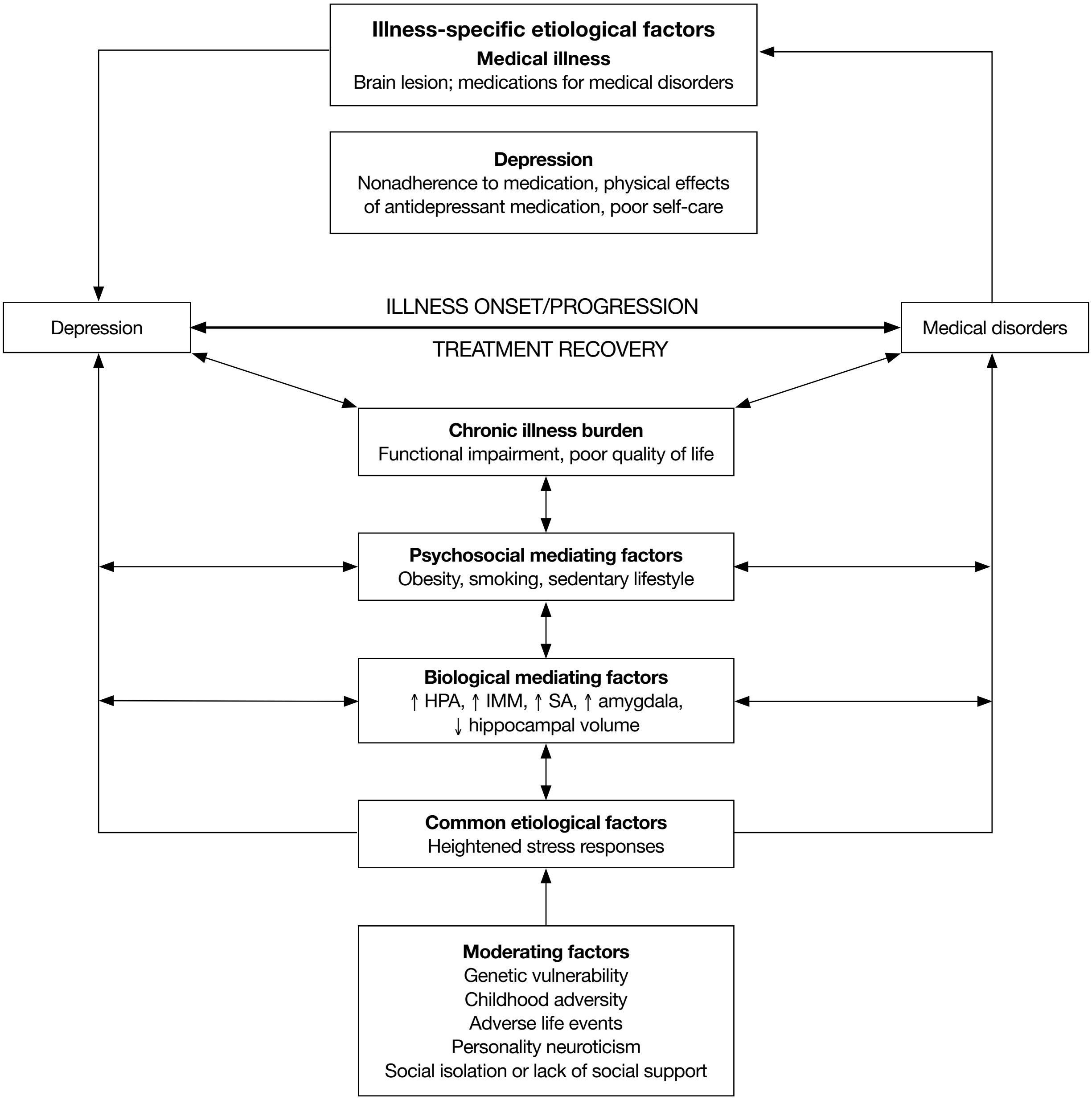
INTRODUCTION

The comorbidity between depression and medical illness has become an increasingly important clinical and global public health issue. Several medical conditions are associated with increased risk of depression,

