What, Why, and How Care Protocols are Implemented in Ontario Nursing Homes*

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RÉSUMÉ

Le but de cette étude était de mieux comprendre la mise en oeuvre de protocoles des soins, y compris l'influence des facteurs organisationnels et contextuels sur les approches de mise en oeuvre dans les maisons de soins de longue durée (MSLD) en Ontario. Nous avons sondé les directeurs de soins employés dans tous les 547 maisons de soins de longue durée (MSLD) en Ontario, et avons combiné les données d'enquête avec des données sécondaires concernant l'emplacement rural ou urbain, les dimensions de la maison de soins infirmiers, l'appartenance à une chaîne, le type de propriété, et le status d'accréditation. Les motivations pour l'utilisation ou la sélection de protocoles des soins dans les maisons de soins infirmiers dérivent principalement des croyances en amélioration continue et des soins fondés sur des preuves. Le choix des protocoles a été largement participative, impliquant la gestion et le personnel. Les sources d'informations externes sont importants pour la mise en oeuvre des protocoles, et l'éducation permanente était le principal moyen de l'éducation et la formation du personnel. Des différences significatives dans les méthodes de mise en oeuvre sont devenue évidentes dans le cadre des différences de la propriété. On a identifié trois facteurs essentiels de la réussite dans la mise en oeuvre: la contextualisation d'un changement dans la pratique; le ressourcement pour la mise en oeuvre; et la démonstration du rapport entre les changements dans les pratiques et les résultats.

ABSTRACT

The aim of this study was to better understand care protocol implementation, including the influence of organizational-contextual factors on implementation approaches, in long-term care homes operating in Ontario. We surveyed directors of care employed in all 547 Ontario LTC homes, and combined survey data with secondary organizational data on rural/urban location, nursing home size, chain membership, type of ownership, and accreditation status. Motivations for the use/selection of care protocols in nursing homes primarily derived from beliefs in continuous improvement and in evidence-based care. Protocol selection was largely participative, involving management and staff. External information sources were important for protocol implementation, and in-service education was the chief means of training and educating staff. Significant differences in approaches to implementation were evident in association with differences in ownership. Three key success factors for implementation were identified: contextualizing the practice change, adequately resourcing for implementation, and demonstrating connections between practice change and outcomes.

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Standardized care protocols, including clinical practice guidelines (CPGs), have been heralded by practitioners and researchers as a solution to issues involving inconsistency in care quality and outcomes (Grimshaw et al., 2004b; Grol & Grimshaw, 2003). Nevertheless, although numerous practice standards have been generated over the past two decades, their uptake and impact in real-world settings has been generally disappointing (Kastner et al., 2011; Scott, 2007; Shaw et al., 2006; Wright et al., 2003) and highly variable across sectors (Dijkstra et al., 2006; Grimshaw et al., 2004a). This includes the long-term care (LTC) sector (Gambassi et al., 1998; Gurwitz, Monette, Rochon, Eckler, & Avorn, 1997; Levine & Totolos, 1994; Orsted & Attrell, 1999; Xakellis, Frantz, Lewis, & Harvey, 1998), as well as other health care sectors. Research to date on standards and guideline implementation has clearly demonstrated "that guidelines alone are not the solution for inappropriate care and that they are certainly not self-implementing" (Solberg et al., 2000, p. 173). To succeed, organizations, and the individuals in them, need to be equipped with implementation-relevant knowledge, in addition to clinical care knowledge (Berta et al., 2010).

The primary aim of our study was to better understand how care protocols[1] are implemented in LTC homes operating in Ontario, and to learn what processes, structural mechanisms, and knowledge sources are relevant to their implementation. LTC institutional settings are generally under-studied in implementation science. We focused on the implementation of care protocols relating to six clinical issues in Ontario LTC homes, and addressed the following questions to directors of care within LTC homes: What motivates decisions to use care protocols? How are protocol selection decisions made? What information sources are regarded as important to protocol implementation? How is staff prepared to implement protocols? Finally, what structural-process factors contribute to successful protocol implementation? A secondary interest was to study the influence of context on approaches to implementation, and to examine relationships between implementation approaches and a modest set of organizational characteristics shown to influence knowledge uptake in health care (Dijkstra et al., 2006; Emmons, Weiner, Fernandez, & Tu, 2012; Grimshaw et al., 2004a) and in other settings (Argote, 1999; Damanpour, 1996; Damanpour & Schneider, 2006; Lewin, Massini, & Peeters, 2011).

Our study responds to calls for knowledge translation research (Niessen, Grijseels, & Rutten, 2000; Richardson, Moreland, & Fox, 2001) that affords insights into factors and processes relating to the uptake and implementation of new knowledge (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004). Here, our focus is on new knowledge embodied by care standards, guidelines, and care practices (Dijkstra et al., 2006; Estabrooks, Winther, & Derksen, 2004; Grimshaw et al., 2004b; Grimshaw et al., 2004a; Kastner et al., 2011; Sekimoto, Imanaka, Kitano, Ishizaki, & Takahashi, 2006). Implementation scientists contend that a more nuanced understanding of the social and contextual factors influencing implementation efforts and effective organizational behaviour change is critical to developing effective strategies to improve guideline application. As well, such an understanding is also essential to more fully and consistently realize the promise of care practice standards (Grimshaw et al., 2004b; Rycroft-Malone, 2007) and of other knowledge predicated on research evidence (Straus, Tetroe, & Graham, 2011).

