CADTH Health Technology Review

The Small House Model to Support Older Adults in Long-Term Care
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Abbreviations

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<tr>
<td>ES</td>
<td>Environmental Scan</td>
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<tr>
<td>LTC</td>
<td>long-term care</td>
</tr>
<tr>
<td>QoL</td>
<td>quality of life</td>
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Key Messages

- The small house model of long-term care (LTC) is identified internationally by several model names. Although some differences exist between the characteristics of these models (e.g., number of residents, degree of resident freedom, facility design), there are 3 recurring components: functional units with a small group of residents, replication of familiar domestic routines, and some form of decentralized staff.

- The key philosophic difference between the small house model and the traditional LTC model is the heavy focus on person-centred care. This approach to care in the small house model is firmly rooted in freedom of choice and autonomy for the residents.

- Small house models eliminate the strict delineation of roles; staff at all levels are included in the decision-making process. Self-managed and universal work teams are prominent features of the small house model. Frontline staff with strong interpersonal skills are essential for successful implementation.

- No strong trend emerges from the literature with respect to the impact of the small house model on resident-centred outcomes compared with more traditional models of LTC. This is likely due to lack of consistency in the outcomes that are measured and variability among the different small house models. This finding is consistent with other reviews on the topic.

- Literature exploring the Canadian experience with small house models is limited. The majority of identified studies used data from the US or European jurisdictions, which potentially limits its generalizability to the Canadian context.

Context

The LTC industry has experienced a global culture change movement over the past 25 years.1 This culture change, driven by concerns over quality of care, lack of personalization in operational procedures, and strictures on life for the residents in the traditional approach to LTC, has been accelerated by the recent COVID-19 crises, in which more than 59% of Canadian deaths were for residents of LTC facilities.2 Through this movement, several alternative models of care have emerged to replace the traditional approach that used an institutional, medical model. Common themes of culture change models include individualized care; creating home-like environments; promoting close relationships among staff, residents, families, and communities; empowering staff to respond to resident needs and work collaboratively with management to make decisions about care; and the continuous improvement of quality.1 Canada’s population is rapidly aging and the proportion of residents older than 65 years is expected increase by more than 60% in the next 20 years, and the proportion of those older than 75 years is expected to double.3 In light of this demographic shift, several jurisdictions are intensifying their efforts to evaluate the existing approach to care and identify areas for improvement. The “small house model” has been proposed as a potential solution to what are seen as the current pitfalls of traditional LTC facilities. Although there are several different names by which the small house model is referred, these all typically incorporate the common themes of culture change through a specific built design, functional units with fewer residents, and a person-centred approach to care. This Environmental Scan (ES) was conducted to help inform the decision-making on the adoption of the small house model in Canadian jurisdictions.
Through a review of the literature, this ES aims to gather and synthesize information on the small house model. This includes both Canadian and international examples in which the model has either been implemented or is being considered, as well as comparisons of the small house to the traditional model.

Objectives
The key objectives of the ES are as follows:

• identify examples of the small house model of LTC implemented in Canada and internationally and describe their key characteristics, including overall design, number of residents per home, philosophy and approach to care, services provided, staffing level, and funding approach
• summarize the key differences between the small house model and the traditional model of large LTC facilities, including benefits and disadvantages associated with these models
• summarize the main outcomes associated with the small house model for residents
• summarize the key issues, challenges, and lessons learned in implementation of the small house model in Canada and internationally.

Research Questions
This report aims to inform and address the following questions:

1. How is the small house model being implemented in Canada and internationally in the context of LTC for older adults?
2. What are the key characteristics of identified small house approaches (i.e., general design, approach, services provided to residents, and staffing level)?
3. How are existing small house approaches funded?
4. What are key differences, including benefits and advantages, between the small house model and the traditional LTC care model?
5. What are the main outcomes reported for residents associated with the small house model?
6. What are key issues, challenges, and lessons learned in the implementation of the small house model in Canada and internationally?

Methods
This ES was informed by a limited literature search using the inclusion criteria outlined in Table 1.
Literature Search

A limited literature search was conducted by an information specialist on key resources including MEDLINE, Embase, CINAHL, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were models of care and LTC homes. No filters were applied to limit the retrieval by study type. The search was also limited to English-language documents published between January 1, 2016, and October 1, 2021.

Screening and Study Selection

One author independently screened 643 titles and abstracts for eligibility according to the inclusion criteria. Articles that were published in a language other than English were excluded. Study selection focused on identifying literature describing any of the small house models of LTC. The small house model of LTC is identified internationally by several model names. Accordingly, no exclusions were made on the basis of small house model type. Literature regarding any adult population requiring LTC was included; literature regarding LTC facilities for children was excluded. Literature on more traditional models of LTC was also excluded unless it provided comparison with the small house model of care. No exclusions were made on the basis of study design or jurisdiction. Ultimately, 70 publications were included. These publications reported information that was relevant to at least 1 of 7 domains that characterize the small house model: design, philosophy, organizational structure, funding, resident outcomes, staff outcomes, or model implementation. Many publications reported information across multiple domains.

