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Cost Analysis of a High Support Housing Initiative for Persons with Severe Mental Illness and Long-Term Psychiatric Hospitalization

Analyse des coûts d'une initiative de soutien élevé au logement pour les personnes souffrant de maladie mentale grave et ayant une hospitalisation psychiatrique de longue durée

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Abstract

Objective: The objective of this article was to conduct a cost analysis comparing the costs of a supportive housing intervention to inpatient care for clients with severe mental illness who were designated alternative-level care while inpatient at the Centre for Addiction and Mental Health in Toronto. The intervention, called the High Support Housing Initiative, was implemented in 2013 through a collaboration between 15 agencies in the Toronto area.

Method: The perspective of this cost analysis was that of the Ontario Ministry of Health and Long-Term Care. We compared the cost of inpatient mental health care to high-support housing. Cost data were derived from a variety of sources, including health administrative data, expenditures reported by housing providers, and document analysis.

Results: The High Support Housing Initiative was cost saving relative to inpatient care. The average cost savings per diem were between $140 and $160. This amounts to an annual cost savings of approximately $51,000 to $58,000. When tested through sensitivity analysis, the intervention remained cost saving in most scenarios; however, the result was highly sensitive to health system costs for clients of the High Support Housing Initiative program.

Conclusions: This study suggests the High Support Housing Initiative is potentially cost saving relative to inpatient hospitalization at the Centre for Addiction and Mental Health.

Abstract

Objectif : L'objectif de cet article était de mener une analyse des coûts comparant les coûts d'une intervention de soutien au logement avec les coûts des soins de patients hospitalisés pour des clients souffrant de maladie mentale grave qui ont été désignés d'un autre niveau de soins alors qu'ils étaient hospitalisés au Centre de toxicomanie et de santé mentale, à Toronto. L'intervention, nommée Initiative de soutien élevé au logement, a été mise en œuvre en 2013 par une collaboration de 15 organismes de la région de Toronto.

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Méthode : La perspective de cette analyse de coûts était celle du ministère de la Santé et des Soins de longue durée de l'Ontario. Nous avons comparé les coûts des soins de santé mentale pour patients hospitalisés avec les coûts du soutien élevé au logement. Les données sur les coûts provenaient de diverses sources, dont les données de santé administratives, les dépenses déclarées par les fournisseurs de logement, et l'analyse des documents.

Résultats : L'initiative de soutien élevé au logement était économique relativement aux soins de patients hospitalisés. L'économie moyenne par jour se situait entre 140 $ et 160 $, ce qui représente une économie annuelle d'environ 51 000 $ à 58 000 $. Après avoir subi le test d'une analyse de sensibilité, l'intervention demeurait économique dans la plupart des scénarios; cependant, le résultat était hautement sensible aux coûts du système de santé pour les clients du programme de soutien élevé au logement.

Conclusions : Cette étude suggère que l'initiative de soutien élevé au logement est potentiellement économique relativement à l'hospitalisation des patients au Centre de toxicomanie et de santé mentale.

Keywords
supportive housing, mental health and addictions, cost analysis

With widespread deinstitutionalization over the past several decades, there has been increasing pressure on psychiatric inpatient settings to move patients to the community. In particular, there has been a push to reduce the amount of time patients spend waiting for an alternate level of care (ALC)—a situation where patients no longer require acute care services but wait in acute care beds to be discharged to more appropriate settings (e.g., home or residential care).[1] Supportive housing interventions, where mental health supports are integrated into housing settings, could be a response to this gap in services.

