# One-Year Outcomes of a Randomized Controlled Trial of Housing First With ACT in Five Canadian Cities

Tim Aubry, M.A., Ph.D., Sam Tsemberis, Ph.D., Carol E. Adair M.Sc., Ph.D., Scott Veldhuizen, M.A., David Streiner, Ph.D., Eric Latimer, Ph.D., Jitender Sareen, M.D., Michelle Patterson, Ph.D., Kathleen McGarvey, M.D., Brianna Kopp, M.P.H., Catharine Hume, M.H.Sc., Paula Goering, R.N., Ph.D.

**Objective:** Housing First is a groundbreaking approach to ending chronic homelessness among people with mental illness. This article presents one-year findings from a multisite randomized controlled trial (RCT) comparing Housing First with treatment as usual.

**Methods:** The study was a nonblind, parallel-group RCT conducted in five Canadian cities. A sample of 950 high-need participants with severe mental illness, who were either absolutely homeless or precariously housed, was randomly assigned to Housing First (N=469) or treatment as usual (N=481). Housing First participants received a rent supplement, assistance to find housing, and assertive community treatment. Treatment-as-usual participants had access to all other existing programs.

**Results:** At one-year follow-up, 73% of Housing First participants and 31% of treatment-as-usual participants resided in stable housing (p<.001, odds ratio=6.35, covariate adjusted difference=42%, 95% confidence interval [CI]=36%−48%). Improvement in overall quality of life was significantly greater among Housing First participants compared with treatment-as-usual participants (p<.001, d=.31, CI=.16−.46). Housing First participants also showed greater improvements in community functioning compared with treatment-as-usual participants (p=.003, d=.25, CI=.09−.41).

**Conclusions:** Compared with treatment as usual, Housing First produced greater improvements in housing stability, quality of life, and community functioning after one year of enrollment. The study provides support for adopting Housing First as an approach for ending chronic homelessness among persons with severe mental illness, even if they are actively symptomatic or using substances.

*Psychiatric Services 2015; 66:463–469; doi: 10.1176/appi.ps.201400167*

Over the last three decades, homelessness has emerged as a significant social problem in Canada and the United States (1–4). The prevalence of chronic general medical problems, mental illness, and addictions and the associated acute care costs are significantly higher among homeless populations compared with the general population (5–7).

The predominant program model for reducing homelessness among persons with severe and persistent mental illness and other medical conditions can be characterized as a continuum of services in which individuals progress through shelters, transitional housing, and, eventually, permanent housing. The aim of this approach, often referred to as "treatment first," is based on the assumption that individuals must be stabilized before being housed. Research indicates that treatment-first programs can be effective in reducing homelessness among clients who follow the programs' treatment regimens (8,9). However, this approach has shown limited success among clients who encounter obstacles to treatment adherence. Such individuals tend to remain homeless and have extensive contact with emergency rooms, detox centers,

criminal justice institutions, or other acute care systems, or they may stay disengaged from services (6).

Pathways to Housing, an organization located in New York City, developed an alternative program for this population called "Housing First" (10). Founded on the principles of psychiatric rehabilitation and consumer choice, Housing First offers immediate access to housing and community support without requiring participation in treatment or sobriety as preconditions.

Studies to date indicate that Housing First programs that include recovery-oriented assertive community treatment (ACT) are a promising approach (8,9,11). Compared with recipients of standard care—often a continuum of residential settings—recipients of Housing First obtained housing earlier and remained stably housed longer, showed greater reductions in use of health and social services, and reported higher levels of quality of life (8,9,11). However, the evidence base for the effectiveness of Housing First remains limited, consisting of published research from two small trials conducted in New York City and five quasi-experimental studies

conducted in other American cities (12–19). As well, most of the studies have focused narrowly on housing outcomes.

This article presents the one-year findings from a randomized controlled trial (RCT) comparing the effectiveness of Housing First and treatment as usual across five Canadian cities (20).

## METHODS

### Study Design and Population

The study design was a nonblind, parallel-group RCT conducted in Vancouver, Winnipeg, Toronto, Montreal, and Moncton. The cities were chosen to ensure that the study population reflected Canada's racial and ethnic diversity and was representative of the country's five regions. Prior to randomization, participants were screened and stratified into high-need or moderate-need groups. This article presents one-year findings for high-need participants who received Housing First that included ACT. In Moncton, the sample was too small to allow for a stratified design, so both high-need (36%) and moderate-need (64%) participants, who received ACT, were included.

High need was defined as a score of less than 62 on the Multnomah Community Ability Scale (MCAS) (21,22), assessment of bipolar disorder or psychotic disorder on the Mini International Neuropsychiatric Interview 6.0 (MINI 6.0) (23), at least two hospitalizations in one year of the past five years, a comorbid substance use disorder, or arrest or incarceration in the past six months. Individuals were referred to the study by health and social service agencies in the five cities.