Among the included publications, 6 separate small house models of care were identified: Butterfly (n = 10), clustered domestic (n = 4), Dementia Village (n = 4), Green Care Farm (n = 5), Green House (n = 25), shared housing agreement (n = 3), and “small house” (n = 31). Nearly half of the publications did not provide information on 1 specific model, but rather referred to the small house model more generally (generic perspective such as “small-scale,” “house-like,” “household,” and “small house”). Among the publications dedicated to a specific model, some models were addressed more comprehensively than others. Owing to a special issue of Health Services Research dedicated solely to the Green House model, nearly one-third of the included publications reported on this specific model. Note that no identified peer-reviewed information was identified on the Butterfly model; all information on this model came from grey literature sources.

Table 1: Inclusion Criteria

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Older adults who require long-term care</td>
</tr>
<tr>
<td>Intervention</td>
<td>“Small house” model of long-term care</td>
</tr>
<tr>
<td>Settings</td>
<td>Residential long-term care</td>
</tr>
<tr>
<td>Types of information</td>
<td>Literature search</td>
</tr>
</tbody>
</table>
Synthesis Approach

Findings from the literature search were summarized narratively. When summarizing the key characteristics of the small house approach outlined in objective 1, relevant findings were separated based on naturally occurring categories of information (i.e., design, philosophy, organizational structure, and funding). Findings related to subsequent study objectives were grouped similarly for consistency. As noted, the included literature referred to a variety of small house models of care; the term small house model was used throughout this ES for consistency. Individual models are named specifically in stand-out instances.

Findings

Objective 1: Key Characteristics

The small house model for LTC emerged from the culture change movement in the LTC industry. This movement seeks the transition of LTC homes away from an institutionalized, medical model to a model based on a caring and compassionate living environment. The overarching goals of the small house model are to eliminate the institutional character of LTC homes, to encourage social interactions between care staff and residents, and to promote resident participation in daily living activities. The small house model aims to do this through careful consideration of the built design and philosophy of approach to care. Key aspects of the general small house model approach — with respect to design, philosophy, organizational structure, and funding — are itemized in Table 2 and discussed subsequently.

As noted previously, 6 separate small house models of care were identified. From the identified literature, there appear to be a few differentiating characteristics among these models; the key differentiators are summarized in Table 3. They all focus on a small number of residents living within a functional unit that strives to provide person-centred care to an aged population of residents. Notably, the Dementia Village and Butterfly models exclusively serve dementia residents. For the Green House and Butterfly homes, use of the model name is dependent upon paying a fee to an accrediting organization rather than enacting structural

Table 2: Comparison of the Small House Model With the Traditional Model of Long-Term Care

<table>
<thead>
<tr>
<th>Model</th>
<th>Traditional model</th>
<th>Small house model</th>
</tr>
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<tbody>
<tr>
<td>Number of residents</td>
<td>≥ 20 (residents per operational group)</td>
<td>6 to 20</td>
</tr>
<tr>
<td>Care model</td>
<td>Institutional or operational model</td>
<td>Person-centred model</td>
</tr>
<tr>
<td>Philosophy of care</td>
<td>Medical model</td>
<td>Quality-of-life model</td>
</tr>
<tr>
<td>Decision-making model</td>
<td>Top-down</td>
<td>Flattened hierarchy</td>
</tr>
<tr>
<td>Outdoor access</td>
<td>Usually prohibited or tightly controlled</td>
<td>Accessible to all residents</td>
</tr>
<tr>
<td>Approach to dining</td>
<td>Cafeteria style</td>
<td>Decentralized, resident inclusive</td>
</tr>
<tr>
<td>Living areas</td>
<td>Typically at the end of long corridors</td>
<td>Typically surrounded by bedrooms</td>
</tr>
<tr>
<td>Staff workstations</td>
<td>Centralized, well-defined, used to delineate institutional wards</td>
<td>Desks built into living areas of household</td>
</tr>
</tbody>
</table>

or operational practices that significantly deviate from other nonregistered facilities.\textsuperscript{9,10} Uniquely, Dementia Villages and Green Care Farms set out to re-create living on a fully integrated societal level rather than just a house level.\textsuperscript{11-13}

**Design**

The common design tenet among the models is a residential ambience including private bedrooms and bathrooms, with common kitchen and living spaces contained in a unit that houses a small number of residents.\textsuperscript{7} Although the target number of residents varies between specific small house models and individual homes (see Table 3), publications reported resident counts from 5 to 20.\textsuperscript{9,11,13-16}

