

## Nursing home models and modes of service delivery: Review of outcomes

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#### Abstract

Within contemporary approaches to nursing home care, the staff composition and task allocation influence paid caregiver experiences, and in turn affect the quality of care provided to residents. In this scoping review, we profile several different models of nursing home care with their associated modes of service delivery, and summarize the varied reports of effectiveness of these models and modes of service delivery. While anecdotal evidence supports the Eden Alternative® Neighbourhood or Household models, empirical support for the consistent assignment mode of service delivery within the Eden Neighbourhood or Household models is not extensive. More persuasive evidence supports the more advanced Eden Greenhouse model with its embedded flexible assignment policies and self-managed teams of care aides. Flexible assignments are a design element of the Alzheimer's Disease and Related Disorders Society (ADARDS) model as well. Although consistent assignments for paid caregivers continue to be targeted by organizations, self-managed teams and flexible assignments may be more ideal modes of nursing home service delivery, especially now, as the average age, frailty level, and acuity level of nursing home residents is increasing.

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#### Introduction

Nursing home residents are older, frailer, more complex, and more dependent on 24-hour supervision and management than a decade ago [1-4]. Service delivery is also changing and residents now receive almost all of their basic care from care aides. Although care aides are a major resource for residents living in nursing homes and provide basic care related to daily living activities, they often have minimal training or education. The approach to nursing home care, associated staff composition, and task allocation all influence paid caregiver experiences, and in turn, affect the quality of care provided to residents [5, 6]. Therefore it is critically important to profile models and modes of service delivery, so that organizations

can make informed choices that fit with their existing structures, resident demographics, organizational policies, and paid caregivers' needs. To date, comprehensive investigations on the relationships between models, modes of service delivery, resident, family, and care aide outcomes do not exist, but this scoping review forms a foundation for this important area of research.

#### **Scoping Method and Approach**

A scoping review explores a wide-ranging topic to understand and profile, rather than critique. Empirical research and grey literature are reviewed, and studies are not excluded based on pre-existing quality or

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methodological criteria [7, 8]. This scoping review followed a seminal structures, processes, and outcomes framework [9]. The primary question was: What is known about contemporary nursing home models, related modes of service delivery, and outcomes associated with modes of service delivery? We were particularly interested in descriptions, specific components, and service delivery effectiveness of the different models of nursing home care. Seventy-three selected articles were categorized according to: country of origin, rural or urban nursing home, and general style (Fig. 1) as well as model and mode of service delivery, if specified (Fig. 2). These studies were qualitative (37), quantitative (13), mixed methods (5), opinion (13) or descriptive, and five were reviews.



Figure 1. Country of origin, location, and general style of nursing home (if specified)



Figure 2. Nursing home model and mode of service delivery (if specified

## Results

Contemporary philosophical approaches to resident care emphasize the residents' unique needs over those of the organization, more choices, and autonomy for residents [10, 11], including increased privacy, improved bathing or nutritional options, smaller dining areas, changes to medication administration policies, care conferences, and individualized care plans and profiles of each resident's needs and preferences [12, 13]. Specific models of care subscribe to these approaches and are sometimes referred to as cultural change models [14]. We discuss the traditional care, Alzheimer's Disease and Related Disorders Society (ADARDS), Eden Alternative® (Early Neighbourhood, Neighbourhood, Household, and Greenhouse), Wellspring and GentleCare models. If authors specified staff-to-resident ratios, care aide (certified nurse assistant or equivalent) hours per resident per day (HPRD), or other service delivery statistics, these data have been included; however, notably, most authors failed to elaborate on the HPRD calculation methods therefore it should not be considered analogous. Also, depending on the organization, the entire model may not have been completely implemented, design elements may have been selectively extinguished despite initial implementation, or select components of multiple models may have been combined into a hybrid model [14].

## **Traditional Care**

Traditional care is generally task-focused, driven by the routines and efficiencies of the organization. Traditional building design includes: centralized nursing stations, a large, centralized dining room, shared bathing areas, limited space for residents' personal belongings, and corridors flanked by single or multi-bed residential rooms. Care providers determine the residents' activities, diets, and schedules, including bathroom routines.

In organizations driven by routines and efficiencies, employee job satisfaction tends to be low [5, 15, 16], due to rigid care routines and time constraints that inhibit personalized care and cause significant emotional exhaustion and strain [17-19]. Most employees have little autonomy or control over



routine care decisions and perceive their work as unrecognized and undervalued [5, 20-22], leading to significant attrition and retention difficulties in traditional models [16, 23-25]. Overall, however, care aides find motivation to work by feeling valued, respected, and needed by managers and residents, being able to make changes or improvements to resident care, and being part of a team [5, 20, 21, 26-30].