The evidence for supportive housing interventions for persons with severe mental illness (SMI) is growing. Studies have been conducted in the United States[2,3] and Canada[4,5] comparing "housing first" interventions to standard community care for homeless individuals with mental illness. Standard care in these studies typically involves community-based mental health services, community-based services following inpatient care, detox programs, or nonresidential treatment. These studies suggest that compared to standard care, individuals in "housing first" reported higher probability of receiving secure housing, longer housing tenure,[2,3] higher quality housing,[4] higher quality of life,[4,5,6] and higher community functioning.[4] Reviews of the literature on housing interventions for persons with mental illness and problems with substance abuse have found supportive housing to be associated with better housing outcomes (e.g., fewer days spent homeless) and reductions in hospitalization compared to standard care.[7-10] However, mixed results have been found with respect to clinical functioning, community adaptation, and quality of life.[4,6,11] With the mounting evidence, mostly in favour of supportive housing initiatives, it would be useful to evaluate the cost implications related to patients/clients moving from a hospital-based setting to supportive housing.

In 2013, over 15 agencies in Toronto came together to develop a system response to ALC patients in psychiatric hospital beds. The partner agencies developed a complex intervention intended to transition ALC clients from the Centre for Addiction and Mental Health (CAMH)—a large mental health and addictions hospital in Canada—to the community. Since 2013, this initiative, called the ALC High Support Housing Initiative (the "Initiative"), has been implemented in a limited capacity in the Toronto area. The objective of this article was to conduct a cost analysis of this supportive housing intervention in a real-world setting.

Methods

Setting

The Initiative provides recovery-oriented supportive housing interventions[12] that aim to transition ALC clients from hospital to the community and, if possible, prepare clients for more independent living. The Initiative includes 4 key components: high-support housing, step-up housing, an interdisciplinary transitional team (ITT), and a Flex Fund. High-support housing includes 24/7 access to onsite staff trained in mental health; medication supports; personal support workers to help with activities of daily living (ADLs), including hygiene and physical care needs; peer support, including life-skills groups; a meal program; programmatic features for substance use; flexibility in physical space to align with individual needs of tenants; and stress and anger management supports. Medication management practices include assistance with self-administration and monitoring, documentation of medication, and protocols for storing and disposal.

As of March 2016, 58 complex ALC clients from CAMH had transitioned to high-support housing. Patients in the high-support housing program have several co-occurring complexities, many of which are not explicitly diagnosed. All patients have a severe mental illness, and many have cognitive impairments, medical complexities, and/or use substances. In addition, many clients have behavioural challenges, minimal skills with the ADLs, current or past involvement with the criminal justice system, and a history of verbal or physical aggression, sexually inappropriate behaviours, arson, and other challenging histories. These clients' average length of stay at CAMH prior to transitioning to the community was 4.6 years (data provided by High Support Housing Initiative staff at CAMH).

Step-up housing is also funded under the Initiative. It involves 12 hours of support per day, 7 days per week. The

staffing model includes 2 full-time residential support workers, 1 program coordinator, and 2 part-time peer support workers. Step-up housing caters to tenants in high support who are able to and who want to move to housing with less support.

Based out of CAMH, the ITT provides clinical support to ALC clients transitioning into the community and tenants moving to step-up housing. Only those clients/tenants who require the transition team and who would benefit from the multidisciplinary approach are referred to the ITT. The ITT has several functions, including participation in the matching of clients with an appropriate supportive housing provider, engagement with the client before transition, the development of behavioural support plans, and providing clinical supports using a recovery focus. The current complement of the ITT includes a behavioural therapist, 2 nurses, an occupational therapist, a social worker, and a psychiatrist.

The Flex Fund is a financial resource available to supportive housing providers in transitioning individual clients from hospital to community or from high support to step-up housing. The fund is managed by the community and allows for housing providers to develop and implement an individualized care plan.

Study Design

This costing analysis[13] took an Ontario Ministry of Health perspective and compared the cost of inpatient mental health care to high-support housing. Costing data were derived from a variety of sources, including administrative health data, expenditures reported by supportive housing providers, and documents provided by the program area at CAMH.

