Complexity Theory: A Long-Term Care Specialty Practice Exemplar for the Education of Advanced Practice Nurses

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ABSTRACT

This clinical exemplar highlights how an academic clinical practice supported gerontological nursing students as they learned evidence-based approaches to managing complex geriatric syndromes in long-term care. Urinary incontinence (UI), which occurs in more than two thirds of nursing home residents, was the focus of the faculty practice. Advanced practice nursing skills developed by students included advanced physical assessment and diagnostic reasoning techniques, critical appraisal of the scientific evidence for UI management, and the ability to teach evidence-based approaches to UI care to bedside nursing staff. Outcomes of the practice for the facilities included improved detection of urinary retention, reduced wetness rates, and strengthened systems of care for UI. Student outcomes included an increased sense of self-efficacy in management of UI and other complex geriatric problems. Complexity theory guides a discussion of how curriculum design and research-based practices can be implemented to enhance both student and facility outcomes.

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When students observe gaps between what is taught and the care practices they encounter during clinical rotations, learning can suffer and disillusionment can occur. These gaps were bridged in long-term care when an academic clinical practice was established in two proprietary nursing homes that were sites for gerontology advanced practice nursing students. The practice focus was on continence management because urinary incontinence (UI) is a prevalent, complex geriatric syndrome with an extensive scientific base for nurses to improve resident outcomes. Because more than two thirds of U.S. nursing home residents suffer from UI (Brandeis, Baumann, Hossain, Morris, & Resnick, 1997; Sgadari, Topinkova, Bjornson, & Bernabei, 1997), the effect on resident care is high if skills to address this syndrome are taught and implemented by students after graduation. By focusing on long-term care residents with UI, faculty modeled an array of advanced practice nursing skills that benefited student learning.

Frail older adults, especially those age 80 and older, represent one of the fastest growing segments of the U.S. population (U.S. Bureau of the Census, 1996). Advanced age is often accompanied by many complex chronic diseases, decline in functioning, and consequent need for long-term care (Mendes de Leon et al., 1999). Evaluation and treatment of many health problems of frail older adults rests squarely within the scope of advanced practice nursing, as reflected in a robust body of health services research that cite positive outcomes associated with the use of advanced practice nurses in long-term care (Bula et al., 1999; Burl, Bonner, Rao, & Khan, 1998; Kane et al., 1989; Lachs & Ruchlin, 1997; Ryden et al., 2000).

However, most nursing homes do not employ advanced practice nurses (Harrington et al., 2000). The standard of care is determined by a limited number of RNs who work with a staff composed of certified nurse assistants (CNAs) and licensed practical nurses (LPNs) (Kovner, 2000). In fact, CNAs provide 60% of total nursing hours available for resident care (Quadagno & Stahl, 2003). The potential isolation of long-term care RNs from academic centers hinders

the use of evidence-based clinical practices that could improve functioning and related outcomes in long-term care residents (Schnelle, Ouslander, & Cruise, 1997; Wiener, 2003; Wunderlich & Kohler, 2001).

Effective management of UI requires advanced physical assessment and diagnostic reasoning skills because successful treatment depends on correctly classifying the type of incontinence and matching interventions accordingly. An individualized continence management plan for long-term care residents requires effective interaction between advanced practice nurses and front-line nursing staff (i.e., LPNs and CNAs). Together, they administer the plan and monitor residents' responses to behavioral treatment programs, drug therapy regimens, and UI management approaches (e.g., through the appropriate selection of skin care and absorbent products).

Although this exemplar models a specialized practice focused on UI, students learned to translate and transfer "best practices" in the evaluation and management of UI to other prevalent, complex geriatric syndromes. Students not only observed and participated in advanced clinical care and clinical consultation, they also evaluated the effect of evidence-based practices on frail older adults and developed critical collaboration skills with clinicians at all levels of the organization.

Characteristics of the Academic Clinical Practice

The goals of the practice are to improve resident care and to model innovative, science-based, feasible approaches to the care of frail older adults in long-term care for gerontology nursing students. The practice served as the focal point for our enhanced geriatric nurse practitioner curriculum, which emphasizes evidence-based clinical practice, diffusion of innovation theory (Rogers, 1995), and formal experiences for students to evaluate and treat UI.