Theoretical Background

One of the most comprehensive theories applicable to studies of knowledge translation is organizational learning theory. A meta-theory originating in the social sciences, organizational learning theory considers the context in which learning about new knowledge takes place. Context, broadly conceived, includes (a) organizational and individual-level factors that influence learning about new knowledge, (b) micro- and macro-environmental influences on application and learning, and (c) the impact that the nature of the knowledge or innovation itself has on learning (Argote, 1999; Damanpour & Schneider, 2006; March, 1991; Nonaka, 1994). Social science theories are particularly relevant to studying knowledge translation in health care settings (Rycroft-Malone, 2007) since it is a highly complex, social, and processual phenomenon (Graham & Tetroe, 2007).

A key facet of the theory is *absorptive* (or learning) *capacity*, a concept that refers to an organization's ability

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to recognize the value of new knowledge and information, assimilate it, and then apply it to make high-quality decisions (Cohen & Levinthal, 1990; Lewin, Massini, & Peeters, 2011; Zahra & George, 2002). Conceptually, absorptive capacity is similar to capabilities inherent to *knowledge application* discussed in the knowledge translation literature (Graham & Tetroe, 2007) or to *knowledge application capacity* (Berta et al., 2010).

Barnsley, Lemieux-Charles, and McKinney (1998) referred to the relevance of absorptive capacity to health services organizations' abilities to assimilate innovations. More recently, Lewin et al. (2011) proposed a nuanced model of absorptive capacity that recognizes the importance of *external absorptive capacity* – that is, the meta-routines that contribute to an organization's ability to import and apply new knowledge – and *internal absorptive capacity*, which relates to meta-routines that enable organizations to initiate change from within, or to innovate (see Damanpour, 1991). Understanding what contributes to absorptive capacity – and what factors differentiate good organizational learners from poor organizational learners, or innovators from those that aren't – is important to understanding how to optimize decision making and outcomes related to performance improvement efforts. Greenhalgh et al. (2004) called for research that offers insights into how to "improve the absorptive capacity of service organizations for new knowledge … In particular, what is the detailed process by which ideas are captured from outside, circulated internally, adapted, reframed, implemented and routinized in a service organization, and how might this process be systematically enhanced?" (p. 618). Our study goes some way towards responding to this call.

Knowledge application and absorptive capacity are thought to be influenced by factors in the implementation setting, including organizational characteristics (Bierly, Damanpour, & Santoro, 2009). Indeed, one of the main tenets of learning theory is that context matters to learning, in that it exerts a profound influence on absorptive capacity (Caccia-Bava, Guimaraes, & Harrington, 2006; Cohen & Levinthal, 1990). In the organization sciences, the linkages between absorptive/learning capacity and context have been examined using an array of organizational variables including size, ownership, structure, and micro-environment (Argote, 1999; Damanpour, 1992; Emmons, Weiner, Fernandez, & Tu, 2012; Greenhalgh et al., 2004; March, 1991). Therefore, in addition to identifying processes that are in place in nursing homes to facilitate knowledge application and guideline implementation, we examined their association with five organizational-contextual features linked empirically to knowledge uptake in health care (Dijkstra et al., 2006; Emmons et al., 2012; Grimshaw et al., 2004a) and in other settings (Argote, 1999; Damanpour, 1996; Damanpour & Schneider, 2006; Lewin et al., 2011) including these: (a) rural/urban location (Burns & Wholey, 1993), (b) nursing home size (Greve & Baum, 2001; Schnelle, Ouslander, & Cruise, 1997), (c) chain membership (Argote, 1999; Szulanski, 1996, 2000), (d) type of ownership (Robinson, 2001), and (e) accreditation status.[2]

Methods

We developed and administered a survey to DOCs of LTC homes in Ontario that was designed to increase our understanding of both protocol implementation in these organizations, including approaches to care protocol implementation, and the influence of contextual factors on these approaches. We focused on six clinical issues: (a) preventive skin care, (b) wound/ulcer care, (c) restraint use, (d) management of incontinence (promotion of continence), (e) management of difficult behaviours, and (f) antimicrobial resistance. These issues have been identified in prior research as particularly important to resident care by LTC staff (Richardson et al., 2001). DOCs oversee, plan, coordinate, and supervise the nursing program for residents in LTC homes; they assist nursing home administrators in preparing and implementing budgets relating to nursing care in the home; and they are integral to regulatory review processes. DOCs therefore were well situated to respond to our survey focusing on protocol implementation. We supplemented these survey data with secondary data on organizational characteristics.

Survey Development

In the early stages of survey development, we collected descriptive, qualitative data (via 7 focus groups with 35 senior clinical staff – some of whom were DOCs – representing 15 Ontario nursing homes) on the stages of implementation that respondents identified in their homes, and the activities typically associated with these stages. Analysis of these data led us to identify six implementation stages: (a) scanning; (b) planning and discussion; (c) training and piloting; (d) implementing; (e) implementing and collecting performance data; and (f) reflecting on performance and improving practice/protocol.

