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Barriers and Facilitators to Implementing Delirium Rounds in a Clinical Trial Across Three Diverse Hospital Settings

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Abstract

Purpose—Delirium occurs in over half of hospitalized older adults with dementia, substantially worsening outcomes. The use of multiple strategies and a local opinion leader, unit champion, has cumulative and lasting effects compared to single-strategy interventions. The purpose of this paper is to describe the early barriers and facilitators to rounding with unit champions in a cluster randomized clinical trial in year two of a five-year trial (5R01NR011042-02).

Methods—This is a mixed-methods study nested within an ongoing multi-site cluster-randomized, controlled clinical trial.

Results—Descriptive and comparative statistics were collected on n=192 nursing rounds. Qualitative data was thematically analyzed. On average rounds lasted 25.54 minutes (SD=13.18) and were conducted with the unit champion 64% of the time.

Implications—This is one of the first studies to systematically address quantitative and qualitative barriers and facilitators to nurse-led delirium rounds, demonstrating the gradual adoption of an intervention in diverse clinical settings.

Keywords

delirium; evidence-based practice; acute care

Delirium, an acute and fluctuating state of confusion, occurs in over half of hospitalized older adults with dementia, substantially worsening outcomes in a population already burdened by cognitive and functional decline (Fick, Agostini, & Inouye, 2002). Delirium superimposed on dementia (DSD) is a critical public health problem leading to increased mortality (Bellelli et al., 2007; Fong et al., 2012), increased costs (Fick, Kolanowski, Waller, & Inouye, 2005; Leslie, Marcantonio, Zhang, Leo-Summers, & Inouye, 2008), nursing home placement, early re-hospitalization, and functional decline (Cole, McCusker, Dendukuri, & Han, 2002). Nurse led delirium interventions have resulted in reducing the

incidence and severity of delirium in hospitalized older adults (Marcantonio, Flacker, Wright, & Resnick, 2001; Milisen et al., 2001). Nurses spend considerable time with patients and possess the skills necessary for the detection and management of delirium; therefore, it is critical to facilitate nurse participation in the prevention, detection, and management of delirium in older adults with dementia.

Nurse rounds led by an advance practice nurse or unit champion for geriatric patients as high risk for DSD may be more effective than usual care approaches. Rounds, also known as grand rounds, have occurred in academic medical centers for a number of years. Typically these are physician-directed rounds, with attendance by interdisciplinary staff, and include discussion of the plan of care, medications, pathophysiology, and diagnostic test results (Stickrath, et al., 2013). Nurse-led rounds have evolved as a mechanism to provide education and to improve patient care (Mahanes, Quatrara & Shaw, 2013; Aitken, Burmeister, Clayton, Dalais & Gardner, 2011). To facilitate nurse rounds, an effective strategy is the use of an advance practice nurse or a unit champion (Mahanes, et al., 2013.

Unit champions are local or external opinion leaders who are seen by others as trustworthy and who can persuade others to implement evidence-based practice (Doumit, Gattellari, Grimshaw, & O'Brien, 2007). Examples of nursing opinion leaders, also called 'resource nurses', include skin or wound care unit champions, geriatric resource nurses, and pain resource nurses (Campbell, 2008; Holley, McMillan, Hagan, Palacios, & Rosenberg, 2005; Horstman et al., 2006; Mezey et al., 2004; Tully, Ganson, Savage, Banez, & Zarins, 2007). The effectiveness of using unit champions in prior nursing programs has been evaluated primarily by before-after designs and none have assessed effectiveness for delirium (Campbell, 2008; Holley, et al., 2005; Horstman, et al., 2006; Mezey, et al., 2004; Tully, et al., 2007). Systematic reviews of randomized controlled trials in physician groups show that using opinion leaders appears to enhance compliance or adherence with a desired practice, but similar to other strategies, demonstrate only moderate effects (Borbas, Morris, McLaughlin, Asinger, & Gobel, 2000; Doumit, et al., 2007; Oxman, Thomson, Davis, & Haynes, 1995). Differences in results are primarily due to variation in techniques used to identify, recruit, and train opinion leaders (Doumit, et al., 2007; Kitson, Harvey, & McCormack, 1998; Valente & Pumpuang, 2007).

Research on nurse-led rounds and unit champions commonly occurs in large, academic medical centers (Stickrath, et al., 2013), yet older adults receive care in regional or community medical centers. The purpose of this study is: 1) to determine if there are differences in rounds across three diverse settings with regards to number and staff attendance, and 2) to assess the barriers and facilitators to conducting nurse led rounds as perceived by the nurse interventionist during the first two years of a five-year randomized, controlled clinical trial.