FIGURE 1
Interactions between depression and medical disorders



HPA: hypothalamic-pituitary-adrenal; IMM: immunomodulator; SA: striatal activity.

which responds less robustly to antidepressant treatment when medical illness coexists. Conversely, depression is associated with increased morbidity, mortality, and chronic disease burden in patients with medical disorders.[1] The comorbidity model conceptualizes the coexistence of depression and medical illness, elucidating a definable relationship between these conditions. This model emphasizes a bidirectional association, with each condition having a negative impact on the onset, course, prognosis, and treatment of the other.[2]

TABLE 1
Depression as a risk factor for the development of medical illness

Medical illness	Comments
Coronary artery disease/ischemic heart disease	Depression increases the risk by 1.5 to 2 fold[3]
Ischemic stroke	Depression increases the risk by 1.8 fold[4]
Epilepsy	Depression increases the risk by 4 to 6 fold[5]
Alzheimer's disease	Depression increases the risk by 2.1 fold[6]
Diabetes mellitus (type II)	Depression increases the risk by 60%[7]
Cancer	Depression and life stressors increase the risk by 1.35 to 1.88 fold[8,9]
HIV	Bipolar spectrum conditions (hyperthymic/cyclothymic) may increase the risk for HIV infection[10]

HIV: human immunodeficiency virus.

A growing body of evidence provides support for the multi-play of shared and specific etiological factors interlinking both medical and mental illness (**FIGURE 1**).

Comorbid bidirectional relationship

Depression as a risk factor for the development and progression of medical illness. Several epidemiologic studies suggest that prior episodes of depression may be an important risk factor for the onset of diseases such as coronary artery disease, stroke, diabetes mellitus, and epilepsy (**TABLE 1**).[3-10] There is also evidence that depression adversely affects medical outcomes (**TABLE 2**).[11-17] Approximately 52% to 78% of studies showed an association between depression and increased mortality rates, even after controlling for the confounding effects of medical disease severity.[2,18] Comorbid depression is associated with increased use of medical resources and costs, amplification of physical symptoms, additive functional impairment, and poor quality of life.[2,19,20] Depression likely increases medical morbidity through biological mechanisms such as increases in hypothalamic-pituitary-adrenal (HPA) axis activity, sympathetic stimulation, pro-inflammatory cytokine levels, and behaviors such as nonadherence to medical treatment regimens, neglect of self-care, physical inactivity, poor diet, and substance use.[2]

Medical illness as a risk factor for the development and progression of depression. Medical conditions likely contribute to the development of depression through direct physiological mechanisms (eg, brain injury and thyroid deficiency) and stress-related physiologic mechanisms (eg, increased activation of HPA and the immunologic system) associated with the physical condition or disability. HPA axis overdrive and elevated levels of pro-inflammatory cytokines are found in several medical conditions, including cardiovascular disease, stroke, and cancer. Besides biologic factors, psychosocial factors related to illness burden and disability also may contribute to depression related to medical illness.[2] The relative contributions of these mechanisms may vary from person to person. The presence of medical illness may negatively influence the prognosis of comorbid depression. Studies comparing treatment outcome in major depressive disorder (MDD) with or without comorbid medical illness suggest that depression in the medically ill may respond poorly or slowly to antidepressants and have higher relapse rates.[21]

Shared etiological mechanisms in the comorbidity of depression and medical illness. Heightened stress responses—increased activation of HPA and the immunologic system—may serve as both a cause and consequence of depression and chronic medical illness. Genetic vulnerability, childhood adversity, stressful life events, personality disposition, and lack of social support are all known to trigger the stress reaction and to increase the risk of depression (**FIGURE 1**). Several recent studies also have shown that early adverse psychosocial experiences such as maltreatment, social isolation, socioeconomic disadvantage, and perinatal problems (eg, low birth weight and preterm birth) increase the risk of depression and comorbid medical conditions.[22-24] Individuals with early adverse events may have enduring immune and HPA axis abnormalities that confer vulnerability both to depression and medical illness. The functional impairment associated with certain medical illnesses also may increase the physiological stress response, which, in turn, may worsen depression and physical health outcomes.[2]

