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Implementation of Goals of Care Communication Innovation Among Nursing Homes: A Multiple Case Study Design

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Abstract

Objective: Nursing homes (NHs) provide care to residents with serious illness and related complex health care needs. As such, discussions about end-of-life care between NH staff and residents and families are necessary to ensure residents receive care consistent with their goals. Interventions such as video decision aids have been developed to promote discussions and improve advance care planning, but few studies have examined how NH characteristics may relate to the implementation of these interventions; such information might lead toward more use of successful interventions. The purpose of this study is to understand NH characteristics that are associated with the implementation of the Goals of Care (GOC) intervention, which combined a video decision aid with a structured discussion to guide decision-making in advanced dementia.

Design: A multiple case study.

Setting and Participants: Staff surveys were conducted to examine factors related to implementation effectiveness in 11 NHs in North Carolina that participated in the GOC trial.

Methods: Questions measured the dependent variable of implementation effectiveness: the consistency and quality of use of the GOC intervention. NH organizational characteristics were measured using publicly available data and an administrator survey. The analysis consisted of pattern matching logic.

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Results: High management support aligned with implementation effectiveness within NHs. In addition, the within case pattern analysis indicated additional characteristics related to implementation effectiveness. Facility size, Medicare beds, residents' racial composition, and star rating were related to implementation effectiveness across 6 of the 11 NHs. NH financial resources, such as size and number of Medicare beds, may be important factors for successful implementation.

Conclusion and Implications: NHs seeking to implement advance care planning interventions should focus on within and across NH differences, such as adequate management and financial support prior to implementation to increase the likelihood of implementation effectiveness.

Keywords

Nursing homes; resources; implementation; goals of care; case study

Advance care planning (ACP) is an opportunity to improve communication during the end-of-life care process for nursing home (NH) residents, particularly for residents living with dementia. It is a process that supports individuals in defining their goals for medical care and their treatment preferences through an ongoing communication and decision-making process between NH staff and residents and families.[1–3] Among persons with dementia, ACP discussions should occur while the individual is able to actively participate in the decision-making process. However, if the individual is not able to make an informed decision, it is essential that family members be empowered to make these decisions. ACP can facilitate the use of advance directives (ie, living will or durable power of attorney) when a resident becomes incapacitated. Although NHs are required by the 1990 Patient Self-Determination Act to establish residents' advance directives,[4] ACP remains less than optimal in NHs, with reported poor quality of end-of-life communication.[5]

To promote widespread use of efficacious practices, such as video interventions to promote ACP discussions, it is essential to understand barriers to their implementation. Not only have few ACP studies been conducted in NHs, but only a few studies described the implementation process of ACP interventions, and most studies failed to include residents with limited decision-making capacity.[2] A recent study found that lower-quality NHs had greater challenges implementing an ACP video intervention; additionally, champions were needed in the NHs to support its implementation.[1] NH routines and engagement of leaders are potential facilitators to implementing ACP interventions in NHs, while limited staff time and competence in having these discussions can hinder implementation.[6]

The purpose of this study is to expand on the scarce literature on implementing evidence-based interventions for ACP, using a conceptual framework of innovation implementation. It examines how NH characteristics are associated with the implementation effectiveness of the Goals of Care (GOC) intervention, consisting of a video decision aid and structured care plan meeting, designed to promote discussions about ACP between family decision-makers for people with late-stage dementia and NH staff.

Conceptual Framework

Organizations may fail to realize the beneficial effects of innovations (ie, a new idea or practice that can be adopted by individuals),[7] due to implementation failure rather than innovation failure.[8] Understanding factors that may hinder or facilitate the implementation process of an evidence-based strategy to promote ACP in NHs should lead to improved implementation effectiveness. The conceptual framework used to guide this study was developed by Klein et al to examine the antecedents of implementing innovations at the organization-level.[8] It focuses on implementing complex innovations that require coordinated efforts by multiple individuals[9] and describes organizational characteristics that may influence effective innovation implementation. The Klein framework posits that when management support, financial resource availability, and implementation climate are high, implementation effectiveness is expected to be high because there is a supportive environment for implementation.