The sample size in each city was set to 100 individuals receiving Housing First and 100 individuals receiving treatment as usual. Site-level studies were powered to have a minimum of 65 individuals per group, allowing for the detection of a moderate effect (effect size=.5) with a significance level of alpha=.05 and beta=.20, and anticipating about a 25%−30% attrition rate. Approval for the study was obtained from the research ethics boards from the seven institutions of participating researchers.

Eligibility criteria for the study were legal adult status (age 18 or older, except 19 or older in Vancouver); absolute homelessness (no fixed place to stay) or precarious housing (living in a rooming house, SRO housing, or hotel or motel with two episodes of absolute homelessness in past year); a serious mental disorder as determined by *DSM-IV* criteria on the MINI 6.0 (23) at the time of entry; legal status as a Canadian citizen, landed immigrant, refugee or claimant; and no receipt of ACT at study entry.

### Intervention Group

Housing First services for the demonstration project were developed on the basis of the Pathways to Housing approach (10). Rent supplements were provided so that participants' housing costs did not exceed 30% of their income. Housing coordinators provided clients with assistance to find and move into housing. Support services were provided by using ACT, a multidisciplinary team approach with a 10:1 client-to-staff ratio. At a minimum, study participants agreed to observe the terms of their lease and be available for a weekly visit by program staff. An assessment of fidelity conducted nine to 13 months after the beginning of the study found the programs at all five sites showing on average a high level of fidelity to the Pathways Housing First model (24). Fidelity assessment entailed site visits by three individuals knowledgeable about Housing First, who rated the programs on 38 Housing First standards related to housing choice and structure, separation of housing and services, service philosophy, service array, and program structure (25).

### Treatment-as-Usual Group

Individuals assigned to treatment as usual had access to the existing network of programs (outreach; drop-in centers; shelters; and general medical health, addiction, and social services) and could receive any housing and support services other than services from the Housing First program. The vacancy rate of rental housing (Spring 2011) was .7% in Winnipeg, 1.6% in Toronto, 2.5% in Montreal, 2.8% in Vancouver, and 4.1% in Moncton (26).

### Outcome Measures

Participants were interviewed in person at study entry and at six and 12 months, and their housing history was documented every three months. Participants were randomly assigned to treatment conditions at the end of the baseline interview by using a computer-generated algorithm programmed into the central data collection system. Interviewers administered a wide range of measures previously used with the population and found to have good psychometric properties (see published study protocol [20]). The outcomes reported in this article include residence in stable housing (Residential Time-Line Follow-Back Inventory [27]), quality of life (20-item Quality of Life Interview [QOLI-20] [28]), severity of psychiatric symptoms (Colorado Symptom Index [CSI] [29,30]), substance use (Global Appraisal of Individual Needs–Short Screener [GAIN-SS] Substance Problems Scale [31,32]), and community functioning (MCAS [21,22]). Stable housing was defined as living in one's own room, apartment, or house or with family for an expected duration of at least six months or having tenancy rights (holding a lease to the housing). Problematic substance use was defined by the presence of two or more symptoms on the GAIN-SS Substance Problem Scale in the past month (31).

All of the measures are self-reported except the MCAS, which entails a rating of community functioning by the interviewer. All of the interviewers had previous experience working with the population under study and received extensive initial training, ongoing training, and supervision throughout the trial. The same interviewers interviewed participants from the two groups.

### Statistical Analysis

Logistic regression was used to test whether participants in Housing First were more likely to be in stable housing at the

12-month interview compared with participants in treatment as usual. The proportion of time spent in stable housing in the first year after treatment entry was also calculated. Analysis of time spent in stable housing was performed by using negative binomial regression, a generalization of a Poisson regression that is appropriate for analysis of count variables that are overdispersed (variance greater than the mean).

Other outcomes were analyzed by using mixed-effects modeling. Because of difficulties in locating participants and scheduling interviews, intervals between measurements varied (six months, standard deviation [SD]=27 days; 12 months, SD=31 days). Follow-up periods were slightly longer for treatment as usual than for Housing First at six months (190 days versus 184 days, respectively, t=3.25, df=885, p<.01) and 12 months (374 days versus 370 days, respectively, t=2.11, df=854, p=.02). Therefore, time was treated as a continuous variable. Models included a random intercept at the person level and a random slope for time. Site was included as a fixed effect. Because time effects were monotonic but often nonlinear, the method of fractional polynomials was used to select the best-fitting one-term transformation of time for each outcome.