Contribution of medications to the comorbidity of depression and medical illness. Pharmacologic treatment of depression may contribute to, or complicate, a coexisting medical condition. Evidence from large epidemiological studies suggests that selective serotonin reuptake inhibitors (SSRIs) may increase the risk of gastrointestinal and subcutaneous bleeding, probably due to their antiplatelet activity,[25] and have been linked to osteoporosis as well.[26] There is also evidence that tricyclic antidepressants (TCAs) may cause orthostatic hypertension, decreased heart-rate variability, and QT prolongation.[27] Bipolar disorder treatment, such as the anticonvulsants valproate and carbamazepine, have been linked to bone loss, ovarian problems, hematological abnormalities, and liver problems. Similarly, the mood stabilizer lithium is known to impact thyroid and renal function[28] (**FIGURE 2**).

Conversely, comorbid depression could be related to medications used to treat physical illness. Corticosteroids, cancer chemotherapeutic agents (eg, vincristine, vinblastine, and procarbazine l-asparaginase interferon), and antihypertensive medications (eg, reserpine, methyldopa, and β-blockers) have all been implicated in the pathogenesis of depression.[29,30]

Variations in comorbid relationships. It is crucial for clinicians to understand the nature of the bidirectional relationship between a medical illness and depression. The etiological factors contributing to comorbid depression may vary from person to person. In the comorbid bidirectional model, the role of depression as a cause and/or consequence of medical illness is variable. Furthermore, depression may serve as a risk factor for a medical condition as well as for comorbid depression in the same patient.

For example, the literature suggests that antecedent depression increases the risk of stroke[4] and post-stroke depression.[31] It is also possible that in a given patient the bidirectional relationship between a medical illness and depression may be asymmetrical, and psychosocial factors may predominate in the etiology of comorbid depression. Hence, the evaluation of the patient-specific relationship between 2 conditions and etiological factors for comorbidity are vital for individualized treatment.

Clinical diagnosis of depression in the medically ill

Depression due to a general medical condition is considered secondary depression, meaning that the depression is physiologically caused by the medical illness. Secondary depression is different etiologically from depression without medical illness, which is known as primary depression. However, in exploring this relationship, investigators have found few or no differences in the clinical presentation and course of primary vs secondary depression,[32-34] questioning the nosological status of secondary depression as a distinct clinical entity. Both share common etiological mechanisms such early life stress and genetic/familial predisposition,[22,35-37] and primary depression may increase the risk of depression secondary to medical illness.[31] Hence, the evaluation of depression in the context of a comorbidity model is crucial for proper management. The current understanding is that depression comorbid with a medical disorder represents a continuum of depressive diathesis. Because the distinction between primary and secondary depression remains blurred, depression in the context of medical illness is commonly referred to as comorbid depression or depression associated with medical illness.

The essential first steps in the management of depression comorbid with a medical disorder are the correct diagnosis of depression in the medically ill, and, conversely, an awareness of medical illness in patients with depression. Clinically, it often is difficult

