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## Implementation of Geriatric Acute Care Best Practices: Initial Results of The NICHE SITE Self -Evaluation

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### Abstract

Nurses Improving Care of Healthsystem Elders (NICHE) provides hospitals with tools and resources to implement a geriatric initiative to improve health outcomes and experiences for older adults and their families. Beginning in 2011, members have engaged in a process of program self-evaluation, designed to evaluate internal progress toward developing, sustaining and disseminating NICHE. This manuscript describes the NICHE Site Self -evaluation and reports the inaugural self-evaluation data in 180 North American hospitals. NICHE members evaluate their program utilizing the following dimensions of a geriatric acute care program: guiding principles, organizational structures, leadership, geriatric staff competence, interdisciplinary resources and processes, patient- and family-centered approaches, environment of care, and quality metrics. The majority of NICHE sites were at the progressive implementation level (n= 100, 55.6%), having implemented interdisciplinary geriatric education and the geriatric resource nurse (GRN) model on at least one unit; 29% have implemented the GRN model on multiple units, including specialty areas. Bed size, teaching status, and Magnet® status were not associated with level of implementation, suggesting that NICHE implementation can be successful in a variety of settings and communities.

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### Contributions

**Study Design:** MB

**Data Collection and Analysis:** MB, EC, JS, JB, DC, SC, SD, RL, DL, SN, TS

**Manuscript Writing:** MB, EC, JS, JB, DC, SC, SD, RL, DL, SN, TS, JG

## Keywords

acute care; models; older adults; program evaluation

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## Introduction

The hospital setting continues to play a pivotal role influencing the health and functional trajectories of older adults throughout the world. Multiple co-morbidities and the practice of polypharmacy increase the risk of exacerbations of chronic illness and the need for acute care interventions (Creditor, 1993). Additional baseline vulnerabilities, including age-related cognitive, functional, and physical impairment predispose hospitalized older adults to iatrogenic problems including delirium (Inoyue, 2006; Han *et al.*, 2009), falls (Tinetti *et al.*, 1995; Tinetti & Kumar, 2010), and pressure ulcers (Baumgarten *et al.*, 2006; Cox, 2011). Additionally, they are at increased risk for functional decline (Gill *et al.*, 2010; Covinsky *et al.*, 2003; Covinsky *et al.* 2011; Wilson *et al.*, 2012), cognitive loss (Makris *et al.*, 2010), higher resource consumption, and higher rates of readmission (Jencks, 2009; U.S. Department of Labor, Bureau of Labor Statistics). There has been an increasing international awareness that a misalignment of the social, physical, and care environment with the complex needs of older adults may be responsible for many of the negative outcomes associated with hospitalization (Boltz *et al.*, 2010, Brown *et al.*, 2004, Brown *et al.*, 2011; Parke & Chappel, 2010; Steinman & Hanlon, 2004; Zisberg *et al.*, 2011). In response, acute care geriatric models of care have emerged, with the intention of promoting a better older person-hospital environment fit and improving the outcomes and experiences of hospitalization.

## Literature Review

### Models of Acute Geriatric Care

According to Hickman and colleagues (2007) an ideal model of care addresses the patient, provider and system issues related to the delivery of health care. Several geriatric acute care models have demonstrated improvements in clinical and organizational outcomes including decreased cost. They include interdisciplinary care provided in specialized units (Counsell *et al.*, 2000; Conroy *et al.*, 2011) or through mobile consultant teams (Conroy *et al.*, 2011; Ellis *et al.*, 2011; Farber *et al.*, 2011) specialized assessment and multi-component interventions (Inoyue *et al.*, 1999), and programs of early discharge planning and transitional care (Naylor *et al.*, 2004; Coleman *et al.*, 2006). In addition, Nurses Improving Care for Healthsystem Elders (NICHE) hospitals have embedded infrastructures that support the development, evaluation and sustainability of a geriatric acute care initiative to promote the implementation and sustainability of evidence-based care (Boltz *et al.*, 2008b; Leff *et al.*, 2012).