More resolved features of the small house model include a compact floor plan and layout; no long corridors; inconspicuous placement and out-of-sight storage for staff work areas (e.g., nursing stations), medical supplies, and equipment; and the use of personal furnishings and decor choices in private resident bedrooms.\textsuperscript{7,17,18} To further mimic a residential atmosphere and promote social interactions, the design should incorporate hierarchies of space with a mix of private, semiprivate, and public spaces.\textsuperscript{18} Additional environmental attributes, such as colour, lighting, and visual, tactile, and acoustic stimuli, should also be considered. For example, lighting intensities that do not interfere with circadian rhythms and sound decibels that are akin to residential levels, have been shown to have a positive impact on mood, behaviour, social interactions, and quality of life.\textsuperscript{8,19}

Another recommended feature of the small house models is access to outdoor spaces.\textsuperscript{7,20} These may be as diverse as having access to the required land and resources to perform agricultural activities, as demonstrated by the Green Farm and Dementia Villages models,\textsuperscript{11,13} to outdoor patios that may be adjacent to a cottage-style residence,\textsuperscript{21} to rooftop terraces on multistory facilities.\textsuperscript{22} If outdoor access is not possible, it is recommended that windows face the outdoors and plentiful natural light be incorporated.\textsuperscript{22} Finally, these LTC facilities are commonly embedded within existing residential neighbourhoods among houses,

### Table 3: Differentiating Characteristics of the Small House Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Jurisdiction of implementation\textsuperscript{a}</th>
<th>Number of residents</th>
<th>General characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfly</td>
<td>UK, Canada</td>
<td>8 to 12</td>
<td>Provides care for small groups of dementia residents</td>
</tr>
<tr>
<td>Clustered Domestic</td>
<td>Australia</td>
<td>≤ 16</td>
<td>Residents grouped in home-like settings</td>
</tr>
<tr>
<td>Dementia Village</td>
<td>Netherlands</td>
<td>6 to 8</td>
<td>Creates an entire society for dementia residents</td>
</tr>
<tr>
<td>Green Care Farm</td>
<td>Netherlands</td>
<td>6 to 8</td>
<td>Offers access to agricultural activities</td>
</tr>
<tr>
<td>Green House</td>
<td>US</td>
<td>10 to 12</td>
<td>Residents housed in small groups, often associated with a traditional legacy home</td>
</tr>
<tr>
<td>Shared housing agreement</td>
<td>Germany</td>
<td>6 to 10</td>
<td>Residents live in apartments, instead of LTC facilities</td>
</tr>
<tr>
<td>Small house\textsuperscript{b}</td>
<td>Various</td>
<td>5 to 20</td>
<td>NA</td>
</tr>
</tbody>
</table>

\textsuperscript{NA} = not applicable.

\textsuperscript{a}Based on jurisdiction of publication, unless otherwise stated.

\textsuperscript{b}Many publications did not report on a specific small house model, but rather reported from a generic perspective such as "small-scale," "house-like," "household," and "small house."
parks, schools, shopping, and so forth, to affirm that residents are still valued members of society.\textsuperscript{4,5,11,22}

Although these additional characteristics support the residential-like character of the small house model, practical restraints, such as space or budgets, often may dictate what design aspects are ultimately implemented. For example, the renovation of larger traditional homes may maintain a layout with a corridor, or new builds may use multistory buildings that limit access to outdoor space for residential units located on higher floors.\textsuperscript{22} As pointed out in 1 publication, the interpretation of subjective descriptors such as “home-like” or “residential character” may lead to different physical manifestations of built design between different models or even individual LTC of a single model.\textsuperscript{8}

**Philosophy**

Small house models strive to provide resident-centred or resident-directed care; the central theme in this approach is maximizing the freedom of choice for, and autonomy of, the resident.\textsuperscript{4-6,23} The model eschews the rigid routines and instead favours flexibility that allows, and encourages, residents to engage in their daily living activities at will.\textsuperscript{5,24} Resident input is solicited as much as possible so that discussions around preferences occur.\textsuperscript{25} For example, residents of small house models have the freedom to choose their own waking, bathing, eating, and sleeping schedules.\textsuperscript{5,21,26} They are afforded the opportunity to make their own dietary choices and participate in meal planning.\textsuperscript{21,25} Spontaneity is also encouraged with respect to the types and timings of social activities available to residents.\textsuperscript{5} The model fosters the development of strong personal relationships between residents and caregivers, which in turn, re-enforces the ideal of person-centred care.\textsuperscript{5,23,26,27} The overarching goal of this approach is to care for older adults with compassion and dignity, empowering them to be meaningfully engaged and take ownership of their care.\textsuperscript{11-13,24,28}

