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*Note:* Page numbers of article titles are in **boldface** type.

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# Supporting Independence in Hospitalized Elders in Acute Care

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## Overview

Hospitals are the site where much of the health care for older persons is provided. Persons aged 65 years and older are hospitalized nearly three times as frequently as younger persons [1]. Currently, about one in every eight persons, or 12.4% of the population, is aged 64 years or older [2]. The proportion of hospitalized patients who are elderly is estimated to increase, making the care of elders an important focus of care for nurses working in acute and critical care settings. Hospitalization for an acute or critical illness imposes a degree of immobility on any patient, and decline can result quickly in the elderly patient [3]. Reducing deterioration in the hospitalized elderly through focused strategies, such as increasing independence, can make a significant impact in promoting functionality.

Recent census information indicates that disability among the elderly is declining, with 19.7% reporting some level of disability, down from 26.2% in 1982 [4]; however, nearly 80% of the elderly have at least one chronic health condition, and 50% have at least two, with chronic conditions, such as heart disease, diabetes, and hypertension, among the leading causes of activity limitations [4]. Discharge disposition information indicates that a significant number of patients aged 75 years and older who are functionally independent when admitted to hospitals from their homes are not functionally independent when discharged. In addition, up to 15% of persons aged 75 years and older are discharged from the

hospital to skilled nursing facilities [5]. Hospitalization of the elderly is associated with high rates of functional disability and increased length of stay [6]. As a result, targeting functional status and supporting independence are important goals for hospitalized elders.

## Focusing on functional status

Functional status, or the ability to perform self-care and physical need activities, is an important component of independence for the elderly. Functional status is determined by the ability to perform activities of daily living (ADLs), which include eating, dressing, bathing, ambulating, and toileting, and instrumental ADLs, such as shopping for groceries, meal preparation, housework, laundry, getting to places beyond walking distance, managing medications, managing finances, and using a telephone [5]. Maintaining function is central to fostering health and independence in hospitalized elderly [7]. Although the average hospital length of stay for patients aged 65 years and older has decreased to 5.7 days, down from 8.7 in 1990 [8], shorter lengths of stay can increase the likelihood that the hospitalized elder has not regained functional independence, especially after an episode of acute illness. During acute and critical illness, the focus of assessment and care generally is on resolving the immediate problem that triggered hospitalization, and less attention is given to the underlying risk for functional decline and the vulnerability to hospital-associated complications. Nurses are challenged to properly assess and address the care needs of the older adult

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during hospitalization, especially with respect to functional status and independence.

Declines in functional status and independence can occur with hospitalization and should be anticipated. Decreased physiologic reserve associated with normal aging predisposes hospitalized elders to functional decline [9]. During hospitalization, the elderly patient often experiences altered mobility that results from reduced mobility and activity levels. Functional decline, including changes in physical status and mobility, has been identified as the leading complication of hospitalization for the elderly [10]. In fact, hospitalization of elderly patients has been associated with declines in ADL status of 29% or more [6]. The presence of a mobility impairment, as indicated by the use of a cane or a walker before hospitalization, also has been associated with the risk for functional decline during hospitalization [11].

Table 1  
Adverse effects of bedrest

System	Effect
Cardiovascular	↓ Stroke volume, ↓ cardiac output, orthostatic hypotension, progressive loss of fluid, primarily from extracellular space
Respiratory	↓ Respiratory excursion, ↓ oxygen uptake, ↑ potential for atelectasis, chest movement restricted in supine position
Muscles	↓ Muscle strength, ↓ muscle blood flow, ↓ contractile force
Bone	↑ Bone loss, ↓ bone density
Gastrointestinal	Loss of appetite, ↓ peristalsis, ↓ ability to eat in supine position, malnutrition, anorexia, constipation
Genitourinary	Incomplete bladder emptying, incontinence
Skin	Shearing force, potential for skin breakdown
Psychologic	Anxiety, depression, disorientation

*Data from Amella EJ. Presentation of illness in older adults. If you think you know what you're looking for, think again. AORN J 2006;83(2):372-4 377-82, 385-9; and Fletcher K. Immobility: self learning module. Med-surg Nurs 2005;14:35-7.*

## Risk factors

Targeting risk factors that contribute to functional decline during hospitalization can promote better outcomes for elders. Several risk factors that impact functional decline in hospitalized elders include decubitus ulcer, cognitive impairment, prehospitalization functional impairment, and low social activity level [12]. Additional risk factors include advanced age, comorbidities, institutional residence, depression, visual impairment, and polymedication [13].

Low levels of mobility and bedrest are common occurrences during hospitalization for the elderly [6]. The effects of bedrest are well recognized and can pose significant risks for the elderly (Table 1). Deconditioning and functional decline from baseline have been found to occur by day two of hospitalization in elderly patients [14]. Overall, it is estimated that up to 50% of hospitalized elders lose mobility, ADL function, or nutritional status while hospitalized [15]. A systematic review of research studies addressing factors that predict functional decline in hospitalized elders found that a variety of indicators had an impact (Box 1). Loss of functional independence during hospitalization results from the effects of acute illness as well as from the inability to maintain function during hospitalization [16]. Therefore, detecting risk factors and targeting interventions to promote functional activity and independence during acute illness is an important aspect of care for hospitalized elders.

### Box 1. Predictors of functional decline in hospitalized elders

Age  
Diagnosis  
Cognitive impairment  
Gender (female)  
ADL status (more dependent)  
Marital status (unmarried)  
Living arrangement (alone)  
Comorbidity (higher)  
Delirium (present)

*Data from McCusker J, Kakuma R, Abrahamowicz M. Predictors of functional decline in hospitalized elderly patients. A systematic review. J Gerontol A Biol Sci Med Sci 2002;57:M569-77.*

### Promoting independence and functioning during hospitalization

A variety of functional status, multi-dimensional health, and quality-of-life instruments can be used to gather baseline information on the hospitalized elderly and to gauge illness recovery and postdischarge care needs. Comprehensive geriatric assessments also can be used to minimize disability and loss of independence in frail elderly patients [17]. Research on the use of comprehensive geriatric assessments demonstrated that focused intervention based on assessment can slow functional decline and promote independence by mobilizing available medical, psychologic, and social resources [17]. Other articles in this issue discuss the use of comprehensive geriatric assessments, the use of comprehensive and focused initiatives, including Nurses Improving Care for Health System Elderly (NICHE), geriatric resource nurse models of care, and the use of dedicated units for care for elders (Acute Care for the Elderly units). All of these focused measures promote best practice care for hospitalized elders.

### Areas of focus for promoting independence

There are several important areas of focus for hospitalized elders in acute and critical care to mitigate physical deconditioning (see **Box 1**). Focusing on physical needs, symptoms, altered cognition, sleep and nutrition, and awareness of atypical disease presentation (eg, asymptomatic urinary tract infections) are related areas to enhance recovery and prevent functional decline. Cognitive functioning alone is predictive of functional status after discharge. In research examining the impact of cognitive screening in 2557 hospitalized elders, the use of a brief cognitive screen on admission was related significantly to functional recovery after discharge [16]. Patients with impaired cognitive performance were more likely to not recover the ability to independently execute a component of ADLs. In addition, patients with impaired cognition were more likely to be admitted to a long-term care facility after discharge [16].

Interventions to promote increased endurance, such as physical therapy and rehabilitation, can improve functional status during hospitalization and should be a routine component of care for the hospitalized elderly.

Focusing on optimizing nutritional status can impact functional recovery after acute illness [18]. Nutrition therapy is effective as part of a comprehensive approach to the management of a variety of acute illness to promote recovery, reduce length of stay, reduce readmission rates, and improve functional status.

Family care of hospitalized elders is important because the needs for elder care extend into the home after hospital discharge. Often, family caregivers are responsible for providing postdischarge care. Involving family caregivers in the hospital care of the hospitalized elderly can help to promote transition to family caregiving, especially with the current focus on decreased length of hospital stays. Use of the FAMILY tool has been advocated for assessing family needs for hospitalized elders [19]. As part of a NICHE initiative, the FAMILY assessment tool focuses on Family involvement, Assistance needed by the patient, family Member's needs, Integration of the family into the plan of care, Links to community support, and Your assessment, or the identification of patient and family needs and outcomes [19].

#### **Box 2. Areas of focus for hospitalized elders in acute and critical care**

Atypical disease presentation  
 Delirium or acute confusion  
 Inadequate pain control  
 Infections  
 Skin integrity problems  
 Immobility  
 Need for physical/occupational therapy  
 Problems with eating and nutrition  
 Altered elimination (bowel and bladder)  
 Sleep disturbance  
 Visual or auditory deficits  
 Anxiety, depression  
 Consideration of advanced directives and preferences for life-sustaining treatment  
 Family involvement in care decisions  
 Appropriate placement and discharge planning

*Data from St. Pierre J. Functional decline in hospitalized elders: preventive nursing measures. AACN Clin Issues 1998;9(1):109–18.*

In addition to focusing on hospital-based care, discharge planning should incorporate attention to functional independence. The Hospital Outcomes Project for the Elderly found that a significant percentage (41%) of hospitalized elders reported a continued decline in functional status 3 months after hospitalization [20]. The functional decline was attributed to adverse events associated with hospitalization, such as drug events and bed rest or reduced mobility, concurrent illness, and medical and surgical treatment during hospitalization [21].

### *Strategies*

Several strategies can be used to promote independence during recovery from acute and critical care–related illness (Box 2). A prime area is to support independence and prevent conditional decline during hospitalization by avoiding prolonged bedrest and encouraging mobility. Elders who are vulnerable to functional decline should be identified and a plan of care developed to address care issues. Research identifies that elders who are vulnerable are more likely to experience a decrease in functional status, become frail, and experience acute care health conditions in the

next 2 years. Characteristics of vulnerable elderly include health status self-rated as fair or poor; limitations in physical functioning; functional disabilities, such as difficulties bathing, shopping, and walking; and age older than 75 years [22]. Research also demonstrated that poor functional recovery after hospitalization is more common in subjects with baseline impairment [23].

Nutritional status should be monitored and nutritional assessments to identify deficits and optimize nutritional intake should be incorporated into the plan of care [18].