### NICHE as Infrastructure to Geriatric Initiatives

The goal of NICHE is to support a systemic, cross-disciplinary diffusion of knowledge and application of geriatric best practices into daily operations of the organization (Naylor, 2004). A program of New York University College of Nursing, NICHE is a membership organization comprised of 378 hospitals and their affiliate providers (long term care and home health care) of post-acute services who engage in active collaboration focused on continuing education, quality initiatives, and program evaluation. NICHE engages nursing staff at all levels. However, it is the support and guidance of executive nurses that is essential to the uptake and sustainability of the program (Capezuti *et al.*, 2012). Foundational to NICHE is the Geriatric Resource Nurse (GRN) model wherein staff nurses are supported by an advanced nurse clinician to become unit based peer consultants and

educators, and leaders of quality initiatives (NICHE, 2012). GRNs function in any unit that serves older adults, and are integral to the uptake and dissemination of evidence based practice (Boltz *et al.*, 2008a).

NICHE members utilize project management tools and are guided through a leadership training program to develop the following infrastructure: an interdisciplinary, inter-departmental steering committee; a core gerontologic curriculum and learning resources that build clinical competency in all levels of staff; evidence – based clinical guidelines and complementary operational tools, and a comprehensive set of metrics (Turner *et al.*, 2001; Boltz *et al.*, 2008a; NICHE, 2012). This infrastructure supports the dissemination of educational and clinical initiatives, and promotes a “gerontologizing” of the hospital culture, wherein the needs of older adults are represented in broader hospital and outreach programs.

### **NICHE Measurement and Program Evaluation**

The following quality metrics are associated with NICHE: evaluation of the “institutional milieu” surrounding care of older adults (staff knowledge, attitudes, and perceptions of the care environment), using the Geriatric Institutional Assessment Profile (GIAP) (Fletcher *et al.*, 2007; Kim *et al.*, 2009; McKenzie *et al.*, 2011) clinical measures (related to catheter associated urinary tract infections, pressure ulcers, falls and fall injuries, and restraint use); and measures of staffing volume and certification (Kim *et al.*, 2007). In addition, since 2011, members have engaged in a process of biennial program *self-evaluation*, designed to evaluate internal progress toward developing, sustaining and disseminating a NICHE program. The purpose of this manuscript is to describe the NICHE Site Self-evaluation and to report the inaugural self-evaluation data.

## **Methods**

### **Design**

This retrospective, descriptive study used data extracted from the NICHE Site Self-evaluation. Data is submitted on a biennial basis as a part of a member’s recommitment and is used by hospitals in their internal planning and evaluation. In addition, the results inform resource development by NYU NICHE. The study was granted an exempt status from the New York University Committee on Activities Involving Human Subjects (NYUCIHS).

### **Sample**

One hundred eighty (180) NICHE hospitals who conducted the self-evaluation between January 1, 2011 and December 31, 2011 were included in the analysis. Those eligible for inclusion included the 215 sites that were designated NICHE hospitals for one year or more, scheduled to submit evaluation data for the year 2011. Thus, the response rate was 84%.

### **Measures**

**Hospital characteristics**—Descriptive hospital information included teaching status (academic medical center, teaching hospital and non-teaching hospital), bed size (small=less than 200 beds, medium=200–400 beds, large=more than 400 beds), and Magnet<sup>®</sup> status (designated or not). External recognition, the presence of geriatric administrative units, specialized units, geriatric acute and non-acute programs were described. We also collected information on the utilization of the following acute care models: GRN, Acute Care of Elders {ACE} units, Hospital Elder Life Program (HELP), as well as transitional care models: Better Outcomes for Old Adults through Safe Transitions (BOOST), the Care Transitions Program, and the Transitional Care Model.

**NICHE Program Self-evaluation instrument development**—The NICHE Site Self-evaluation is a 49-item tool that measures the depth (degree of application of evidence-based resources) and penetration (dissemination throughout the hospital) of programs. The self-evaluation is submitted by the NICHE Coordinator via a web-based portal.

The content of the self-evaluation was developed in previous research that engaged the views of clinicians, consumers, and gerontologic researchers to identify the components of a geriatric acute care program (Boltz, Capezuti, & Shabbat, 2010). That study yielded dimensions or components of a systemic program aimed at improving care of hospitalized older adults: guiding principles, organizational structures, leadership, resources to build geriatric staff competence, interdisciplinary resources and processes, patient and family centered approaches, environment of care, and aging sensitive practices. Dimensions were associated with 113 items, or activities associated with program development, implementation, and evaluation.