Survey questions were developed that queried important aspects of all implementation stages, as described by focus group participants. Aspects that we queried, for example, were their motivations for protocol use (scanning); protocol selection decision processes they used (planning and discussion); approaches to staff training and education they employed (training and piloting); important sources of implementation information they

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relied upon (implementing); factors they felt to be important to protocol implementation success (implementing and collecting performance data); and implementation features that afforded feedback on which to continuously improve (reflecting and improving). Early drafts of the survey were prepared in consultation with an advisory committee comprised of LTC nurses (n = 2), physicians delivering LTC (n = 2), LTC DOCs (n = 2), regulators (government) (n = 1), representatives from provincial LTC home association executives (n = 2), and researchers with extensive expertise in LTC quality initiatives (n = 2) and in knowledge utilization research (n = 1). Consultations with our advisory committee served to establish the content validity of the survey items as they related to aspects of knowledge translation and application in health care settings.

We piloted the survey for face validity and clarity with a convenience sample of two DOCs employed in two Ontario LTC facilities in the spring of 2005. These were not the DOCs engaged as advisory committee members, and they were excluded from subsequent survey administration. Minor revisions to wording were made as a consequence of the pilot. Subsequently, we administered the survey to two other DOCs, and assessed test-retest reliability by administering the survey twice over a span of three weeks; a high level of reliability was observed.

The final version of the survey included nine questions (see Appendix, which is available at www.journals.cambridge.org/cjg2013001). Question 1 related to use/consideration or non-use/consideration of care protocols for each of the six clinical issues. Question 2 queried distinct stages of protocol implementation; in reply, respondents indicated which implementation stage (1 of 6) had been achieved for each clinical issue for which they had responded *Yes* in Question 1 (see Berta et al., 2010). Questions 3 through 7 related to implementation approaches that reflected input from focus group participants in the early survey development phase (all part of a larger study; see Berta el al., 2010). For Questions 3 through 7, respondents were asked to rank the items in terms of importance, relevance, or frequency of use, using 5-point Likert scales. Question 8 queried indicators of effectiveness of protocols in use. Question 9 was qualitative in nature and offered respondents the opportunity to mention other factors they felt to be important to the implementation of care protocols in their nursing home. An exploratory factor analysis was completed that demonstrated a six-factor solution, in which survey items loaded perfectly on those factors relating to each of Questions 3 through 8; all loadings were $\geq .40$ with the exception of one item for the factor relating to Question 4 regarding the item"head office or chain headquarters instructs us to use care protocols" (factor loading was .39). However, in this article, we report on findings related to Questions 1 through 7 only: data from Question 8 were excluded from this analysis as they were not considered directly relevant to our study focus on implementation approaches. Data from Question 9 were excluded as this open-ended question garnered negligible response.

Survey Administration

The survey was mailed, along with an explanatory cover letter, to DOCs of all LTC facilities in Ontario that were not involved in the pilot survey (n = 543) in November 2005. A listing of LTC homes and DOCs was provided by the Ontario Ministry of Health and Long-Term Care (MOHLTC). DOCs were asked to complete and return their surveys via postal mail in a supplied self-addressed envelope. Each responding facility was entered into a draw to win an all-expense-paid five-day session for two facility staff members to attend the Registered Nursing Association of Ontario's Summer 2006 Best Practice Guideline Institute.

Following a modified Dillman method (1978), a reminder card was sent two weeks after the first survey mailing, thanking those who had completed the survey for doing so and reminding those who had yet to complete the survey to do so. In January 2006, copies of the survey and explanatory letters were sent to DOCs who had yet to complete a survey. A final reminder card was sent in February 2006. Thereafter, we engaged a research assistant to follow up with non-respondents by telephone to encourage them to complete the survey. We concluded data collection in late February 2006.

Inclusion of Administrative Data

The organizational characteristics identified as important to organizational learning, innovation, knowledge application and learning capacity, and, in particular, to operating in the LTC industry in Ontario, were derived separately and merged with the survey data prior to analysis. We used secondary data available to us from the Canadian Healthcare Association's 2005 *Guide to Canadian Healthcare Facilities* for the facility characteristic *size* (categories as described above) and *chain* membership (chain, non-chain). Further, *ownership* (for-profit, not-for-profit, and government) and *accreditation* status (accredited, not accredited) was ascertained using a facility listing provided by the Ontario MOHLTC and confirmed with a listing provided by the Ontario Long Term Care Association. Location was identified as *rural* or *urban* based on the Forward Sorting Area of a facility's postal code.

Analytical Strategy

We used logistic regression to examine the relationship between protocol use/non-use and organizational

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characteristics. For questions relating to care protocol implementation approaches, we examined differences in rank responses by groups, based on the same set of organizational characteristics, using non-parametric methods. We used Mann-Whitney U tests to examine differences in survey question responses across three of the organizational characteristics – location (rural, urban), ownership (chain, non-chain), and accreditation (accredited, not accredited). We used Kruskal-Wallis one-way analysis of variance by ranks to test for differences in rank responses by ownership (independent for-profit, not-for-profit, government) and by nursing home facility size (small: < 50 beds; medium: 50 to 149 beds; large: ≥ 150 beds). IBM SPSS software was used for all analyses.

Ethics Approval

The study protocol was approved by the University of Toronto's Ethics Review Board, Health Services I Committee, prior to initiating the overall program of research in May 2003.