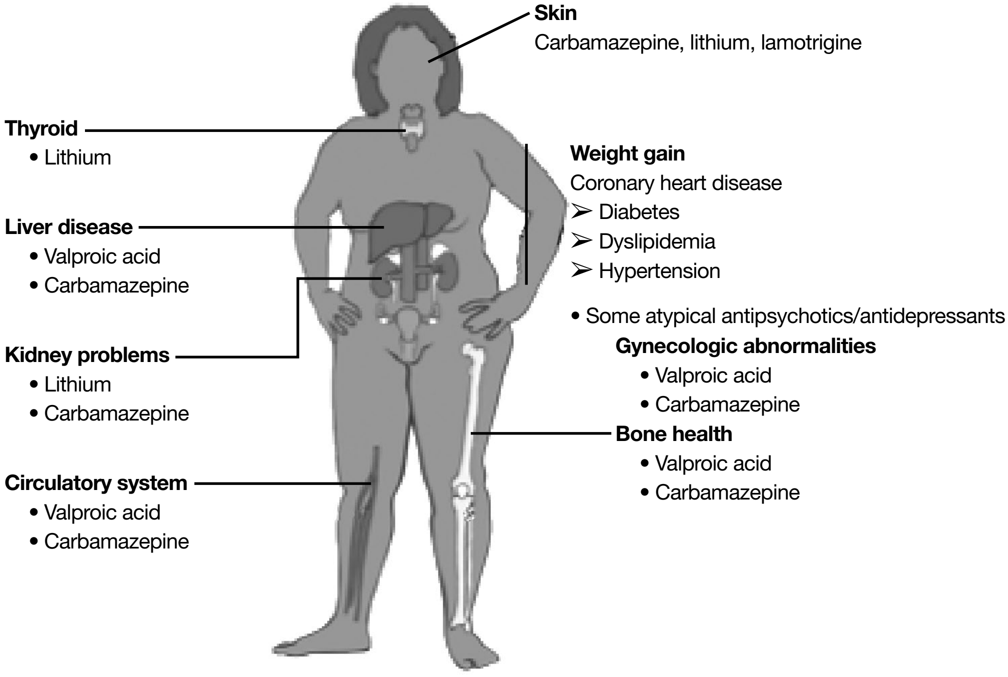
TABLE 2

Depression as a risk factor for poor medical outcomes in patients with existing medical illnesses

Medical illness	Findings
Cardiovascular disease	Depression increases cardiac mortality by 3.5 to 4 fold and predicts poor prognosis in patients with pre-existing coronary disease[11]
Stroke	Depression increases mortality by 3.4 fold and adversely affects functional recovery[12,13]
Epilepsy	Depression increases burden from seizures and decreases quality of life[14]
Diabetes mellitus	Depression increases the earlier onset of vascular complications, functional disability, and death[15]
Cancer	Depression increases mortality by 2.6 fold[16]
HIV	Depression is associated with illness progression to AIDS and higher mortality rates[17]

AIDS: acquired immune deficiency syndrome; HIV: human immunodeficiency virus.

FIGURE 2
Body systems at risk of medication side effects



Source: Adapted from Taylor V, Schaffer A. Guidelines for the safety monitoring of patients with bipolar disorder. Mood and Anxiety Disorders Rounds. 2010;1(4):1-6.

to differentiate some symptoms related to medical diseases, such as anorexia, weight loss, sleep disturbances, decreased libido, fatigue, and anhedonia, from the vegetative symptoms of depression. The presence of symptoms such as guilt, worthlessness, and suicidal ideation are more common in MDD than as part of a sickness syndrome, helping to guide a diagnostic approach.[38] Cohen-Cole and colleagues[39] suggested 4 approaches to assess depression in the medically ill. In the "inclusive approach" all depressive symptoms are counted, irrespective of whether they are related to medical illness. In the "exclusive approach" the non-discriminatory somatic and vegetative symptoms are excluded and only depression-specific mood and cognitive symptoms such as anhedonia, feelings of guilt, hopelessness, worthlessness, and suicidality count toward a diagnosis of depression. In the "etiological approach" a symptom is counted only if it is determined not to be caused by the medical illness, while in the "substitutive approach" the psychological symptoms—mood and cognitive symptoms—replace the vegetative symptoms.

Among these approaches, the inclusive approach is considered to be the most appropriate in the clinical setting for optimal patient care, whereas the exclusive approach is appropriate for research studies. While the inclusive approach may lead to overdiagnosis of depression in clinical practice, this risk appears to be small compared with the risk of depression underdiagnosis. For example, in stroke patients, the standard inclusive approach showed specificity in the range of 95% to 98% and sensitivity of 100% in the diagnosis of post-stroke depression compared with other approaches.[40] The inclusive approach also has more clinical utility than other approaches because it discourages simple dichotomies between vegetative symptoms due to depression and medical illness. Data support a common biological basis of these symptoms, such as elevation in immunological markers in both depression and medical illness independently, as well as higher immunological disturbance in patients with both conditions compared with patients with a medical disorder without depression.[38] Adjustment disorder with depressed mood and subsyndromal depression may evolve into MDD in vulnerable patients who are at increased risk for depression. The foregoing patients will require longitudinal evaluation.