Figure 1 depicts the constructs represented in the framework. The model suggests that management support and financial resource availability are associated with the organization's implementation policies and practices. Subsequently, implementation policies and practices influence the organization's implementation climate (shared perceptions of the importance of innovation implementation within an organization), which relates to extent of implementation effectiveness (consistence and quality of use of the GOC intervention). The operationalization and data sources of each construct are described in Table 1.

Methods

Design

A multiple case study design was used to analyze NH characteristics across and within homes. Interdisciplinary care planning team members from 11 NHs in the intervention arm of a cluster randomized trial were eligible for an in-person or telephone survey after receiving training on and then delivering the GOC intervention to at least 10 families of residents with advanced dementia.

Sample

Twenty-two NHs were matched by ownership status and percent of African Americans and randomized by blocks of 4, except for the final block of 2.[10] The 11 NHs selected for this study were those randomized to participate in the GOC intervention.

GOC Decision Aid and Care Plan Intervention

The GOC intervention involved 2 components: a video decision-aid and a structured care plan meeting to discuss GOC. Family decision-makers in intervention NHs viewed a video decision aid about GOC in advanced dementia. Details regarding the GOC intervention have been published in previous articles.[10,11]

Care Plan Staff Surveys

For this study of implementation, purposive sampling was used to seek representation of staff from different disciplines, including nursing, social work, physical therapy, and activities personnel. A site liaison identified NH staff members who were eligible based on their participation in care plan meetings. The number of staff participating varied from 2 to 7 in each NH, with each NH having at least a social worker and registered nurse participate in the study. A total of 65 staff care plan team members were eligible to participate in the study; all were approached by the study team to participate in a 1-time interview, and 49 agreed. Participants were enrolled from July 2012 through July 2015, consistent with the timeline of the GOC study. Institutional Review Boards (IRBs) approved this research.

Data Sources and Measures

Data to assess the implementation climate and management support were obtained from NH staff interviews. Implementation effectiveness and NH characteristics were obtained from the fidelity of GOC intervention data and administrative survey data obtained in the trial.

Implementation Climate

Implementation climate was assessed using data collected from NH staff who utilized the GOC intervention in each NH. Information regarding the development of the implementation climate measure and its items has been published previously.[12] The investigator-developed implementation measure included 7 items that ranged from strongly disagree (1) to strongly agree (6). Each item was scored 1−6, and scores were summed to yield an overall score for implementation climate ranging from 6 to 42, with higher scores indicating better climate. The internal consistency for the implementation climate measure was moderately high ($\alpha = 0.72$).

Management/Leadership Support

Management support was assessed by 1 item that asked participants, “Staff get the leadership support they need to conduct GOC care plan meetings.” The item responses ranged from strongly disagree (1) to strongly agree (6). The average scores for the management support measure were obtained for each NH, with higher scores indicating higher management support.

Implementation Effectiveness

Data regarding the study outcome, implementation effectiveness, was obtained from 2 sources—data on fidelity of the GOC intervention implementation tracked by research staff, and data on the quality of GOC discussions reported by family decision-makers following the care plan meeting with NH staff.

Implementation effectiveness: consistency of the GOC intervention

The consistency of implementation measure included 8 items: (1) the decision-maker reviewed the GOC decision aid video; (2) the decision-maker attended the care plan meeting; (3) at least 2 NH disciplines participated in the care plan meeting; (4) care plan members asked for input about the residents’ treatment at the 3-month interview; (5) care

plan members discussed health status of the resident with the decision-maker; (6) care plan members discussed goals with the family decision-maker; (7) care plan members and family decision-makers selected goal (s); and 8) care plan member and family confirmed or changed treatment plan. The responses for the items were coded into binary indicators based on whether or not each of the expected components were implemented. The items were summed across the responses and averages were obtained for each NH. The scores ranged from 0 to 8, with higher scores indicating greater consistency in the implementation of the GOC intervention.

Implementation effectiveness: quality of the discussion of the GOC meeting

Five items obtained from the family assessed quality of the discussion: (1) NH team discussed resident's health status during the care plan meeting; (2) the NH team valued input from the residents and/or family members; (3) the NH team paid attention to the resident and/or family members emotions; (4) the NH team tried to understand the resident as a person; and (5) resident and/or family were encouraged to ask questions. The items were ultimately scored yes or no and summed, and averages were obtained for each NH. The scores ranged from 0 to 5, with higher scores indicating greater consistency in the implementation of the GOC intervention.

