Published in final edited form as:

J Am Med Dir Assoc. 2010 September ; 11(7): 511–518. doi:10.1016/j.jamda.2009.11.002.

The Complexity of Implementing Culture Change Practices in Nursing Homes

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Introduction

The traditional nursing home (NH) is institutional in design, with a greater emphasis on efficiency and the medical and life sustaining needs of its residents than on their quality of life. Typically, it has a hierarchical management structure, with decisions flowing from top administrators to frontline staff and residents, who are allowed little autonomy.

The “Culture Change” movement, also referred to as person-centered care or resident-centered care, emerged as an alternative to the traditional NH model by advocating a less hierarchical structure that better values workers and personalizes care (Rashman, 2008). The key principles of culture change, as defined by a panel of experts, include: resident-directed care and activities; close relationships between residents, family members, staff and community; empowerment of staff; management that enables collaborative and decentralized decision-making; a systematic process for continuous quality improvement; and living environments that are designed to be homelike rather than institutional (Harris, Poulsen, Viangas, 2006). Examples of culture change models include the “Eden Alternative”, articulated in 1994, which introduces animals, plants, and children into the nursing-home environment, in order to add spontaneity and combat boredom, loneliness, and helplessness (Thomas, 2003) and the “Green House” model, first built in 2002, which structures residents in small household units (Rabig, Thomas, Kane, et al., 2006), with no set schedules or mealtimes (2006). However, many nursing homes do not follow an established model per se but instead select culture change practices based on their unique characteristics and needs. Therefore, the practices exemplifying NH culture change efforts vary across NHs (Chapin, 2006).

While the principles of culture change are becoming more accepted across the NH industry, there have been many barriers to their implementation reported. These barriers include inadequate or inappropriate leadership (Scott, Mannion, Davies, Marshall, 2003), inadequate

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Conflicts of Interest: None

resources to implement changes (Lopez, 2006), and barriers related to regulations/regulatory oversight and to NH size and staff resistance (Doty, Koren, & Sturla, 2008).

Dissemination of nursing home culture change might be more widespread if NHs begin by implementing practices that are easier versus more difficult to execute. Early successes in the implementation of culture change practices may generate enthusiasm and lead to greater “buy in” by staff and residents. This greater enthusiasm may in turn lead to support for subsequent adoption of practices more difficult to implement, thus leading to more complete culture change transformation. Furthermore, as the prevalence of more successful NH culture change efforts increases and dissemination of these successes broadens there may be a greater likelihood for NH culture change to become mainstream (Meyer & Owen, 2008).

Research on the timing and adoption of specific culture change processes is limited. A study of Illinois nursing homes has, however, documented the prevalence of specific culture change practices implemented state wide (Severance, 2006). They found that higher proportions of nursing homes offered residents choices at mealtimes and options on when to wake or sleep while lower proportions permitted staff involvement in key management decisions (2006).

The study presented here aims to provide NHs with information on patterns of culture change practice implementation which may facilitate early acceptance and facilitate widespread transformation of facilities from traditional to culture change NHs. Specifically, this study examines differences in adoption of CC practices according to a NH's self-reported extent of CC implementation and its duration of CC adoption. Furthermore, it examines differences in adoption by whether a CC practice is considered less versus more complex, using complexity theory as the theoretical framework for this classification. .

Theoretical Framework

Complexity theorists often attempt to identify what type of system is in place by examining the organization's processes and procedures as well as the people that help make the organization function. (Anderson, Crabtree, Steele, & McDaniel 2005). Simple systems have clear patterns of operation that routinely result in the same outcomes (Plsek & Greenhalgh, 2001). On the other hand, complex systems, often described as complex adaptive systems (Elgazzar & Hegazi, 2005), experience input from a number of persons/organizations (i.e. feedback loops), which complicates the process and can result in less consistent operations (Haigh, 2002). As complex systems are constantly changing in response to numerous stimuli, implementing new practices within these systems is challenging.

Nursing homes are considered complex adaptive systems (Anderson, 2003), due to operating in environments where regulators and payers routinely influence practice and where several parties (e.g. administrators, doctors, nurses, CNAs, aides, volunteers, families etc.) interact to provide care to diverse residents. Considering this, complexity theory may be useful as an overall framework for understanding culture change in NHs since NH culture change per se appears to entail introduction of complex processes. Indeed, prior research has used a complexity theory framework to study nursing home management practices and their impact on resident outcomes (Anderson, Crabtree, Steele, & McDaniel, 2007).