Posthospitalization needs also need to be addressed because functional loss during and after hospitalization is an important independent risk factor for nursing home use and is a clinical outcome that may be modified to decrease the likelihood of nursing home admission [24]. Although the hospital setting is the standard setting for providing acute medical care, recent research on the use of providing hospital-level care in the home setting with nursing care oversight and telemedicine for acutely ill elders demonstrated efficacy [25]. As the elderly population, the burden of chronic disease, and demand for acute care medical services increase, alternative models of

### **Box 3. Strategies for increasing independence in hospitalized elders in acute and critical care**

Assess physical condition and functional status upon admission  
 Conduct comprehensive assessments to identify functional limitations, set goals for inpatient therapy, monitor changes, and gauge improvements during hospitalization  
 Review medications for sensory or coordination effects  
 Perform range of motion to decrease risk for contractures  
 Consult physical or occupational therapy to provide for mobility and independence needs  
 Encourage out-of-bed activity as tolerated—whenever possible, ambulation should be encouraged  
 Use assistive devices (walkers, canes) as needed  
 Discontinue indwelling urinary catheters as soon as feasible and encourage use of the bathroom instead of using a bedside commode as a strategy to increase activity  
 Assess and medicate for pain to promote activity  
 Improve nutrition and hydration; encourage use of dentures  
 Ensure hearing aids are in place; promote use of glasses or visual assistive devices  
 Promote sleep and rest  
 Provide a safe environment: bed in low position, proper footwear for ambulation  
 Consider the early integration of restorative nursing programs to target areas such as range of motion, toileting, ambulation, and feeding  
 Consider environmental factors that can support independence during hospitalization.  
 Hospital environmental design should promote independence, increase functional status, minimize bed rest, and promote activities to foster independence, such as hall ambulation, communal dining, and socialization experiences.

care for acutely ill elders may assist in meeting growing health care needs [25].

Promoting independence of hospitalized elders in acute care can facilitate maintaining functional status to prevent decline (Box 3). This article has presented a review of the literature and strategies for promoting independence during acute illness. Box 4 presents a listing of additional resources, including online sources, for best practices for hospitalized elders. Several recommendations for practice, education, research, and policy to promote optimal care for hospitalized elders in acute care are outlined below.

#### *Recommendations*

##### *Practice*

Nurses working with the hospitalized elderly will possess knowledge of the importance of supporting independence during hospitalization.

All nurses will demonstrate awareness and implement activities to lessen functional decline in the hospitalized elderly.

##### *Education*

Nursing educational programs need to incorporate comprehensive geriatric assessment and

review of risks for functional decline during hospitalization as an integral part of the curriculum.

Nurses who care for hospitalized elders need to be knowledgeable about physiologic changes associated with normal aging and disease, risk factors for functional decline, and strategies to support independence during hospitalization.

Hospital staff development programs should address strategies for promoting independence for hospitalized elderly.

##### *Research*

Research is needed on strategies to support independence and mitigate functional decline during hospitalization.

Research focusing on patient responses to hospitalization and characteristics that affect outcomes, including physiologic, psychologic, and sociocultural factors, is needed to promote individualized elder care.

##### *Policy*

Reimbursement must be ensured for hospital-based services and therapy activities to promote independence, increase strength, and enhance

#### **Box 4. Useful resources**

American Geriatrics Society. An online edition of the book *Geriatrics at your fingertips*. <http://www.geriatricsatyourfingertips.org/>

American Geriatrics Society Practice Guidelines: [http://www.americangeriatrics.org/staging/products/positionpapers/aan\\_dementia.shtml](http://www.americangeriatrics.org/staging/products/positionpapers/aan_dementia.shtml)

Claude D. Pepper Older Americans Independence Center at Yale University: [http://pepper.med.yale.edu/pages/pubs\\_list.htm](http://pepper.med.yale.edu/pages/pubs_list.htm)

GeroNurseOnLine: <http://www.geronurseonline.com>. GeroNurseOnline is a comprehensive Web site providing resources and current best practice information on care of older adults, including assessment tools, continuing education models, and *Try This: Best Practices in Care for Older Adults*, a series of assessment tools to provide knowledge of best practices in the care of older adults.

Geriatric Resource Nurses, University of Virginia, Self-Learning Modules in Geriatric Care: SPPICESS: Sleep, Problems with eating and nutrition, Pain, Immobility, Confusion, Elimination, Elder Abuse, Skin, published in *Medsurg Nursing*, 2004–2005.

Geriatric Nursing Protocols for Best Practice, 2nd edition. Mathy Mezey, Terry Fulmer, Ivo Abraham (editors). New York: Springer Publishing Co.; 2003.

Nurses Improving Care for Healthsystem Elders (NICHE) Best Practice Models: <http://www.hartfordign.org/programs/niche/index.html>. The NICHE Tool Kit outlines strategies aimed at improving nursing care to older adults. The Tool Kit contains geriatric assessment tools and instruments, nursing practice protocols, on-line review courses, and other resources.

University of Iowa Gerontological Nursing Intervention Research Center: (<http://www.nursing.uiowa.edu/centers/gnirc/protocols.htm>)

endurance during hospitalization for all elderly patients, regardless of diagnosis.

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# What Critical Care Nurses Need to Know About Health Care Access When Caring for Elders in Acute Care Settings

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You have been a critical care nurse for 10 years. When you arrive for your shift, it has become your habit to look at a list of the patients on the unit, even before you stow your backpack and jacket in your locker. For a long time, you have thought about the number of patients who are repeatedly admitted to your unit. Typically, these people have chronic illnesses, such as pulmonary problems, heart disease, or cancer. Often, they are readmitted with exacerbations of a problem, such as congestive heart failure. Occasionally, the patients do not even make it home before they return to critical care because of problems that develop unrelated to their disease—a fall, for instance, that results in a head injury or a broken hip. You have come to realize that the one characteristic that most of these patients have in common is that they are elderly. Lately you find yourself wondering why these patients keep coming back over and over again.

The problem that the experienced critical care nurse ponders in the scenario above—the critical care admission-readmission cycle—is rooted in when and how vulnerable patients access health care. Donabedian, often considered the father of the quality of care movement, believed that access to care is central to delivering good care to older

adults. According to Donabedian [1], “...it is important to begin with access to care because, without initial access, no care can be given and, without continued access, care is prematurely discontinued.”

Health care system issues, in general, and access to care, in particular, are not problems typically studied by critical care nurses. Rather, initial and continuing education focuses on clinical aspects of care. This focus is necessary to assure that critical care nurses have the expertise to care for patients who need astute surveillance for complicated physical problems and their emotional sequelae, as well as in-depth knowledge and skills related to care coordination for patient stabilization and transfer. This article provides insights regarding access to health care and how it relates to many of the admission and readmission patterns that critical care nurses observe.

Barriers to access and premature discontinuation of care may be root causes of repeated critical care admissions that the nurse considers in the scenario. Readmissions can be as much a consequence of how preventive and postacute services are organized and delivered, as they are a result of individual health choices and disease trajectories. Just as health care professionals have moved from individual to system explanations to reduce medical errors [2], system-driven explanations can help critical care nurses to understand and improve health outcomes for older adults.

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Access to care involves more than whether an individual can get into the health care system. Along with being available, affordable, and easy to use, access also concerns whether care is effective and appropriate [3]. Access needs to be considered across the full continuum of health services, including primary care, hospital care, post-acute services, and the community services that often are essential to maintaining frail elder adults at home. Insurance support through Medicare and, possibly, Medicaid, may not be enough to assure access to care for older adults if other factors in their lives (eg, transportation) limit the use of health care services that are covered by these programs.

Moreover, changes in Medicare and Medicaid coverage and payment also may have a significant effect on how and when patients who are seen in critical care units receive subsequent primary care and postacute services. Health insurance merely gets an older adult the ticket to get “on the bus.” It does not guarantee that they get on the correct bus or to the destination that is most appropriate for them or their families. There are many additional factors related to access that may result in the critical care admission-readmission cycle or the more desirable sequence of safe and lasting transfer outside of the hospital.

### **Defining access as more than health insurance**

The first step in examining access and its effect on patients who may be seen repeatedly in critical care is to define access in sufficiently broad terms. Access to care is defined most commonly as “the timely use of personal health services to achieve the best possible health outcomes [4].” This definition, although brief, is broad in scope and intent. “Timely use” of services requires access to a primary care provider, for example, so that ambulatory care-sensitive conditions (eg, nutritional deficiencies, gastroenteritis, and chronic conditions) are treated in the outpatient setting, not in the hospital [5].

There are seven attributes of access under close scrutiny by private and public agencies. The interpersonal manner of health care personnel covers a spectrum ranging from friendliness and patience to abruptness and disrespect. Provider communication is the foundation for effective teaching, counseling, and exchanging information. Financial aspects pertain to the ability to pay for services. Time spent with health care

providers has less to do with absolute minutes and more to do with whether patients believe that their issues and concerns were addressed. Arranging health care services falls under convenience and includes the time and effort needed to get an appointment or prescription, proximity to care, hours when health services are available, waiting at appointments, and availability of help over the telephone. Choice has to do with whether patients can choose their primary health care providers. Continuity relates to care coordination that is improved when patients have a regular place of care and when there is greater consistency in seeing a single provider. Better continuity of care improves the likelihood that patients will follow treatment plans. Realized preventive health care improves health, reduces the need for hospitalization, and decreases the overall cost of health care.

### **Access to best acute care practices varies**

Repeated emergency room use, multiple unplanned hospital admissions, and critical care stays as in the opening scenario are potential signals of significant access problems. In our current health care system, access to best practices and primary and postacute services can be significant challenges for older adults. When older adults enter the formal health care system, we would like to assume that they receive access to the right care or care representing what we know to be best practices. The results of a recent assessment of the United States health system indicate that is not always the case [6].

Access to best practices varies for patients with myocardial infarctions, congestive heart failure (CHF), and pneumonia as well as across age groups. Elderly patients who have cardiovascular disease, for example, are less likely to be referred for exercise stress tests, cardiac catheterization, and angioplasty compared with younger patients with the same problem [7–9]. These variations may be exacerbated based on race and ethnicity [10–13] as well as income. For example, older adults seen in practice settings with a higher proportion of Medicaid patients were at higher risk for not receiving preventive care [14].

Geographic variations exist as well. Elderly individuals living in rural settings may not get optimal management for some conditions, such as CHF [15]. Similar to studies of elderly patients in urban settings, less than one fourth of the patients were prescribed the recommended doses of

angiotensin-converting enzyme inhibitors.  $\beta$ -blockers were prescribed even less often (eg, 3% of patients). Although echocardiography is important in elderly patients among whom diastolic dysfunction is more common, echocardiograms were done for only about one third of the patients in rural settings, most likely because the equipment was available infrequently.

### Access to primary care and postacute services

Admission to critical care is one part of a sequence of care that includes primary care through postacute services. About one third of Medicare beneficiaries use one or more postacute services following hospitalization, including skilled nursing facilities, long-term care hospitals, inpatient rehabilitation, and home care [16]. A skilled nursing facility is the most commonly used service after hospitalization. Changes in the regulation and reimbursement of each of these services over the past decade have affected the number of older adults using them as well as the scope of services available.