Linear mixed-effects models were fit for the QOLI-20, the MCAS, and the CSI. A mixed-effects logistic model was used for the GAIN-SS. The intervention effect in these models was evaluated by including group × time interaction terms, which yielded estimates of the rate of change in each group. These results were then used to calculate the covariate-adjusted difference between groups at the 12-month time point. For continuous outcomes, these differences were divided by the pooled baseline SD to produce effect sizes. Standard errors of predicted differences were calculated by using Stata's implementation of the delta method (33).

The sex, racial-ethnic minority status (other than Aboriginal), and Aboriginal status of participants varied across the sites by design, so these variables, in addition to site, were entered as covariates in all analyses. In addition to using the models reported above, the study explored variation in treatment effects by site by using interaction terms. Analyses were repeated after multiple imputation of missing data. Because these analyses did not change the results, the results of the original analysis are presented here. The one-year outcomes reported in this article represent an interim analysis, given that participants were followed for 24 months. As a result, the alpha level for significance for the analyses described in this article was set at .01 in order to preserve an overall alpha level of .05 for the entire study. An alpha level of .04 will be used for the two-year analyses (34). We conducted the analysis on the principle of intention to treat.

## RESULTS

### Study Participants
A total of 950 participants presented with high need. These participants were randomly assigned on the basis of an approximately equal allocation (1:1) to either Housing First (with ACT) (N=469) or treatment as usual (N=481) from October 2009 to July 2011. The final sample of 950 individuals represented 95% of the targeted sample (N=1,000). One-year follow-up occurred from October 2010 to June 2012. A total of 856 (90%) participants completed the 12-month follow-up, including 406 of 481 (84%) participants in treatment as usual and 450 of 469 (96%) participants in Housing First. Table 1 provides a breakdown of the two groups by demographic and clinical characteristics. There were no significant differences between the two groups at study entry.

### Housing
On the basis of participants on whom we had data on their housing situation at the 12-month follow-up, 73% (N=316) of Housing First participants and 31% (N=124) of treatment-as-usual participants resided in stable housing. A logistic regression analysis that controlled for sex, racial-ethnic minority status, and Aboriginal status indicated that Housing First participants were significantly more likely to have stable housing (p<.001, odds ratio=6.35, covariate-adjusted difference=42%, 95% confidence interval [CI]=36%−48%). Of the 116 Housing First participants who were not in stable housing at 12 months, 21 (18%) were staying in shelters, 17 (15%) were in prison or jail, 14 (12%) were in the hospital, and eight (7%) were living on the street. Of the 270 treatment-as-usual participants who were not in stable housing at 12 months, 54 (20%) were staying in shelters, 16 (6%) were in prison or jail, 26 (10%) were in the hospital, and 25 (9%) were living on the street. The mean proportion of time spent in stable housing over the first year was 69% for Housing First and 23% for treatment as usual (Figure 1). The proportion of time spent in stable housing in the last three months of the year was 77% for Housing First and 31% for treatment as usual. Negative binomial regression confirmed that the difference in consecutive days housed at the 12-month interview was significant (p<.001) and substantial (incidence rate ratio=2.89, covariate-adjusted difference=113 days, CI=67–160). Treatment effects in this model did not vary significantly by site.

### Quality of Life
Both Housing First and treatment-as-usual groups reported substantial improvements in quality of life (Table 2). However, a group × time interaction in a mixed-effects model indicated that the absolute gain was significantly greater among Housing First participants for total score (z=.16, p<.001) and for the subscales related to living situation (z=8.16, p<.001), personal safety (z=4.25, p<.001), and leisure activities (z=3.06, p<.001). Differences between QOLI-20 scores for the two groups after adjustment for baseline QOLI-20 scores, sex, racial-ethnic minority status, aboriginal status, and site are shown in Table 2. Effect sizes for differences between the groups' QOLI-20 scores at 12 months (Cohen's d) were .31 (CI=.16–.46) for total score, .70 (CI=.53–.86) for living

**TABLE 1. Baseline characteristics of 950 persons with serious mental illness enrolled in Housing First or treatment as usual[a]**