The overall implementation effectiveness score was created by summing the NH averages from the 8 items assessing consistency of the GOC intervention and the 5 items assessing quality of the discussion. The total sum of the overall implementation effectiveness score was between 0 and 13, with a higher score indicating a great implementation effectiveness. The mean score for each facility was calculated based on the implementation effectiveness score.

The internal consistency for the overall implementation effectiveness measure was moderately high ($\alpha = 0.70$), and the internal consistency for the implementation effectiveness subscale measures were high ($\alpha = 0.87$) and moderately high ($\alpha = 0.72$), respectively.

Financial Resources

The financial resource variables included the total number of beds and the numbers of Medicaid and Medicare beds in the NH. Total beds accounted for the total number of beds in each facility. Medicaid and Medicare beds were reported as the number of beds occupied by residents who were receiving Medicaid and/or Medicare benefits. These financial resources can hinder or enable the implementation of innovations in NH settings.[13–16]

Other NH Characteristics

Resident case-mix (percent white and African American), NH quality star rating [from the CMS NH Compare website, scored 1 (low) to 5 (high)], and certified nursing assistant hours per resident were additional NH characteristics included as covariates, obtained from a NH organizational survey and publicly available data. These variables were included based on previous literature focused on implementation of NH innovations.

Analysis

Pattern matching within and cross case analysis—Averages and frequencies were obtained for implementation climate, implementation effectiveness, and the NH organizational characteristics. For each NH, NH characteristics with means above the average were categorized as high, whereas constructs with means below the average were categorized as low. For example, a NH with an average implementation effectiveness score of 12 was categorized as high. The final analysis consisted of pattern-matching logic, an analytical method in case-study research, during which observed patterns (a pattern of measured values) are compared with expected patterns (hypotheses), using within-case and cross-case analysis to decide whether these patterns match or not.[17] Pattern-matching is a technique used to analyze various types of data (quantitative and qualitative) within the context in which they occurred.[18] The within-case analysis compared the expected results of each NH characteristic with the implementation effectiveness within a NH. At least 7 of the 9 NH characteristics (management support, Medicare beds, total beds, percent of White residents, high certified nursing assistant hours/resident, high star rating, and high implementation climate) were expected to be associated with high implementation effectiveness; as such, the investigators selected at least 5 or the majority of NH characteristics needed to match the implementation effectiveness measure for a match. For example, a NH categorized with high implementation effectiveness would have at least 5 or more out of the 9 NH characteristics categorized as high. Similar patterns were expected among NHs with low implementation effectiveness. Cross-case analysis predicted the relationships between NH characteristics and implementation effectiveness across NHs. For example, if a NH was ranked high in implementation effectiveness and high in total beds the expected pattern was confirmed. The expected pattern needed to occur the majority of the time (6 or more times out of 11 NHs) for the expected relationship between implementation climate and the NH characteristics to be confirmed.

Results

Descriptive statistics of the sample are provided in Table 2. On average, NHs participating in the GOC intervention had more Medicare beds (mean 85) compared with Medicaid beds (mean 53). In additionally, more than one-half of the NHs participating in the GOC intervention were for-profit. The overall implementation climate score was moderate (mean 34.8, minimum score 6 and maximum score 42) among NHs participating in the GOC intervention, whereas the overall implementation effectiveness score was high (mean 10.8, minimum score 0 and maximum score 12).

Within-Case Pattern Matching

The within-case pattern matching analysis indicates 4 of the 11 NHs (36%) had at least 5 NH characteristics that were consistent with the implementation effectiveness measure (Table 3). NH E (77%) and J (89%) had the most consistent pattern of matches between NH characteristics and implementation effectiveness; these NH characteristics included Medicare and Medicaid beds, total beds, star rating, and implementation climate. NH F had 6 of 9 characteristics (67%) match the implementation effectiveness measure and NH B had 5 of 9 characteristics (55%) match the implementation effectiveness measure. High

management support consistently matched greater implementation effectiveness measure across 3 of 4 NHs.