Access to primary care services for Medicare beneficiaries has been scrutinized closely for many years. There has been concern that federally mandated reductions in physician payment rates would reduce older adults' ability to access physicians. The willingness of primary care providers to accept patients with Medicare coverage did, in fact, decline dramatically in the latter part of the 1990s, but it has stabilized [17]. Although reductions in physician acceptance of new Medicare patients were attributed at first to Medicare payment policies, it is now believed that these changes were part of larger system dynamics, such as changes in the supply of primary care providers that affected other populations in similar ways. In recent surveys, about three quarters of physicians report that they will accept all new Medicare patients. It is not possible to forecast how future changes in Medicare payment to physicians will affect physician access for older adults.

Nevertheless, access to primary care services includes features related to "timely use" of health services, such as waiting times for appointments, as well as the ability to find physicians who are willing to accept Medicare payment. Longer waiting times to get an appointment may contribute to substantial delays in assessing and monitoring ambulatory care-sensitive conditions. This may result in hospitalization at higher levels of

acuity [5]. Recent studies show that waiting times for check-ups and appointments for specific illnesses continue to increase for individuals on Medicare. In 1997, Medicare members waited about 10 days to see their primary care provider for a check-up; however, by 2003, their waits had lengthened to 12 days [18].

Since 1997 and the implementation of the Balanced Budget Act, postacute services have shifted from fee-for-service models to prospective payment. Home health care, for example, has experienced dramatic changes in the pattern of service use for Medicare members. In the initial years following the Balanced Budget Act, the percentage of Medicare beneficiaries using home health services decreased by almost one quarter, and the number of visits for beneficiaries using services decreased by 39% [19]. These differences were not uniform across the Medicare population and across home health agencies. McCall and colleagues [19] found greater reductions in use and visits in older populations (>85 years) and in selected diagnosis categories, including diabetes, heart failure, and stroke.

There is limited research on outcomes associated with changes in home care delivery and payment. Findings from initial studies suggest that some outcomes (eg, performance on activities of daily living) may improve, whereas others (eg, wound healing) may decline [20]. It likely will be some time before the impact of payment changes are fully understood. Older patients coming into the critical care areas today who are expected to return to the community on home care can expect substantially fewer visits than were possible in the days before prospective payment. In turn, the health system is relying more on family members and support systems to carry out necessary procedures, monitoring, and support following discharge. Although these patients continue to have access to home care services as they did before the implementation of prospective payment, their access to skilled home services has changed considerably. The implications of these changes for self-care and subsequent hospitalization are not known.

Increasingly, skilled nursing facilities provide short-term postacute services to stabilize medically complex patients in addition to their more traditional use for rehabilitation. The Medicare benefit covers 100 nursing home days following a minimum of a 3-day hospital stay within 30 days of admission to the skilled nursing facility. Similar to home care, there are specific eligibility

requirements for postacute nursing home care that influence patient access, including the required hospital stay and a documented need for skilled care. The average length of stay in a skilled nursing facility for postacute care is about 24 days; however, the rate of readmission to the hospital from this setting is about 20% to 30% [21,22]. This readmission rate likely accounts for some of the admission-readmission cycle that is seen by critical care nurses.

The Medicare program is monitoring the use of postacute services closely. Concentrated efforts are underway to refine the quality measures and payment for these services [23]. Early research findings indicate that patient outcomes, such as recovery after hip or knee replacement, may differ according to the type of postacute setting to which the patient is transferred. There is considerable interest in designing models of postacute care that match patients and payment to the care setting that is most able to maximize desired patient outcomes. At present, however, there is insufficient information to determine the extent to which patients who are discharged from the hospital have access to the setting with services that are best suited to their needs.

### **Potential solutions for improving access**

The dominant frameworks for understanding access to care have focused on individual patient needs and their predisposition to use health care services [24–29]. Although these models include important features of access to care (eg, having a regular source of care, travel time to reach the care source, timeliness in getting an appointment, and time spent waiting in an office or clinic), they tend to emphasize issues related to the first step of getting into the system. As we and other investigators have highlighted, this is only part of the larger access problem for older adults [3].

We believe that solutions to the cascade of access problems for older adults will be grounded in broader perspectives that take into account how the availability of services affects initial and continued access to care and ways to enhance the continuity of care between the hospital and the home. By developing a broader view of access to care, critical care nurses can lead the way to a more complete and accurate view of the patient experience and improved quality of care for hospitalized elders.

A variety of solutions for the access problems that are experienced by elderly patients already exist. These solutions range from hospital-based programs, to transitional models that bridge the gap between the hospital and the community, to comprehensive community-based programs for frail elderly. These solutions need to be better understood by all health care personnel to assure that steps are taken to engage elderly patients in programs that are best suited to helping them sustain access to the type of care that they need. Getting the proper care while problems are less severe may obviate the need for hospitalization. Critical care nurses have a key role in initiating these solutions. There is beginning evidence, for example, that elderly patients whose discharge needs were assessed while they were in critical care were more ready for discharge [30].

### *Hospital-based programs*

By improving access to the kind of care that hospitalized elders need, functional decline, confusion, pain, falls, and the use of restraints can be reduced while mobility, nutritional status, care coordination, and continuity of care can be improved. Clearly, access to this kind of care needs to begin in critical care units if that is where elders begin their hospital stay; however, most hospital-based programs have been delivered on specialized geriatric units. For example, Acute Care for Elders (ACE) units are designed and staffed with the elderly in mind. Studies have illustrated that the process of care was improved for the patients on ACE units, patients and providers were satisfied [31], functional outcomes were improved at discharge [31,32], and patients were discharged less frequently to long-term care [33].

The goal of a second hospital-based program, Nurses Improving Care to Healthsystem Elders (NICHE), is to benefit hospitalized elders by creating system changes in which nursing interventions can make a difference in care [34,35]. The signs of success of these system changes include fewer patients who are acutely confused at the time of discharge [36], a 60% reduction in restraint use, and a lower prevalence of aspiration pneumonia and urinary tract infections [37].

NICHE programs might be particularly attractive to the critical care settings. Along with incorporating features of the ACE units, the NICHE program offers tools to assess staff attitudes, knowledge, and perceptions of care of

the elderly; practice protocols of high relevance to elder care (eg, overcoming eating and feeding difficulties); a LISTSERV to assist with questions and problems; and an on-line certification course. Adding geriatric expertise to their existing knowledge base could help critical care nurses to initiate early interventions that would reduce the admission-readmission problems that are experienced by critical care units.

Because elderly patients get care at many locations in the hospital, it would be most helpful if ACE unit and NICHE concepts were routinely integrated throughout acute care facilities. Strategies inherent to ACE units, including patient-centered care, discharge planning, and medical care review, have high relevance to all elderly patients. Similarly, the essence of the NICHE program is to enhance nurses' expertise in providing care to elderly patients. The expanding elderly inpatient populations may make providing care on designated units impractical. Skills and procedures that improve the care of the elderly need to be acquired by staff and adopted by units throughout the hospital.

*Between the hospital and the community:  
transitional care*

Care transitions occur when patients move from unit to unit or from place to place (eg, acute care to home). Transitions are periods with high potential for compromising the coordination and continuity of care because of breakdowns in communicating patient information and disrupted relationships between patients and their care providers [38,39]. Elderly patients are particularly vulnerable to compromised continuity because they typically have complex health needs reflecting a combination of chronic and acute conditions along with a variety of environmental and socio-economic problems. For elders living in rural settings, health care transitions often are regarded as a crisis [40].

The problems encountered by elderly patients following their transition from hospital to home have been documented. For example, a study of medical patients found that 23% of the individuals experienced an adverse event following discharge. Of these, 12% required an emergency department (ED) visit, 17% required readmission, and 3% died. Almost 75% of the adverse events were medication related; 20% were because of an error in diagnosis or treatment [41]. Consequently, a variety of strategies has been suggested

to improve access to continuity of care, which, in turn, improves the quality of care. It also may help to diminish the admission-readmission cycle that is seen in critical care.

Work is underway to improve how elderly patients are discharged home from the ED to reduce return visits and hospitalization. Brief screening tools [42–45] and telephone follow-up [46] are case-finding strategies that show promise in identifying individuals who are at risk for problems. These individuals can be referred to their primary physicians, social agencies, and community services for assistance; however, because EDs originally were designed to meet the needs of patients who have experienced trauma and acutely ill individuals, staff in the ED may find it difficult to meet the needs of elderly patients, many of whom are functionally impaired [47].

Several programs have been developed and tested over the years to support the transition of older adults from hospital inpatient status to their homes [48]. Many of these programs rely on advanced practice nurses (APNs), case managers, or more recently, transition coaches, to assist older adults in accessing needed services and developing the skills needed to thrive in the community. Two complementary models of transitional care were developed by Mary Naylor, a nurse, and Eric Coleman, a physician.

Naylor and colleagues' [49–52] work focuses on the transition from hospital to home for elderly who are at risk for poor outcomes after discharge by combining comprehensive discharge planning and home follow-up. Master's prepared APNs with gerontological expertise follow research-based protocols to deliver care that is tailored to patient and caregiver goals. Naylor's transitional care model has demonstrated greater effectiveness in preventing readmissions for cardiac patients with medical problems than those who had surgery. Therefore, the model has been refined to focus on the most vulnerable elderly patients, such as those with CHF. Because elderly patients showed a significant decline in their physical, functional, and emotional health 2 weeks after discharge compared with their baseline at hospital admission, the APN home visits begin within 48 hours of discharge. In addition, the APNs may be contacted telephonically 7 days a week. Findings indicate, however, that current methods of identifying patients who need home care are inadequate. It is not clear if beginning discharge planning in the critical care unit would facilitate the identification of patients who might benefit from

Naylor's model. This could be an important role for critical care nurses in case finding.

Coleman's work takes a broader focus by considering the multiple points throughout an episode of care when processes might break down. Coleman and colleagues have developed and tested a transitional care model aimed at reducing the likelihood that elders with complex care needs "fall through the cracks" when moving between settings. The goal of the model is to assist older adults and their caregivers in taking a more active role in managing changes across delivery settings. Their "care transitions" intervention consists of communication tools to enhance sharing of information across settings, strategies to encourage greater participation in care, and a transitions coach. The transitions coach, usually a geriatric nurse practitioner, meets with the patient and caregiver during and following the hospital stay and works with them on strategies to manage their movement across settings [22,53]. Initial evaluation of this model with hospitalized older adults showed a significant reduction in readmission rates [54,55]. Detailed information about this program is available on the The Care Transitions Web site (<http://www.caretransitions.org>).

#### *Community-based programs for frail elderly*

Once elderly patients transition from hospital to community, several innovative programs can be implemented to maintain the needed supports in the community. We highlight four existing programs to illustrate possible ways to improve care outside of the hospital walls. Ideally, critical care nurses will be familiar with these programs, making early referrals of elderly patients where possible.