The NICHE research team at NYU College of Nursing engaged a team of content experts, (NICHE administrators, gerontologic/geriatric researchers, and clinicians) to review the dimensions along with associated items to determine their usefulness in the NICHE program and establish content validity. It was decided that the dimensions were aligned conceptually with the established NICHE principles of 1) evidence based, geriatric care at the bedside, 2) patient/family centered environments, 3) healthy and productive practice environment, and 4) multi-dimensional metrics of quality. The 113 items were closely examined; 49 items were extracted from this list, identified as salient “action items” that were relevant to NICHE implementation, useful for sites to self-evaluate NICHE progress.

Through an iterative process, the group refined the items and came to consensus to create a draft self-evaluation instrument. The content experts reviewed the items, graded them on a scale of 1–4 for level of complexity (with four as highest) and established a scoring system to calculate four levels of implementation. The content experts used the NICHE Implementation Planning and Implementation Manual (NICHE, 2012) to guide the evaluation of items. The items range from activities associated with early stage implementation (e.g., designating a NICHE Implementation Team) to more complex activities (engaging in national activities such as publishing program results). Fourteen items each were determined to be associated with the following phases: 1) early phase, 2) progressive, and 3) senior friendly. Seven items were classified as “exemplar” (score 4). Accordingly, the experts agreed that the sum of items result in the following implementation levels, described with associated items:

- **early implementation level:** developing infrastructure: oversight, leadership, staff development and evaluation (score 0–13)
- **progressive level:** comprehensive geriatric acute care model, including the GRN model, implemented on at least one unit (score 14–27)
- **senior friendly level:** geriatric initiatives on multiple units; has assumed a regional leadership role (score 28–41)
- **exemplar level:** geriatric initiative throughout and beyond the organization and national leadership role (score 42–49).

## Analysis

Descriptive statistics for the hospital sample were examined. Self-evaluation items were subjected to calculations of reliability estimates, using coefficient alpha. The levels of implementation were calculated for each hospital in the sample and the frequency per level reported. The resultant levels of implementation were examined, using chi-square test for

independence, to determine if there was a relationship between levels and hospital characteristics.

## Results

### Sample Characteristics

As shown in Table 1, the majority of sites are US acute care, medium sized teaching hospitals that have a comprehensive geriatric assessment program, a dementia evaluation program, geriatric primary care, and an affiliation with home health and some form of hospice. Forty percent (n=72) of the hospitals have Magnet® designation. All sites maintain a not-for-profit status. Table 2 shows that 76% have a geriatric resource nurse model, with 45.0 GRNs on average ( $\pm$  88.6), present on 4.4 units on average ( $\pm$ 6.1) in the hospital. The average number of nurses reported national certification in gerontological nursing is 8.4 ( $\pm$  22.5).

### Internal consistency of items

An internal consistency estimate using coefficient alpha resulted in a slight modification of the instrument. The aging sensitive practices dimension was eliminated when the two associated items were re-categorized into other dimensions. Additionally, “quality metrics” was added as a dimension. The final 8 dimensions and associated 49 items demonstrate good internal to excellent consistency ( $\alpha$ =.70–.98). Items are designated according to level of complexity (level 1–4); independent of the complexity level, the 49 items are scored yes = 1; 0=no, with a possible total score of 0 to 49. Figure 1 shows the dimensions and a summary of item content.

### NICHE Level of Implementation

As shown in Table 3, 15.6% (n=28) of the sites were early implementers, i.e., they had identified a coordinator, developed a steering committee with representation from nursing management, quality management, staff education, and clinical management, and created a mission statement and a two year action plan. The majority of NICHE sites were at the progressive implementation level (n= 100, 55.6%), having implemented interdisciplinary geriatric education and the GRN model on at least one unit. Senior friendly implementers (n=45, 25.0%) have engaged community based providers and consumers in their steering committees and expanded the GRN model to multiple units, including specialty areas. This cohort is also characterized by policies that promote patient/family engagement in decision making, and a robust set of measures to evaluate program effectiveness. Finally, the exemplar sites (n= 7, 3.9%) have implemented the GRN model and geriatric training of nursing assistants on all units serving older adults, addressed the physical environment in their program planning and evaluation, and assumed a national leadership role by providing mentorship to other sites and supporting the development and dissemination of NICHE resources.