Findings

Respondents

We achieved a response rate of 72 per cent; 392 surveys were completed and returned. Facility-level characteristics of returned surveys reflected the composition of the LTC industry at the time: 76 per cent were located in urban areas; 43 per cent were chain-owned homes; 19 per cent were non-profit homes, 64 per cent were for-profit homes, while 17 per cent were government-operated homes; 33 per cent were large facilities, 61 per cent were medium-sized facilities, and 6 per cent were small facilities; and 66 per cent were accredited while 34 per cent were not accredited.

Reported Protocol Usage and Stages of Implementation

The first question in the survey queried the extent to which, for the six clinical issues, care protocols were being used or were under consideration for use. The only significant difference in reported protocol use and context we observed related to the clinical issue of *management of incontinence*, where the odds of using a care protocol for incontinence management was greater among accredited nursing homes compared to homes that were not accredited ($\beta = .69$, $p = .02$).

For each clinical issue for which respondents indicated there was a protocol in use or under consideration, DOCs were asked to identify the stage of implementation. Figure 1 summarizes responses to this survey question and shows that implementation was advanced for clinical issues relating to skin care, with up to three quarters of the homes reported as being at the "implementation" stage or beyond for preventative skin care (75%) and wound/ulcer care (69%). Protocols for restraint use were at the implementation or later stages for 65 per cent of nursing home respondents. Sixty per cent of homes reported protocols at the implementation or later stages for management of difficult behaviours. In contrast, the majority of respondents (57%) reported protocols for management of incontinence at earlier stages, predominantly at the "planning and discussion stage". All respondents reporting use of protocols for antimicrobial

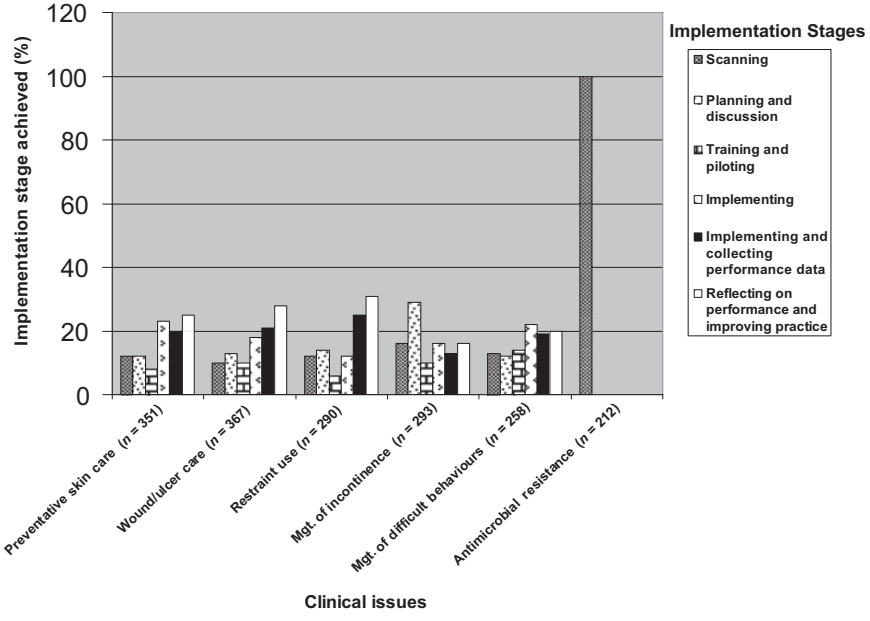

Figure 1: Reported stages of care protocol implementation by clinical issue

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resistance indicated that they were in the "scanning" stages of protocol implementation.

Protocol Implementation Processes

The remaining survey questions (Questions 3 through 7) queried specific aspects of care protocol implementation in LTC homes based on the responding DOCs' general experiences with care protocol implementation in their homes. Responses may therefore reflect care protocol implementation experiences that extend beyond the six clinical issues identified in the survey; however, they are reflective of the implementation approaches used in the LTC homes that respondents represented.

Motivations for care protocol use/selection are summarized in Table 1, Section A. Items are presented in descending order by mean score. The three primary motivations for care protocol selection related to a belief in continuous improvement, a belief in evidence-based care, and a desire to standardize care practices.

The only significant differences detected in the ranking of responses regarding motivations for protocol use were by ownership. Responses regarding the *belief in continuous improvement of resident care* were ranked higher among for-profit homes compared to not-for-profit homes ($p < .05$, Kruskal-Wallis test), and higher among government-operated homes than not-for-profit homes ($p < .05$, Kruskal-Wallis test). The responses of for-profit homes were ranked higher than those of not-for-profit homes with respect to the question regarding head office involvement ("We are instructed to implement care protocols by head office or chain headquarters") in protocol implementation ($p < .001$, Kruskal-Wallis test).