Data Sources

Our primary data source was administrative data housed at the Institute for Clinical Evaluative Sciences (ICES) at Sunnybrook Health Sciences Centre in Toronto, Ontario. We had access to linked individual-level data on most publicly funded health care services for all legal residents of Ontario. Full descriptions of the linked data sets used in this analysis are provided in the Appendix. The databases were linked using unique encoded identifiers and analysed at ICES.

We collected data on all adult clients who had an assessment in the Ontario Mental Health Reporting System (OMHRS) between April 1, 2013, and March 31, 2014 ($n = 41{,}465$). The OMHRS is an administrative data set that includes information on inpatient mental health services provided in Ontario. We excluded individuals who were not designated ALC ($n = 40{,}111$), who died in hospital during the study period ($n = 43$), and those not eligible for Ontario health insurance at the time of assessment ($n \leq 5$). From this sample of 1309 clients, we generated comparison and intervention groups. The comparison group included all ALC clients who were not discharged prior to March 31, 2015, and who had a length of stay of 90 days or more ($n = 169$). From the comparison group, we created a subsample of those hospitalized at CAMH ($n = 47$). In OMHRS, coding of ALC status was determined by examination of the client clinical record and in consultation with the attending psychiatrist.

We were not able to specifically identify clients discharged to high-support housing in the administrative data. Instead, we obtained a sample that closely matched their characteristics. For our study, the intervention group included all clients with a length of stay greater than 90 days who were discharged from CAMH to assisted living, board and care, mental health residence, group home for persons with physical disabilities, or settings for persons with intellectual disabilities in 2013 to 2014 ($n = 69$). We were inclusive with this definition to increase our sample size and to improve the external validity of the cost estimates.

For the intervention group, we calculated additional costs, including direct supportive housing costs incurred by the supportive housing providers (i.e., central administration, staff and benefits, rent supplements, food, transportation, insurance, and capital expenses), the staff and benefits paid to the ITT at CAMH, and the Flex Fund. We also included income supports provided to clients through the Ontario Disability Support Program (ODSP).

Aggregated annual costs incurred by the supportive housing agencies were provided by agency staff and were derived from their 2014 to 2015 expenses. Expenses included those paid by the community agency and the Ontario government. Given these expenses were aggregated, we generated average annual costs by dividing the total expenses by the number of housing units (31 units) available to high-support housing clients. ITT and Flex Fund costs were derived from the Initiative program budget. ODSP provides a monthly allowance for basic needs and shelter costs to Ontario residents over the age of 18 who are in financial need and who meet the program's definition of a person with a disability or who are a member of a "prescribed class." We assumed all clients discharged to high-support housing were recipients of ODSP. The value of ODSP payments was based on the maximum allowable rates prior to September 2015 for single adults.[14,15] All costs were adjusted to 2015 dollars using the Canadian Consumer Price Index for health and personal care.

We also collected information on clients' age, sex (from the Registered Persons Database), neighbourhood income quintile (from the Census), length of stay in hospital (from the OMHRS and Discharge Abstract Database), ALC days, forensic status, and ADLs (from the OMHRS).

Analysis

Using the administrative data, we were able to obtain individual-level health system costs for all patients in the intervention and comparison groups. We tracked these costs for 1 year prior to and 1 year following the date of the last assessment in the OMHRS, up to March 31, 2015. We used a cost estimation macro in SAS, available from ICES,[16] that calculates Ontario-specific health system costs. These costs

Table 1. Baseline Characteristics for Intervention and Comparison Groups.