**Organizational Structure**

The small house model aims to provide a holistic approach to care including housekeeping, dietary, and clinical services.\textsuperscript{11,14,28} The medical and clinical services intend to match those provided by traditional care facilities; however, there is some indication that providing complex medical care within a setting designed to drive relationships and home-like care may be difficult.\textsuperscript{29}

Some models provide additional ancillary services outside of just person-centred care and medical support. The Dementia Villages of the Netherlands aim to re-create an entire cross-section of Dutch society. In these villages, resident cottages are placed among an assortment of other business such as markets, cafés, salons, and movie theatres, for example. Residents, their families, and other visitors can all use these services.\textsuperscript{11,12} Similar to Dementia Villages, Green Care Farms offer a more vertically integrated approach to care with the establishment of agricultural operations that involve residents in crop production.\textsuperscript{13}

The caregiving staff of small house models are expected to provide living support over and above any health-related responsibilities (e.g., cooking, cleaning, grocery ordering, social engagement).\textsuperscript{4,10,31} Although the staff profile includes the usual positions — nurses, nursing assistants, housekeepers, and cooks — staff are typically cross-trained so that each is capable of executing a range of tasks.\textsuperscript{25,32} The exact staffing levels vary between the different facilities and locations and are influenced by the total number of residents in a home unit, the resident acuity, and any prevailing industry regulations.\textsuperscript{6,14,23}
Funding
Most publications that discussed the funding of the small house model were based in the US. These residents were usually privately funded; however, Medicaid programs provided at least partial funding for some residents.\textsuperscript{4,26} One study reported daily rates of US\$246 to US\$495 for accommodations in a small house facility.\textsuperscript{33}

Objective 2: Key Differences Compared With the Traditional Model
The small house model differs from the traditional large-scale model in terms of built design, number of residents, philosophy of care, organizational structure, and resident outcomes. Differences concerning the design, resident number, and philosophy of care are summarized subsequently; differences with respect to resident outcomes are described under objective 3.

Design
The physical design is arguably the most distinct difference between the models — small house models strive to create a home-like setting complete with house layout and features, whereas the traditional model more closely resembles a clinical institution.\textsuperscript{7,17,18} As an example, 1 qualitative study conducted in Belgium investigated the effect of architectural design of the small house model on residents and staff. Residents reported having easier access to all areas, increased movement, and more pleasant social dynamics due to the compact design of the small house model. Staff reported this design created a more relaxed and pleasant atmosphere, and that the compactness and fewer residents made it easier to manage their job (i.e., more flexibility, less stress, less haste).\textsuperscript{7} However, the closed unit and few number of people to interact with can also create a sense of isolation for residents or aggravate conflict.\textsuperscript{22,25} For example, it can be more difficult for disagreeing residents to avoid one another.\textsuperscript{34} Additionally, staff have reported an increased emotional demand while working in the small house model.\textsuperscript{35} Relationships between staff and residents may become so strong that new staff members have difficulties gaining acceptance among the residents.\textsuperscript{6}

Philosophy
The key philosophic difference between the small house model and traditional LTC model is the heavy focus on person-centred care.\textsuperscript{4,6,21} Traditionally, LTC has followed an institutional-centred approach to care with a well-defined hierarchy and entrenched protocols.\textsuperscript{5,23,36} Person-centred care is firmly rooted in freedom of choice and autonomy for the residents.\textsuperscript{7} Therefore, the prescriptive routines are mostly removed, and residents become an empowered and active participant in their own care routines.\textsuperscript{25} However, the degree of freedom must be carefully balanced with the needs of staff, safety, as well as the practical, logistical and operational constraints of running a complex facility.\textsuperscript{34} For example, outdoor access frequently requires some degree of staff supervision. Since the ratio of residents to staff is always greater than 1, there may be instances in which a resident’s choice for outdoor activities creates a safety concern for themselves or other residents.\textsuperscript{5,22,34} As another example, a mixed-methods, cross-sectional study that interviewed staff at a Green House home described a situation in which the lack of set scheduling caused inefficient use (i.e., wasted time) of highly skilled staff resources such as clinical therapists.\textsuperscript{4} Finally, the lack of dietary planning in 1 small house home caused food budget overruns due to inefficiency and waste.\textsuperscript{10}

An additional consideration of complete resident empowerment in the small model is eliciting a proportional response from individual residents. Disparities between personality strengths, trust levels, and willingness to vocalize one’s opinion may lead to some residents feeling ostracized while feeling that others have overpowered the household.\textsuperscript{25}
Organizational Structure

To support a shift to person-centred care, the small house model has had to re-envision the organizational structure of LTC. Traditionally, LTC homes installed a management hierarchy with set protocols and well-defined roles for individual staff members. Decision-making was exclusively led by management. In 1 instance, staff described the traditional LTC model as too restrictive and unethical to the care of the residents.