Cross-Case Pattern Matching

Total beds, percent of Black residents, and percent of White residents observed patterns consistently matched the implementation effectiveness measures across 6 of 11 facilities (54%). The star rating variable matched the implementation effectiveness measure across 6 of 9 facilities (66%).

Discussion

This study examined NH characteristics that could influence the implementation of the GOC intervention using the Klein conceptual framework. Although management support was a consistent factor in the implementation process across NHs, the results indicate different financial resources may influence implementation across and within NHs. Implementation climate did not consistently align with implementation effectiveness across or within NHs. The discussion below focuses on the key constructs, management support, financial resources, and implementation climate, from the conceptual framework.

Management/Leadership Support

Management support was a consistent factor within NHs that aligned with implementation effectiveness. Although implementing major change in NHs can be a challenge for NH leadership, these individuals have a significant role in the implementation of innovations, including the GOC intervention. Leadership influences how practices are implemented in NHs, which can impact perceptions and engagement of innovations among NH staff. Chisholm et al found the GOC intervention was positively perceived by NH staff members.[12] Previous research indicates nursing leadership[19] and NH staff champions[1] are essential to initiate ACP interventions among persons with dementia in long-term care settings, which may be the reason management support is consistent across and within NHs for innovation implementation.

Financial Resources

The results from this study suggest Medicare beds impact implementation effectiveness across NHs. NH resources also have a vital role in innovation implementation in facilities. Typically, Medicaid reimbursements rates cover long-term care at an estimated $125 a day, whereas Medicare covers short-stay rehabilitative or subacute NH care at approximately $500-$600 per day.[20] Consequently, NHs with higher proportions of Medicare residents are more likely to have resources needed to implement innovations.[16] Higher Medicaid rates and Medicaid pay-for-performance incentives may contributed to greater participation in the implementation of innovations.[15]

Larger NHs may have access greater resources than smaller NHs, which can contribute to greater innovation implementation across larger facilities. Larger NHs have been associated with having higher operating margins compared to smaller NHs,[21] which can provide opportunities for large facilities to implement new practices. Larger facilities may also

benefit from economies of scales, which may improve financial performance for larger NHs by reducing the cost of care needed per person.[22] Furthermore, large NHs may be able to attract the management and staff needed to focus on innovation implementation.

Implementation Climate

Our findings indicate the association between implementation climate and implementation effectiveness did not align most of the time across NHs. The implementation climate measure attempts to assess the shared perception of implementing an innovation, which requires a high degree of within-group agreement in climate perceptions.[23] Investigators assessed the internal consistency of the implementation climate measure ($\alpha = 0.72$) and content validity of the items for the measure were assessed by investigators on the research team with expertise in this area., There are some potential limitations of this research, one being that as a cross-sectional study, it is not possible to infer causality. However, the purpose of these analyses was not to infer causality but to describe NH characteristics that relate to innovation implementation in NHs, which is limited in the NH literature. In addition, the study population for the GOC intervention were obtained from one state and constituted a small sample; as such the results of this study may not be generalizable to other NHs. Also, measurement error is always a threat to observational studies, particularly those that rely on self-reported data. Further, investigators were not able to assess other measures of reliability for the implementation climate and implementation effectiveness measures due to the small sample size of the study. Finally, although this study incorporated measures for several NH characteristics, other relevant measures such as organizational climate or culture and staff turnover may be important concepts to also assess during innovation implementation.

Conclusions and Implications

Management support is important to innovation implementation within and across NHs. Rosemond et al found implementation effectiveness was high when management ensured staff had a positive introduction to new practices.[24] Consequently, it is important that management foster NH staff “buy-in” to new innovations, such as the GOC intervention, to facilitate the implementation process. In addition, management may select innovations that align with practices currently conducted at the NH; innovations that align with the organizational climate or culture may facilitate incorporation of new practices into NH staff members’ daily routines. Innovations that align with the organizational climate or culture may facilitate incorporation of new practices into NH staff members’ daily routine. Therefore, NHs with low implementation climate but high implementation effectiveness may have an organizational culture or climate that embraces utilizing ACP with residents. The use of experience staff[12] and champions[1] assisted with implementation of an advance care plan intervention. NH management can publicly “thank” staff for assisting with innovation implementation and hire additional staff to support innovation implementation. Additional strategies management can use to support staff include an action plan that aligns with the NHs culture, enhanced role of registered nurses and other staff, and involving staff in planning for practice designs.[25]