Variable	Intervention	Comparison	*P* Value	Comparison (CAMH)	*P* Value
Age at assessment, y	46.7	56.3	<0.001	48.4	0.530
Female, %	24.6	29.6	0.441	23.4	0.441
Neighbourhood income quintile, %					
Low (1-2)	43.4	37.2	0.024	34.0	0.522
Medium/high (3-5)	31.8	52.6		31.9	
Missing	24.6	10.1		34.0	
Less than high school education, %	33.3	49.1	0.090	40.4	0.183
ALC days hospital stay	238.8	423.5	<0.001	258.5	0.343
Length of hospital stay, d	692.3	799.4	0.140	747.2	0.170
Forensic status, %	37.7	37.3	0.315	49.1	0.036
ADLs, %					
Hygiene (independent)	60.9	37.9	<0.001	56.9	0.170
Walking (independent)	97.1	75.7	0.012	95.7	0.214
Toilet use (independent)	88.4	63.3	0.013	83.6	0.054
Eating (independent)	91.3	56.8	<0.001	88.8	0.258
Observations, *n*	69	169		47	

ADLs, activities of daily living; ALC, alternative levels of care; CAMH, Centre for Addiction and Mental Health.

included inpatient hospitalization (acute and psychiatric), physician-related visits and lab tests, emergency department (ED) visits and other ambulatory care (such as same-day surgery), publicly covered outpatient prescription drugs, rehabilitation, home care, complex continuing care (CCC), and long-term care (LTC). A bottom-up costing approach was used for physician, home care, and outpatient drug costs, where individual utilization can be easily tracked in the administrative data and where specific unit costs are available for each episode of care. A top-down approach was used for institutional care (e.g., inpatient hospitalization) where aggregate costs were allocated down to the individual level using case-mix adjustments.[16] In addition, inpatient costs can vary over the length of stay. For instance, the first few days of a client's stay tend to be the most costly. This is particularly relevant for psychiatric hospitalizations and long-term care, where there are long-term stays. Thus, for clients captured in OHMRS, inpatient costs were varied across different phases of a client's hospital stay. Further details on this costing methodology can be found elsewhere.[16]

To calculate costs differences, we compared the change in costs pre- and postintervention in the intervention group to the change in costs pre- and postintervention in the comparison group. Our outcome of interest was the difference between these changes. We generated 95% bootstrap confidence intervals around our costs estimates using 1000 repetitions.

Sensitivity Analysis

We used the bootstrap confidence intervals in our sensitivity analysis to generate best- and worst-case scenarios for our results. We also conducted 1-way and multiway sensitivity analyses on costs generated from the administrative data and those obtained from the program areas.

Results

We compared baseline descriptive statistics for the samples used in the administrative data analysis (Table 1). The base-case comparison group included all ALC clients ($n = 169$) who were in hospital during the study period. The second comparison group included only ALC clients who were inpatients at CAMH during the study period ($n = 47$). Compared to the base-case comparison group, the intervention group was significantly younger (46.7 vs. 56.3, $P < 0.001$), lived in lower income neighbourhoods ($P = 0.024$), had higher independence with respect to ADLs, and fewer days spent as ALC in the year prior to discharge ($P < 0.001$). The baseline characteristics were far more balanced when the intervention group was compared to clients who were inpatients at CAMH only. However, clients in the intervention group were less likely to have forensic status ($P = 0.036$). Due to small sample sizes, we were unable to address any balance issues through covariate adjustment (e.g., regression and/or matching).

Table 2 compares the average total per diem health system costs for the intervention and comparison groups across each cost category prior to and after the index date (i.e., discharge for the intervention group and the last inpatient assessment in 2013-2014 for the comparison group). In the year following the index date, the most important differences between the intervention and comparison groups were psychiatric hospitalization costs, which were higher in the comparison groups. Outpatient drugs (covered by the public drug plan) and same-day surgery costs were higher in the intervention group. Costs of physician-related visits and lab tests were considerably higher in the CAMH-only comparison group compared to the intervention group.

Table 3 shows the difference in average per diem health service costs across the intervention and comparison groups with 95% bootstrap confidence intervals. Health service costs were not significantly different between the

Table 2. Categorized Average per Diem Health Services Costs Prior to and after Index Date (2015 Dollars).