Methods

The focus of this paper is on advance practice nurse (APN) led delirium rounds. A description of rounds within END-DSD is provided, as is a description of the unit champion who is critical component of rounds. The current study is a descriptive, correlational study utilizing quantitative and qualitative data to assess barriers and facilitators to unit champions and rounding. The study protocol was reviewed and approved by each of the sites' institutional review boards (IRB) as well as the university IRB.

Intervention

The current study is a descriptive, correlational study utilizing mixed methods to assess barriers and facilitators to rounds and unit champions; the present study is nested within an

ongoing 5-year, cluster-randomized, multi-site clinical trial of multidimensional strategies to improve Early Nurse Detection of Delirium Superimposed on Dementia (END-DSD). All patients enrolled in the clinical trial have a baseline of dementia. The multidimensional strategies within END-DSD include: 1) nursing education; 2) computerized decision support (study computer screens) embedded within the electronic health record; 3) a designated unit delirium champion; and 4) weekly rounding sessions with the designated delirium champion. Instructional handouts, such as laminated pocket cards with delirium definition, risk factors, and management strategies are used during rounds.

Rounds

Rounds occur at least one time per week and the unit champion, if scheduled, is expected to attend. The goal is for rounds take place on every shift once a week, for a total of three rounds per week. Rounding participants, in addition to the unit champion, registered nurse, and research study staff member, may include, but are not limited to: physicians, pharmacists, social workers, physical therapists, nursing assistants, and students of any discipline. Rounding structure varied by site, but typically included review of delirium cases as well as geriatric issues relevant to practice, such as falls, dehydration/malnutrition, skin breakdown prevention, safety, and ambulation.

The rounds are facilitated by one of seven research staff interventionists. All are employed and trained by the parent study, END-DSD, and are board certified APNs by the American Nurses Credentialing Center (5 geriatric clinical nurse specialists and 2 geriatric nurse practitioners). The APNs are not hospital employees. The role of the research staff interventionist is to facilitate treatment fidelity, ensuring that rounds occur even if the unit champion is not present or is unable to participate in rounds due. The research staff interventionist partners with the unit champion to facilitate nurse-led delirium rounds.

Unit Champion

The unit champion is a direct care, registered nurse who expressed interest in geriatrics and serving in the role with at least one year of nursing experience in the hospital and is able to commit time each week to the role. The responsibilities of the unit champion include the following: 1) rounding with intervention staff at least one time per week (rounds are scheduled during their usual scheduled shifts to facilitate this), 2) co-leading an educational topic in the multi-site study newsletter, 3) informing the intervention team of any identified staff concerns or educational needs, and 4) facilitating peer-to-peer communication regarding geriatric issues. This unit champion approach supported by studies showing that staff behavior change occurs with interventions that are facilitated by performance feedback and engagement of nurses and other healthcare professionals (Doran & Sidani, 2007; Kitson et al., 2008).

Setting

Rounding sessions (N=192) were conducted between September 2010 and November 2011, usually occurring weekly and representing all shifts. The three clinical sites included an academic medical center [1], a regional trauma center [2], and a regional medical center [3]. There were unequal numbers of rounds across sites because they were started in a staggered fashion: 80 at the academic and regional medical centers and 32 at the regional trauma center. The academic medical center has 916 licensed beds, is located in the southeastern portion of the United States, and affiliated with a private academic institution. The regional trauma center is a 433-bed facility, not affiliated with an academic institution. The regional medical center has 260 licensed beds, is situated in central Pennsylvania and is associated with a larger medical center and a research-intensive university.

Sample

The sample included descriptive data on 192 APN-led nurse rounds. Participants in rounds were acute care staff, such as registered nurses, licensed practical nurses, [certified] nursing assistants, and other interdisciplinary staff. Mean number of staff participating in rounds across sites was 2.77 (SD=1.73) (Table 1).

Measures

A study form was completed by the research staff interventionist to record data on every rounding session with both quantitative and qualitative (open-ended) questions regarding barriers and facilitators to rounding. Quantitative data collected included who rounded (disciplines and type of licensed and unlicensed staff), how long rounds lasted, and what was discussed during rounds. The barriers and facilitators to rounding for each session were measured by a combination of check-off items (e.g., “too busy”) and open-ended items. Thus, the qualitative data represents impressions of the research staff interventionist regarding rounds.