The factors that suggest a medical illness may be a cause or contributor to depression include a temporal relationship between the illnesses, an atypical clinical picture of depression that includes cognitive impairment and personality changes,[41] the presence of other emotional syndromes such as emotionalism, catastrophic reaction,[42] depression improving with the treatment of medical condition,[43] worsening of depression with worsening of medical disorder, and poor response to antidepressant treatment.[21,44] Depression emerging after initiation of medications that are known to cause or contribute to depression, or presence of worsening depression with an increase in medication dosage, may suggest that medication could be a contributing factor for comorbid depression in medically ill patients. Consistent with the biopsychosocial model and multifactorial origin of comorbid depression in the medically ill, the presence of severe physical disability and psychosocial stressors associated with a medical condition could be a risk factor for comorbid depression. This should be considered in the diagnostic formulation of depression in the medically ill.

Conversely, the factors that suggest depression may be a contributor to the onset of medical illness include a history of depression prior to the onset of illness, research supporting a link between antecedent depression and medical illness, and the biological plausibility of etiologically linking depression to the medical illness. The factors that suggest that depression may be a contributor to medical illness progression include clinical history suggesting worsening of medical illness after the onset of depression, improvement in the medical illness following improvement in depression, evidence of poor compliance with medications for medical illness, and lack of adherence to diet and exercise regimens due to poor motivation, physical inactivity, increased smoking and drinking, and overeating in the context of depression. Furthermore, the presence of side effects of antidepressants and mood stabilizers may complicate the course and treatment of physical illness.

Screening instruments

A key component of accurate diagnosis is the use of depression screening instruments in specialized medical clinics (eg, neurology, cancer, cardiology) to promote early detection. Several clinician-administered and self-reported depression rating scales are commonly used for screening for depression associated with medical conditions[45] (**TABLE 3**).

Although these screening scales are not diagnostic instruments, they have clinical utility in routine screening for depression in specialized medical clinics. Scales that rely less on physical symptoms, such as the Beck Depression Inventory for Primary Care (BDI-PC), were found to be useful in screening for depression in medically ill patients.[46] The 9-item Patient Health Questionnaire is an especially useful clinical instrument for primary care physicians in diagnosing depression as well as assessing depression severity, because it includes symptom assessment and functional impairment to make a tentative diagnosis of depression.[47,48] Routine screening with simple probing questions about mood also would help detect depression in the severely medically ill and single-item interviews such as “Are you depressed?” or “Do you often feel sad or depressed?” have been shown to be useful in screening for depression in terminally ill and stroke patients.[49,50] These brief measures could be important tools for screening for depression both in the severely medically ill and in patients with communication deficits; the use of a visual analogue mood scale in screening for depression in stroke patients with aphasia and cognitive impairment is not recommended due to low sensitivity of the measure.[51]

Treatment considerations

Treatment of depression in medically ill patients should be comprehensive and collaborative in nature, involving primary care, medical specialists, nurses, psychologists, and social workers. Once the diagnosis of depression is established, the treatment should focus both on the psychiatric diagnosis as well as the contributing medical illness and related causative factors. Proper pain management and the treatment of medical conditions such as hypothyroidism and vitamin deficiencies, for example, may improve the depression comorbid with these disorders. In chronic medical conditions, depression should be treated with antidepressants and psychotherapy in accordance with current depression guidelines.

In principle, the selection of antidepressants should be based on level 1 or 2 evidence, documenting the efficacy and safety of a particular antidepressant in comorbid depression. In the event that the available evidence is inadequate or inconclusive, clinicians need to counsel

TABLE 3

Screening instruments used for evaluating comorbid depression in patients with medical illness