Respondents were asked to describe how selection decisions were made in their nursing homes. The three most highly ranked responses were indicative of staff participation in care protocol selection decisions (see Table 1, Section B). Respondents from larger nursing homes reported that decision making as entailing management selection and staff notification ("Our management selects CPGs or protocols and notifies staff of their decisions"), significantly more so than respondents from medium-sized and small homes

Table 1: Care protocol selection in LTC homes (*n* = 392)

A. Selection of care protocols is influenced or motivated by this item:	**Mean Score**	**Standard Deviation**	**n (%Valid)**
1 = *Never influential*; 2 = *Sometimes influential*; 3 = *Influential*; 4 = *Often influential*; 5 = *Always influential*			
We believe in continuous improvement of resident care	4.78	0.603	389 (99.2)
We believe in evidence-based care	4.48	0.806	388 (99.0)
We want to standardize care practices across our facility	4.40	0.818	389 (99.2)
Our objectives around care practices can be met by standardized care protocols	4.29	1.037	382 (97.4)
Reputation for high quality is achieved in part with use of the most up-to-date care protocols	4.21	0.958	387 (98.7)
We want to be viewed as an innovative facility in a competitive market	4.19	1.072	386 (98.5)
Clinical issues in need of improvement can be achieved through the use of care protocols	4.05	1.075	384 (98.0)
Head office or chain headquarters instructs us to use care protocols	3.95	2.250	333 (85.0)
Staff members who attend conferences promote the use of care protocols back at our facility	3.86	1.084	387 (98.7)
We use accreditation standards for long-term care	3.72	1.385	383 (97.7)
We reduce costs by using care protocols	3.69	1.179	385 (98.2)
Our compliance advisor suggests using care protocols to achieve compliance	3.67	1.411	376 (95.9)
Other local facilities with a reputation for high-quality care rely on care protocols, and we thought we would try them	2.89	1.916	367 (93.6)
B. Protocol selection decisions are made this way:	**Mean Score**	**Standard Deviation**	**n (%Valid)**
1 = *Never*; 2 = *Sometimes*; 3 = *About half of the time*; 4 = *Most of the time*; 5 = *Always*			
Once a protocol is selected by management, our staff participate in planning the protocol's implementation	3.48	1.275	386 (98.5)
Our management use staff input on the alternative protocols to select one	3.39	1.343	384 (98.0)
Our management ask staff to identify care protocols to address a clinical issue	3.23	1.394	383 (97.7)
A "champion" (a designated leader) is selected for a clinical area and he/she recommends a particular care protocol	3.03	1.703	377 (96.1)
Our management selects clinical practice guidelines (CPGs) or protocols and notifies staff of their decisions	2.98	1.639	380 (96.9)
We are instructed to implement care protocols by head office or chain headquarters	2.97	2.086	363 (92.6)
We have a "quality improvement" committee that is responsible for selection of care protocols	2.95	1.746	379 (96.6)

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($p < .01$, Kruskal-Wallis test); no other significant differences in responses by organizational characteristics were found relating to the questions of "how" and "who".

Table 2 summarizes responses to questions relating to resources relied upon for protocol implementation. Respondents indicated the importance of various sources of information for protocol implementation, and indicated the chief means by which staff is trained and educated for protocol implementation. Sources of information and types of training/education are presented in descending order by mean score. No significant differences in responses by organizational characteristic were found relating to the sources of implementation information referred to (see Table 2, Section A).

Identical patterns of training and education were reported for regulated staff (e.g., registered nurses and registered practical nurses) and unregulated staff (e.g., health care aides, personal support workers); therefore, only responses relating to regulated staff training and education are provided in Table 2, Section B. Rank responses of for-profit homes were significantly higher than government-operated homes with respect to the extent to which in-service education ($p < .01$) and conferences ($p < .01$) were used to inform and educate regulated staff of new care protocols. Not-for-profit homes' rank responses were significantly higher than government-operated homes' rank responses regarding the use of conferences to educate regulated staff regarding new care protocols ($p < .001$).

Finally, DOCs were asked to rate the importance of a number of factors to the overall success of implementing care protocols. Table 3 summarizes the importance ratings across all factors potentially contributing to the overall success of protocol implementation. The factors are once again listed in descending order of importance, by mean score. Rank responses of for-profit home respondents were significantly higher than those of government-operated-home respondents regarding the importance of champions to the overall success of implementing care protocols ($p < .01$). For-profit homes' rank responses were significantly higher than not-for-profit homes' responses regarding the importance of staff experience levels to the success of care protocol implementation ($p < .01$).

Discussion

Our primary objective was to better understand how care protocols are implemented in LTC homes operating in Ontario, and what processes, structural mechanisms, and knowledge sources are relevant to their implementation. In addition, we were interested in examining the influence of organizational context on approaches to implementation.

Table 2: Resources for care protocol implementation in LTC homes (*n* = 392)

A. This information source for care protocol implementation is:	**Mean Score**	**Standard Deviation**	**n (%Valid)**
1 = *Not important*; 2 = *Somewhat important*; 3 = *Important*; 4 = *Very important*; 5 = *Essential*			
Expert consultants (e.g., enterostomal therapy specialists, psychogeriatric resource consultants, public health nurses)	4.13	0.791	392 (100)
External organization that developed the care protocol (e.g., the RNAO)	4.10	0.828	391 (99.7)
Internal staff with expertise in the clinical issue addressed by the protocol	3.93	0.895	389 (99.2)
Our compliance advisor	3.44	1.143	390 (99.5)
Internet and literature searches	3.43	1.018	391 (99.7)
Suppliers (e.g., wound care and incontinence product manufacturers)	3.35	1.001	392 (100)
Contacts from other LTC facilities using the same care protocol	3.32	1.013	391 (99.7)
B. Staff training and education relating to care protocol implementation is:	**Mean Score**	**Standard Deviation**	**n (%Valid)**
1 = *Not done this way*; 2 = *Sometimes done this way*; 3 = *Done this way half of the time*; 4 = *Mostly done this way*; 5 = *Always done this way*			
Host in-services for the new care protocol	4.52	1.249	373 (95.2)
Use training materials (e.g., pocket cards, flow sheets, videos, policies and procedures, manuals)	3.84	1.522	373 (95.2)
Use external experts for in-services (e.g., enterostomal therapy specialists, psychogeriatric resource consultants, public health nurses, etc.)	3.70	1.472	374 (95.6)
Appoint a mentor or resource person for staff to consult regarding the protocol(s)	3.68	1.637	374 (95.5)
Use reminder and feedback techniques to inform staff about their performance	3.58	1.623	373 (95.2)
Send staff to conferences	3.22	1.554	374 (95.5)