Small house models eliminate the strict delineation of roles; staff at all levels are included in the decision-making process. Staff in the small house model have reported having more job autonomy and feeling more empowered, more flexibility with less time pressure to complete their job, and a significantly lower workload and job demands compared with caregivers in the traditional model. However, whether this translates to higher job satisfaction and lower turnover for small house model staff is inconclusive because some studies report better outcomes for the small house model whereas others did not identify a significant difference. In the 2 studies that reported on wages — conducted in the US and Australia — wages did not differ significantly between the small house models and the comparator traditional LTC homes.

Although the homes based on the small house model are staffed with the same assortment of caregivers (i.e., job descriptors), numerous studies reported that a higher proportion of staff hours in the smaller homes tended to be from those in positions requiring less formal training (i.e., a higher proportion of certified nursing assistants providing care as opposed to registered nurses). In a direct comparison of 4 Australian domestic-clustered homes with 13 traditional LTC facilities, Harrison et al. (2018) found that care providers in homes based on the small house model spent significantly fewer hours per resident per day compared with the traditional model: degree- or diploma-trained nurses (mean = 0.23 [SD = 0.10] vs. mean = 0.85 [SD = 0.17]; P < 0.01) and allied health staff (mean = 0.02 [SD = 0.01] vs. mean = 0.15 [SD = 0.1]; P = 0.042). The authors also reported that personal care attendants provided more hours per resident per day in the domestic-clustered homes compared with the traditional LTC homes (mean = 2.43 [SD = 0.29] vs. mean = 1.74 [SD = 0.46]; P < 0.001). Similarly, the ratio of personal care assistants to nurses was higher in the domestic-cluster model the traditional model (mean = 91.91 [SD = 4.06] vs. mean = 66.02 [SD = 10.73]; P = 0.003). However, this difference did not seem to negatively impact level or quality of care because residents of the small home model received slightly more care hours per resident per day than residents in the traditional LTC homes (mean = 2.66 [SD = 0.35] vs. mean = 2.58 [SD = 0.44]; P = 0.006). This finding is in line with another study that reported that small house model staff outperformed staff from larger homes, spent 3 times to 6 times more time in personal care situations, and spent significantly more time in task-oriented interactions than traditional home staff.

Funding

Nearly all identified studies that discussed funding were based in the US. One study reporting on financial differences indicated that resident rates were cheaper in the traditional LTC homes than Green House comparators (mean = US$7,588 [range, US$5,100 to US$12,020] vs. mean = US$7,958 [range, US$5,100 to US$15,060]). Green Houses had more private paying residents (mean = 58.6% [range, 15% to 90%] vs. mean = 44.2% [range, 20% to 77%]) with a smaller percentage receiving Medicaid (mean = 40.7% [range, 0% to 78%] vs. mean = 54.0% [range, 23% to 75%]). One study that investigated the impact of small house model adoption on Medicaid spending and found a decrease of US$509 per quarter in homes that had adopted a Green House model. This difference was caused in part by the fewer number
of skilled nursing-days and lower acute hospital spending reported by the Green Houses.43 Overall, Medicaid Part A annual spending decreased by US$7,746 per resident in the Green House, but this decrease did not occur in 1 specific area of Medicaid spending and was partially the result of an increase in costs at the comparator traditional LTC home.44 The reduction in operational costs was further supported by another study that determined Green Houses are US$80 less per bed-day due to the flattened hierarchical organization and lower requirement for skilled positions.5

The only non-US based studies came from Australia. One reported on funding, comparing the operational costs of 4 clustered domestic living models with a comparator standard model (n = 13). This cross-sectional analysis found that unadjusted crude costs between the models was similar, but after adjusting for resident characteristics and differences between the individual homes, the costs for the clustered domestic living model was significantly lower (~AUS$14,270 per annum or ~16%) than the standard model.15 The other Australian study offered perspective on training costs, reporting higher training costs for a small house model compared with a traditional facility (mean = AUS1,492 [SD = AUS259] vs. mean = AUS989 [SD = AUS928], P < 0.001).42

Although it is expected that the build costs for the small model homes are higher due to the larger footprint and required area,43,45 an Australia publication reported the cost is comparable to that of a traditional larger LTC home when presented as a ratio of gross floor area.46 One opinion article originating from Canada championed the use of small house models in future LTC development, claiming that operational costs are lower and projects currently under construction in Manitoba have half the costs of traditional home builds. However, this article provides no references or specific details (e.g., actual dollar values, breakdown of costs, reasons for cost differentials).47