| Characteristic | Housing First (N=469) | | Treatment as usual (N=481) | | Total (N=950) | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Age (M±SD) | 38.93±10.81 | | 39.86±11.22 | | 39.40±11.03 | |
| Male | 319 | 68 | 329 | 68 | 648 | 68 |
| Race-ethnicity | | | | | | |
| White | 255 | 54 | 261 | 54 | 516 | 55 |
| Aboriginal | 92 | 20 | 90 | 19 | 182 | 19 |
| Black | 44 | 10 | 55 | 11 | 99 | 11 |
| Asian[b] | 14 | 3 | 16 | 3 | 30 | 3 |
| Other | 64 | 14 | 59 | 12 | 123 | 13 |
| Never married | 342 | 73 | 356 | 74 | 698 | 73 |
| Not a high school graduate | 272 | 58 | 289 | 60 | 561 | 59 |
| Lifetime homelessness >24 months | 191 | 60 | 200 | 58 | 391 | 59 |
| Longest period of homelessness >1 year | 240 | 51 | 242 | 50 | 482 | 51 |
| Psychiatric disorder | | | | | | |
| Major depressive episode | 204 | 42 | 208 | 44 | 412 | 43 |
| Manic or hypomania episode | 78 | 16 | 75 | 16 | 153 | 16 |
| Posttraumatic stress disorder | 122 | 25 | 134 | 29 | 256 | 27 |
| Panic disorder | 94 | 20 | 109 | 23 | 203 | 21 |
| Mood disorder with psychotic features | 94 | 20 | 100 | 21 | 194 | 20 |
| Psychotic disorder | 242 | 50 | 250 | 53 | 492 | 52 |
| Substance-related problems | 333 | 71 | 359 | 75 | 692 | 73 |
| Chronic general medical conditions (M±SD) | 4.80±3.67 | | 4.99±3.74 | | 4.89±3.70 | |
| ≥2 hospitalizations for mental illness in past 5 years | 238 | 51 | 261 | 54 | 499 | 53 |
| Arrested in past year | 151 | 32 | 160 | 33 | 311 | 33 |
| Victimization in past 6 months | 268 | 57 | 289 | 60 | 557 | 59 |

[a] There were no significant differences between the baseline characteristics of the groups.
[b] Most Asian participants (87%) reported being of South or Southeast Asian origin.

situation, .33 (CI=.18–.48) for safety, and .23 (CI=.08–.38) for leisure activities. Both groups also reported substantial improvements in quality of life related to finances, family relations, and social relations, but differences between the groups were not significant. Treatment effects for the quality-of-life outcomes did not vary significantly by site, with the exception of the safety subscale, for which there was some variation in intervention effects across sites.

### Community Functioning and Health

Both groups demonstrated improvements in community functioning (p<.001) (Table 3). Levels of absolute gain were significantly greater among Housing First participants compared

**FIGURE 1. Percentage of time spent in stable housing during three-month periods among persons with serious mental illness in the year after enrollment in Housing First (N=469) or treatment as usual (N=481)**
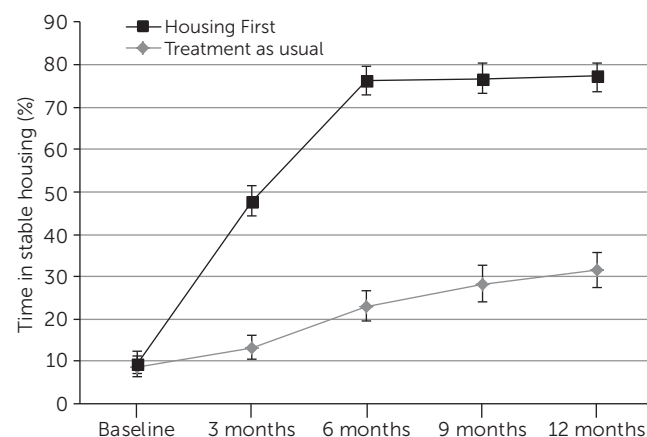


with participants in treatment as usual (z=3.05, p=.002). An examination of MCAS subscales revealed significantly greater absolute gains by Housing First participants in social skills (social effectiveness, size of social network, and participation in meaningful activity; z=2.96, p=.003) and behavior (cooperation with treatment providers, substance use, and impulse control; z=3.65, p<.001). Differences between the two groups in community functioning after the analyses adjusted for QOLI-20 scores, sex, racial-ethnic minority status, aboriginal status, and site are shown in Table 3. Effect sizes (Cohen's d) for interactions of group and time were .25 (CI=.09–.41) for total score, .21 for social skills (CI=.07–.36), and .29 (CI=.13–.44) for behavior. Both groups reported decreases in severity of psychiatric symptoms and substance use problems, but the differences between the groups over time were not significant.

Treatment effects for the functioning and health outcomes did not vary significantly by site.

### DISCUSSION

Our findings show that Housing First can assist individuals to rapidly exit homelessness even if they are actively symptomatic and using substances (10). One year after enrollment, Housing First participants were more likely to be housed, had spent a much greater proportion of time stably housed, reported greater gains in quality of life, and demonstrated greater improvements in community functioning compared with participants in treatment as usual. These findings suggest that a majority of individuals with severe mental illness who are homeless are able to move immediately into and manage their own housing if given the right supports. This Canadian study extends the results of previous research conducted in large American cities (12–19). The finding that Housing First participants had greater improvements in observer-rated community functioning in the first year of receiving services compared with participants in treatment

as usual has not been reported in previous research. These improvements were relatively small in size (d=.25), but they were statistically significant.