There are two dimensions that complexity theorists use to categorize a practice's level of complexity: 1) the degree of certainty about the desired outcome (i.e., the likelihood the practice will result in the desired effect) and 2) the level of agreement among agents (Plsek & Greenhalgh, 2001, p.627). Higher certainty reflects a practice with a more predictable outcome while lower certainty refers to one with a less predictable outcome (a practice more risky to implement from the administrator's perspective). In terms of the degree of *agreement* among agents, practices considered to have lower potential for agreement are those involving more agents (residents/family, staff, administrators, other; 2001). An example of a less complex culture change practice is establishing a set schedule that accommodates residents' preferred bathing times since once the schedule is completed (and staffing schedules determined) there is likely to be mutual agreement among the two agents involved, staff member and resident. In contrast, a more complex practice, because of the extensive leadership training necessary and the multiple front-line staff involved in ongoing decisions, is the establishment of self-managed work teams.

In our research, we used this conceptual framework to classify culture change practices into levels of complexity. Our expectation is that simpler practices will be implemented before complex ones and that early success in implementing simpler practices will lead to more adoption of more complex practices.

Methods

Data Source

Data for this research were collected through a Commonwealth-funded national study conducted in 2007 which investigated the extent that long-term stay nursing homes adopt culture change principles and practice resident-centered care (Doty, Koren, & Sturla, 2008). The survey focused on three areas of culture change practices: resident-directed care; staff culture and working environment; and alteration of the physical environment to make facilities look and function more like a home. Pen and pencil surveys were administered through the mail, by Harris Interactive Inc, to each facility's director of nursing (DON). Data were collected between February 16, 2007 and June 8, 2007. IRB approval was not required as no personal information was collected.

For the Commonwealth survey, the sample was chosen from a comprehensive database of certified nursing facilities obtained from the Centers for Medicare and Medicaid Services (CMS). Nursing homes were considered ineligible for the study if they cared primarily for short-stay patients, were located within hospitals, and/or were certified as Medicare only facilities. Of the nursing homes that met study criteria, a stratified sample of 4000 homes were mailed an interview, with 37% (1,435 nursing homes) responding. While differences between nursing homes responding and not responding to the survey were fairly small, non-responding facilities were somewhat larger (a higher proportion had 200 or more beds), and were more likely to be part of a multi-facility chain, for-profit and located in the south. (Doty, Koren, & Sturla, 2008)¹

¹The survey had an overall margin of sampling error +/- 3 percentage points at the 95% confidence level.

Sample Selection

Of the 1,435 nursing homes responding to the Commonwealth survey, 291 were included in this study. Inclusion was based on responses to two survey questions about a NH's "extent" and "timing" of culture change implementation (described in detail below).

"Extent" of culture change implementation was determined by answers to the following question: "How well does the definition of culture change or a resident-centered care approach meet the definition of culture change?" (Definition given: "Organizations where care and resident-related decisions are decided by the resident; living environments are designed to be a home vs. an institution, there are close relationships between staff, residents, family, and community; management allows collaboration and group decision making, work is organized to support and allow all staff to respond to residents needs and desires, and processes/ measures are used for continuous quality improvement.")

Response categories

1. This definition does not describe this nursing home
2. This definition describes this nursing home in a few respects
3. This definition describes this nursing home *for the most part*
4. This definition *completely* describes this nursing home

"Timing": "When did this nursing home start implementing culture change or resident centered care?"

Response categories

1. Within last year
2. More than one year but less than three years
3. Three or more years

We included nursing homes reporting they met the definition of culture change "for the most part" or "completely" in order to focus on nursing homes that had more fully implemented culture change. These homes make up one fourth of the sampled facilities (N=359 out of 1435). We then excluded nursing homes that had implemented culture change for less than one year (n=69), as such a short time period would not have allowed sufficient time to fully implement culture change related practices. The resulting sample included 291 nursing homes. There were no notable differences in organizational characteristics (e.g. size of facility, location in country, profit status etc.) between the original sample of 1,435 nursing homes who responded to the Commonwealth survey and this study's sample.