Objective 3: Outcomes

A total of 31 publications provided study data or commentary related to resident outcomes. This included qualitative (n = 10),24,27,21,23,51,42,48,49 quantitative (n = 16),13-15,17,16,26,44,45,50-52 and mixed (n = 1)4 study designs, as well as reviews (n = 4).11,18,41,58,59 Interviews with staff were the most common instrument used for the qualitative studies, while the quantitative studies typically used validated quality of life (QoL) instruments. The range of outcomes reported was broad. These outcomes included (but were not limited to) broad physical, cognitive, or behavioural outcomes; falls; hospitalizations or medication consumption; rest-activity rhythms; pacing; and social engagement.

No obvious trend emerged from the literature with respect to the impact of the small house model on resident-centred outcomes. Some studies reported positive outcomes on resident QoL, while others did not note any significant difference either between residents of small house model and large LTC facilities or those that transitioned from a traditional to small house model.16,28,40,53,59 It is possible that the inconsistency may be the result of the heterogeneity between model designs and operations.4,49 Although there are guiding principles about how the model should be implemented, there is no guarantee of how the principles are interpreted and instituted by a specific LTC facility. Therefore, there can be significant operational disparities between individual small house–modelled homes, which reduces the generalizability of results from any direct comparison with a traditional model of care — the characteristics of which were also heterogeneous between included studies.
This finding echoes that of a scoping review by Ausserhofer et al. (2016), who concluded although an observed trend in the direction of improvement was present for many performance indicators of QoL, none showed that the small house models were definitively better than larger-scale controls (review included 14 studies that compared traditional LTC homes with large-scale Eden Alternative homes or small house models with a dementia-specific or non-dementia aged population).41 When another study partitioned QoL into separate domains, the small house model generally demonstrated better outcomes with respect to environment, autonomy, and caregiving.51 Some studies also reported that the small house model may slow the decline in physical functioning (e.g., activities of daily living), lead to better mood and behaviours, decrease the amount of psychotropic medication used, and increase nutritional intake of residents.19,28,40 One difference-in-difference study found that although there was no difference in all-cause or avoidable hospitalizations among the 15 homes that adopted the Green House model and 223 matched traditional LTC homes (that had not adopted the model), there was a 5.5% decline in 30-day readmissions and a 3.9% decline in avoidable readmissions in the Green House homes.52 Additionally, there were significantly fewer residents in the Green House homes were bedfast, catheterized, or had pressure ulcers (in low-risk residents) than in the traditional LTC homes.52 One publication that used US national data reported that COVID-19 infections and associated death rates were lower in the small house facilities than in the larger homes.2 Specifically, infection rates were 2 times to 9 times higher in the traditional models than small house models; there were one-half to one-third fewer deaths related to COVID-19 in small house–modelled homes than larger traditional LTC homes.2

Ausserhofer et al. (2016) reported residents of small house facilities were significantly more satisfied with their QoL and care.41 In a qualitative study that directly solicited resident input (one of the few studies that reported from the perspective of the resident), residents preferred the small house model because of the increased freedom to act, move, and choose, as well as the social dynamics.7 Another study found that residents of Green Houses considered the model to be more advantageous for staff response times.4 Similar to residents, family members of those who lived in the facilities consistently expressed a higher satisfaction with the small house model.41,51

Most perceptions of staff on resident care and QoL favoured the small house model; however, these results may be biased to opinions of staff who chose to continue to work under the model. A study that analyzed the impact of a model shift from traditional to small house model 21 months after implementation found significant concerns from nursing staff around areas of adequate staff training, rewriting care plans, the approach to dining, resident confusion and/or safety, and the new organizational approach.25 However, all nursing staff supported the model through their actions and admitted that the change process took time and that conditions leading to their concerns improved with time.25

**Objective 4: Issues, Challenges, and Lessons Learned**

**Design**

Operating as a single unit, the small house model loses the operational economies of scale that are realized by larger facilities. To recapture these efficiencies, functioning units are usually built together in clusters with several homes located on a single campus.11,13,19 In some instances, they are aligned with an adjacent legacy home that operates some variation of the traditional model. In both these instances, there is a shared, more economical use of administrative resources, supply chain logistics, and access to specialized care.4,7,10
One design challenge of the small house model is the requirement for a large area of space, ideally within developed neighbourhoods. Access to the necessary land may be cost-prohibitive in some regions.

**Philosophy**
A qualitative study investigating the sustainability of culture change in 11 Green House homes found that erosion of the model is common. Frequently, staff revert to practices of the traditional model. Although the small house model strives to afford residents freedom of choice and autonomy, 100% free choice is not possible due to safety and practical implications. Interviews with staff on the tensions and resolutions that arose during the shift to a small house model revealed that effective implementation requires a balance between preserving as much individual resident autonomy while ensuring a safe and high-quality of care for all residents.