NH resources also contribute to the implementation of innovations in NHs. Although Medicare and larger NHs may have the resources to systematically incorporate innovations, resource deprived NHs may encounter some challenges implementing innovations. As such, it is essential to emphasis policies that promote innovation implementation for all NHs.

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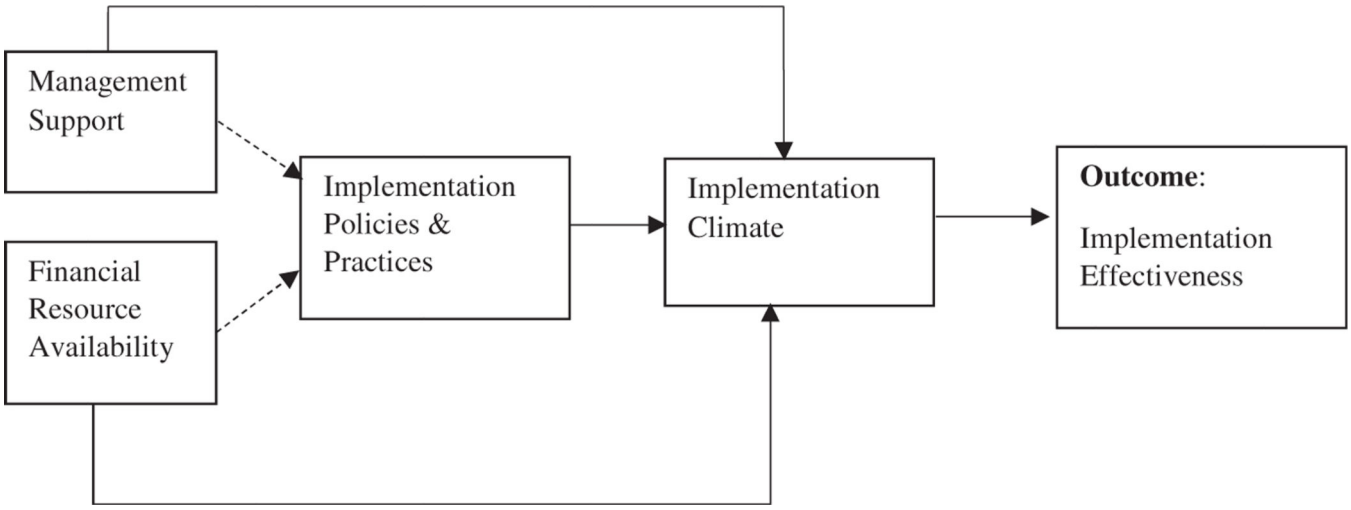

Fig. 1.

Theory of innovation implementation that guides this study. Klein et al: Theory of Innovation Implementation Framework Adapted Version. The dotted lines indicate the pathways depicted in the original Klein et al framework. The solid lines indicate how the conceptual framework was adapted for this study.

Table 1

Definition of Key Conceptual Framework Constructs

Variables	Definition	Data Source
Innovation is a technology or practice that an organization is using for the first time (Klein, Conn, Sorra 2001).	The GOC Decision Aid and Care Plan Intervention	
Management support is support from management to implement an innovation (Klein and Sorra 2001).	NH staff were asked, “staff get the leadership support they need to conduct a GOC care plan meetings”	NH staff survey
Financial resource Availability to implement an innovation (Klein and Sorra 2001)	Number of Medicaid and Medicare beds used by residents	NH administrator survey
Implementation climate is employees’ shared perceptions of how the innovation is promoted, supported, and rewarded by the organization.	Sum of nurses’ perceptions regarding expectations to discuss goals, expectations to participate in shared decision making, expectations to assist understand goals, staff get the leadership to conduct GOC discussion, staff get the leadership they need to discuss goals, staff receive appreciation from other staff, and staff receive appreciation from administrators	NH home staff survey
Implementation effectiveness is the consistency and quality of the use of the innovation by targeted organizational members.	Consisted of 2 measures: Consistency implementing the GOC intervention (8 items coded as 0 = no implementation and 1 = implementation), and data on quality of GOC discussion (obtained from family decision-maker)	Fidelity data