Classifying Culture Change Practices According to Complexity Theory

We included sixteen culture change practices in our study, categorized into three general groupings: resident-related practices, staff-related practices, and physical plant changes. Of the eight resident-related practice questions, five had answer categories of "yes" or "no" in the original survey and as reported in this paper. These questions asked whether residents

had a choice regarding when to go to bed, how to bathe, when to bathe, whether they had access to a refrigerator, and whether they had access to appliances. The other three questions related to resident and staff involvement in decision-making regarding resident care issues. From the four survey response categories we created the following two categories: “resident influenced decision” (includes “decisions made by resident only” or “joint decisions with staff”) and “staff made decisions” (includes “decision made by staff only” and “decision made with some resident input”).

Of the remaining eight practice questions, five related to staff practices and three related to physical plant changes. Staff questions included issues regarding resident care plans (e.g. staff involvement in care planning meetings), leadership training, and how staff is involved in decisions regarding patient care (e.g. self-managed work teams). Physical plant change questions focused on changing the layout and/or functions of the facility (e.g. eliminating nurses’ stations). Responses to staff practices and physical plant change questions were classified as “currently implementing” (same as original coding) vs. “not implementing” (collapsed from original responses: “plan to do within next year; “plan to do within the next 5 years; and “no plans”).

The 16 culture change practices were then classified as being of low, moderate, or high complexity (see Table 1). To do this we considered both 1) the level of agreement needed to enact a practice (i.e., number of parties involved including staff, residents, families, administrators, others) and 2) the certainty or predictability of the desired outcome. Practices requiring agreement among a small number of individuals and believed to have more certain outcomes and were ranked as less complex, (e.g. consistent staff assignment, where once a decision is made, daily operations are fairly consistent), while practices that require agreement among many individuals and have less certain outcomes were ranked as more complex (e.g. self-managed work teams, where multiple staff participate in the decision-making process and outcomes are more uncertain; see Table 1). The categorizations were guided by complexity theory; by drawing from first-hand knowledge of nursing home operations; and by active participation in Rhode Island Generations (a Rhode Island organization promoting person-centered care in nursing homes (see <http://regenerations.com/default.aspx>). Similar rankings by two nursing home administrators and a director of nursing who were members of RI Generations supported the face validity of our rankings.

Finally, several organizational characteristics were considered in order to describe the nursing homes participating in this study. Data on these factors were obtained from the Online Survey, Certification and Reporting (OSCAR) database, which is maintained by the Centers for Medicare and Medicaid Services (CMS) (see Table 2). Characteristics of interest included percentage of non-Medicaid or Medicare residents; number of health deficiencies in the most recent survey; average staff hours per resident day; turnover rates among staff; whether nursing homes were owned by a chain (no/yes); and had for-profit, nonprofit or government ownership. We also described whether nursing homes were in rural, suburban or urban locations; and in which of the four major U.S. geographical regions they resided.

Data Analysis

We examined the prevalence of the CC practices in place by NHs' reported extent and duration of CC adoption. Also, practice adoption was examined by the conceptually driven categorizations of complexity. Additionally, within each "extent" NH group we used the chi-square statistic to determine whether differences in timing (i.e. NHs having CC for one to three years versus three or more years) were statistically significant. The Breslow-Day statistic was used to test whether the effects of the duration of CC adoption were different for NHs self identified as "for the most part" versus "complete" adopters.

Results

We describe facility characteristics in Table 2. A notable finding is the low turnover rates (3 to 24%) of the study facilities compared to NHs nationally (national averages in 2004 were 46.1% for RNs, 42.0% for LPNs and 64.4% for (C)NAs) (Castle, 2008). Also, while organizational characteristics for the most part do not vary according to extent or timing of culture change implementation, among facilities reporting to have "completely" implemented culture change staff turnover is lower in facilities with more versus less implementation experience (3+ years versus 1 to 3 years; Table 2). An opposite pattern of higher turnover for those with more implementation experience was observed in those facilities reporting culture change "for the most part" (Table 2). Across both "extent" categories, a lower proportion of chain facilities were implementing culture change for three or more years versus one to three years; the opposite was true for non-chain NHs (Table 2).

Table 3 reports descriptive results of practices implemented by extent and timing of culture change adoption. We find different prevalence patterns for facilities that "for the most part" and "completely" adopted culture change. Looking at differences based on extent of implementation, timing of adoption plays a more important role for "complete adopters" of culture change than for "partial adopters". Among "for the most part" adopters, only two out of sixteen practices have notable differences based on when implementation occurred. Comparatively, among complete adopters, there are notable differences based on timing for ten out of sixteen practices (Table 3). When this observed difference was tested statistically, we found the effect of when adoption occurred (3+ versus 1 to 3 years) on the prevalence of three culture change practices to be significantly different by a NH's extent of adoption; these practices are staff opportunities to acquire new leadership skill ($p < .05$); resident involvement in decision making regarding creating calendars for social events ($p = .053$), and resident involvement in decisions on who provides hands on care ($p = .057$).