**Staffing**
Self-managed and universal work teams were prominent features of the small house model; thus, frontline staff with strong interpersonal skills are needed to contribute to the implementation of and adherence to the model. The model requires that staff be willing to complete a range of interactive and noninteractive tasks and be afforded the autonomy in problem-solving to meet resident needs and preferences. Top-down management and decision-making have been identified as threats to model adherence. There was less erosion of the model when leadership had a strong buy-in and included staff in the discussions and decisions around problem-solving and the creation of solutions and their implementation. One study identified that key adherence to the model depends on the approach to problem-solving. That is, it must be what is defined as a “coached collaborative” or “management-supported” approach as opposed to a “management-led” or hierarchical approach.

The literature indicated that including explicit descriptions of the approach to care in recruitment materials and increased training helps to ensure that people with the requisite aptitudes, personalities, and skill fill the caregiver roles. With respect to training, Rill and Gonzalez (2019) found that staff at a Green House model home received an additional 128 hours of training in the areas of food preparation, cardiopulmonary resuscitation, team building, and coordinated care compared with a traditional home. Although the added training was a significant cost during the implementation process for a small house model, it is possible that the additional on-the-job training allows for the higher proportion of less formally trained (nursing) staff. Furthermore, a focus group including Canadian staff of LTC facilities have identified training alongside leadership that supports staff as an essential supports to ensure healthy and competent workers.

**The Canadian Experience**
In total, the majority of included Canadian publications originated from the body of grey literature. These tended to focus more on characterizing the need for alternative approaches to LTC in Canada and the need for novel approaches, such as the small house model, rather than reporting on specific operations in place. Additionally, several reports outlined the different approaches to small house models and touched on the feasibility of implementation in a Canadian context. Beyond these generalized reports and publications, several grey literature pieces reported specifically on the Butterfly model. Two of these described the success of the model in Ontario with mention of improved QoL for residents (e.g., reduced pain, antipsychotic drugs, depression, and falls) and more empowered and engaged staff.
Another report investigated the opinions on the Butterfly model from the perspective of staff, health care professionals, and family of residents in Alberta-based homes that had recently transitioned to this model of care for dementia residents. Overall, the interviewees were supportive of the model.

Most of the peer-reviewed publications reported on small house models operating within the US or the Netherlands. Only 2 studies provided Canadian-specific information. One study that explored the differences in health and behaviours of residents with dementia at a small house model home and a larger LTC facility in British Columbia, found that personalization, familiarity, home likeness, and stimulation were significantly higher in the small house model. These residents also experienced improvements in irritable behaviours, oral health, and nutritional conditions; were happy more often; and less withdrawn. A second publication was a case study that investigated the in-depth daily life of caregivers and residents at a small house–modelled facility in Nova Scotia. Through interviews, staff identified teamwork, culture of care, regulating risk, the physical environment, and staff empowerment as common themes of importance in the new model and highlighted the need to balance risk with resident autonomy.

Limitations

This ES is not intended to be a systematic or comprehensive review of the topic of LTC. No exclusions were made on the basis of study design; therefore, the findings are based on a heterogeneous mix of study designs.

Heterogeneity in the evidence base is compounded by heterogeneity among the various small house models themselves. The literature suggested there can be significant operational disparities between individual small house–modelled homes, reducing the extent to which any singular comparison can be made to a traditional model of care. Furthermore, the literature identified in the ES did not facilitate rigorous and explicit comparisons among the small house models identified. To the extent that the small house models are similar, it is important to note that the unified definition of the small house model — person-centred care offered to a small number of residents living within a functioning unit — makes it difficult to dissect the effects of the person-centred care from the fewer residents. It is possible that person-centred care and fewer resident have an unequal, or even mutually exclusive, impact on resident outcomes.

Some publications included in the ES specified the researched population as dementia-specific or a mixed population (with residents both with and without dementia), while others did not reference cognitive impairment at all. Furthermore, none of the studies described the physical abilities or stratified the study population by level of infirmity. This lack of specificity in the research populations may have obscured outcomes that only apply to a subgroup of the aged population.

Certain topics within the scope of the ES could not be addressed, either at all or in detail, by the information identified. None of the literature identified in the ES addressed any prescriptive approach to staffing small home models or the regulatory barriers that may exist. Similarly, none of the literature identified in the ES explicitly addressed the adaptation of small house models typically make to account for efficiencies for operational activities,
smooth workflow, or the integration of technology. Literature from Canadian jurisdictions was limited, particularly with respect to information on funding. Information on funding came primarily from US sources. This limits the extent to which this information can be considered generalizable to a Canadian jurisdiction. The publications reporting funding data from Australia may offer some comparability to the Canadian context.