Upon examining the relationship between hospital characteristics and level of implementation, we found that bed size, teaching status, and Magnet® status were not associated with level of implementation. The presence of an ACE unit ( $p$ =.021), mobile ACE unit ( $p$  =.022), and a comprehensive geriatric assessment programs, both inpatient ( $p$ =0.029) and outpatient ( $p$ =.008) were more likely to be senior friendly implementers as opposed to early or progressive implementers.

The seven exemplar sites were examined by teaching status, size, geriatric administrative units, and use of other models. The following is a summary:

- Five are teaching hospitals and two are non-teaching sites. (None are academic medical centers).
- Bed size is represented as follows: one small, four medium, and two large hospitals.
- Four hospitals have a comprehensive geriatric evaluation program.
- Three hospitals have ACE units.
- Five of the seven hospitals have a formal transitional care program (BOOST, Care Transitions Program, or the Transitional Care Model); two hospitals have blended implementation of more than one transitional model.
- Three hospitals have Magnet<sup>®</sup> designation.

## Discussion

The NICHE self-evaluation process provides sites with the opportunity to create a blueprint for growth and sustainability of their geriatric acute care program. Although the sample in this biennial survey is comprised of approximately 50% of the total NICHE sites, it represents hospitals with structural characteristics (bed size and teaching status) of NICHE sites as a whole. The high percentage of sites utilizing the GRN model and uptake of this model in multiple units underscore the capacity of this model to be disseminated and sustained (Turner *et al.*, 2001).

The results show that a little more than half of the sites are in the progressive stage of implementation, with other sites dispersed over the other three levels, demonstrating the need to support sites at varying stages of program development. The NICHE faculty at NYU supports diversity in the degree of program maturity through several programmatic approaches. Fledgling sites are mentored by sites with well-developed programs. Sites that are in the progressive stage of implementation are supported through discussion boards and regularly scheduled educational webinars. Senior-friendly and exemplar initiatives are frequently shared at regional and national conferences, and in NICHE publications. The successes of sites at various levels are acknowledged at the annual conference and profiled on the NICHE website, which helps members sustain their internal administrative support.

The evaluation of this preliminary self-evaluation data indicates that hospital size and teaching status is not a factor influencing level of implementation. We did not evaluate financial parameters however, such as payer mix and profit margins, an area for future exploration. An understanding of these indices would support the development of resources and strategies for senior programs in hospitals that are financially challenged. Additionally, the influence of geographic features including rurality upon program development and dissemination is an area for future investigation.

Findings indicate that hospitals that have ACE programs and comprehensive geriatric assessment (CGA) programs also have higher levels of NICHE implementation, not a surprising finding. Acute care environments that foster interdisciplinary collaboration and the clinical leadership of geriatric specialists are associated with enhanced uptake of aging sensitive principles (Boltz *et al.*, 2008a; Ellis *et al.*, 2011). Nonetheless, there are high performing NICHE hospitals that do not have access to geriatric medical specialists. Further exploration of the influence of these services as well as the alternative approaches upon systemic NICHE uptake is warranted.



## Limitations

The study included NICHE sites only; thus results are not generalizable to non-NICHE sites. Also, the NICHE Site Self-evaluation tool, and consequently this study, did not evaluate salient measures of quality including clinical and financial outcomes related to care of hospitalized older adults, an area for future investigation.

## Implications for Practice and Research

As key caregivers in hospitals, nurses significantly influence the quality of care provided and ultimately, patient, family, and organizational outcomes. Their central role positions them to lead interdisciplinary teams in the development and evaluation of system-wide programs designed to improve care of older adult patients and their families. The NICHE Site Self-evaluation tool may be used to chart a plan toward improving the clinical and organizational culture related to care of older adults, and evaluate progress on an ongoing basis. The structures and processes associated with the eight dimensions of the self-evaluation, which are relevant for NICHE and non-NICHE sites alike, can be triangulated with clinical outcomes and other measures of quality to facilitate a robust set of indicators to guide quality improvement activity. Future research that examines the association of self-evaluation dimensions as well as program “dose” (e.g., the number of geriatric resource nurses or quantity of staff training) with patient and organizational outcomes will yield decision-support tools for organizations to use when prioritizing elder care initiatives.