Based on our results concerning extent of adoption, we report five typologies that help categorize practice implementation among nursing homes that "completely" adopted culture change (see Table 3). The first typology, "simple resident practices", describes practice patterns where there is little to no variation based on when adoption occurred and where there is a high prevalence of the practice (i.e. 75% of NHs in the "completely" category implement the practice). The second typology, "simple staff practices", has a comparatively lower prevalence than typology 1 (i.e. 55% & <75%) as well as minor differences according to when adoption occurred. The third typology, "complex resident and staff practices", is less commonly executed in the sampled NHs than typologies 1 and 2 and

shows a higher rate of implementation among facilities that adopted culture change for longer lengths of time. For instance, among “complete adopters”, the practice of resident decision making on who provides hands-on care is more common for homes that implemented culture change earlier (3+ years) versus later (1 to 3 years) adopters (42% versus 15% respectively). The fourth typology, “structural patterns”, includes practices that few nursing homes implemented (i.e. 35%). Finally, the fifth typology, “food access”, represents exceptions to dominant patterns. In particular, there is lower practice use in facilities that implemented culture change for longer lengths of time. For example, among “complete adopters”, resident access to appliances to prepare food was a more prevalent practice for earlier adopters than for later adopters (45% vs. 29% respectively).

Discussion

We found that simpler practices, which do not involve staff and/or resident involvement in decision making, were adopted more frequently by all sampled nursing homes. Furthermore, complex practices were adopted more often by homes that fully embraced culture change. Finally, duration of culture change adoption mattered more for complete adopters than it did for partial adopters of culture change.

In less committed culture change facilities the duration of effort was not a factor in determining whether or not innovations were adopted, whereas in complete adopters duration of effort mattered. One possibility is that complete adopters may have had a philosophical mission to become a “true” culture change facility. As a result, they may have continually tried new practices in an attempt to improve resident quality of life. By contrast, administrators of facilities without this mission may have felt that implementation of the less complex practices sufficed, and consequently stopped adding additional culture change improvements after their initial attempts. Based on our results, it is possible that earlier successes with less complex practices for those homes fully embracing the culture change movement may allow sufficient momentum so that more complex change can follow.

This research identified five main practice patterns based on frequency of adoption by complete adopters of culture change. Typologies 1,2, and 3 met our expectations while typologies 4 and 5 differed from what we expected. Our findings are comparable to an Illinois study on practice patterns, which found that more common practices relate to greater resident personal choice, such as when to wake up, and less common practices include those that we consider more complex, such as staff involvement in key management decisions. (Illinois NH report, June 2006). Based on our findings, we conclude that complexity theory is a useful framework with which to shape our understanding of nursing homes’ adoption of resident and staff related “culture change” practices.

The most complex practices identified in this research include staff and resident involvement in decision-making (typology 3). Involving residents in decisions, such as who provides hands on care, and involving direct care staff in decisions through the processes of self-managed work teams and/or as part of the senior management team, are practices that likely have an impact on the daily operations of the entire facility, and are thus likely to be contentious and result in disagreements between residents and staff members, or between

direct care staff and management. In addition, greater staff authority in decision making is likely to involve substantially more staff training in order for them to successfully assume more of a leadership role.

While we anticipated that the practice of resident involvement in decisions regarding the household/neighborhood unit would be a moderately complex practice, we found it to be a simple practice, in that more NHs had adopted this practice than we expected. We speculate that NHs may have answered in the affirmative if residents were involved in minor decisions in the unit, such as choosing decorations for their household or neighborhood.

Typology 4 represents physical plant changes. Unexpectedly, we saw that prevalence rates were lower than expected, perhaps because of other factors unmeasured in this study, such as cost, building permits, and regulation. Without capital infusion, most nursing homes cannot afford the costs associated with infrastructure changes (Farrell & Elliot AE 2008). Local, State or Federal reimbursement policies that promote these more costly restructuring projects and other changes are likely necessary to speed their adoption.