To better meet the needs of high-risk, frail elderly, staff at a hospital in a large eastern city developed a House Call program [56]. The staff regards this approach as better than office-based practice for managing patients with conditions such as dementia, diabetes, and CHF. Patients enrolled in the House Calls program have good access to care because they have a minimum of monthly home visits from a physician and a nurse practitioner who provide primary care. The use of small teams is a key feature of the program because it supports relationship building among patients, providers, and family members. A variety of portable devices, such as pulse oximeters and blood analyzers, is used to complete tests and treatments in the patients' homes. Each

patient's care is coordinated by a geriatrician, a geriatric nurse practitioner, and a coordinator who is the hub for all communication. By maintaining the elders' independence, assessing and improving their adherence with treatment plans and medication schedules, and maintaining health, this program has reduced ED visits by 30% for this population and hospital admissions by 10% [56].

The second program, hospital-at-home, is more common outside of the United States [57]. Hospital-at-home literally moves hospital care into the homes of elderly patients. This alternative to acute inpatient care was evaluated at three United States sites—two in Massachusetts and one in Oregon [58]. Eligible elderly patients were identified in the ED or at an ambulatory visit. Those who agreed to participate in the hospital-at-home program were transported to their homes by way of ambulance where they were met by a nurse. One-on-one nursing care was provided for 8 to 24 hours, depending upon the patient's needs, followed by intermittent nursing visits at least once a day. The hospital-at-home physician made at least daily home visits along with being available 24 hours a day if the patient's condition deteriorated. Home services included durable medical equipment, oxygen therapy, pharmacy support, electrocardiography, and radiology. Patients who received acute care at home had shorter lengths of stay, fewer complications, lower costs, higher satisfaction, and illness-specific standards of care were met. Moreover, there was no difference between the hospital-at-home patients and the hospitalized patients regarding ED visits, hospital readmissions, admissions to skilled nursing facilities, or home health visits.

The Program of All-Inclusive Care for the Elderly (PACE) was initiated as a Medicare demonstration and has become a permanently funded Medicare program. PACE programs provide a full array of services to frail nursing-home eligible adults to help them remain in the community. Services covered within these managed-care programs include all Medicare- and Medicaid-covered services as well as adult day care and case management. An interdisciplinary case management team provides continuous assessment, monitoring, and coordination of services [48].

Evaluations of the PACE program have found that older adults are extremely satisfied with their care, have low levels of disenrollment, and have fewer admission to hospitals and nursing homes than comparable populations [59–61]. These

programs have been slower to develop and expand than expected, a finding that has been attributed to limited understanding of the program and the lack of financial resources to support more widespread implementation [62].

The fourth program, the Living at Home Block Nursing Program (LAHBNP) was started in the 1980s by two nurses. LAHBNP emphasized the positive role that neighbors and friends could play in helping frail older adults remain in their homes [63,64]. Nurses living nearby in the neighborhood serve as the hub of a local network to monitor the older adult's health status and to get access to needed services. Although this program has not been evaluated extensively, it has had considerable appeal for local communities that are interested in building connections and networks in local neighborhoods.

### Summary

Increasingly, we must view repeated hospital admissions and critical care stays as a system failure that can be improved. Numerous innovative strategies are being used to improve the access of older adults to the full range of services that are needed to successfully manage in the community. Critical care nurses are a vital link in assuring that their patients have access to the most appropriate set of services for self-care and recovery.

Appropriate access to care across the full continuum of health services can interrupt the admission-readmission cycle that was reflected in the scenario at the beginning of this article. It is much more common for critical care nurses to enter the picture late in this cycle (ie, after older patients already have experienced obstacles to accessing primary care and postacute services). A more comprehensive understanding of access to care issues may enable critical care nurses to intervene earlier and break this disruptive cycle.

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## Cultivating Responsive Systems for the Care of Acutely and Critically Ill Older Adults

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Hospitals, as large organizations, are designed to meet the needs of most patients, resulting in an environment that is not always tailored to the total care needs of specific subsegments of the patient population. In many ways, this approach is sensible and used to create efficient systems. Typically, the physical environment is designed in ways that assume patients' functional mobility. This approach to hospital design may not adequately meet the needs of older adults who may have limitations in mobility, sensation, cognition, and communication. For example, in some institutions, strings for lights are located so far behind the bed that only an adult with full range of motion and functional sensation can reach and self-regulate the light in the room. Human resource policies often are similarly designed to maximize efficiency. Typically, staffing is determined by patient acuity systems that assume adults have full independence unless the disease process dictates otherwise. These levels of assessment and monitoring may not adequately capture those dependency needs of many older adult patients, because these dependency needs are unrelated to the chief complaint leading to hospitalization.

Like the challenges inherent in creating a health care system that is responsive to the needs of all patients, it is difficult to design a health care environment that is responsive to the needs of all older adults. Older adulthood encompasses a 4- to 5-decade age range, indicating heterogeneity of characteristics and needs that pose challenges for

professional nurses. Although individualized care is central to professional nursing, limitations in support systems, reimbursement, adequate staffing, and the physical work environment may preclude maximal responsiveness to the individualized needs of this heterogeneous patient population. Cultivating a responsive acute care environment—structurally and professionally—that is designed to provide optimal care for the acute and critically ill older adult population requires specific attention to the complexity of their unique care needs.

### Attributes of responsiveness

Four attributes characterize the professional nursing environment that is responsive to the needs of the older adult population: elasticity, enabling, ease, and equanimity. Elasticity is the ability of a system to stretch beyond its normal state and return to its original state with resiliency. A system that fully meets the needs of older adults must allow the professional nurse to meet disease and nondisease needs of older adults with flexibility that is sufficient to maintain or enhance patients' independence throughout hospitalization. Enabling is the quality by which nurses incorporate the cognitive, sensory, physiologic, psychologic, functional, and moral status of the older adult into individualized plans of care. An enabling environment supports professional nurses in self-directed decision making, meeting self-identified goals of care, and surrogate decision-making when necessary. Ease is the characteristic by which the system supports professional nurses to respond to the dynamic variations in individual characteristics and care

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needs of older adults. Care should be responsive to the dynamic changes within a given older adult as well as responsive to distinct needs across the heterogeneous groups of older adults. The system must recognize the unique characteristics of each older adult and their individualized needs without making cursory clinical assessments or prescribing care plans based solely on overarching preconceptions of the older adult population. Equanimity is the quality of a responsive system that supports professional nurses to portray a calmness and “normalcy” of care provision, even while flexing the elastic system to address the dynamic needs of older adults. A system with equanimity allows professional nurses to adjust the patient environment and care plan to facilitate an equal opportunity for optimal functional recovery among all patients who present to the health system with an acute illness or injury.

### Literature background

To create a health care environment that maximizes its ability to respond appropriately to the diverse needs of the older adult population, we analyzed the body of research that investigates older adult patients. It is important to remember that there is tremendous variability among older adults across age groupings and within age groupings. This variability exists in number and type of health problems, availability of social support, functional ability, and care needs [1]. One study suggested that variables (eg, low levels of education) not traditionally accounted for in research related to hospital outcomes can independently predict poor functional recovery [2]. Likely, future research will provide evidence of yet greater diversity in the characteristics and intricacies of the acutely and critically ill older adult patient population.

The current body of literature strongly suggests that functional decline in older patients is not driven solely by the chief complaint and disease for which they are admitted to the hospital. Whatever the cause, up to half of hospitalized older adults have a loss of or diminishment of at least one activity of daily living (ADL) over the course of their hospitalization [3]. Functional decline in acutely ill older adults is the end product of a complex array of factors, including age, diagnosis, social isolation, physical deconditioning, depression, and the burden of comorbid conditions [4–6].

Atypical presentations of illness in older adult patients may be more common than typical presentations [7]. New illnesses and injuries may present as changes in mobility, falls, musculoskeletal weaknesses, incontinence, confusion, and mood disturbances. Often, these indicators are difficult to assess if caregivers do not have a thorough record of prehospitalization status. Polypharmacy in older adults can affect health and functional status negatively and complicate initial assessment. The number of medications prescribed is increasing in older adults [7], and, along with the use of nonprescription drugs, may result in worsening health status and a decrease in function [8].

The way in which care is structured for hospitalized older adults can significantly affect functional decline. Systems that fail to encourage early mobilization can contribute to poor functional recovery. Enforced immobility during hospitalization is strongly associated with functional decline [9–11]. Research demonstrates a correlation between low mobility in older adult patients and the rate of other adverse outcomes, such as increased mortality and discharge to an institution [11], providing compelling reasons to maximize mobilization. Sometimes, immobility is required to maximize healing and recovery from particular disease processes and injuries; however, more often, forced immobility may be an artifact of institutional habit rather than an intentional therapeutic intervention. One study found that in the low-mobility group of hospitalized older adult patients, 60% had no documented reason for the prescribed bed rest that contributed to involuntary limitations in mobility [11]. Even when immobility is not being enforced, it is important to consider other factors, such as providing hospital gowns that allow for adequate coverage and limit embarrassment, to facilitate ambulation beyond the confines of the hospital room [12].

To facilitate better functional mobility and recovery in older adult patients, health care providers need to address pain adequately. Elderly patients have high rates of chronic and acute pain that can affect function and mobility and contribute to depression, sleep disturbances, and cognitive dysfunction [13]. Acute pain during hospitalization may be the result of a new problem, but it can result from an exacerbation of a chronic disease or injury. Adequate management of pain can improve outcomes as shown in a study of older adult patients who underwent surgical repair of hip fractures. Among study participants, better pain control decreased length of

hospital stay, increased early mobilization, and increased functional recovery [14].

Maintaining consistency in long-held eating and elimination patterns is exceptionally important for older adults admitted to hospitals with acute illness or exacerbation of chronic diseases. Although older adults have decreased caloric requirements compared with younger adults, it is estimated that 20% to 60% of hospitalized and institutionalized older adults suffer from protein-calorie malnutrition (defined as serum albumin less than 3.5 g/dL) [7]. Frequently, older adults have long-established food likes and dislikes and food tolerances and intolerances. These individual nutritional needs often are derived from long-term trial and error of older adults to regulate their digestive and elimination responses. Yet rarely in the hospital setting is there adequate attention to the provision of nutritionally dense food and facilitation of patient choices that encourage older adult patients to better meet their own nutritional needs. Likewise, especially when faced with incontinence or forced immobility, older adult patients can lose control over their own elimination processes.