The faculty member who initiated the practice is a board-certified gerontological nurse specialist with subspecialty training in continence management. Prior to her School of Nursing appointment, she had a private practice as a continence nurse advisor, evaluating and treating older adults in a variety of care settings, including primary care, continuing care retirement communities, and nursing homes.

The academic clinical practice was established in collaboration with staff at 120-bed and 150-bed nursing homes located approximately 15 minutes from the School of Nursing. Each is certified by the Centers for Medicare and Medicaid Services and locally owned and operated. These facilities employ an onsite nurse practitioner and a physician assistant, exceeding federally mandated staffing levels. Each facility has computers with Internet access to the Medical Center library, so students and staff can conduct literature searches and complete computer-based training modules essential to the UI program. In addition, the School of Nursing purchased portable bladder ultrasound and pelvic muscle exercise biofeedback machines, so students could gain advanced skills for assessment and treatment of UI. The faculty member's scope of practice included all elements of gerontological advanced practice nursing consistent with the American Nurses Association's (2001) *Scope and Standards of Gerontological Nursing Practice,* including bedside evaluation and treatment of residents and consultation and staff training. The faculty member is funded by the School of Nursing (75% full-time equivalent) and devotes nearly half of that time to the academic clinical practice.

Program Implementation

After the practice arrangement was established, faculty met with the facility's clinical leadership (i.e., nursing staff, administration, medical directors) to identify practice improvement projects that faculty, students, and staff could undertake. To exemplify how faculty practice influenced resident and facility outcomes and student learning, we describe one such project: how a facility revised their approach to implementing the nationally mandated nursing home minimum data set resident assessment protocol for focused UI assessment and treatment (Morris et al., 1990).

Planning meetings were held to review ongoing care processes for UI, and the nursing staff, in conjunction with the faculty member, identified the need to improve the process for assessing residents with UI. We agreed that the faculty member would develop an evidence-based UI resident assessment form to reflect national guidelines for UI evaluation and management and federal requirements (Fantl & Colling, 1996). In addition, the faculty and students would conduct staff education to standardize knowledge related to UI management. The faculty and advanced practice nursing students also would collaborate with the minimum data set assessment nurses to conduct resident assessments. Finally, we determined measures needed to support a total quality management program approach to resident care.

Student Learning Objectives

Students rotated through the academic clinical practice sites during one of three required clinical courses: Management of Common Acute and Chronic Illness, Management of Care of the Frail Elderly, or the Gerontological Nurse Practitioner Residency. During their required experience, students observed an expert continence care clinician conduct an evaluation of UI, including advanced genitourinary physical examination techniques, cognitive assessment, and direct assessment of mobility, balance, and dexterity. The students then demonstrated key UI assessment techniques and documented a comprehensive assessment, differential diagnosis, and treatment options for the plan of care.

Students were required to communicate their findings and recommen-

dations to staff and monitor resident outcomes after care plan changes were made. On a selective basis, students strengthened the UI management program institutionally by assisting with the staff education program.

Resident Outcomes: Improved Detection of Urine Retention

Unlike teaching hospital sites, clinical sites in long-term care typically do not have ready access to School of Nursing faculty to help translate research findings into practice. Research shows that facility outcomes can improve through such an affiliation and that shared vision among faculty and nursing home staff is essential for successful nursing home teaching programs (Mezey, Mitty, & Bottrell, 1997; Shaughnessy, Kramer, Hittle, & Steiner, 1995). In this case, we involved students in translating research into practice at each stage of the UI management program, including outcome evaluation at the individual resident and aggregate, facility-wide levels.

In 1 month, the faculty and staff nurses completed the nursing home minimum data set on 47 residents using the new UI-resident assessment protocol. Nearly one third (29%) of the 47 residents were assessed with abnormal bladder-emptying function, as evidenced by post-void residual urine measurements of more than 100 mL. Managing residents with urine retention became a care priority for the staff. With faculty and student guidance, the nurses instituted a clinical program to monitor residents for urinary retention using the portable bladder ultrasound, a new, noninvasive technology appropriate for the long-term care setting.