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Table 3: Factors important to successful care protocol implementation in LTC homes (*n* = 392)

How important is ech of the following factors to the overall success of care protocol implementation?	Mean Score	Standard Deviation	n (%Valid)
1 = *Not important*; 2 = *Somewhat important*; 3 = *Important*; 4 = *Very important*; 5 = *Essential*			
Management ensures adequate resources available for implementing new/changed protocols	4.54	0.718	390 (99.5)
Management communicates reasons to staff for introducing new protocols/changing existing protocols	4.53	0.756	389 (99.2)
Staff are provided time to attend in-services and to practice new knowledge	4.28	0.818	390 (99.5)
Staff are given an opportunity to discuss new protocols with management and to provide input into changes made to care practices and associated practice tools	4.19	0.822	390 (99.5)
Staff can clearly "see" a connection between the new protocol and improved resident outcomes	4.18	0.804	390 (99.5)
Implementing new/changed protocols is seen to result in some real benefit to the staff themselves	4.10	0.886	389 (99.2)
The *literacy levels* of staff are taken into account when developing implementation aids	4.09	0.967	390 (99.5)
The *experience levels* of staff are taken into account when developing implementation aids	4.06	0.928	390 (99.5)
Collaboration and sharing of experiences with new protocol is encouraged among staff/units	4.02	0.812	390 (99.5)
A written implementation plan is developed to guide the protocol implementation	4.02	1.001	389 (99.2)
A staff member is identified as a "champion" to guide the protocol implementation process	3.96	1.027	389 (99.2)
Data are collected on the impact of protocol and reported regularly to staff	3.93	0.931	389 (99.2)
"Champions" are given adequate protected time and other resources to implement care protocols	3.93	1.044	389 (99.2)
Care protocols are assessed for their compatibility or similarity to others already in place	3.92	0.921	389 (99.2)
"Champions" have prior experience and success with care protocol implementation	3.85	1.076	388 (99)
"Champions" are accessible to staff 24/7	3.21	1.286	388 (99.0)

To better clarify our study context, note that the first two questions of our survey inventoried the use of care protocols in participating homes across the six clinical issues. Skin care-related protocols, and protocols relating to restraint use and management of difficult behaviours, were at more advanced stages of implementation compared to protocols relating to incontinence management and antimicrobial resistance. Likely, this finding reflected differences in the availability and maturity of guidelines at the time the survey was administered because skin care guidelines predated guidelines relating to other clinical areas by several years.

The remainder of the survey focused on our gaining insights into approaches to care protocol implementation taken by Ontario nursing homes. Here, we discuss the practical implications of our findings for nursing home administrators and managers who are desirous of introducing practice change through care protocol implementation.

Motivations for Protocol Use

Nursing homes are motivated to select and use care protocols for a variety of reasons. The majority of respondents expressed motivations founded on their beliefs in continuous improvement and in evidence-based care. Other homes were influenced by factors that were more operational in nature, including a desire to standardize care across their facility. Additional factors that were frequently cited were strategic in nature. Respondents selected care protocols in order to meet objectives around care practices, for example, or because they were concerned for their reputations as facilities delivering high-quality care, or to serve their interest in being viewed as innovative in the marketplace.

Approaches to Protocol Selection

Of the different approaches to protocol selection that we examined in this study, most respondents espoused a participative approach. Here, management involved staff in some way in protocol selection, whether through inviting staff participation in the implementation planning stage, soliciting staff input regarding alternative protocols, or asking staff or a representative "champion" to identify protocols.

Sources of Implementation Information

Respondents indicated a high reliance upon external and internal experts for protocol implementation. The most highly relied upon external sources included consultants with specific clinical expertise and protocol developers like the Registered Nurses Association of Ontario (RNAO). Internal staff members possessing expertise in relevant clinical areas were also referred to as among the most important sources of implementation information, as were compliance advisors (agents of oversight).

Preparing for Implementation – Training and Educating Staff

The dominant means of training and educating both regulated and unregulated staff was through in-service education, in which experts external to the

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organization were engaged to discuss the application-specific care protocols. This high reliance upon external sources for implementation information speaks generally to the lack of in-house experience relating to the application of care protocols in LTC settings at the time the survey was conducted.

The Influence of Context

We observed no differences in reported care protocol usage across the six clinical issues as a function of the organizational characteristics we studied, with the exception of a reported higher use of incontinence management protocols among accredited homes where incontinence management programs were required. Incontinence management programs are more resource-intensive than alternative approaches to incontinence (Eaton, 2000), which explains why homes without accreditation status at the time of the study were unlikely to report incontinence management protocol use.