Physiologic processes are not solely responsible for older adult patients' risk for functional decline during hospitalization. Functional decline can result from psychologic and neurologic comorbidities as well as from psychologic and neurologic complications of physical illness and injury. Cognitive screening that demonstrates cognitive impairment at baseline is associated strongly with functional decline during hospitalization [15]. Sands and colleagues [15] reported that cognitive impairment among older adult patients, as measured using a simple cognitive screening tool at admission, was associated with significant decline in ADLs, intermediate ADLs, and mobility at 90 days posthospitalization.

Ill older adults are already physically or mentally distressed, and displacing them from their usual environments and routines makes it more likely that delirium and behavioral problems will surface during hospitalization [16]. Acute delirium places older adults at high risk for negative hospital outcomes. Delirium may be dynamic and rapidly varying throughout the course of hospitalization, with subtle presentations that may be misdiagnosed. Reported rates of delirium among hospitalized older adults range from 12% to as high as 60% [17]. Acute delirium is associated with poor functional recovery [18], and the effect on function can be profound when unrecognized

or misdiagnosed [19]. Multiple studies have found delirium associated with higher mortality [17], poorer functional status, and mobility decline [18].

Comorbid psychiatric disorders and a new onset of psychiatric disorders are associated with prolonged length of hospitalization [20]. Depressive symptoms may become manifest in older adults when recovery slows or functional abilities deteriorate. Physical functioning is an essential component for adults to perform independently in the many dimensions of their lives. Older adults who experience functional decline or who fail to recover in the expected trajectory are at risk for depression [21]. In a study of older adults who underwent major abdominal surgery, pain, depression, and fatigue were related significantly to functional status and to the patients' perceptions of their recovery [22]. In a study of hospitalized male veterans, aged 65 years and older, patients with the highest risk for physical function decline were those with the highest baseline physical performance status but who self-reported at least a moderate level of limitations on physical functioning [6]. Thus, perception of the impact of health on one's own physical functioning is associated with the risk for functional decline as a result of acute illness [6].

Professional nurses' ability to identify and respond to physiologic and psychologic needs of acutely ill and injured older adults relies heavily on their ability to spend time at the bedside. Adequate levels of nurse staffing is associated with a reduction in negative outcomes in older adults. In the short- and long-term care of older adults, higher staffing levels are related to fewer rehospitalizations for preventable causes [23]. Structural barriers, such as inadequate staffing, limit the time and investment by professional nurses to individualize care, maximize elasticity within the system, and enable quality care.

### **Responsive professional nurses within a responsive system**

The current body of literature demonstrates the great complexity of disease processes and care needs among older adult patients. While acknowledging that it is a significant challenge, health care institutions need to do a better job at building responsive systems that embody the characteristics of elasticity, enabling, ease, and equanimity. The recommendations that follow are intended to assist professional nurses in protecting physiologic

reserve and encouraging better functional recovery of acutely ill and injured older patients.

First, responsive systems must address the multifaceted risk and etiology of functional decline in hospitalized elderly. To do so, the professional nurse enlists the support of the older adult's family and peer network and multidisciplinary team (including, but not limited to social workers, nutritionists, and physical and occupational therapists) to maximize function. Health systems also must encourage positive collegial relationships between physician and nursing staff so that care plans that encourage greater functional recovery are implemented in a timely manner (eg, orders are current and appropriate in terms of mobility control, eating and elimination patterns, sleep patterns, and pain control).

Second, responsive nursing care routinely must include regular and correctly executed assessment of older adult patients. Assessment of function should be performed as regularly as an additional vital sign, with the recognition that variations from baseline indicate the need for closer examination of the causes of functional changes [24]. The use of regular mobility assessment tools can enable nurses to assess, quantify, and communicate mobility levels and changes in mobility more accurately [10,25]. As much as possible, health systems should use standardized instruments to enhance assessment that have been tested and found to be valid, reliable, and responsive for the older adult population. For example, the Functional Pain Scale has been shown to reflect changes in pain in frail older adults better than other pain scales [26].

Nursing assessments always should be interpreted in the context of the older adult patient. Even values or findings that fall within normal limits may not be "normal" for the older adult. Assessment must be attuned to unusual clusters of symptoms that, when coupled with an unexplained change in function, may indicate the presence of an occult illness. In addition, nursing assessment must be sensitive to the effects of new medication regimens, continually assessing for changes in mental, physical, psychologic, and functional status.

Third, a responsive system recognizes the need for individualization of nursing care. Using the information from careful assessment to ensure that patient safety is protected, individualize aspects of hospitalization (eg, meal choice and nutrition) to support long-established self-regulation of diet and elimination patterns [27]. Nursing

also should support and develop innovative approaches to older adults that minimize involuntary immobility [11] and maximize mobility and walking. A responsive system has in place a structured classification of mobility rating [10] that focuses on high-risk older adults (eg, women, those with limited education, multiple comorbidities, pain, and fatigue) who are less likely to walk independently while in the hospital [2,13,20,28] and develop innovative programs to enhance the mobility of older adults, such as the "Walking for Wellness Program" [9].

Fourth, nursing must recognize and minimize the impact of comorbid psychocognitive disorders and the psychocognitive sequelae of acute illness and injury in older adults. Create an environment that minimizes confusion by incorporating family and important others into the care process, infusing familiarity into the unfamiliar environment, and conversing with the older adult about topics and events that are relevant and important to the individual [16]. Recognize that accumulating negative conditions seriously challenge the ability of older adults to adapt [29]. Responsive nurses take active steps to reduce negative conditions, such as physical restraint, foreign environments, and limited sensory input [17].

Nurses must recognize that although cognitive impairment has been shown to be associated with lower levels of ADLs [30], it does not preclude achieving benefits from rehabilitation therapies [31]. Therefore, a responsive system consists of proactive nurses who assess older adults frequently and rigorously to recognize subtle changes in cognitive status that may indicate delirium. The Confusion Assessment Method for the ICU is a valid and reliable tool with which to assess vulnerable older adults [32]. Further, regular screening with tailored instruments, like the Geriatric Depression Scale for depressive symptoms in hospitalized older adults, is important because depressive symptoms can influence the ability to perform ADLs [30].

Fifth, responsive nursing care for older adult patients requires professional development and education within and outside of the workplace. To care for the ever-growing population of older adults who have acute illness and injury, nurses need to have access to the most innovative and efficacious geriatric assessment tools and evidence-based interventions. Education of professional nurses also should include content about systems thinking so that nurses will gain knowledge and experience about identifying systems

that are functioning as facilitators or inhibitors of quality care for older adults. Professional nursing education also must include content about change process so that the professional nurses can negotiate the systems that do not optimize elder care.

Finally, there need to be broad changes in hospital systems to support professional nurses in their care of acutely and critically ill older adult patients. Hospitals must regularly and carefully evaluate care provided to older adult patients in their institutions in key areas (eg, mobility, eating and elimination patterns, sleep patterns, pain control, and the management of psychocognitive comorbidities) and institute system-wide changes when necessary, based on these evaluations. Nursing structure and systems in hospitals also need to support the professional nurse at the bedside with the time (which may require increased staffing of nursing units) and the authority to alter systems of care to best meet the individual needs of the acutely ill/injured older adult. One way to bridge the gap between current hospital practices and those that optimize elder care is to use models of practice that incorporate advanced practice nurses with expertise in gerontology to maximize functional recovery and minimize duration of acute hospitalization [3,33].

### Summary

To create health care systems that are responsive to the unique and individual needs of acutely and critically ill/injured older adult patients, professional nurses need to be provided with the tools for appropriate assessment, the authority to make appropriate changes in care plans based on these assessments, and continuous opportunities for relevant professional development. To provide the optimal environment in which professional nurses can provide optimal care, hospitals need to be willing to make evidence-based system-wide changes in institutional design, staffing needs, and models of clinician collaboration.

To assist hospitals and health care systems to make changes that optimize elder care in their institutions, the research community must continue to provide administrators with evidence-based best practices. Future research must disentangle older adults from the general adult patient population and incorporate models of the "older adult" embedded in the system to explore the complexity of care and interventions that improve outcomes. In addition, quality improvement analyses should

include subanalyses of older adults (from all adults and across decades of life) to identify problem areas and design improvement in care processes to best meet the needs of these patients.

At the policy level, funding for research needs to extend beyond the biomedical model to include the complex social, institutional, family, and community determinants of older adult health. National organizations setting standards for hospitals must develop evidence-based standards that are specific to the needs of acutely and critically ill and injured older adults. It is important that policy and program development at the federal, state, and hospital level do not aggregate older adults into one homogeneous group. Rather, policy and programs should be designed to recognize the inherent variability and complexity of health care problems and needs within the older adult patient population.

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## Hospital Recovery is Facilitated by Prevention of Pressure Ulcers in Older Adults

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Older persons make up about 13% of the United States population and account for about 39% of all hospital admissions. In addition, they stay in the hospital longer, consuming about 48% of all hospital days [1]. Pressure ulcers are areas of tissue damage caused by unrelieved pressure [2] that results in ischemia. About 70% of pressure ulcers occur in adults who are older than 65 years of age [3]; the most common sites are the sacrum and heels.

The rate at which new ulcers develop in acute care settings varies from 0.4% to 38% [4], with a mean incidence of about 7% [5]. The prevalence of ulcers is higher—estimated at about 15%—in acute care. Recovery in patients who have pressure ulcers is delayed, as demonstrated by an increased length of hospitalization and increased health care costs [6]. Several factors present in older people and their environment inhibit speedy recovery. This article addresses recovery in older adults who are at risk for the development of a pressure ulcer. Pressure ulcer prevention and its relationship to recovery are discussed.

### Recovery

Promoting recovery is an integral goal of care during hospitalization. Recovery is defined as the return to an original state, gradual healing after sickness or injury, or regaining or saving lost structural or functional ability [7]. To be useful, the health care provider must understand the

“original state” (ie, the premorbid condition of the person). This can be difficult because decline may have occurred with the illness that demands hospitalization, but the decline may have been slow and subtle. Impaired cognition may be present in the older population so that the elder cannot report his or her functional status accurately. In addition, older adults may present with “confusion” that is diagnosed later as infection or a medical or surgical problem. The issue, in this case, is to define the “original condition” as the basis for establishing the goals of care. A confused person cannot explain his or her prior state accurately. Thus, it may be more useful to consider recovery from the most expansive perspective such that it includes improvement in health and ability to perform, the highest level of function, or independence.

### Vulnerable group

Older people are admitted to the hospital for acute or chronic illness. The presentation of illness often differs from that in younger persons and can be more subtle, frequently presenting with changes in functional status or cognition [8]. By the time the classic physiologic signs of illness are present, the illness often is advanced.