# The ADARDS Model and the Embedded Flexible Assignments

The ADARDS model is based on flexibility towards residents and employees [31]. ADARDS homes are divided into small units, including private resident bedrooms and bathrooms, a kitchen, living room and dining room, around a centralized room. The units function independently during daytime hours but cooperatively during evenings and nights, permitting lower staff-to-resident ratios at night. Residents do not have to adhere to specific schedules and have unrestricted access to secured gardens and pathways connected to the main building.

Extended care assistants (ECAs) provide personal care, do laundry, cook, clean, and perform other social and domestic responsibilities [31]. A registered nurse (RN) or enrolled nurse is responsible for medication administration and is on duty 24 hours a day. ECAs are permanently assigned to one unit but are familiar with all of the building's residents.

The ECAs customize their own shift schedules to accommodate their families. They can choose to work between 4-8 hours at a time and can exchange shifts with coworkers. According to Cohan-Mansfield and Bester [31], this flexibility attracts employees who want to work, but not full time. The average hours worked per week is 22, mostly in the morning or evening. Benefits for the organization include ease of staff recruitment and replacement and reduced staff turnover. If an unforeseen event occurs, the ECAs are allowed to bring their children to work, reducing sick leave. The average ECA HPRD is 3.00; HPRD for total staff is 3.78 [31]. Flexible staffing policies result in a considerable amount of rotation, therefore ECAs are familiar with all residents.

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Communal meals are another important and innovative component of this model and enhance the social relationships between staff, residents, and family members [31]. Staff and family members are encouraged to eat meals with residents to create a more realistic and social atmosphere, and family members are not charged for these meals.

#### The Eden Alternative®: Neighbourhoods and the Embedded Consistent Assignments

The Eden Alternative® is an American cultural change model and philosophy of care based on the assumption/belief that nursing home residents receive adequate assistance for physical ailments but suffer from loneliness, helplessness, and boredom [32]. The aim of the Eden Alternative® is to restructure the delivery of to reduce this metaphysical suffering and increase quality of life. Information for families, residents, and managers is easily accessible online.

In Eden neighbourhoods, individual care aides are consistently assigned to groups of residents (called families), permitting the same caregiver to frequently work with the same residents [33]. In theory, consistent assignments facilitate familiarity, companionship, and stability for residents, families, and care aides. In highly dependent situations, care aides may have enhanced knowledge of the residents' preferences and routines, thus promoting better individualized care and consistency [34]. Consistent assignments also instill a sense of commitment and/or personal responsibility in care aides for the care they provide [35]. Residents are encouraged to be as independent as possible and help with meal planning, social events, and other day-to-day activities to reduce boredom and helplessness [36].

The Eden Alternative® is based on the conviction that organizational models of care range in quality from lowest to highest. The lowest quality of care is provided in a traditional care model, which subscribes to hierarchical practices and traditions such as consistent meal times, medication times, assigned bath days, and specific job descriptions, while the highest quality of care is provided in the Eden Household or Greenhouse models [37]. Intermediate steps towards quality include the Eden Early Neighbourhood, and the Eden Neighbourhood. Residents in the Early Neighbourhood model are provided with more food choices and flexible meal times than in a traditional model. Care aides and other departments (housekeeping, dietary) are consistently assigned to certain residents [38]. In the more developed Neighbourhood model, everyone belongs to a "neighbourhood". The residents participate in social and care planning and eat, sleep, and bathe as they wish. They also experience buffet style meals, continental breakfasts, room service, and open pantries stocked with residents' favorite foods.

Several authors have described anecdotally how the Eden Alternative® has helped managers and administrators strengthen their organizational principles, improved their visions for quality improvements, and enhanced their programs for quality assurance. The Eden Alternative® registry criteria and principles are helpful when organizations are undergoing financial and care quality crises [38-40]. However, empirical support for the Neighbourhood models is less extensive.

Researchers focused have mostly on measuring/describing levels of resident and family satisfaction. Rosher and Robinson [41] provided families in one 150-bed nursing home with a 21-item family questionnaire before and after an Early Neighbourhood model had been implemented in the home. This questionnaire had high reliability (Chronbach's alpha = 0.94). Only 3/21 items statistically increased after implementation: more respectful staff, more animal interaction, and the welcoming of children into the home. Bergman-Evans [42] reported significantly lower levels of boredom and reduced levels of helplessness, but no change in loneliness, after an Early Neighbourhood model was implemented in one state veterans' home.