	Intervention ($n = 69$)		Comparison (CAMH) ($n = 47$)		Comparison (All) ($n = 169$)	
	Mean	SD	Mean	SD	Mean	SD
One year before discharge/assessment						
Inpatient care (DAD)	5	30	6	20	10	35
Inpatient care (OMHRS)	604	182	663	144	665	156
ED visits	1	2	2	3	1.2	2.2
Outpatient drugs[a]	1.3	4	0.8	3	0.9	2.5
Same-day surgery	2	7	1.2	7	0.6	4.4
Long-term care	2	15	1	10	3	17
Physician services	28	16	28	21	14	20
Other care[b]	0.4	1.2	1.0	3.1	3	16
Total cost[c]	643	179	703	134	696	139
One year after discharge/assessment						
Inpatient care (DAD)	3	12	1.8	6.8	1.9	10.9
Inpatient care (OMHRS)	255	258	744	62	731	128
ED visits	1.1	2.8	0.7	1.2	0.5	1.1
Outpatient drugs[a]	5	7	1.3	8.6	0.5	4.8
Same-day surgery	1.1	5.8	1.1	5.8	0.6	3.3
Long-term care	2	17	0	0	1.7	15.3
Physician services	16	13	28	22	13	24
Other care[b]	0.4	1.1	0.14	0.46	0.7	2.9
Total cost[c]	284	262	777	63	750	121

CAMH, Centre for Addiction and Mental Health; DAD, discharge abstract database; ED, emergency department; OHMRS, Ontario Metal Health Reporting System; SD, Standard Deviation.
[a]Drugs covered under the public provincial drug plan.
[b]Other includes complex continuing care costs, home care costs, and rehabilitation costs.
[c]Columns may not sum due to rounding.

Table 3. Average per Diem Health Services Costs (2015 Dollars).

	Intervention Group		Comparison Group (CAMH)			Comparison Group (All)		
Total Cost	Mean	95% CI	Mean	95% CI	Difference	Mean	95% CI	Difference
Before discharge/assessment	643	601-686	703	665-741	–60	696	675-717	–53
After discharge/assessment	284	222-346	777	759-795	–493	750	732-768	–466
Change	–359		74		–433	54		–413

Average per diem health service cost categories included inpatient care (nonpsychiatric), inpatient care (psychiatric), emergency department visits, outpatient drugs, same-day surgery, long-term care, physician services, complex continuing care, home care, and rehabilitation.
CAMH, Centre for Addiction and Mental Health; CI, confidence interval.

comparison groups and intervention group 1 year prior to the index date. In the year following the index date, the health system costs increased for the comparison groups and decreased for the intervention group.

Table 4 shows the differences in costs for the comparison and intervention groups for all cost categories. This table includes total health system costs and high-support housing costs, including rent/mortgage, staff/benefits, operating expenses, one-time setup costs, ODSP costs, ITT salary and benefits, and the Flex Fund. The key value in this table is the change in costs after discharge in the intervention group minus the change in costs after the last assessment in the OHMRS for the comparison groups. The change in average per diem costs for the intervention group was a decrease of $86. The change in the average costs for the comparison group was an increase of $54. The incremental cost attributed to the Initiative was –$140 per diem. Compared to the CAMH-only comparison group, the incremental cost of the Initiative was –$160.

Sensitivity Analysis

We conducted several tests around the sensitivity of our results (Table 5). First, we varied the change in health system costs for the intervention group by setting it equal to the upper and lower bounds of the 95% bootstrap confidence interval. This represents the plausible range of values of costs for the intervention group upon repeated observation. For this analysis, the incremental costs of high-support housing ranged from –$245 to –$36. We also conducted a

Table 4. Average Incremental per Diem Costs for High Support Housing (2015 Dollars).