Table 2

Descriptive Characteristics of NHs Participating in the GOC Intervention (N = 11)

Characteristics	Mean (SD) or/Frequency (%)
Implementation climate score * (range: 6–42)	34.8 (2.2)
Implementation effectiveness score * (range: 0–12)	10.8 (0.9)
Management support * (range: 4–5.4)	5.0 (0.5)
Financial resources *	
Medicare beds	85.0 (64.4)
Medicaid beds	53.1 (52.7)
Total beds *	132.6 (36.2)
Star rating *	3.9 (1.3)
Residents' racial composition *	
White	81.3% (18.7)
Black	16.8% (18.5)
Staffing *	
Certified nursing assistant staff h/resident	1.9 (0.6)
Special care unit	
Yes	6 (55%)
No	5 (45%)
Ownership	
For-profit	6 (55%)
Not for-profit	5 (45%)

SD, standard deviation.

* Indicates continuous variables.

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Table 3

Within and Cross-Case Pattern Analysis Demonstrating Variables Associated with Implementation Effectiveness

	NHs Participating in GOC Intervention											
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**Cross-Case Pattern Matches**
Implementation effectiveness	9.5 (low)	9.7 (low)	9.9 (low)	10.6 (low)	10.7 (low)	11 (high)	11.1 (high)	11.3 (high)	11.6 (high)	11.9 (high)	11.9 (high)	
NH characteristics												
Management support Financial resources	5.0 (high)	4.0 (low) *	5.5 (high)	5.3 (high)	5. 0 (high)	5.4 (high) *	4.3 (low)	4.5 (low)	5.2 (high)	5.4 (high) *	5.3 (high)	5/11 †
Medicare beds	46 (low)	90 (high)	176 (high)	132 (high)	44 (low) *	107 (high) *	150 (high)	30 (low)	0 (low)	160 (high) *	0 (low)	5/11
Medicaid beds	16 (low)	90 (high)	35 (low)	78 (high)	50 (low) *	39 (low)	116 (high)	0 (low)	0 (low)	160 (high) *	0 (low)	5/11 †
Total beds	154 (high)	90 (low) *	176 (high)	132 (low)	90 (low) *	107 (low)	150 (high)	119 (low)	90 (low)	160 (high) *	191 (high)	6/11 †, ‡
Facility characteristics												
% Black residents	12 (low)	6 (low) *	11 (low)	60 (high)	15 (low) *	11 (low)	29 (high)	3 (low)	0 (low)	38 (high) *	0 (low)	6/11 †, ‡
%White residents	87 (high)	94 (high)	88 (high)	40 (low)	72 (low) *	84 (high) *	70 (low)	97 (high)	100 (high)	62 (low)	100 (high)	6/11 †, ‡
Certified nursing assistant h/resident	N/A	3 (high)	2 (high)	4 (low)	2 (high)	2 (high) *	1 (low)	3 (high)	1 (low)	2 (high) *	N/A	4/9
Star rating	5 (high)	3 (low) *	5 (high)	4 (high)	2 (low) *	5 (high) *	2 (low)	5 (high)	N/A	4 (high) *	N/A	5/9 †, ‡
Implementation climate	35.4 (high)	33.5 (low) *	38 (high)	35 (high)	31.67 (low) *	34.5 (high) *	32.67 (low)	33.1 (low)	36.8 (high)	38.4 (high) *	33.9 (low)	5/11
Within-case pattern matches	3/8	5/9 *, ‡	2/9	3/9	7/9 *, ′	6/9 *, ‡	4/9	3/9	3/9	8/9 *, ‡	3/7 ‡	

N/A indicates missing data.

* Indicates results for within-case pattern analysis.

† Indicates results for cross-case pattern analysis.

‡ Indicates facilities and variables that meet the cross-case and within-case pattern matching criteria.