Researchers investigating resident medical outcomes have found few differences. For example, Coleman et al. [43] obtained baseline data from medical records of residents at two American nursing homes, one of which (126 beds) began implementing the Eden Alternative® while the control facility (114 beds) continued traditional care. After one year, no statistically significant differences in infection rates, functional status, or costs of care were found, but a statistically significant greater proportion of residents fell within the past 30 days or experienced nutritional

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problems in the Eden home. Other investigators have found that care aides working in nursing homes that have implemented the early Neighbourhood or Neighbourhood model were not any more able to provide individualized care to residents than those working in nursing homes with no culture change [14]. Staff turnover can increase during the period of implementation at an Eden facility [43], but there were no statistically significant differences in costs of care post-implementation.

Some researchers argue that consistent assignments for care aides produce higher levels of accountability for and commitment to the residents, resulting in fewer facility-acquired pressure ulcers and significantly fewer quality-of-care deficiency citations [33, 44]. However, consistent assignments are not associated with fewer quality-of-life deficiencies [45].

Several researchers have concluded that much of the evidence does not support the effectiveness of this mode of service delivery. For example, Burgio et al. [35] compared two nursing homes using consistent assignments to two homes using rotating assignments, to determine if assignment practices affected a) quality aspects of care aide/resident interactions, b) resident behavioral disturbances, c) resident affect states, and d) resident personal appearance and hygiene. No differences were observed on any of the resident/care aide interactions or resident disruptive behaviours. Consistently assigned residents had significantly higher ratings of personal appearance and hygiene but also received significantly more medications (p <0.0001) and more psychotropic medications (p=0.04) than residents who were not consistently assigned. While the authors suggested that medical management was increased due to greater awareness of the residents' conditions, it is also possible that increased exposure to residents subsequently decreased tolerance of aberrant behaviours and increased requests for psychotropic drugs. Employee absenteeism was higher in homes with consistent or permanent assignments.

Andersen and Spiers [34] qualitatively found that care aides described being isolated from their colleagues and gradually became overwhelmed and confined by their consistent assignments. In this study, care aides also described becoming reluctant to provide ad hoc care to residents not consistently assigned to them because they no longer knew much about the other residents. Some families became so overly reliant upon these care aides that some care aides described an overwhelming sense of dread when residents' family members visited and thus used banked sick time. Similarly, in a qualitative study, Levy-Storms et al., [46] found that although residents prefer consistent assignments, care aides' opinions are mixed; although they enjoyed enhanced resident relationships, they distanced themselves emotionally from residents whose moods were unpredictable and experienced tensions with some family members. Some care aides preferred rotating assignments because they learned various skills and interacted with more residents. Finally, Nolet et al. [47] concluded that although consistent assignment of service delivery is logical, the supporting evidence is not convincing. This may be due to two undeclared assumptions: i) the relationships between the care aides and the residents consistently assigned to them are always pleasing or agreeable to both parties; and ii) the quality of care is consistent [34]. In reality, some care aides and residents and/or their family members may not get along well. It is equally possible that some care aides who are consistently assigned to residents may not be as skilled or as careful as others and therefore some unfortunate residents might receive consistently inadequate care.

## The Eden Alternative®: Eden Household and the Embedded Universal or Versatile Worker

In an Eden Household model, an entire nursing home is renovated so that clusters of bedrooms surround multiple kitchens, dining rooms and living rooms. In effect, nine to 20 residents live in each cluster called a household. The Household model employs universal or versatile workers (cross-trained care aides to provide all services historically provided by multiple people) [37, 38, 48]. They dispense medications, do laundry, prepare food, organize social activities and care for the animals, plants, and gardens [49]. Notably, these duties have been expanded horizontally (dishes, laundry, food service, cleaning), not vertically (decision-making, leadership, discussions, assessments and related judgments). The only model



that contains vertically expanded duties is the Eden® Greenhouse model.

Very little is known about care aides' feelings about horizontally expanded duties.

According to Thomas [37], versatile workers should feel more fulfilled at work, and residents should receive better care because meal preparation does not have to be carefully structured, medication administration does not have to be rigidly timed, and versatile workers should be able to participate in more personalized, unplanned social activities with residents.