Typology 5 includes food-related practices we had hypothesized as less complex, but empirically found to be difficult to adopt. These patterns may be due to regulations and oversight regarding food and/or liability issues (e.g., residents with food allergies may be able to access food they should not eat in common food prep and storage areas). Additionally, implementing food-related practices for longer periods of time results in more opportunities for food citations, which could lead to facilities ending the practice of unmonitored food access. We speculate that Nursing Homes may be considered in loco parentis, where they are held responsible for residents' actions, and thus have motivation to limit unsupervised food access and preparation.

As our data are cross-sectional, on a small sample, using self-reported data, our results are not definitive. With a longitudinal design, different practice patterns may emerge, such as a transition from adopting culture change in some areas of the home to throughout the institution. Our interpretations raise additional questions, that, in order to confirm, require additional research.

Conclusion

The classification of practices as less or more complex may assist nursing homes in determining how to best allocate resources. In a time of budget cuts, initiating more complex practices, such as self-managed work teams, may require a lot of initial training, time, and resources that a facility may not be willing or able to invest. In comparison, less complex practices such as incorporating resident input into daily routines may greatly benefit residents while leaving staff with clear and consistent roles. The success of these less complex practices may lead to greater staff, resident and family enthusiasm and support for a nursing home's culture change efforts and thus to greater success and efficiency when adopting more complex practices. Furthermore, as the prevalence of early "successes" increases and these success stories are disseminated there may be a greater likelihood for NH culture change to become mainstream.

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Table 1

Ratings of Complexity Level according to Agreement and Certainty

	Complexity Level
Questions relate to:	Low Complexity (<i>Includes practices where fewer people are involved in making the decisions AND that have more predictable outcomes</i>)
Resident	Is it the practice that residents can go to bed when they want to?
	Is it the practice that residents can choose HOW they are bathed even if they need help or supervision?
	Is it the practice that residents can choose WHEN they are bathed?
	Is it the practice that residents can access food from the fridge whenever they want?
Staff	Staff opportunity to acquire new leadership skills
	Implement care planning sessions including CNA's
	Implement consistent assignment
Physical Plant Changes	Recreate unit into smaller units
	Eliminate nurses stations
	Change dining experience from trays to dining service
	Moderate Complexity (<i>Includes practices where either several people are involved in each decision OR there are less predictable outcomes</i>)
Resident	Is it the practice that residents can access appliances necessary to prepare their own meals?
	Actively involve residents in decisions regarding household/neighborhood unit
	Involve residents in decision making – creating calendars for social events, activities, and outings
	High Complexity (<i>Includes practices where several people are involved in each decision AND there are less predictable outcomes</i>)
Resident	Involve residents in decisions regarding who provides hands on care
Staff	Include direct care workers and residents as part of the regular senior management team
	Create self-managed work teams

Table 2

Facility Averages of Sampled Nursing Homes

	Total Sample N=291	For the Most Part		Completely	
		1-3 years N=105	3+ years N=133	1-3 years N=20	3+ years N=33
	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)
Total Number of Residents, Clients	101.1 (54.0)	98.7 (49.7)	102.4 (56.1)	98.4 (57.7)	105.5 (58.2)
Percentage of non-Medicare or Medicare Residents	26.2 (17.8)	27.0 (17.8)	25.4 (17.3)	25.4 (17.5)	27.6 (20.9)
Number of health deficiencies in most recent survey	5.8 (5.2)	5.6 (4.6)	5.5 (5.6)	6.0 (4.0)	7.5 (5.6)
Average of all staff hours per resident day	2.7 (0.9)	2.7 (0.9)	2.7 (0.9)	2.8 (0.8)	2.9 (1.1)
Average hours for CNA's per resident per day	1.7 (0.7)	1.6 (0.7)	1.7 (0.8)	1.6 (0.6)	1.9 (0.8)
Average hours for LPN's/LVN's per resident per day	0.7 (0.3)	0.7 (0.3)	0.7 (0.3)	0.8 (0.3)	0.7 (0.4)
Average hours RNs per resident per day	0.3 (0.2)	0.3 (0.2)	0.3 (0.3)	0.4 (0.4)	0.4 (0.3)
Turnover Rate for CNAs	17.7 (41.8)	11.1 (50.2)	23.5 (36.6)	19.8 (17.8)	13.8 (40.7)
Turnover Rate for LPNs	8.1 (31.9)	5.2 (38.0)	10.4 (28.8)	13.3 (16.0)	5.3 (29.9)
Turnover Rate for RNs	3.0 (32.0)	1.7 (39.0)	3.5 (27.1)	7.1 (29.2)	2.6 (28.5)
Part of Chain					
No	53.6 (156)	50.5 (53)	61.7 (82)	35.0 (7)	42.4 (14)
Yes	46.4 (135)	49.5 (52)	38.3 (51)	65.0 (13)	57.6 (19)
Urban/Rural Status	^		^		
Rural	30.9 (90)	34.3 (36)	26.3 (35)	35.0 (7)	36.4 (12)
Suburban	39.9 (116)	33.3 (35)	50.4 (67)	35.0 (6)	24.2 (8)
Urban	28.5 (83)	32.4 (34)	21.8 (29)	35.0 (7)	39.4 (13)
Geographic Location					
Northeast	17.5 (51)	15.2 (16)	18.0 (24)	15.0 (3)	24.2 (8)
North central	38.5 (112)	39.0 (41)	39.8 (53)	40.0 (8)	30.3 (10)
South	28.9 (84)	31.4 (33)	24.1 (32)	40.0 (8)	33.3 (11)
West	15.1 (44)	14.3 (15)	18.0 (24)	5.0 (1)	12.1 (4)
Ownership					
For Profit	56.4 (164)	54.3 (57)	58.6 (78)	60.0 (12)	51.5 (17)