Similar to findings of previous research, a minority of Housing First participants (27%) were not stably housed at the one-year follow-up compared with a majority of treatment-as-usual participants (69%). Several factors contributed to housing instability, including loss of initial housing, incarceration, and hospitalization. It is also likely that the low vacancy rates in some cities contributed to housing instability, particularly among treatment-as-usual participants, who did not receive the type of ongoing focused assistance provided to Housing First participants when they were homeless. It is important to note that Housing First programs continue to work with participants regardless of their current housing status (10). Our findings also showed that participation in a Housing First program produced improvements in overall quality of life and in the quality of specific aspects of life related to housing, safety, and leisure activities. Not surprisingly, the strongest effect on improvements in quality of life among Housing First participants was associated with their living situation (d=.70). In contrast, the effect sizes for safety (d=.33) and leisure activities (d=.23) were relatively small, indicating that Housing First conferred more modest benefits in these two areas of quality of life. It is plausible that Housing First participants felt a sense of greater security and were able to shift their focus toward participating in leisure activities as a result of being housed.

Housing First participants also demonstrated greater improvements in community functioning compared with treatment-as-usual participants. Housing First participants showed larger gains in social skills and in behaviors associated with medication compliance, cooperation with treatment providers, frequency of substance abuse, and impulse control. These findings provided further evidence of the benefits of establishing housing stability. It is important to note that both Housing First and treatment-as-usual participants showed comparable levels of improvement related to the severity of psychiatric symptoms and substance use problems. These findings suggest that treatment as usual is as effective as Housing First in achieving positive clinical outcomes. However, although participants who received treatment as usual and Housing First made comparable gains in severity of psychiatric symptoms and substance use, they did not experience similar reductions in homelessness. In the absence of stable housing, the clinical gains from conventional services may be at greater risk of being lost.

Strengths of the study included the size of the sample, the diversity of the site populations, the low attrition rate, the frequency of data collection, and the range of outcomes, including self- and observer-rated measures. Limitations of the study included the nonblinding of interviewers and participants. Given the nature of the methodology and intervention, it was not possible to hide the treatment condition

**TABLE 2. Mean scores on the Quality of Life Interview among 950 persons with serious mental illness in the year after enrollment in Housing First or treatment as usual[a]**

| Subscale | Housing First (N=469)[b] M | SD | Treatment as usual (N=481)[c] M | SD | Adjusted group difference[d] | 95% CI |
|---|---|---|---|---|---|---|
| Total[e,f] | | | | | | |
| Baseline | 73.99 | 22.71 | 72.39 | 7.45 | | |
| 6 months | 87.07 | 20.49 | 79.92 | 6.81 | 5.02 | 2.66 to 7.38 |
| 12 months | 90.48 | 20.75 | 83.97 | 6.94 | 7.27 | 3.84 to 10.69 |
| Living situation[f,g] | | | | | | |
| Baseline | 2.61 | 1.83 | 2.65 | 1.85 | | |
| 6 months | 4.94 | 1.92 | 3.59 | 2.07 | 1.25 | .95 to 1.55 |
| 12 months | 4.94 | 1.87 | 3.78 | 2.11 | 1.28 | .97 to 1.59 |
| Safety[f,h] | | | | | | |
| Baseline | 15.89 | 6.12 | 15.71 | 6.49 | | |
| 6 months | 20.00 | 5.45 | 17.55 | 6.44 | 1.83 | .99 to 2.68 |
| 12 months | 20.73 | 5.22 | 18.90 | 5.92 | 2.08 | 1.12 to 3.04 |
| Leisure[h,i] | | | | | | |
| Baseline | 19.15 | 6.93 | 18.89 | 7.45 | | |
| 6 months | 21.79 | 6.37 | 20.51 | 6.81 | 1.15 | .41 to 1.88 |
| 12 months | 22.64 | 6.26 | 21.21 | 6.94 | 1.66 | .60 to 2.72 |
| Social relations[j] | | | | | | |
| Baseline | 12.83 | 4.17 | 12.32 | 4.40 | | |
| 6 months | 13.65 | 3.96 | 13.04 | 4.34 | .09 | −.37 to .55 |
| 12 months | 13.98 | 13.98 | 13.40 | 4.33 | .12 | −.54 to .79 |
| Family relations[j] | | | | | | |
| Baseline | 14.29 | 6.57 | 13.92 | 6.57 | | |
| 6 months | 15.70 | 6.71 | 15.42 | 6.80 | .15 | −.51 to .81 |
| 12 months | 16.69 | 7.04 | 16.14 | 6.74 | .22 | −.73 to 1.18 |
| Finances[k] | | | | | | |
| Baseline | 5.55 | 3.35 | 5.27 | 3.30 | | |
| 6 months | 6.46 | 3.39 | 5.91 | 3.25 | .29 | −.05 to .63 |
| 12 months | 6.97 | 3.42 | 6.31 | 3.38 | .42 | −.07 to .91 |
| Global[g] | | | | | | |
| Baseline | 3.67 | 1.91 | 3.62 | 1.92 | | |
| 6 months | 4.44 | 1.72 | 4.02 | 1.80 | .24 | .02 to .46 |
| 12 months | 4.53 | 1.74 | 4.23 | 1.75 | .27 | .02 to .53 |