Data Analysis

For quantitative data, chi-square for categorical variables and one-way ANOVA models for continuous variables were used to examine differences across sites. A Tukey-Kramer multiple comparison procedure was used to examine post hoc pair-wise differences across sites. All statistical analyses were performed using SAS Version 9.2. Statistical significance was assessed using an alpha level of 0.05. Qualitative themes were determined using previously described methods by Morgan and Krueger (1998). Three investigators (D.M.F., A.M.Y., J.M.) separately read the line-by-line items and developed codes. The codes were then brought to several group meetings and developed into higher order themes until thematic saturation was reached.

Results

Quantitative Results

Quantitative data, as provided by study nurse interventionist on the rounding form, was analyzed across settings for differences in the following: total number of staff participating in rounds, types of nursing staff participating in rounds, and minutes engaged in rounds (Table 1). At the academic medical center, rounds were more likely to be composed of registered nurses (p=<0.0001), while the regional medical center had significantly more nursing assistants participating in rounds (p=0.01). There was no significant difference in terms of amount of time spent in rounds across the sites.

Across all sites, rounds were conducted with a unit champion 64% of the time. Rounds at the academic medical center used the END-DSD intervention computer screens more often when compared to the other two facilities (p=<0.001) (Table 2). The only quantitative barrier to rounding that differed significantly between the three study sites was being busy on the unit (p=<0.01), this barrier was mentioned more frequently in the regional trauma center. Facilitators to rounds showed that having a nurse who is familiar with the study (p=<0.0001) was a facilitator more often for the academic (69%) and regional trauma (53%) centers compared to the regional medical center (22%).

Qualitative Results

Qualitative themes were identified from the narrative notes from the research staff interventionists from the three sites. Qualitative barriers fell into three major themes: “Busy on Unit”; “Lack of Awareness”; and “No Study Patients”. *Busy on Unit* was exemplified by

the following quote from study interventionist: “Nurses were very busy and despite delirium signs (and in chart) did not assess as delirium and not fully engaged in thinking about resolution”. This theme was prominent across the three sites due to patient acuity and demands placed on nursing staff to complete their assigned tasks with patient care. *Lack of Awareness* included both an absence of a sense of responsibility or role regarding delirium in hospitalized older adults with dementia and lack of awareness about the nursing rounds. Lack of awareness is captured by the following example from the study interventionist: “One staff member resistant due to lack of understanding of study- education provided” (October, 2010). This has improved during the course of the study and is less evident as a theme in later qualitative data: “‘Nurse very engaged and interested, did MMSE, put up patient interests on board, patient up in chair, initiated screens non-study patient” (December, 2011). *No Study Patients* was the final identified qualitative theme. In early phases of study implementation there was a lack of study patients, yet nursing staff still demonstrated interest in participating in rounds: “No patients in (study) but still interested in talking about [computer] screens …” (February, 2011). This is evidence of nursing engagement despite low-hospital census at times and a lack of patients enrolled in the study. Rounds occurring at a later date demonstrate that nurses were engaged and volunteered to discuss non-study patients who exhibited signs or symptoms of delirium, as evidenced on the nursing rounds forms: “Nurse wants to start turning on screens for more patients- she is pursuing this” (August, 2011).

Facilitators to rounds identified within the qualitative data included 3 major themes: “Interdisciplinary Nature”; “Prior Connections to the Unit”; and “Intrinsic Motivation and Engagement”. The *Interdisciplinary Nature* of the nursing rounds was considered a key facilitator. Interdisciplinary team members joining rounds across the three study sites included a geriatric pharmacist, nursing students, physicians, pharmacy students, dieticians, and social workers/case managers. Each interdisciplinary member shared his/her unique knowledge and skills during rounds: “Patient recovering from delirium so staff motivated to round. Pharmacist joined rounds, reviewed medications”. *Prior Connections to Unit* were exemplified by staff stating interest in the study and their willingness to participate. Two out of the three study sites have been used in prior research studies by the team, so relationships in these two sites were more established. At one of the sites [2], such relationships had not been established, taking longer to establish rounds and engage staff: “staff demonstrating little interest tonight, staff nurse not really engaged and unit champion at other end of unit very busy”. In contrast from another site [3], “Nurse identified two non-study patients to rounds on and we did MMSE on both patients, reviewed medications and discussed options with nurse”.