Of the five organizational-contextual characteristics we examined, the significant differences we detected in approaches to implementation arose chiefly as a consequence of differences in organizational ownership. While we noted differences in approaches to protocol selection decisions by facility size, we did not observe evidence of the purported benefits of size (affording more resources that might be applied to learning), of chain ownership (structural capabilities relating to standardization of practices), or of the dense micro-environments of urban settings that are generally thought to afford more resources. The significant differences we observed are summarized as follows:

Differences in Motivation. A belief in continuous improvement for resident care was higher among for-profit respondents and government-operated homes than not-for-profit homes. To the extent that government-operated homes are more like not-for-profit homes in terms of their missions and philosophy, this finding is consistent with theory (O'Neill, Harrington, Kitchener, & Saliba, 2003). However, our finding relating to for-profits compared with not-for-profits is seemingly at odds with theory, where organizations pursuing non-profit missions are portrayed as having performance improvement imperatives and are less concerned with the cost efficiencies that concern for-profits. One possible explanation is that continuous improvement of resident care is seen as a means of improving efficiencies by for-profit homes, and the motivations are philosophically and operationally linked from the perspective of our for-profit respondents.

Differences in Approaches to Protocol Selection. Respondents from larger nursing homes reported significantly more autocratic decision-making approaches than medium-sized and small nursing homes. This may be necessitated due to the challenges of managing a larger facility, and a concomitantly larger staff.

Differences in Preparation for Implementation. For-profit homes relied significantly more on external sources of training and education – expert-led in-service education, and conferences – than did government-operated homes in Ontario, and not-for-profit homes relied more on conferences than did government-operated homes. This may be indicative of particularly resource-constrained environments of government-operated homes – or, it may simply be indicative of different philosophies regarding staff preparation.

Practice Implications

Our findings relating to implementation success factors are those most directly relevant to practice. Factors that respondents identified as important to implementation success in this study are similar to those found in prior studies situated in long-term care and in other health care settings (see Dijkstra et al., 2006; Emmons et al., 2012; Estabrooks, Midodzi, Cummings, & Wallin, 2007). Our respondents distinguished several factors, described next, as very important or essential to protocol implementation success in nursing home settings.

Adequately *resourcing for implementation* was identified as essential or very important to implementation success by most respondents. A related factor, the *provision of time* (a resource) to receive training and to learn experientially, was also among the factors most frequently cited as very important or essential to implementation success. It is important, then, for management to commit adequate and appropriate resources (Emmons et al., 2012), including protected time, against the implementation-related activities required of staff. One of the chief resources identified for implementation information, and for training and educating staff, was external experts who could equip staff with adequate and contemporary knowledge regarding care protocols and general implementation intelligence. Our respondents also relied on appointing staff as internal experts for specific clinical areas. Situating the knowledge regarding a clinical issue/protocol with one staff member strikes us as efficient – and may be necessary due to the general scarcity of available training and education resources in this sector – but this also exposes an organization to risk in the event that the staff member leaves the organization.

The *contextualization* of impending practice change was regarded as important, whereby the need or rationale for change is communicated transparently to those who will be charged with implementing change. Beyond the general importance of achieving buy-in among implementers, and overcoming resistance to change – both classic aspects of change management theory (Kotter, 1996) – contextualization is likely to be particularly important in organizations like LTC homes where resources are scarce, and practice change demands the energies of staff who are already taxed for time. Under these conditions, contextualization may be necessary to compel or

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promote change. The importance of contextualization relates to our findings regarding motivations for care protocol use. Regardless of the motivation that drives the decision to use a care protocol, change management theory suggests that it is important for leaders to clearly communicate motivations to those charged with implementation (Djikstra et al., 2006), and to those likely to be impacted by the change in care practice, in order to facilitate buy-in.

Ensuring that staff are afforded *opportunities to provide input* into protocol implementation processes, and are encouraged to do so, was also identified as highly important to implementation success. The change management literature describes this as one means of effectively enhancing buy-in and feelings of ownership or investment; it also signals management's commitment to supporting the activities of those charged with orchestrating change (Kotter, 1996). Approaches to guideline development and implementation that promote a sense of ownership among staff have been shown to be positively associated with outcomes measures in acute and primary care settings (Dijkstra et al., 2006). We observed three different approaches to protocol selection in this study; however, the hybrid-participative approach – and the approach most respondents referred to as that used in their homes – is one that affords the opportunities to offer input into implementation.

Demonstrable and unambiguous *connections between practice change and outcomes*, on the part of staff involved in implementation, was highlighted as very important or essential to implementation success. This factor relates to observability, a concept discussed by Rogers (1995) and others (e.g., Szulanski, 1996, 2000) that highlights the importance of being able to confidently draw causal links between the application of an innovation and outcomes. Observability is facilitated by putting in place evaluation mechanisms and by developing indicators a priori that will provide staff with the ability to reliably monitor and evaluate the protocol's impact over time. Managers are advised, therefore, to allocate resources for evaluation planning – and for data collection, analysis, and reporting – when developing protocol implementation plans.

Related to observability, *underscoring the benefits of practice change for both residents and staff* – time efficiencies or workload reductions, for example – was highlighted as very important or essential to implementation success. In a prior study, we found that care protocols that led to improved resident outcomes and reduced workload for staff were viewed more favourably than protocols that afforded benefits exclusively to residents (Berta et al., 2010). In the interests of enhancing uptake and participation, managers and administrators should consider the potential benefits of protocols, prior to their implementation, vis-à-vis the staff who will use them and then communicate the benefits to staff prior to, and during, implementation.