	Intervention	Comparison (CAMH)	Difference	Comparison (All)	Difference
One year before discharge/assessment					
Health services	643	703	–60	696	–53
One year after discharge/assessment					
Health services	284	777	–493	750	–466
Housing					
Rent/mortgage payments	19	—	19	—	19
Staff and benefits	123	—	123	—	123
Operating expenses	25	—	25	—	25
One-time start-up	1	—	1	—	1
Subtotal	168	—	168	—	168
Direct program					
ITT	60	—	60	—	60
Flex Fund	9	—	9	—	9
Subtotal	69	—	69	—	69
Other					
ODSP	36	—	36	—	36
Total	557	777	–220	750	–193
Change	–86	74	–160	54	–140

CAMH, Centre for Addiction and Mental Health; ITT, interdisciplinary transition team; ODSP, Ontario Disability Support Program; —, N/A.

Table 5. Sensitivity Analysis for Incremental per Diem Costs of High Support Housing (2015 Dollars).

	High Estimate	Low Estimate
1. Change in health system costs for intervention group	–36	–245
2. Change in health system costs for comparison group	–102	–179
3. Change in intervention and comparison groups	3	–283
4. Housing costs	–92	–174
5. Scenario analysis	51	–317

1. Uses the lower and upper bounds of the 95% bootstrap confidence intervals for health services costs for the intervention group. 2. Uses the lower and upper bounds of the 95% bootstrap confidence intervals for health services costs for the comparison group (all). 3. Uses the upper and lower bounds of the 95% confidence intervals for the intervention and comparison groups. 4. Uses the highest and lowest cost estimates provided by the housing organizations. 5. Combines 3 and 4 to create a highest and lowest scenario.

sensitivity analysis on this group by excluding clients discharged from CAMH to "Board & Care." Board & Care typically provides a much more limited set of services than other supportive housing programs. Removing this group increased health system costs in the intervention group and decreased cost savings by 4% (or $6 to $7 per diem).

Second, we varied the change in health system costs for the comparison group by setting it equal to the upper and lower bounds of the 95% bootstrap confidence interval. For this analysis, the incremental costs ranged from –$179 to –$102 per diem.

Third, we varied the costs of both the intervention and comparison groups simultaneously. For the high estimate, we chose the upper bound of the intervention group and the lower bound of the comparison group (the smallest difference). For the low estimate, we chose the lower bound of the intervention group and the upper bound of the comparison group (the largest difference). For this analysis, the incremental costs of high-support housing ranged from –$283 to $3.

Fourth, we varied the supportive housing costs by setting them to their highest and lowest estimates based on the expenditure reports from the 3 supportive housing organizations. For this analysis, the incremental costs ranged from –$174 to –$92 per diem.

Finally, we combined the third and fourth sensitivity analyses to obtain a best- and worst-case scenario for the costing analysis. This scenario analysis resulted in an incremental cost ranging from a cost savings of $317 per diem to an increase in costs of $51 per diem.

Discussion

The findings of this cost analysis suggest that high-support housing has the potential to achieve costs savings over inpatient hospitalization for ALC clients with severe mental illness. The average cost savings per diem were between $140 and $160. This would result in an annual cost savings of approximately $51,000 to $58,000 per client. When we tested this result through sensitivity analysis, the intervention remained cost saving in most scenarios; however, this result is highly sensitive to changes in health system costs for clients who received the high-support housing program; high health care costs incurred while in housing would reduce the cost savings of the intervention.

The savings generated through the housing intervention should result in gains in the efficient use of scarce health care

resources (i.e., reduced waiting times or more appropriate use of services), which was the stated objective of the intervention. For example, resources devoted to a hospital bed occupied by a patient discharged to high-support housing whose length of stay was 1 year could be applied to 12 individuals with an average length of stay of 1 month.

Our results are comparable to those found in other cost analyses of similar interventions. A review of cost analyses and cost-effectiveness studies found that the cost offsets of supportive housing tended to pay back at least the majority of direct program costs.[17] One study[18] found an annual cost savings of $44,747 ($29,524 USD in original study) compared to usual care (individuals who were homeless and on a waitlist for housing), while a second study[19] found an annual cost savings of $25,177 ($17,979 USD in original study) compared to usual care (for individuals who were homeless). While comparing our results to these previous studies, it is important to note that we were not able to account for the costs of community or correctional services.