Older people are heterogeneous in their mental and physical status [9] as well as their preferences for how aggressive their health care interventions should be [10]. Generally, the older people are, the less reserve they possess and the less desirous they are of aggressive treatment; however, data indicate that there is sufficient variability in the population that individual assessment needs to be made and repeated at intervals. Being older does not

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always mean that one is willing to give up life-extending procedures in exchange for comfort. Physicians and nurses “assume” rather than ask older adults about their preferences for treatment. Thus, health care providers must consider older adults as individuals, rather than treat them as homogeneous by age group (eg, age 65–74 years, 75–84 years, 85 years and older).

### **Factors affecting recovery in older adults**

Illness and hospitalization increase vulnerability to iatrogenic conditions that affect quality of life and ability to return to the prehospital living situation [11,12]. Inability to transfer from bed to chair, falls, incontinence, pressure ulcers, and confusion are factors that limit the ability to return to independent living after hospitalization.

#### *Loss of function*

Restriction in mobility associated with illness often begins before hospitalization and continues throughout it. Data show that about 20% of community-dwelling older adults have a deficit in at least one activity of daily living (ADL) (eg, bathing, dressing, eating, toileting, and transferring) [13]. Admitted with these known limitations, by the second day of hospitalization, patients 75 years of age and older often have a significant decline in mobility as well as other ADLs [14,15]. Thus, pressure ulcer risk is increased in this population. Moreover, because hospitalized patients may have several days when they do not perform their own ADLs, they may not recognize the deterioration that has occurred with hospitalization. The oldest old (85+ years) are at the highest risk for poor functional outcomes [15,16]. In addition, those with symptoms of depression are more likely to deteriorate during hospitalization, and a greater number of depressive symptoms is associated with a more dramatic decline in ADLs and instrumental ADLs [17].

Decreased mobility secondary to the underlying disease or its treatment is an iatrogenic effect of hospitalization and contributes significantly to the older adult's future. For example, stroke often results in hemiparesis, limiting the older adult's ability to turn in bed and to recognize that the affected part exists. Iatrogenic effects of treatment also are seen in abduction pillows that splint legs after hip surgery to maintain the position of a new prosthesis. Decreased mobility may be due to underlying disease or treatment; although

some patients recover the ability to perform ADLs, many do not. Loss of function has significant effects on the elderly and contributes to deconditioning; it is manifest in muscle wasting, fatigue, and the inability to perform ADLs, and, ultimately, to return to independent living or the need for future assistance in performing self-care.

Recovery needs to focus on mitigating the effects of immobility with its concomitant loss of muscle mass, altered ability to use oxygen at the cellular level, and so forth. Consideration should be given to maximizing mobility in the older person to mitigate the negative effects of drugs, treatments, or physical restraints. Ultimately, discharge location in older persons depends on the available support in the environment and the individual's ability to perform ADLs [11]. To live alone, individuals must be able to transfer from bed to chair independently [12].

#### *Changes in cognition*

Often, cognitive status also is affected significantly by hospitalization. Considering that nearly 11% of community-dwelling elders have cognitive impairment [18] and that the proportion of persons who have cognitive impairment increases with age, it should come as no surprise that older hospitalized persons often have cognitive impairment. The hospital environment contributes to the change in cognitive status because with hospitalization there is a loss of familiar environmental cues, calendars, clocks, and the routine of activities, meals, and outings as well as the physical isolation of limited visiting hours. Often, changes in cognition are subtle, and cognitive status must be purposefully evaluated in older hospitalized patients.

Cognitive status often declines with hospitalization. Alteration in cognitive status is a risk factor for pressure ulcers, a decline in ADLs [18,19], and the inability to adhere to the treatment regimen. Moreover, cognitive status is not assessed systematically. A more thorough assessment is needed; it is not enough to assess only orientation to time, place, and person.

#### *Concomitant disease*

Most older people have multiple comorbidities that interact to affect recovery after hospitalization. Treatment of acute illness and the prevention of pressure ulcers require consideration of the comorbidities. Drug treatment of one condition may affect the other conditions. For example, a diuretic

may produce fluid loss to such an extent that subclinical hypovolemia is created, predisposing the person to pressure ulcers. Therapies that are appropriate for treatment of one condition may be contraindicated in another; therefore, consideration of the entire person becomes pivotal in successful hospitalization. For example, in ventilator-dependent pneumonia, practice guidelines recommend that the head of the bed be at 30° or more, whereas those for pressure ulcer prevention recommend that the head of the bed be at 30° or less. Data show that management of the multiple medical conditions that are seen in older adults often requires evaluation of how evidence-based guidelines can be used. Many available treatment guidelines do not address older people specifically and even when they do, the use of guidelines for several conditions may lead to inappropriate treatment [20]. Clinical judgment is needed in weighing competing recommendations. Treatment of acute illness is facilitated best by comprehensive geriatric assessment and an interdisciplinary team that can address the entire elderly person, not just manage the disease [16].

## Pressure ulcers

### *Risk assessment*

The prevention of pressure ulcers has been studied extensively [2,21,22], and there is a consensus that early identification of risk status is critical to the initiation of timely interventions that are tailored to the specific risk factor [23]. For example, if nutritional status is poor, a nutritionist consultation is requested, and the recommendations are acted upon quickly. Because the average hospital stay is short—less than 6 days for older people—risk assessment needs to be completed at admission and acted upon. Admission is a busy time; unless the nursing staff is sensitized to the need for rapid and decisive action, the evaluation of pressure ulcer risk may be no more than completion of routine admission paperwork and never appreciated as the basis for driving individual care. In addition, because of the acuity of hospitalized patients and the many procedures that they undergo, daily reassessment and reevaluation of the plan based on the direction of change is needed.

The Braden Scale for Predicting Pressure Sore Risk is easy to use and is used widely in acute care. Its six subscales are sensory perception, moisture, activity, mobility, nutrition, and friction

and shear, each of which is scored based on descriptive criteria. The total score ranges from 6 to 23, with a higher risk seen with a lower score. Usually, the score is dichotomized into categories of “at risk” or “not at risk,” based on the score obtained [19]. Data show that the Braden scale can predict pressure ulcer development across various subpopulations (ie, African Americans, whites, Hispanics [24,25], and Chinese [26]).

Brown [23] examined the psychometric properties of the Braden scale reported in published papers ( $n = 15$ ) and concluded that it is a useful scale that is used widely in pressure ulcer prevention programs. The scale predicts that more people will develop an ulcer than do; the reason for this is hypothesized to be that when patients are identified as at-risk, interventions are initiated that prevent ulcers. It would be unethical to withdraw nursing care merely to establish the value of the instrument. The Braden scale’s ability to predict who will not develop an ulcer is good, averaging more than 95%. Other pressure ulcer risk scales can be used; however, the extensive psychometric data on the Braden scale make it especially attractive because it allows comparison of a specific facility or corporation’s data with that published in the literature.

### *Interventions*

Reducing the amount and duration of interface pressure between the bed or chair surface and the individual’s tissue, complemented with reducing friction and shear, have been the mainstay of pressure ulcer prevention. Getting the older person out of bed to bear weight and ambulate is important to maintain strength and prevent loss of muscle mass. How frequently older hospitalized persons should be up and how far they should walk during their recovery have not been established. Graf [16] suggests creating an elder-friendly environment, with handrails on the walls, chairs placed strategically to allow rest, and distances marked on the floor.

Patients who are unable to turn themselves need to be turned in bed using a preplanned schedule. This might include the person who has undergone spine surgery as well as those in critical care who are therapeutically paralyzed. Generally, 2-hour turning is the longest duration recommended, watching for erythema to develop in dependent parts and reducing the time between turning as needed. Pillows, foam blocks, and blankets are used for

maintaining position. Posting of the turning schedule as a reminder for the patient, family, and health care team aids in adherence to the schedule. Positioning at not more than 30° lateral has been recommended [2], although this is not supported by data that examine its ability to prevent ulcers [22]. Special attention needs to be given to keep the heels off the bed surface, because the incidence of ulcers at this site is on the increase [5].

Bed mattresses and overlays have been used to prevent pressure ulcers. Most are pressure reducing and exert their effect by dispersing the body weight over a larger area. They are either static or dynamic; static surfaces include foam, water, gel, or air, whereas dynamic devices use a motor to move air in and out of the system. The literature on bed surfaces is complex and difficult to understand. Most randomized clinical trials (RCTs) in the systematic review of interventions to prevent pressure ulcers examined support surfaces (n = 48) [22]. The investigators used a checklist to evaluate the quality of the studies [27]. They concluded that although the methodological quality was variable, the overall quality was weak, especially in the areas of concealment and follow-up of study subjects.

The review by Reddy and colleagues [22] showed that specialized foam mattress overlays on the operating room table prevented ulcers; foam and dense, thick sheepskin overlays were superior to a standard hospital mattress in reducing ulcer incidence. With regard to seat cushions, gel cushions were more effective in ulcer prevention than were foam ones. In the RCTs (n = 14) that compared dynamic and static support surfaces, only three found that the dynamic surfaces were better. Another found that dynamic and static surfaces were better than a standard surface. When an overlay was compared with a dynamic surface, there was no difference. The mobility studies (n = 3) showed that rotating beds were no more effective than were standard hospital or ICU beds.

Cost, comfort, and ease of use also are of concern when selecting a bed surface. Static surfaces are most economical, followed by low-air-loss surfaces; the most expensive are air-fluidized surfaces. Dynamic devices are noisy, and clinical experience indicates that noise is disturbing to patients and can contribute to disorientation and confusion. Thomas [21] recommended selection based on cost and ease of use.

Nutrition is important to recovery and pressure ulcer prevention in older hospitalized adults.

Good nutritional status is linked with positive outcomes, whereas malnutrition is linked with poorer outcomes, including death, dependency in ADLs, and admission to a nursing home [28]. Thomas and colleagues [29] found that malnourished patients at hospital admission were twice as likely to develop pressure ulcers as were well-nourished patients.

With regard to nutrition (n = 5 RCTs) in the review article by Reddy and colleagues [22], one study showed that critically ill patients who received two supplements per day did better than those who received only the standard diet. The other studies showed no difference with nutritional supplementation.

Recently, it was recognized that older people require higher levels of protein to maintain tissue tolerance, maintain reserve capacity, and prevent longer recuperation. The current recommendation is an increase in daily intake from 0.8 g/kg to 1.0 g/kg [30]. Chernoff [30] acknowledged the difficulty in getting older hospitalized patients to ingest this amount of protein; however, making them aware of the target intake should be helpful to some patients when they choose what they will eat (eg, potato chips versus a glass of milk).

Hydration has been recognized as an important issue in the elderly; in fact, underhydration was identified in a small sample of persons who had pressure ulcers [8]. Many hospitalized persons cannot reach the fluid left at the bedside, and the nurse often offers less than 3 ounces with medications. Water, which may not be palatable to some, is the only available drink from the time that dinner trays are collected until breakfast arrives. The hospital environment could be modified to make fluids more available to patients throughout the day and night. In addition, the calculation of fluid needs by routine fluid formulas resulted in the underhydration of patients who undergo surgery [31]. Further work is needed to develop systems to hydrate hospitalized older adults appropriately.