[a] Mean scores for both groups improved significantly over time (p<.001).
[b] The number of responses for each subscale varied from 375 to 461 participants.
[c] The number of responses for each subscale varied from 328 to 478 participants.
[d] Group differences were adjusted for study site, sex, racial-ethnic identity, and Aboriginal status.
[e] Possible scores range from 20 to 140, with higher scores reflecting a higher quality of life.
[f] Improvement over time was significantly greater among Housing First participants versus treatment-as-usual participants (p<.001).
[g] Possible scores range from 1 to 7, with higher scores reflecting a higher quality of life.
[h] Possible scores range from 4 to 28, with higher scores reflecting a higher quality of life.
[i] Improvement over time was significantly greater among Housing First participants versus treatment-as-usual participants (p<.005)
[j] Possible scores range from 3 to 21, with higher scores reflecting a higher quality of life.
[k] Possible scores range from 2 to 14 with higher scores reflecting a higher quality of life.

**TABLE 3. Mean±SD scores for community functioning and health outcomes among 950 persons with serious mental illness in the year after enrollment in Housing First or treatment as usual[a]**

| Outcome | Housing First (N=469)[b] | Treatment as usual (N=481)[c] | Adjusted group difference[d] | 95% CI |
|---|---|---|---|---|
| Community functioning | | | | |
| Total[e,f] | | | | |
| Baseline | 54.43±7.38 | 54.21±7.21 | | |
| 6 months | 60.97±8.76 | 59.07±8.82 | 1.60 | .57–2.63 |
| 12 months | 62.46±8.66 | 60.34±9.09 | 1.81 | .65–2.98 |
| Health[g] | | | | |
| Baseline | 17.72±2.09 | 17.62±2.07 | | |
| 6 months | 19.48±2.55 | 19.21±2.40 | .12 | −.19 to .44 |
| 12 months | 19.73±2.59 | 19.54±2.53 | .14 | −.21 to .5 |
| Adaptation[h] | | | | |
| Baseline | 9.32±2.27 | 9.18±2.29 | | |
| 6 months | 10.56±2.25 | 10.23±2.39 | .15 | −.14 to .44 |
| 12 months | 10.86±2.21 | 10.48±2.36 | .17 | −.15 to .5 |
| Social skills[f,g] | | | | |
| Baseline | 14.75±3.12 | 14.74±3.11 | | |
| 6 months | 16.48±3.22 | 16.04±3.49 | .59 | .2–.98 |
| 12 months | 16.98±3.25 | 16.17±3.56 | .67 | .22–1.11 |
| Behavior[i,j] | | | | |
| Baseline | 12.64±2.98 | 12.67±2.94 | | |
| 6 months | 14.46±3.35 | 13.59±3.57 | .74 | .34–1.14 |
| 12 months | 14.88±3.47 | 14.15±3.81 | .84 | .39–1.29 |
| Psychiatric symptoms[k] | | | | |
| Baseline | 39.87±12.89 | 40.81±12.62 | | |
| 6 months | 34.93±12.34 | 36.31±12.34 | −.38 | −1.56 to .81 |
| 12 months | 33.26±11.90 | 34.51±12.48 | −.54 | −2.26 to 1.17 |
| ≥2 substance use problems in the past month (%) | | | | |
| Baseline | 50 | 51 | | |
| 6 months | 44 | 47 | −.01 | −.09 to .06 |
| 12 months | 40 | 40 | −.01 | −.10 to .09 |

[a] Results for both groups improved significantly over time (p<.001).
[b] The number of responses for each outcome varied from 375 to 461 participants.
[c] The number of responses for each outcome varied from 328 to 478 participants.
[d] Group differences were adjusted for study site, sex, racial-ethnic identity, and Aboriginal status.
[e] Possible scores range from 17 to 85, with higher scores representing better functioning.
[f] Improvement over time was significantly greater among Housing First participants versus treatment-as-usual participants (p<.005).
[g] Possible scores range from 5 to 25, with higher scores representing better functioning.
[h] Possible scores range from 3 to 15, with higher scores representing better functioning.
[i] Possible scores range from 4 to 20 with higher scores representing better functioning.
[j] Improvement over time was significantly greater among Housing First participants versus treatment-as-usual participants (p<.001).
[k] Possible scores range from 5 to 70, with higher scores representing more mental illness symptomatology.

and other outcomes during the second year of this trial. Our interim findings provide support for the redirection of programs and policies toward adopting Housing First to address chronic and episodic homelessness (7,35). In fact, as a result of these interim findings, the federal government in Canada has revised its federal homelessness initiative to emphasize the development of Housing First programs (36).