While we cannot make any conclusions about the cost-effectiveness of the high-support housing intervention, the literature on supportive housing has found that it is associated with better housing outcomes (e.g., fewer days spent homeless) than those receiving usual care without housing.[7] Supportive housing has also been associated with reductions in hospital bed days, but mixed results have been found with respect to clinical functioning and community adaptation.[7] Furthermore, randomized controlled trials in Canada[3] and the United States[20] found that housing was effective in preventing homelessness. However, further research is needed to compare the effectiveness of inpatient care to housing interventions.

Our analysis had a number of limitations. First, we were unable to include client outcomes to make this a true cost-effectiveness analysis.[21] The incremental costs reported here do not take into account any client outcomes. However, the evidence of supportive housing interventions suggests that it can lead to considerable benefits over standard care.[7,10] Future analysis could supplement our findings by exploring gains to client outcomes, such as improvements in quality of life and/or specific health outcomes. Second, we used aggregated housing and direct program costs, which may not be as accurate as individual-level costs. As a result, we were not able to apply similar robustness checks (e.g., bootstrapping) as we did with the individual-level health system costs. However, previous work has demonstrated that aggregated costs can closely approximate individual-level costs.[22] Third, we only track costs for 1 year following the discharge/assessment date, which may lead to an overestimate of costs for the intervention group if we assume that start-up and transition costs will decrease in subsequent years for clients who are able to remain in the community. Furthermore, we did not factor in the reduction in costs for clients who eventually move from high support to less intensive step-up housing. Fourth, we were not able to identify program clients in the administrative data and had to rely on a proximate cohort. Furthermore, the creation of our cohort depended on the accurate identification of ALC clients by attending psychiatrists. However, we believe this group provided an accurate approximation of the health system costs used by program clients postdischarge. Given small sample sizes, we were not able to match intervention and comparison clients, nor were we able to conduct more robust adjusted analyses, including adjustments for specific mental or physical illnesses. However, CAMH clients in the intervention and comparison groups seem fairly balanced across observable characteristics.

Conclusion

This study was a real-world analysis of a housing intervention for ALC clients with complex health and social needs. This study suggests that the High Support Housing Initiative is potentially cost-saving relative to inpatient hospitalization at CAMH. There are likely efficiencies to be gained from transitioning long-stay ALC CAMH clients to the community, allowing more clients to be treated for the same cost.

Appendix. Linked Administrative Data Sets

Database	Description
Continuing Care Reporting System	Contains clinical and demographic information on individuals receiving facility-based continuing care (medical long-term care, rehabilitation, geriatric assessment, respite care, palliative care, and nursing care)
Client Profile Database	This database contains information on clients placed or waiting to be placed in a long-term care home. Information includes patient application information and choices for long-term care homes.
Discharge Abstract Database	National database containing demographic, clinical, and administrative data for inpatient hospital admissions
Home Care Database	Includes data on all government-funded services coordinated by Ontario's Community Care Access Centres for individuals requiring home care
National Ambulatory Reporting System	National database containing emergency department visits, outpatient clinics, and day surgery
National Rehabilitation Reporting System	National database on rehabilitation facilities and clients collected from participating inpatient rehabilitation facilities and programs
Ontario Drug Benefit Program	Includes data on all drugs on the provincial formulary, dispensed in Ontario community pharmacies and long-term care facilities. The Ontario

(continued)

Appendix. (continued)

Database	Description
	Drug Benefit covers all individuals 65 years of age or older and those on social assistance.
Ontario Health Insurance Plan	Includes data on all procedures provided by health care providers who submit billing information to the Ontario Health Insurance Plan (physicians, laboratory services)
Ontario Mental Health Reporting System	Includes data on individuals admitted to designated adult mental health beds in Ontario

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