	<u>Total Sample</u> N=291	For the Most Part		Completely	
		1-3 years N=105	3+ years N=133	1-3 years N=20	3+ years N=33
	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)	Mean (SD) or % (N)
Nonprofit	39.2 (114)	43.8 (46)	35.3 (47)	35.0 (7)	42.4 (14)
Government	4.5 (13)	1.9 (2)	6.0 (8)	5.0 (1)	6.0 (2)

^ Missing = 2

Table 3

Ratings of Complexity Level according to Agreement and Certainty

	For the Most Part		Completely	
	1-3 years N=105	3 + years N=133	1-3 Years N=20	3+ years N=33
Culture Change Practices				
<i>Typology 1: Simple Resident Practices</i>				
Residents can go to bed when they want to	99.0 (103)	97.7 (130)	100.0 (20)	97.0 (32)
Residents can choose HOW they are bathed even if they need help or supervision	94.2 (98)	94.7 (124)	90.0 (18)	97.0 (32)
Residents can choose WHEN they bathe or shower	87.5 (91)	84.0 (110)	90.0 (18)	90.9 (30)
Actively involve residents in decisions regarding household/neighborhood unit	57.1 (60)**	72.7 (96)**	75.0 (15)	78.8 (26)
<i>Typology 2: Simple Staff Practices</i>				
Implement consistent assignment	84.8 (89)	88.6 (117)	80.0 (16)	93.9 (31)
Staff opportunity to acquire new leadership skills	76.2 (80)**^^	62.9 (83)**^^	75.0 (15)^	87.9 (29)^
Implement care planning sessions including CNA's	61.0 (64)	55.3 (73)	55.0 (11)	68.8 (22)
<i>Typology 3: Complex Resident and Staff Practices</i>				
Include direct care workers and residents as regular part of the senior management team	47.1 (49)	49.6 (66)	45.0 (9)*	66.7 (22)*
Involve residents in decision making: creating calendars for social events, activities, and outings	44.7 (46)^	46.2 (60)^	35.0 (7)**^	66.7 (22)**^
Create self-managed work teams	25.7 (27)	27.3 (36)	30.0 (6)	48.5 (16)
Involve residents in decisions re: who provides hands on care	26.0 (27)^	25.8 (34)^	15.0 (3)**^	42.4 (14)**^
<i>Typology 4: Structural Patterns</i>				
Eliminate nurses stations	9.6 (10)	11.3 (15)	15.0 (3)	27.3 (9)
Recreate unit into smaller units	21.0 (22)	15.2 (20)	35.0 (7)	31.3 (10)
<i>Typology 5: Exceptions to Dominant Patterns: Food Access</i>				
Residents can access food from fridge when they want	67.6 (71)	59.8 (79)	85.0 (17)*	60.6 (20)*
Residents access to appliances necessary to prepare their own meals	31.4 (33)	33.3 (44)	45.0 (9)	29.0 (9)
Change dining experience from trays to dining service	50.5 (53)	43.6 (58)	70.0 (14)*	45.5 (15)*

Chi squared test: One tailed significance:

Breslow-Day tests of significance:

* p<.10

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