Several changes in the skin with age predispose older people to pressure ulcers: flattening of the dermal-epidermal junction, decrease in rete pegs, delay in keratinocyte migration, decreased cells in the dermis (fibroblasts, mast cells, macrophages), altered quality of the collagen, and decreased vascularity [32,33]. The changes result in a skin that is more vulnerable to injury and has a slower response when repair is needed. Moisturizing the skin supports tissue tolerance, and one study showed that fatty acids were superior to placebo in preventing pressure ulcers. There was no benefit

shown in the studies that examined nicotinate and hexachlorophene, squalene, and allantoin [22].

Recent papers synthesized available prevention strategies for pressure ulcers [4,21,22]. Most of the reviewed studies addressed a single intervention. Although well-designed, examining a single intervention does not reflect the real world of clinical care where multiple interventions are used, and it is possible that a significant portion of their benefit is due to the interaction of the interventions (eg, providing skin moisture with topical agents as well as thorough provision of oral fluids).

The Institute for Healthcare Improvement [34] and its partners have recently undertaken the campaign “Protecting 5 Million Lives from Harm” to prevent pressure ulcers. In their plan, they bundle evidence-based interventions and propose a six-step approach to pressure ulcer prevention. In addition to outlining the steps of the campaign, they recommend processes that hospital personnel can use to ensure compliance with their recommendations.

Their first recommendation is admission risk assessment and skin assessment with processes that focus on assessment within 4 hours of admission, the use of a standard risk assessment tool that is easy to use (check boxes), and the inclusion of visual clues on the admission documentation form as well as on the chart and patient’s door to communicate risk status to the patient, family, and health care personnel.

The second recommendation is daily reassessment, in recognition of the changes that occur during hospitalization. For example, surgery or underlying illness may compromise admission risk status, delirium frequently develops during hospitalization, and alteration in fluids and nutrition intake often takes place. The process emphasis is on adapting documentation, educating staff about pressure ulcers, and using valid risk assessment.

For those identified at risk, several additional interventions are suggested. First, daily skin inspection is recommended. The process focus is on documentation, education, and inspection during routine care activities, such as moving the patient or during bathing.

Next, keep the skin clean and dry. Cleanse with a mild agent, and use moisturizers on the skin [2]. The authors recommend combining activities into a protocol that includes repositioning, assessing skin, applying a barrier agent and offering oral fluid. Keep disposable items, such as underpads that wick moisture from the skin and disposable wipes for cleansing, at the bedside.

Another recommendation is to optimize nutrition and hydration. Processes to facilitate this step are assisting patients with intake, notifying the dietician of impaired intake, and assisting patients with water each time they are turned. Bundling this process is suggested: offer toileting, provide for clean skin, and offer water.

The final step is to minimize pressure by turning (or repositioning) and using pressure-relieving surfaces when needed. Processes to support this change include using tools inside the patient’s room as well as musical cues or beepers to remind caregivers to initiate turning/repositioning. Several articles reported the value of interdisciplinary work and a program of pressure ulcer prevention in reducing the incidence of ulcers [35].

A program for the prevention of pressure ulcers needs to be integrated into the overall care of older patients in hospitals. For geriatric patients, pressure ulcer prevention and recovery are compatible goals that need to be integrated into the interdisciplinary geriatric assessment team.

Strategies to support pressure ulcer prevention are consistent with basic nursing care and need to be undertaken early in the illness trajectory to prevent deterioration and facilitate return to preillness status. These strategies are based on comprehensive geriatric assessment that is conducted early in the hospital stay. The perspective of the entire team allows for a plan for recovery to begin in early hospitalization.

Recognizing that older people are characterized by postural instability, decreased muscle strength, and limited physiologic reserves and that immobilization leads rapidly to deconditioning, early planned interventions that are developed by the interdisciplinary team are critical. The family should be an integral part of developing and implementing the plan of care. Their expectations, ability to participate in care, and the resources that they bring to the situation are considered when developing a comprehensive plan.

## Summary

Hospitalwide programs that are focused on recovery and pressure ulcer prevention for older persons need to be developed and supported. An interdisciplinary team is more effective in managing older patients than is the use of multiple disciplines and subspecialties whose treatments may be contradictory. There is a body of knowledge around

the care of older people that, when used by nurses, facilitates recovery and pressure ulcer prevention. It can be packaged in a variety of ways (eg, Acute Care for Elders (ACE) unit, Nursing Improving Care to Healthsystem Elders (NICHE) hospital) [36]. The important thing is to recognize that the care of older persons has a unique body of knowledge and to be effective, it must be applied to the care of older hospitalized adults.

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## Maximizing Safety of Hospitalized Elders

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The Institute of Medicine estimated that as many as 98,000 deaths occur each year in United States hospitals because of medical errors [1,2]. Patient safety and protection from harm are major concerns of the public and of health care providers in caring for hospitalized patients. This concern is transforming care as evidenced by current nationwide initiatives focused on the safety of hospitalized patients, including the Institute for Healthcare Improvement (IHI) 100,000 Lives Campaign, the Joint Commission on Accreditation of Healthcare Organization (JCAHO) National Patient Safety Goals, and the safety emphasis of the National Database for Nursing Quality Indicators [1,3,4]. In general, most efforts to improve the safety of hospitalized patients are directly applicable to hospitalized elderly. Nurses have a vital role in safety efforts because nurses are inseparably linked to patient safety as point-of-care providers and decision makers. This article outlines approaches and recommendations to maximize the safety of hospitalized elders with an emphasis on the nurses' role in keeping hospitalized elders free from harm.

Concern for the safety of patients, particularly elderly patients, in the context of hospital settings is not new. The Harvard Medical Practice Study I [5,6] examined the incidence of adverse events and negligence in hospitalized patients. They found that adverse events increased with age and that elderly patients were at a higher risk for adverse events [5,6]. Although only 27% of hospitalized patients studied were older than 65 years of age, they experienced 43% of all adverse events [5,6].

Patients 65 years of age or older had more than double the risk for errors compared with those who were between 16 and 44 years of age [5]. Miller and colleagues [7] found that patients between 65 and 74 years of age had the highest rates of adverse patient events related to errors.

### Common risks and vulnerabilities of elders

Commonly, elderly patients are frail and vulnerable, which put them at increased risk for adverse events. Elderly may have a diminished acuity of senses; decreased sensations of hot and cold increase the risk for burns, diminished eyesight puts them at risk for falls, and frailty, often including fragile skin, puts them at risk for decubitus formation. Tsilimingras and colleagues [8] identified "geriatric syndromes" that include a variety of medical conditions or events, such as falls, delirium, pressure ulcers, and underfeeding. They suggested that geriatric syndromes should be viewed as medical errors. To keep elder patients safe, it is important that these frailties and vulnerabilities be considered and compensated for when possible. A comprehensive review of each of these syndromes is beyond the scope of this article. These common syndromes are unfortunate, expensive, and of significant concern for those who care for hospitalized elders. An approach to care of elders includes maintenance of a healthy suspicion (cautious caring) and a conservative approach to intervention.

### Establishing a culture of safety

A culture of safety within a culture of caring concern is essential for elders who are hospitalized

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in acute and critical care settings. The conscious decision to provide safe care should be reflected in planned actions and specific improvements in unit-based and hospital-wide safety outcomes. To maintain a culture of safety, the concepts of environmental structure and process, staff attitudes, and staff behaviors must be integrated in efforts to achieve desired patient safety. Teamwork and effective communication must be supported by an environment that focuses on reporting of error and a desire to learn from errors. To that end, application of the nursing process in the contexts of teamwork and systems of care must combine with diligent emphasis on elder risk assessment and targeted interventions to maintain patient safety. All are key elements that enable the hospitalized elder to feel safe, act safe, and be safe.

#### **Approaches to safe care: role of the nurse**

Nurses can play key roles in instituting programs or practices to improve the safety of elders and reduce safety risks and adverse events while elders are hospitalized. Approaches offered to aid nurses in the safe care of elders focus on key foundational areas (Box 1).

Within these broad approaches, a wide range of strategies can be used that reflect the relevant underlying scientific and evidence base for practice. Recommendations are made for use by professional nurses to address the safety needs of hospitalized elderly persons.

#### *Nurses' work environment*

The health care work environment affects patient safety. Following Aiken and colleagues' [9] landmark report in 2002, the Agency for Healthcare Research and Quality charged the Institute of Medicine to study the nursing work environment to identify key elements that likely impact patient safety and to recommend improvements that might increase the safety of patients [10]. It has been suggested that the environmental structures and processes within an organization, the attitudes and perceptions of the workers, and the safety related behaviors of individuals, affect the culture of safety within an organization [10,11].

Nurses' work environments contribute significantly to whether a patient is safe or not safe. Environmental structures and processes in the organization can contribute to low errors

#### **Box 1. Approaches to enhance the safety of hospitalized elders**

Enhance the nurses' work environment  
(to reduce turbulence and enhance performance)  
"Systems thinking"  
Care coordination and communication  
Engaging patients and their families to be vigilant with regard to safety  
Optimizing the physical hospital environment  
Safety foremost in procedures, protocols, and processes of care  
Early detection and rapid response  
Programs of safety with documentation of outcomes achieved  
Appropriate use of technology  
Appropriate medication use, including adjustment of drug doses, use of "safe" drugs, safe administration, drug reconciliation, and assessment of use of non-prescription agents  
Infection monitoring and prevention  
Evidence-based risk assessment and reassessment  
Appropriate staffing levels  
Increasing geriatric knowledge

and accidents [10]. Reduction of distractions during provision of care or during medication administration is important to patient safety. In the work of Lamb and colleagues [12], the turbulence at the unit level was associated with medical errors; also relevant to their findings were nursing culture and team culture. Elements of turbulence included the number of patients per day, accessibility of resources and support services, perceptions of control, and the distances required for the nurse to accomplish assigned work. Nursing culture included control over practice, nurse communication, and job satisfaction; team culture factors were related to communication, relationships, and one's self-regulation. Careful attention of professional providers singly—and as members of well-formed teams—and the availability of necessary resources may affect patients' hospital outcomes.

The work done by the American Association of Critical-Care Nurses to improve the nurses' work environment in critical care is another illustration of an initiative that can contribute to

safety and improved care of patients, especially those who are elderly. Underlying the approach to safety is the importance of prevention through the knowledge and anticipation of possible threats to the well-being of elders.