## The Eden Alternative® Greenhouse Model and the Embedded Self-Managed Teams

In contrast to the Neighbourhood and Household models, Eden Alternative® Greenhouses are standalone physical structures that house six to twelve residents [50, 51]. Private bedrooms and bathrooms are organized around a central living space known as a "hearth" [52]. Residents are encouraged to incorporate their own furnishings and personal belongings into the home [50, 52]. Fireplaces serve as a symbol of home, warmth, and comfort [54]. Family-style kitchens with a single dining table promote active community participation [48, 50, 52]. Residents participate in food acquisition and meal planning and preparation, or eat meals prepared by cross-trained staff members [50]. Access to outdoor space is another essential component, which should decrease agitation, anxiety, and wandering. The absence of handrails in outdoor spaces, direct sun exposure, and concrete pathways can compromise resident safety, making supervision necessary.

Even though the residents are physically, cognitively, and financially diverse, each person living in a Greenhouse receives 6 hours of care per day [32]. In the US, the target HPRD in a traditional institutional model is 3 hours [54]. In Canada, targets vary and are even nonexistent depending on the province.

The Eden Greenhouse model employs cross-trained workers who are called Shahbazim. Shabazim receive 120 additional training hours and have a wide range of responsibilities: ordering food, cooking, cleaning, laundering, providing personal care, administering medications, and acting as resources for the residents. Professional housekeepers perform heavy cleaning and the bed linens are laundered at a central laundry [22].

The Shahbazim self-manage, and are not considered to be part of the nursing workforce [50]. They do have a supervisor, known as a guide, but nurses do not oversee their work, engage in problem-solving upon disagreements, or organize resident assignments [55]. Instead, the Shahbazim create their own code of ethics and rules to abide by. External, multidisciplinary of healthcare professionals teams visit the Greenhouses intermittently to collaborate with the Shahbazim and provide individualized assessments, clinical care, and support as required [51-53, 56]. In urgent situations, a specially trained RN is available by phone or video within 10 minutes of paging [37]. In theory, the hierarchical organization of health care providers within the Greenhouses is flattened [57]. Some authors question, however, whether Shahbazim are able to provide adequate post-acute care to Greenhouse residents when required, and if they communicate effectively with physicians and nurses, especially concerning emergencies and medication issues [50].

Resident and staff outcomes specific to Eden Greenhouses are very promising. Kane et al. [58] measured 11 domains of resident quality-of-life, emotional well-being, satisfaction, self-reported health, and functional status at four time points in four Greenhouses. Compared to residents living in two traditional homes, residents living in Greenhouses reported better emotional well-being, were significantly more satisfied with their care, and more likely to recommend the home to others. No statistically significant differences in self-reported health, activities or instrumental activities of daily living across groups were found.

Sharkey et al. [56] examined the amount of time that Shahbazim/care aides spent in direct and indirect care activities in 14 Greenhouses and 13 traditional nursing homes. The average total nursing HPRD (excluding administrative hours) was 5.3 in the Greenhouses while the HPRD in the traditional homes was 3.6. Conversely, Greenhouse residents received 2 HPRD less for housekeeping, laundry, dietary, dietician, and staff education. The authors attribute the smaller



number of non-nursing support hours in the Greenhouses to the fact that work was shifted from housekeeping, laundry, and food services to the care aides. Greenhouse care aides were, however, able to engage with residents for long periods of time while they did their other work. Some researchers have reported practical challenges for organizations when Greenhouses are retrofit: the amount of waste, its storage, and disposal [53]. Additionally, the Greenhouse design lacks storage spaces for medical equipment [52, 53].

In two qualitative studies, researchers found that Shahbazim embrace their responsibilities and enjoy enhanced feelings of control, empowerment, and professional fulfillment because of their selfmanagement [51, 55], with reduced levels of fatigue, stress, and guilt, because they do not have time constraints and standardized rituals and routines that they do not agree with [51]. Shahbazim mothers are able to split shifts so that they can transport their children from school to childcare and return to work [55], similar to the ADARDS model.

Flexibility and reliability are considered desirable characteristics for the role because Shahbazim have to approach the work collaboratively and share all the responsibilities. Some, however, find this approach difficult, especially if they have previously focused only on their own consistent resident assignments [55]. Care aides in other studies have also emphasized the importance of shared responsibilities, interchangeable tasks, and joint decisions. Mutuality, fellowship, and friendship with co-workers can lead to increased confidence about care-giving abilities and enhanced abilities to cope or maintain composure under duress [17, 34, 60, 61].