Intrinsic Motivation and Engagement was the final qualitative theme identified as a nursing round facilitator. This theme continues to evolve as evidenced by the nursing staff extending the interventions identified during nursing rounds and by nurses implementing the computer screens in patients exhibiting symptoms of dementia or delirium, but not enrolled in the study. Interest was also evidenced by motivation to use intervention materials and assessment tools: “Nurses identified (non-study) patients with confusion and were interested in doing Mini-Mental Status Examination”.

Discussion

The use of interprofessional rounds and advance practice nurses as unit champions has been effective in previous research to promote better outcomes for older adults across multiple settings (Bourbonniere et al., 2009; Capezuti, Taylor, Brown, Strothers Iii, & Ouslander, 2007; Krichbaum, Pearson, Savik, & Mueller, 2005). Unit champions have been demonstrated to be effective in promoting evidence-based care (Flodgren, 2011), yet little is

known about DSD. This preliminary work adds to that body of knowledge, demonstrating gradual adoption of an intervention across diverse acute care settings through the use of APN-led rounds and a unit champion. This is one of the first studies to systematically examine quantitative and qualitative barriers and facilitators. These early findings provide descriptive data; demonstrating similarities across organizational cultures and has the potential to help identify modifiable barriers to delirium rounds as well as how to strengthen facilitators of rounds.

Barriers identified in this preliminary study include time, lack of awareness, and not having enrolled study patients. Time is a barrier that is difficult to overcome and has previously been found to impact implementation of evidence-based practice within the acute-care setting (Hemsley, Balandin, & Worrall, 2012; Kocaman et al., 2010; Solomons & Spross, 2011). It is important to demonstrate the clinical and economic impact of such interventions to promote practice and policy changes given that delirium costs $38 to $152 billion annually. (Leslie et al., 2008). Calculation of cost of rounds was not within the scope of this preliminary project, but in future work it must be a consideration. Increasing nurse tasks or responsibilities for delirium care means that they must be given the time, resources, and support from institutional leadership, including unit and executive leadership. Another solution to the time barrier is to integrate the work of detection and management as closely as possible into the current context of care and break it into manageable chunks, for instance having a nurse assess attention as part of the initial shift assessment can take as little as 30 seconds (Kolanowski et al., 2012). These solutions must be part of the usual workflow and may be more easily accepted if it does not become an additional workload issue.

Though awareness of the study and of delirium and dementia in this setting improved over time, the threat of lack of awareness of delirium especially DSD as a high priority and revenue positive problem is real in the practice setting. We must understand the individual, cultural, and administrative factors for translating delirium best practices into everyday clinical practice. The theme of not having enough time may be a proxy for the issue of *whose responsibility of the detection and management of delirium?* This intervention demonstrated that nursing staff is willing to adopt new strategies to address delirium, but they are likely to be more successful if the responsibility is shared and valued by other disciplines. Another identified facilitator of intrinsic motivation and engagement found in this study may be related to their willingness to adopt best practices. Research needs to focus on the lasting effects, if any, of interventions and to examine how to further motivate disciplines to care about and take responsibility for delirium in acute care.

Facilitators to the adoption of nurse-led unit champion rounds include the interdisciplinary nature of rounding and prior connections. When implementing these types of interventions, including other elements such as including interdisciplinary colleagues may improve the outcomes of nursing rounds. Partnerships between clinical and academic settings have also been demonstrated to increase adoption of evidence-based care (Granger et al., 2012). This study adds that implementation can occur different types of acute care settings, with and without a strong research background or academic presence. Outcomes may be improved by building upon prior connections with the facility and with the community at large. This study found that relationships must be formed before implementing best practices in the hospital setting so that the staff trusts and cares about the problem and are actively engaged in solutions. Identification of appropriate unit champions who have a strong interest in gerontology and good relationships with nursing staff and administrative leadership within the facility are critical to the successful implementation of nurse led rounds.

The strengths of this study include the nested nature within a larger cluster-randomized clinical trial, the multi-site nature allowing comparisons across diverse populations and

nursing cultures, and the demonstration of improvement through the gradual adoption of the intervention by nursing staff at the three diverse sites. Feedback from the rounds process in an iterative fashion allowed the process of rounds to improve over time, demonstrating the value of such a qualitative process--providing a potential framework for future studies. Limitations include the uneven number of rounds across sites, limited early participation in rounds, and limited rich narrative data. Another major limitation is the lack of inter-rater reliability test for information gathered on the rounding form. A final limitation is that rounds were not often conducted at the patient's bedside, not allowing research staff, clinical staff, and the patient to interact, but this finding is consistent with other research. Despite these limitations, these results present some valuable lessons for future studies.