## Conclusion

The ever increasing number of older adults and the growing societal imperative to improve quality represent compelling reasons for hospitals to upgrade their care delivery to older adults. An essential component of acute geriatric care model is evaluation, including assessing the uptake and dissemination of aging specific knowledge and standards, the goal of the NICHE program. The NICHE Site Self-evaluation provides a mechanism to chart and track progress toward this goal. Preliminary findings utilizing this process indicate that NICHE implementation can be successful in a variety of settings.

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## NICHE Program Self-evaluation Dimensions and Summary

Dimensions	Summary of Items
Guiding Principles $\alpha = .96$	<ul style="list-style-type: none"> <li>• Mission statement development, dissemination and endorsement by the governing body</li> </ul>
Organizational Structures $\alpha = .76$	<ul style="list-style-type: none"> <li>• The NICHE steering committee composition and activity</li> <li>• Processes of interdisciplinary decision-making</li> <li>• Geriatric Resource Model (GRN) dissemination</li> <li>• ACE (Acute Care of Elders) implementation</li> </ul>
Leadership $\alpha = .70$	<ul style="list-style-type: none"> <li>• The NICHE Coordinator role and qualifications</li> <li>• Nurse Educator role and qualifications</li> <li>• GRN leadership functions</li> <li>• Regional leadership role: dissemination and mentorship</li> <li>• National leadership role</li> </ul>
Geriatric Staff Competence $\alpha = .97$	<ul style="list-style-type: none"> <li>• Geriatric education across disciplines</li> <li>• Staff development programs integrated into clinical ladder or advancement program.</li> <li>• Evaluation of staff capacity to meet the needs of older adults</li> </ul>
Interdisciplinary Resources and Processes $\alpha = .98$	<ul style="list-style-type: none"> <li>• Use of interdisciplinary evidence-based guidelines</li> <li>• Transitional care processes</li> </ul>
Patient and Family – Centered Approaches $\alpha = .98$	<ul style="list-style-type: none"> <li>• Patient and family engagement in:               <ul style="list-style-type: none"> <li>* education</li> <li>* decision-making</li> <li>* program development and evaluation</li> </ul> </li> <li>• Consumer outreach</li> </ul>
Environment of Care $\alpha = .99$	<ul style="list-style-type: none"> <li>• Evaluation and modification of the physical environment</li> </ul>
Quality metrics $\alpha = .74$	<ul style="list-style-type: none"> <li>• Breadth of quality measures</li> <li>• Dissemination of findings</li> <li>• Utilization of metrics to guide program development</li> </ul>

**Figure 1.**  
NICHE Program Self-evaluation Dimensions and Summary

Table 1

Profile of hospital participants (N=180)

	n (%)
Hospital Type	
US Acute Care Hospital	166 (92.2)
Canadian Acute Care Hospital	14 (7.8)
Bed Size	
Small (0–200)	51 (28.3)
Medium (201–400)	70 (38.9)
Large (400+)	59 (32.8)
Teaching Status	
Academic Medical Center	38 (21.1)
Teaching	76 (42.2)
Non-teaching	66 (36.7)
External recognition	
Magnet® <sup>†</sup>	72 (40.0)
Baldrige <sup>‡</sup>	9 (5.0)
AARP <sup>§</sup>	6 (3.3)
Administrative units	
Hospital-wide geriatric administrative units?	27 (15.0)
Geriatric Service Line	57 (31.7)
Geriatric medical department	60 (33.3)
Specialized units	
Gero-psych unit	37 (20.6)
Dementia unit	9 (5.0)
Hospice unit	35 (19.4)
Geriatric Emergency Department	12 (6.7)
Geriatric Acute Care Programs	
Comprehensive geriatric assessment	104 (57.8)
Mobile ACE (Acute Care of Elderly)	20 (11.1)
Palliative care	42 (23.3)
Transitional care	79 (43.9)
Non-acute programs	
Senior membership program	43 (23.9)
Comprehensive geriatric assessment	87 (48.3)
Dementia evaluation program	103 (55.4)
Geriatric primary care	101 (56.1)
Non-acute affiliations	
Sub-acute care	66 (36.7)

	n (%)
Long term nursing home care	41 (22.8)
Assisted living	28 (15.6)
Home health	110 (61.1)
In-patient hospice care	102 (57.3)
Home hospice care	86 (47.8)
Adult day care	30 (16.7)