## The Wellspring Model

Wellspring<sup>®</sup> is an early American cultural change model originally designed as a cooperative alliance between 11 independent, not-for-profit, rural and urban nursing homes in Wisconsin (63 to 415 beds). Although there are no specific modes of Wellspring<sup>®</sup> service delivery, we have included it here because it is a model of shared services and of interest to organizations. Due to limited human resources and reduced budgets, eleven nursing homes began sharing solutions aimed at maintaining quality-of-care. Five key shared elements are: services of a geriatric nurse practitioner who develops training materials and classes, organized, best-practices training sessions for all employees, culture change (enhanced recognition and respect for all employees), quarterly reports of clinical outcomes data, and data sharing with all member nursing homes [61].

The Wellspring model has been evaluated only once by a team of well-respected researchers [61]. After reviewing the Online Survey and Certification Automated Reporting (OSCAR) system of the Centers for Medicare and Medicaid Services (CMS), which contains information on deficiency and severity grid values for all nursing homes in the US, these researchers found that Wellspring facilities were three times more likely to have a severe deficiency citation prior to implementation than comparable facilities. During four years, Wellspring facilities were able to reduce these reports to zero while comparison facilities stayed the same.

Stone et al. [61] also examined staff retention and found that RN and LPN retention rates increased and decreased, respectively, while care aide retention rate stayed the same. The overall improvement in combined retention rates was statistically significant. No statistically significant differences in resident outcomes obtained from the federally mandated Minimum Data Set (MDS) and the OSCAR between residents in Wellspring facilities and residents in non-Wellspring facilities occurred during the four-year implementation period.

Facilities contribute considerable monthly dues (\$1000.00 per month USD), but cover the costs of shared services [61]. Staff absences must be covered during best-practice training sessions. Taken together, there were no definite cost changes associated with the model. In 2012, The Eden Alternative® took ownership of the Wellspring program [62].

## The GentleCare Model and Embedded Stable Work Groups with Rotations

GentleCare offers a seven-module program for nursing home staff and families to prepare for the rigors of caring for a person with progressive

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[63]. The modules include dementia the pathophysiology basics of dementia, strategies, environmental adaptations, and suggestions to help individuals with dementia live more comfortably. Within this model, core groups of care aides are designated as stable work groups. They are permanently assigned to a unit, but not consistently assigned to specific residents. The GentleCare model work groups differ in that other care aides rotate in and out of the work group to allow core group members to take time off from the unit. This was designed to reduce staff burnout due to the intensity of the work in dementia units [63]. While only one empirical evaluative study has been published on the GentleCare model [14], the model offers a different perspective on teamwork. Care aides who worked in a facility that followed either a GentleCare model or a hybrid model reported significantly better abilities to provide individualized care to residents than care aides who worked in facilities with an Eden Alternative® model or no model (p<0.01).

## Conclusions

Despite a great deal of anecdotal support for the Eden Alternative® philosophy, the empirical support for consistent assignments is not extensive. Conversely, resident and staff outcomes specific to the Eden Alternative® Greenhouses and the associated selfmanagement are very promising. Residents living in Greenhouses report heightened emotional well-being, and significantly more satisfaction with care. Shahbazim working in self-managed teams within the Greenhouses report diminished guilt and stress and greater feelings of control, empowerment, and professional fulfillment.

An average of only 16% of US nursing homes report working in teams: 8.5% are teams formally organized by management with explicit protocols and procedures; 7.5% are self-organized and -managed teams [45]. Although formally organized teams have no effect on deficiency citations, self-organized and managed teams are associated significantly fewer quality-of-care deficiency citations, presumably because they are more natural and effective.

Several researchers have reported other general benefits of teamwork such as: better employee work

satisfaction, greater employee commitment and motivation to stay employed, reduced rates of employee turnover, as well as innovative collaborative strategizing and problem solving [17, 64, 65]. Quality and safety researchers suggest that teamwork is ideal for service delivery to complex residents [66].

Another primary component of the ADARDS and Eden Greenhouse models is the high degree of flexibility within assignment practices, which is also associated with employees and organizational benefits. The GentleCare model also offers flexibility with rotating memberships in work groups. Despite the value of teamwork and flexible assignments, in 2008, >70% of U.S. nursing homes used consistent assignments [68] and a campaign still guides all U.S. nursing homes towards consistently assigning care aides to residents  $\geq$ 85% of the time [68]. The Ontario government has followed this by implementing a quality improvement program called "Residents First" [69-71], a core target of which is a 50% increase in consistent assignments in all Ontario nursing homes by 2015. Because alternative modes of service delivery may be more beneficial, we urge nursing home administrators to examine their resident population demographics and consider the various models and modes of service delivery before following the initiatives and implementing consistent assignments.

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