Facility-Level Process Improvements

Each nursing home achieved and sustained changes in their practice management for UI, including enhanced detection of treatable genitourinary abnormalities and improved dryness rates over baseline. The faculty and student collaboration supported the minimum data set nurses and the CNAs (who had primary responsibility for toileting) in changing practice behaviors. Prior to the academic clinical practice, minimum data set nurses confined their assessments to data collected and recorded by other staff. With faculty and student consultation and support, these nurses improved their direct skill in bedside evaluation of UI and became part of the specialized clinical assessment team. The CNAs enhanced their practice beyond toileting tasks for residents, to active involvement in the residents' overall continence care, including prompted voiding and scheduled toileting. The CNAs reflected on their role in promoting the physical and mental well-being of residents during continence care and changed their job title from "B&B Aide" (Bowel and Bladder Aide) or "Toileting CNA" to "Quality Care CNA." The new title recognizes a revitalized value for their role in toileting tasks for residents with dependencies in activities of daily living and cognitive impairments.

Student Outcomes

Of the 16 students who have rotated through this academic clinical practice, all reported an increased sense of self-efficacy in management of UI. Although there were initial complaints regarding an overemphasis on UI in their management courses, during their rotation, students spontaneously noted the relevance of having acquired expanded gynecological and urological examination skills. As students progressed through the clinical experience, they recognized that the process knowledge learned in UI evaluation could be applied to other complex geriatric problems, such as assessment for falls or nutritional problems.

Discussion

Complexity theory (Anderson & McDaniel, 2000) is a reference point for analyzing the process of establishing an academic clinical practice, fostering student involvement in key practice activities, and implementing new clinical systems. Self-organization, a key process in complexity theory, is the ability of an organization and its members to develop new skills and behaviors through interaction with each other and the environment, creating something new or moving to a higher level of functioning (Anderson, Issel, & McDaniel, 2003).

The academic clinical practice established in the nursing home is a clear example of self-organization in which, through interactions with faculty and students, the staff acquired a higher skill set in providing care, with implications beyond the continence program. The CNAs who had been designated as "Toileting CNAs" not only received instruction on the proper procedures for the continence program, but also began to discuss broader resident care issues. Because of increased interaction among CNAs, faculty, and students, the CNAs recognized that, through their toileting activities, they could influence not only the residents' continence status, but also their skin integrity, social skills, and mobility.

Students observed the following elements of self-organization through the academic clinical practice:

- The connections and interactions among diverse individuals because the faculty member was not previously a part of the long-term care facility.
- Expert methods of introducing new information into the health care system through partnering with a faculty member to share specialized knowledge.
- New interactions and learning among CNAs as they engaged in discussions about resident care issues among themselves and with students and faculty.

One positive outcome of self-organization was staff functioning at a higher-than-expected level.

Complexity theory can be linked to and help explain student outcomes. Many advanced practice nurses express frustration in long-term care due to perceived powerlessness to

change substandard care practices. After this immersion in long-term care, in which students experienced the practice/consulting role of an advanced practice nurse to solve complex care issues, students began to articulate how their practice may evolve to make a sustainable difference in care delivery and through process improvement. They expressed how much they valued the connections and conversations related to clinical issues that would sustain practice changes. Therefore, training in gerontological nursing was enhanced when students were offered clinical experiences in which evidence-based approaches to care are implemented successfully in real-world settings. Systematic use of complexity theory can help guide development of faculty practice, resulting in sustained improvements in clinical practice and in enhanced learning environments for students in long-term care.

All too frequently, the effects of curriculum design and theory-driven practice are not fully realized in the practice setting. In this exemplar, we modeled how student, resident, and facility outcomes are achieved through situated learning in an academic clinical practice. The knowledge, skills, and abilities acquired through curricular and organizational learning in this academic clinical practice now have the potential to be transferred into other successful academic-service, problem-solving opportunities.

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