Screening instrument	Method of administration	Administration time	Assessment
Hamilton Depression Rating Scale (HAM-D)	Clinician administrated	20 to 30 minutes	Severity of depression
Montgomery-Åsberg Depression Rating Scale (MADRS)	Clinician administrated	5 to 10 minutes	Severity of depression
Symptom Check List 90-Revision (SCL-90-R)	Self report	15 minutes	Screens depression/other psychiatric comorbidity
Brief Symptom Inventory (BSI) (Abbreviated SCL-90-R)	Self report	10 minutes	Screens depression/other psychiatric comorbidity
Illness Distress Scale (IDS)	Self report	5 to 10 minutes	Severity of physical and emotional distress
Psychological Distress Inventory (PDI)	Self report	5 minutes	Severity of distress
Carroll Depression Rating Scale (CDRS)	Self report	5 minutes	Severity of depression
Geriatric Depression Scale (GDS)	Self report	5 minutes	Severity of depression
Zung Depression Scale (Zung)	Self report	5 minutes	Severity of depression
Beck Depression Inventory for Primary Care (BDI-PC)	Self report	5 minutes	Severity of depression
Beck Depression Inventory–Fast Screen for Medical Patients (BDI-FS)	Self report	<5 minutes	Severity of depression
Depression in the Medically Ill scale (DMI-10)	Self report	5 minutes	Severity of depression
General Health Questionnaire (GHQ)	Self report	Dependent on the version	Severity of depression
Patient Health Questionnaire (PHQ-9)	Self report	<5 minutes	Presence of depression
Medical Outcomes Study Depression Questionnaire (MOS-DQ)	Self report	<5 minutes	Presence of depression
Hospital Anxiety and Depression Scale (HADS)	Self report	<5 minutes	Severity of depression
Centre for Epidemiological Studies Depression Scale (CES-D)	Self report	10 minutes	Severity of depression

Source: Reference 45.

patients about the uncertainty regarding the effective treatment and select a medication as suggested in the general guidelines for the treatment of depression without medical comorbidity.

Pharmacologic issues related to coexisting medical illness/medication. Drug-drug interactions and drug-illness interactions should be considered when treating a patient for depression comorbid with a medical condition. Certain SSRIs, such as fluoxetine and paroxetine, are potent inhibitors of cytochrome (CYP) 450 isoenzymes, especially CYP2D6. Coadministration of these SSRIs with antiarrhythmic agents, such as flecainide, mexiletine, and propafenone, which are metabolized by the same isoenzyme, may cause accumulation of toxic levels of the antiarrhythmic drug.[52] There also is risk of bleeding associated with concomitant use of anticoagulants (eg, aspirin, warfarin), nonsteroidal anti-inflammatory drugs, and SSRIs.[25] P-glycoprotein (Pgp) is responsible for the efflux of several anticancer and cardiac medications.[53] Paroxetine and sertraline are potent inhibitors of Pgp and may increase the levels of Pgp substrates such as digoxin, and anticancer medications.

Whenever possible, the dual roles of some medications used in psychiatry treatment should be capitalized on, such as lamotrigine for seizure control and depression in patients with epilepsy,[54] or TCAs in headache-prone patients because their antimigraine prophylaxis effect.[55] Antidepressants that have negative effects on specific medical illnesses should be avoided. For example, imipramine should not be used in patients with cardiovascular disease because of its antiarrhythmic effect.[56]

Depression in medically ill patients may respond poorly to antidepressants,[44] and depressive relapses are more common in MDD associated with comorbid medical conditions.[21] However, because the evidence-based information for the treatment of resistant comorbid depression is lacking, such depression should be treated in accordance with the current guidelines for treatment-resistant depression. This includes consideration of somatic treatments such as electroconvulsive therapy, transcranial magnetic stimulation, or vagal nerve stimulation.

Psychotherapy, education, and case management should be considered in the treatment of mild to moderately depressed patients. Variation exists in the efficacy of specific psychotherapies for comorbid depression. Cognitive-behavioral therapy was found to be effective in the treatment of depression in post-myocardial infarction patients, whereas problem-solving therapy was found to be effective in patients with post-stroke depression.[57-59] Hence, evidence-based selection of specific psychotherapies may be warranted.

CONCLUSIONS

There is a clear and significant association between various medical conditions and mood disorders. This comorbidity needs to be accurately diagnosed and properly treated in order to ensure optimal patient outcome for both conditions. ■

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