The search period was limited to 2016 to 2021, with the intention of identifying the most recent evidence. Consequently, information concerning earlier ‘small house’ models may have been missed, unless explicitly described in the context of more recent work.

Conclusions

Complementing this ES is a Rapid Response report prepared by CADTH in 2019 that pertains to home-like models in LTC. The report was updated in late 2021 and is available free of charge on the CADTH website.16,64

This ES used a literature review to identify publications reporting on the small house model of LTC. Specifically, the full text from 70 peer-reviewed journal articles and grey literature pieces were reviewed. These publications reported 1 or more features of the small house model including: design, philosophy of care, resident outcomes, and implementation or provided comparisons with the traditional LTC model. Many publications reported information on multiple features. Among the included publications, 6 distinct small house models of care were identified, including Butterfly, Clustered Domestic, Dementia Village, Green Care Farm, Green House, and Shared Housing Arrangement. However, nearly half of the publications did not provide information on 1 specific model; rather, the “small house” model was referred to more generally.

Key Characteristics

The common design tenet among the models is a residential ambience including private bedrooms and bathrooms with common kitchen and living spaces contained in a unit that typically houses 5 to 20 people. These homes strive to provide residents with person-centred care and offer freedom of choice and autonomy for the residents. Prescriptive routines and schedules are avoided in favour of a more flexible approach to care that encourages residents to be meaningfully engaged in, and take ownership of, their care. Caregivers provide a holistic style of care including housekeeping, dietary, and clinical services. Therefore, staff are cross-trained in a range of tasks so that they may provide living support over and above any health-related activities. Some specific models, such as the Dementia Villages or Green Care Farms, offer additional unique services like onsite cafés and salons or agricultural activities. Most funding information was presented from experience with the Green House model in the US where residents are usually privately funded.

Key Differences Compared With the Traditional Model

The small house model differs from the traditional LTC facilities with respect to design, philosophy of care, organizational structure, and possibly funding. They have fewer residents living in a home-like setting as opposed to an institutional environment. Likewise, the institution-centred approach to care is shifted to a resident-centred approach. To support
the shift to person-centred care, the small house model has re-invented the built design and organizational structure of LTC. Units are designed with a home-like atmosphere with house-type kitchens and dining areas, residents have access to outdoor areas, and social engagement is promoted. From an organizational perspective, hierarchies and management-led decisions are replaced with amalgamated job descriptions and a team approach to problem-solving and decision-making. Although the staff profile of in the small house model still includes an assortment of staff skill levels (e.g., registered nurses and nurse assistants), these models tend to have a higher proportion of lesser-skilled staff-hours. Based on international examples, there is some evidence that the small house models could be less costly to operate than the traditional LTC facilities and, based on a ratio of gross floor area, may have a comparable build cost.

Outcomes

The literature addressing small house resident outcomes is inconsistent. Some studies reported improvements in resident QoL and quality of care while others did not identify any significant differences between the small house model and the traditional approach. These findings are in line with that of earlier systematic literature reviews on the topic. It is possible that the inconsistent results stem from the heterogeneity between model designs and operations or that outcomes are dependent on the physical capabilities, cognitive abilities, or acuity level of the residents.

Issues, Challenges, and Lessons Learned

The small house model is frequently implemented adjacent to a larger facility. Alternatively, the small house units are built in clusters with several units established on a campus. This allows for shared use of administrative resources, supply chain logistics, and access to specialized care. Erosion of the small house model is common. A strong buy-in from leadership; self-managed, universal work teams; frontline staff with strong interpersonal skills and leadership characteristics; and a coached collaborative approach to decision-making are all key factors in a successful and enduring implementation of the model. Although there were many publications suggesting the model be implemented in Canadian jurisdictions, 4 reported on examples currently in operation: 1 each in Alberta, British Columbia, Nova Scotia, and Ontario. Two of these, the British Columbia and Nova Scotia examples, were peer-reviewed studies.

Final Remarks

This ES identified a lack of peer-reviewed evidence, particularly in a Canadian-specific context. Although there are instances of the small house model implemented in Canadian jurisdictions, the paucity and the heterogeneity of evidence limits the extent to which one may conclude that these facilities have achieved the purported benefits, such as improved clinical or QoL outcomes, for residents. However, the publications largely indicate that residents are more satisfied and prefer the small house model. The lack of evidence is even more apparent when evaluating the cost-effectiveness and funding mechanisms for such facilities because none of the publications provided specific evidence regarding the construction or operational costs of the small house model in Canada. Publications from Canadian jurisdictions with experience with these models could help support decision-making across the country.
References