<sup>†</sup>The Magnet Recognition Program® “recognizes health care organizations for quality patient care, nursing excellence and innovations in professional nursing practice” (<http://www.nursecredentialing.com/Magnet/ProgramOverview.aspx>).

<sup>‡</sup>The Malcolm Baldrige National Quality Award is given to organizations that have demonstrated an “outstanding system for managing its products, services, human resources, and customer relationships. As part of the evaluation, an organization is asked to describe its system for assuring the quality of its goods and services. It also must supply information on quality improvement and customer engagement efforts and results” (<http://www.nist.gov/baldrige/>).

<sup>§</sup>The AARP Best Employers for Workers over 50 program, “cosponsored by the Society for Human Resource Management (SHRM), awards businesses and organizations that have implemented new and innovative policies and best practices in talent management. These organizations are creating road maps for others on how to attract and retain top talent in today’s multigenerational workforce” ([http://www.aarp.org/work/employee-benefits/best\\_employers/](http://www.aarp.org/work/employee-benefits/best_employers/)).

**Table 2**

## Model Utilization (N=180)

	n (%)
Geriatric Resource Nurse (GRN) Model <sup>†</sup>	137 (76.1)
	<u>Mean ± SD (mini-max)</u>
Number of GRNs	45.0 ± 88.6 (0–80)
Number of units with GRNs	4.4 ± 6.1 (0–41)
Number of nurses certified in geriatrics	8.4 ± 22.5 (0–195)
Acute Care of Elders (ACE) unit <sup>‡</sup>	49 (27.2)
Hospital Elder Life Program (HELP) <sup>§</sup>	15 (8.3)
Better Outcomes for Old Adults through Safe Transitions (BOOST) <sup>±</sup>	21 (11.7)
The Care Transitions Program (Coleman model) <sup>  </sup>	22 (12.2)
Transitional Care Model (Naylor model) <sup>δ</sup>	8 (4.4)

<sup>†</sup> Geriatric Resource Nurse (GRN) Model: bedside nurses receive gerontologic training and serve as peer consultants and change agents <http://www.nicheprogram.org/>

<sup>‡</sup> Acute Care of Elders (ACE) unit: specially – prepared environments that utilize evidence-based protocols implemented by interdisciplinary teams

<sup>§</sup> Hospital Elder Life Program (HELP): interdisciplinary staff, volunteers, and targeted intervention protocols to improve patients' outcomes (delirium and functional decline) and provide cost-effective care <http://www.hebrewseniorlife.org/research-abc-hospital-elder-life-program-help>

<sup>±</sup> Better Outcomes for Old Adults through Safe Transitions (BOOST): hospitalist-led program that identify high-risk patients on admission and target risk-specific interventions to prevent readmissions and improve outcomes <http://www.hospitalmedicine.org/AM/Template.cfm?Section=Home&TEMPLATE=/CM/HTMLDisplay.cfm&CONTENTID=27659>

<sup>||</sup> The Care Transitions Program (Coleman model): patients with complex care needs and family caregivers work with a “Transition Coach” and learn self-management skills that will ease their transition from hospital to home <http://www.caretransitions.org/>

<sup>δ</sup> Transitional Care Model (Naylor model): comprehensive in-hospital planning and home follow-up for chronically ill high-risk older adults <http://www.transitionalcare.info/>

**Table 3**

NICHE Self-evaluation levels (N=180)

	n (%)
Early implementation	28 (15.6)
Progressive implementation	104 (57.8)
Senior-friendly implementation	42 (23.3)
Exemplar implementation	6 (3.3)