**AUTHOR AND ARTICLE INFORMATION**

Dr. Aubry is with the Centre for Research on Educational and Community Services and the School of Psychology, University of Ottawa, Ottawa, Ontario, Canada (e-mail: taubry@uottawa.ca). Dr. Tsemberis is with Pathways to Housing, Inc., New York. Dr. Adair is with the Department of Psychiatry and Community Health Sciences, University of Calgary, Calgary, Alberta, Canada. Mr. Veldhuizen and Dr. Goering are with the Centre for Addiction and Mental Health, Toronto, Ontario. Dr. Goering is also with the Department of Psychiatry, University of Toronto, Toronto, where Dr. Streiner is also affiliated. Dr. Streiner is also with the Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, Ontario. Dr. Latimer is with the Department of Psychiatry, McGill University, Montreal, Quebec, Canada. Dr. Sareen is with the Department of Psychiatry and the Department of Community Health Sciences, University of Manitoba, Winnipeg, Manitoba, Canada. Dr. Patterson is with the Faculty of Health Sciences, Simon Fraser University, Vancouver, British Columbia, Canada. Dr. McGarvey is with the Department of Psychiatry, University of British Columbia, Vancouver. Ms. Kopp and Ms. Hume are with the Mental Health Commission of Canada, Calgary.

of participants from interviewers or from themselves. It is possible that a potential bias associated with this nonblinding contributed to differences in quality of life and community functioning between the groups. The relatively short period of time that participants received Housing First was a further limitation.

## CONCLUSIONS

Housing First services typically focus on assisting individuals to establish stable housing in the first year (10). It remains to be seen whether Housing First participants will show greater improvements than treatment-as-usual participants on clinical

## REFERENCES

1. Echenberg H, Jensen H: Defining and Enumerating Homelessness in Canada. PRB 08-30E. Ottawa, Ontario, Library of Parliament, Parliamentary Information and Research Service, 2008. Available at www.parl.gc.ca/Content/LOP/ResearchPublications/prb0830-e.htm

2. Gaetz S, Donaldson J, Richter T, et al: The State of Homelessness in Canada. Toronto, Ontario, Canadian Homelessness Research Network Press, 2013

3. The State of Homelessness in America 2012: A Research Report on Homelessness. Washington, DC, National Alliance to End Homelessness, 2012. Available at b.3cdn.net/naeh/9892745b6de8a5ef59_q2m6yc53b.pdf

4. The State of Homelessness in America 2013: A Research Report on Homelessness. Washington, DC, National Alliance to End Homelessness, 2013. Available at b.3cdn.net/naeh/bb34a7e4cd84ee985c_3vm6r7cjh.pdf

5. Aubry T, Klodawsky F, Coulombe D: Comparing the housing trajectories of different classes within a diverse homeless population. American Journal of Community Psychology 49:142–155, 2012

6. Foster S, LeFauve C, Kresky-Wolff M, et al: Services and supports for individuals with co-occurring disorders and long-term homelessness. Journal of Behavioral Health Services and Research 37:239–251, 2010

7. Kuhn R, Culhane DP: Applying cluster analysis to test a typology of homelessness by pattern of shelter utilization: results from the analysis of administrative data. American Journal of Community Psychology 26:207–232, 1998

8. Nelson G, Aubry T, Lafrance A: A review of the literature on the effectiveness of housing and support, assertive community treatment, and intensive case management interventions for persons with mental illness who have been homeless. American Journal of Orthopsychiatry 77:350–361, 2007

9. Leff HS, Chow CM, Pepin R, et al: Does one size fit all? What we can and can't learn from a meta-analysis of housing models for persons with mental illness. Psychiatric Services 60:473–482, 2009

10. Tsemberis S: Housing First: The Pathways Model to End Homelessness for People With Mental Illness and Addiction. Center City, Minn, Dartmouth PRC and Hazelden, 2010

11. Rog DJ, Marshall T, Dougherty RH, et al: Permanent supportive housing: assessing the evidence. Psychiatric Services 65:287–294, 2014

12. Tsemberis S: From Streets to Homes: an innovative approach to supported housing for homeless adults with psychiatric disabilities. Journal of Community Psychology 27:225–241, 1999