Consideration of staff literacy levels and experience levels when developing implementation aids – described in the survey as including training sessions, tracking forms, flow sheets, and diagrams – was deemed very important by respondents. This corroborates findings of prior work that highlighted low literacy among direct care staff, the value of experienced staff, and the difficulty inherent in retaining experienced staff as factors that impact knowledge application efforts and influence the relationship between operational efficiency and care quality in LTC settings (Almeida & Kogut, 1999; Berta et al., 2010). The importance given to these factors (literacy and experience levels) in the present study underscores the need to resource adequately, and appropriately, for preparing staff to implement new – or change existing – care practices.

Collaboration among staff/units involving the sharing of implementation experiences regarding new protocols was regarded as very important or essential to overall implementation success by most respondents. In organizations where resources are constrained, like LTC homes, collaboration may serve as a means to maximize the value of relatively few learning opportunities. It is important, therefore, for managers and administrators to provide opportunities, and permit the allocation of staff time, to exchange information and collaborate: for example, through internal presentations or in less-formal venues designed to encourage sharing of implementation experiences and reports of progress.

Finally, the study respondents felt that the *development of implementation aids*, including training and education, should be commensurate with the experience levels of staff.

Future Research

The ownership-related differences that we observed related to motivations for protocol use, approaches to protocol selection, and to approaches to staff preparation for care protocol implementation. The long-term implications of these differences for protocol-related sustainability and performance differences merit further exploration. For example, do those protocols selected and implemented through more inclusive/participative processes afford superior performance and longevity? If so, should larger organizations try to replicate the processes developed by their smaller counterparts?

Beyond ownership-related differences, questions of sustainability are highly relevant to the area of guideline implementation and to knowledge application generally. Recent work by Stirman et al. (2012) and Greenhalgh et al. (2004) has reinforced the importance of studying the long-term sustainability of innovations.

Study Limitations

This study had five limitations. First, it was a cross-sectional study, and we were able only to demonstrate significant relationships between variables, not causality. Further, we chose to administer our survey only to DOCs. Acknowledging that the experiences and views of direct-care staff regarding care protocol implementation approaches – in particular, factors that

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influence the success of implementation initiatives at the working level – would have provided more and possibly divergent information regarding protocol implementation approaches. Third, while cross-sectional studies such as this serve to inform some aspects of knowledge translation (Graham & Tetroe, 2007), knowledge translation is most appropriately examined through longitudinal studies that afford insights into the dynamism of knowledge, and of processes relating to knowledge uptake, implementation, and sustainability (Stirman et al., 2012). Fourth, while health information technology (HIT) is now being applied usefully to facilitate protocol implementation in nursing homes and to realize improvements in quality of care (Cherry, Ford, & Peterson, 2011), we did not specifically query on the use of HIT in our survey. Finally, and arguably most significantly, this study did not address the question of how (divergent) protocol implementation processes influenced the quality of resident care.

Conclusions

Implementation science research on guideline use has led to the development of frameworks to guide implementation (see Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso, 2002; Graham et al., 2005; Kitson, Harvey, & McCormack, 1998; Rycroft-Malone et al., 2002; Rycroft-Malone et al., 2004); comprehensive reviews of guideline dissemination strategies (Graham, Harrison, & Brouwers, 2003; Grimshaw et al., 2004a); and a number of initiatives that seek to identify factors that influence the use of research in clinical practice (see *Nursing Research* July/August 2007 Supplement).

The work in this study has been facilitated by the research of others to systematically review what is known regarding innovation diffusion, innovative capacity, and absorptive capacity in health services organizations (Greenhalgh et al., 2004) and to augment the promising work on absorptive capacity (Lewin et al., 2011). Our study complements these efforts, offering detailed insights into actual processes employed in nursing homes intended to facilitate the detection, selection/consideration, and implementation of care protocols, along with associated approaches to staff preparation intended to improve resident care. A number of the processes, structural mechanisms, and knowledge sources we have discussed here are resonant with the concept of absorptive capacity, and they can be generalized to other health care settings.

Notes

[1] In LTC institutional settings, practice standards are referred to variously as practice guidelines, standards of care, standardized care practices, clinical practice guidelines (CPGs), or care protocols – with "care protocols" being the most commonly used term among LTC practitioners, and which is also the most inclusive.

[2] Health care is a highly regulated industry. Two important aspects of a nursing home's micro-environment are regulation and accreditation. The LTC sector is stringently regulated (Hollander, 1994; Grunier & Mor, 2008), and a vital aspect of an LTC home's operations is legitimacy and resources secured through adherence to the demands of key stakeholders, including government regulators. Resources are important to innovativeness (Greenhalgh et al., 2004) and absorptive capacity (Caccia-Bava et al., 2006). In Ontario, the Ministry of Health and Long-term Care (MOHLTC) regulates and inspects all nursing homes – activities that are premised on the Long-Term Care Homes Act, 2007 – and it is responsible for the granting of nursing home licenses. While all Ontario nursing homes must be licensed, most are also accredited by Accreditation Canada. Accreditation Canada is a non-government entity that evaluates nursing homes, and accreditation is voluntary.

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