These preliminary results suggest areas for future research and inquiry. The purpose of the unit champion rounds is to facilitate adoption of evidence-based practice in caring for older adults with dementia and/or delirium, but the extent of uptake and adoption of the intervention by acute care nurses is unknown. The identification of barriers and facilitators can impact practice change and adoption (Capezuti et al., 207; Kitson et al., 2008). Additional areas for future research include the identification of environmental and cultural factors that hinder or facilitate delirium rounds and the use of an informal caregivers in the adoption of protocols for dementia and delirium (Rosenbloom-Brunton, Henneman, & Inouye, 2010), and translating the use of rounds for delirium across settings of care and in diverse organizational structures.

Randomized trials for delirium in persons with dementia are greatly needed and will have a significant clinical and economic impact if successful. Evidence-based nursing interventions appear to be critical to the detection and management of geriatric problems but have had non-significant results in past studies, thus understanding the barriers and facilitators to nurse engagement and rounding are critical to advancing the science of delirium and implementing current best practices into the acute care setting.

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Table 1

Comparison of Settings by Number and Type of Staff Participating and Minutes Engaged in Rounds

	Overall (n=192)		Academic Medical Center (n=80)		Regional Medical Center (n=32)		Regional Medical Center (n=80)		F-Value	p-Value
Variable	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***		
Number of Staff Participating	3	1.73	5	1,76	2	1.36	2	1.50	33.78	<0.01*
Number of RNs Participating	2	1.56	4	1.82	2	1.27	2	1.04	44.36	<0.01*
Number of LPNs Participating	0	0.37	0	0.42	0	0.37	0	0.34	2.16	0.12
Number of NA/CNAs Participating	0	0.39	0	0.49	0	.025	0	0.44	4.61	0.01*
Minutes Engaged in Rounds	25.24	13.18	23.07	6.67	21.21	12.68	26.15	15.51	0.58	0.56

Note: Mean Numbers of Staff and Patients Participating, Interviewed, and Discussed were Rounded to the Nearest Whole Number for Meaningfulness;

* Denotes Significant Findings;

SD=Standard Deviation; RN=Registered Nurse; LPN=Licensed Practical Nurse; CNA= Certified Nursing Assistant

Table 2

Comparisons of Settings by Unit Round Characteristics, Barriers, and Facilitators

Variable	Level	Overall		Academic Medical Center (n=80)		Regional Trauma Center (n=32)		Regional Medical Center (n=80)		p-Value
		N	%	N	%	N	%	N	%	
Round with Unit Champion	**No**	69	35.94	17	53.13	25	31.25	27	33.75	0.08
	Yes	123	64.06	15	46.88	55	68.75	53	66.25	
Pocket Cards Used	**No**	69	36.13	6	18.75	32	40.51	31	38.75	0.08
	Yes	122	63.87	26	81.25	47	59.49	49	61.25	
Computer Screens Reviewed	**No**	84	43.89	5	15.63	47	59.49	32	40.00	<0.01*
	Yes	107	56.02	27	84.38	32	40.51	48	60.00	
Barriers										
Busy on Unit	**No**	98	56.32	17	68.00	26	37.68	55	68.75	<0.01*
	Yes	76	43.68	8	32.00	43	62.32	25	31.25	
Difficulty with Computer Screens	**No**	165	95.38	23	92.00	67	97.10	75	94.94	0.56
	Yes	8	4.62	2	8.00	2	2.90	4	5.06	
Unit Champion Not Present	**No**	124	71.68	14	58.33	48	68.57	62	78.48	0.12
	Yes	49	28.32	10	41.67	22	31.43	17	21.52	
Facilitators										
Nurse Familiar with Study	**No**	107	58.47	8	30,77	37	47.44	62	78.48	<0.01*
	Yes	76	41.53	18	69.23	41	52.56	17	21.52	
Interested Staff	**No**	60	32.61	5	19.23	28	35.90	27	33.75	0.28
	Yes	124	67.39	21	80.77	50	64.10	53	66.25	
Unit Champion Enthusiastic	**No**	110	60.44	12	48.00	50	64.64	48	60.00	0.32
	Yes	72	39.56	13	52.00	27	35.06	32	40.00	
Staff Took Time to Round	**No**	65	36.31	6	25.00	24	31.17	35	44.87	0.10
	Yes	114	63.69	18	75.00	53	68.83	43	55.13	

Note:

*Denotes Significant Value