13. Tsemberis S, Eisenberg RF: Pathways to Housing: supported housing for street-dwelling homeless individuals with psychiatric disabilities. Psychiatric Services 51:487–493, 2000

14. Greenwood RM, Schaefer-McDaniel NJ, Winkel G, et al: Decreasing psychiatric symptoms by increasing choice in services for adults with histories of homelessness. American Journal of Community Psychology 36:223–238, 2005

15. Tsemberis S, Gulcur L, Nakae M: Housing First, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. American Journal of Public Health 94:651–656, 2004

16. Stefancic A, Tsemberis S: Housing First for long-term shelter dwellers with psychiatric disabilities in a suburban county: a four-year study of housing access and retention. Journal of Primary Prevention 28:265–279, 2007

17. Gilmer TP, Stefancic A, Ettner SL, et al: Effect of full-service partnerships on homelessness, use and costs of mental health services, and quality of life among adults with serious mental illness. Archives of General Psychiatry 67:645–652, 2010

18. Tsemberis S, Kent D, Respress C: Housing stability and recovery among chronically homeless persons with co-occurring disorders in Washington, DC. American Journal of Public Health 102:13–16, 2012

19. Appel PW, Tsemberis S, Joseph H, et al: Housing First for severely mentally ill homeless methadone patients. Journal of Addictive Diseases 31:270–277, 2012

20. Goering PN, Streiner DL, Adair C, et al: The At Home/Chez Soi trial protocol: a pragmatic, multi-site, randomised controlled trial of a Housing First intervention for homeless individuals with mental illness in five Canadian cities. BMJ Open, 2011 (doi 10.1136/bmjopen-2011-000323)

21. Barker S, Barron N, McFarland BH, et al: A community ability scale for chronically mentally ill consumers: part II. applications. Community Mental Health Journal 30:459–472, 1994

22. Dickerson FB, Origoni AE, Pater A, et al: An expanded version of the Multnomah Community Ability Scale: anchors and interview probes for the assessment of adults with serious mental illness. Community Mental Health Journal 39:131–137, 2003

23. Sheehan DV, Lecrubier Y, Sheehan KH, et al: The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. Journal of Clinical Psychiatry 59(suppl 20):22–33, quiz 34–57, 1998

24. Nelson G, Stefancic A, Rae J, et al: Early implementation evaluation of a multi-site Housing First intervention for homeless people with mental illness: a mixed methods approach. Evaluation and Program Planning 43:16–26, 2014

25. Stefanic A, Tsemberis S, Messeri P, et al: The Pathways Housing First Fidelity Scale for individuals with psychiatric disabilities. American Journal of Psychiatric Rehabilitation 16:240–261, 2013

26. Rental Market Statistics. Ottawa, Ontario, Canada Mortgage and Housing Corporation, 2012. Available at www.cmhc-schl.gc.ca/odpub/esub/64725/64725_2012_B01.pdf?fr=1388695801870

27. Tsemberis S, McHugo G, Williams V, et al: Measuring homelessness and residential stability: the Residential Time-Line Follow-Back Inventory. Journal of Community Psychology 35:29–42, 2007

28. Uttaro T, Lehman A: Graded response modeling of the Quality of Life Interview. Evaluation and Program Planning 22:41–52, 1999

29. Boothroyd RA, Chen HJ: The psychometric properties of the Colorado Symptom Index. Administration in Policy and Mental Health 35:370–378, 2008

30. Conrad KJ, Yagelka JR, Matters, MD, et al: Reliability and validity of a modified Colorado Symptom Index in a national homeless sample. Mental Health Services Research 3:141–153, 2001

31. Dennis ML, Chan YF, Funk RR: Development and validation of the GAIN Short Screener (GSS) for internalizing, externalizing, and substance use disorders and crime/violence problems among adolescents and adults. American Journal of Addictions 15(suppl 1):80–91, 2006

32. Dennis ML, White MK, Titus JC, et al: Global Appraisal of Individual Needs (GAIN): Administration Guide for the GAIN and Related Measures (Version 5). Bloomington, Ill, Chestnut Health Systems, 2006

33. Xu J, Long JS: Confidence intervals for predicted outcomes in regression models for categorical outcomes. Stata Journal 5:537–559, 2005

34. Kim K, DeMets DL: Design and analysis of group sequential tests based on the type I error spending rate function. Biometrika 74: 149–154, 1987

35. Aubry T, Farrell S, Hwang S, et al: Identifying the patterns of emergency shelter stays of single individuals in Canadian cities of different sizes. Housing Studies 28:910–927, 2013

36. Jobs, Growth, and Long-Term Prosperity: Economic Action Plan 2013. Ottawa, Ontario, Government of Canada, Ministry of Finance, 2013. Available at www.budget.gc.ca/2013/doc/plan/budget2013-eng.pdf