### *Systems thinking*

In the Institute of Medicine Report, it is noted that safety is founded in a systems approach. “Systems thinking” is an essential foundation of safety. Although “to err is human” [2], and human habits may be hard to change, the context and systems surrounding the human element are changeable and should be targeted for evaluation and strengthened to support good decision making to reduce opportunities for error. The goal is to build systems that support decision making and help providers to avoid mistakes [10].

Systems thinking is required to realize progress toward patient safety goals. The National Patient Safety Agency (NPSA) and JCAHO have long recognized the importance of a broader perspective on the events surrounding a patient’s hospitalization. For safety-related events not to be dismissed as merely random uncontrollable events, there needs to be an examination and understanding of the underlying systems that are working (or not working) and a focus on the creation of predictable outcomes based on knowledge of the patient’s condition, processes involved in the delivery of therapies, and the organization of the environment of care. In general, there is a need to overhaul systems of care to create integrated systems of patient care. Much work remains to be done; current hospital patient safety systems have not achieved the desired effects [13,14]. In this effort, nurses—who represent the single largest professional element of the health care team and who provide hours of direct patient care—are in an ideal position to assume shared responsibility for patient safety and to contribute to the development of systems to enhance the safety of hospitalized elders.

### *Enhancing communication and coordination of care*

Coordination of care to avoid fragmentation is vital. Care that is not fragmented within and among professions and the coordinated work of a multidisciplinary team enhance patient safety. Clear and effective communication among members of a team is foundational to patient safety. Improved information exchange can result in improved safety [15].

The sheer numbers of nurses and other care providers who may or may not be communicating in the care of hospitalized elderly can result in confusion, redundancy, or working at cross purposes that often may be to the detriment of the patient—even to the point of posing a safety risk or harm. Electronic systems of documentation that provide the foundation for coordinated point-of-care information and are used by all professionals may improve communication among professionals. Nurses can be central in the work to improve communication among members of the health care team. They may model communication pertaining to care (assessments, plans, and interventions) and set clear, consistent, and explicit expectations for all providers of care to elderly on the unit to meet that expectation.

### *Engaging patients and families in care*

Patients and their families can contribute to safety. Surrounding the patient with the support of family is one approach to ensure that the elder is cared for safely. Engaging patients and their families as vigilant partners in safety may have positive results. SPEAK UP™ is a national program to encourage the patient to assume an active role in one’s care; programs such as this can use the patient’s knowledge to contribute to the shaping of positive safety outcomes [16]. Nurses, by promoting patient and family involvement and engagement in care to the extent that they are willing and able, create a culture whereby patients and their families are active participants in decision making. Nurses who develop and use methods to engage patients and families in mutual patient safety-related goal setting attainment are more likely to meet unit and hospital safety goals.

### *Optimizing the physical hospital environment*

The physical hospital environment is the source of numerous factors that put patients at increased risk for harm and adverse health and safety risks [17]. Danger lies in infectious organisms and invasive procedures that break the line of defense of the skin and disruptions in patients’ health routines, nutritional practices, and restorative sleep. While hospitalized, patients receive therapies and medications with a range of benefit as well as the potential to do harm. As part of the establishment of a culture of safety, the care environment, policies, and activities should undergo a careful analysis for potential redesign. The

environment should be designed to be safe and functional and should contribute directly to enhanced patient safety. Hospitals should be designed to be safe with regard to the risk for falls, fires, and other hazards that could result in harm to the patient. For example, consideration should be paid to lighting from windows that could cause glare and disorient a patient and darkness that may impede safe navigation or result in stumbling. Flooring should be designed to reduce or prevent slipping, and room and unit floor layouts should provide safe navigation by elders with paths free of obstacles on which patients may trip.

Nurses can participate in the design of environments for elders with safety in mind, including lighting, handrails, and bathroom design; convenient access to equipment aids; bed and chair sensors, and seating and gait aids; selection of furniture with rounded edges; and high-low mattresses to prevent injurious falls. Nurses can be vigilant in their consideration of environmental obstacles and challenges and can work to eliminate or overcome them.

#### *Safety foremost in procedures, protocols, and processes of care*

Procedures, such as proper patient identification before drug administration and medical therapies, are crucial, including the use of two identifiers when treating and medicating. Procedures and processes should be set up or revised with the safety of elders foremost in mind. It is incumbent on nurses and other providers to make a commitment to provide safe care and to act on this commitment together. For example, targets for improvement might include accuracy of patient identification or reading back verbal orders. Standardized abbreviations should be used across the organization. Nurses also may contribute to a standardized “hand-off,” formalizing procedures that facilitate the communication of essential information about patients and their care and the opportunity for clarification.

#### *Early detection and rapid response*

Early detection is a vital element of care to avoid precipitous patient decline. Early detection may prevent devastating medical events or outcomes and may save patient lives. For example, early detection may include the Rapid Response Teams concept of the IHI [18]. There was a 50% reduction in non-ICU arrests with the use of a rapid response team [19]. Early recognition

and early management also may reduce injury and enhance outcomes of delirium [20].

Safety is a process. It is essential to assess and reassess patient risks for harm to identify risks early and institute prompt action so address risks to effectively address these risks and thus reduce or attenuate harm. It is essential to monitor the physiologic, emotional, cognitive, and spiritual status of elders. In doing so, sudden or insidious changes from baseline can be noted and interpreted, and early intervention may be instituted to appropriately address any problems identified.

#### *Programs of safety*

Programs of safety have documented improved patient outcomes. Formally developed unit-based or institutionally based safety programs are essential to gather data, set benchmarks, set goals and standards to be part of daily care, and from which to gauge and evaluate progress in the improvement of the quality and safety of care. Programs should have reporting functions that enable other institutions and providers to learn from the experience of others so that changes in care may be made in response and repeat incidents can be avoided. Surveillance, sentinel event reporting, and root cause analysis are key elements of safety programs and continuous improvement processes. Identification of high-risk processes, and high-risk patients to target, and associated measurement systems to provide the capacity to assess, measure, and close safety gaps can improve safety outcomes.

Formal programs of safety must embrace the elders in the hospital environment. Protocols that anticipate and explicitly address factors that put elders in harm’s way should be in place at the unit and institutional levels. Indeed, NPSA, JCAHO, and other national organizations recognize the vulnerabilities of patients and have created patient safety goals and guidelines to keep patients safe [3,21]. These evidence-based sources provide resources for application to care settings and they can be specifically adapted for the care of elderly. A list of Web-based resources is included in **Box 2**.

In July 2002, JCAHO announced its program to set annual national patient safety goals, required to be implemented and maintained [3]. Goals included improvement in patient identification, effective communication among caregivers, safe medication use, effective use of clinical alarm systems, reduction of care-associated infections, reconciliation of medication, and patient falls

**Box 2. Patient safety-related Web sites**

[www.patientsafetycenter.com](http://www.patientsafetycenter.com)  
[www.mnpatientsafety.org](http://www.mnpatientsafety.org)  
[www.qualityforum.org/](http://www.qualityforum.org/)  
[www.jointcommission.org/](http://www.jointcommission.org/)  
[www.patientsafety.gov/](http://www.patientsafety.gov/)  
[www.iom.edu/](http://www.iom.edu/)  
[www.ahrq.gov/](http://www.ahrq.gov/)  
[www.improvementskills.org/](http://www.improvementskills.org/)  
[www.leapfroggroup.org/](http://www.leapfroggroup.org/)  
[www.nursingworld.org/quality/  
database.htm](http://www.nursingworld.org/quality/database.htm)  
[psnet.ahrq.gov](http://psnet.ahrq.gov)  
[www.jointcommission.org/  
PatientSafety/pt\\_safety\\_plan.htm](http://www.jointcommission.org/PatientSafety/pt_safety_plan.htm)  
[www.nap.edu/books/0309090679/html/  
23.html](http://www.nap.edu/books/0309090679/html/23.html)

[3]. To effectively implement organizational systems improvement in safety requires a comprehensive database and detailed attention to action based on data patterns and trends. System-based improvement processes can improve care quality and patient safety.

Nurses may participate in the development or implementation of a patient safety plan specific to elder needs and system-wide safety programming to document, benchmark, and report on safety-related incidents.

*Appropriate use of technology*

The wise use of technologies can help to keep elder patients safe. For example, the use of monitoring devices for alerting staff when patients get out bed or skin probes to detect heat or shearing forces may help to prevent adverse outcomes. Thermostats could measure the temperature of skin; other technologies adapted or created for patient safety to alert care providers when the elder is in danger of imminent risk for incident or injury. Computer-based algorithms could alert nursing staff when patients' risk factor profiles change as, for example, in changes in mobility or nutrition that increase pressure ulcer risk.

Technology has been applied effectively to a range of health care processes. Computerized profiles, screening, and alerts are examples of the use of technology in monitoring and early detection. Errors in medications can be caught and corrected through computerized analysis and

detection systems. Computers also can be used for prescriber order entry; such systems enable orders to be checked against patients' medication profiles (eg, including allergies and drug interactions). Electronic health records should be available to aid in the continuity of care so that nurses will have access to point-of-care information to inform their actions.

*Appropriate medication use**Dosages*

Because of physiologic changes to body systems, comorbidities, and common reduction in body mass and hydration, a reduction in the dosages of medication is indicated. Medication dosages may need to be adjusted [downward] because of changes in renal function or metabolism.

*Types of medications*

There is a list of medications that should be used with caution when given to elders [22]. When used, drugs on this list should be administered with proper dosing and careful monitoring.

*Process of administration to promote accuracy*

Accuracy (reduced error) may occur when technology is used to aid drug use processes. Technology used for unit dosing, bar codes, electronic orders checked against patient profiles, and electronically conducted redundant checks may improve safety and reduce drug error and drug-related adverse events.

*Safe use of nonprescription/nontraditional preparations*

Another area of attention relates to the use of complementary and alternative therapies. All patients should be asked about their use of complementary and alternative therapies so that therapies prescribed can be adjusted properly or withheld in cases of probable interaction or the potential that prescribed therapies may be incompatible with nonprescription preparations (eg, herbal remedies). Such therapies also may be contributory to the elder's hospitalization. Medication reconciliation upon entry and setting transitions should be inclusive of alternative or complementary therapies used by patients.

*Medication reconciliation*

Medication reconciliation is an essential element in patient safety to prevent overdosage, interactions, undermedication, and other drug-related errors and adverse events [23]. Research

showed that more than 50% of medication errors occurred at transition points [23]. Elders take more medication and may be more vulnerable at transitions in care. Reconciliation involves obtaining a complete list of the patients' home medication and comparing it against the patient's admission and transfer/discharge drugs. Discrepancies should be resolved by the prescriber. This has been shown to reduce medication errors (70%) and adverse events (15%) [23]. Full review and consultation are needed to make sure that there are no drug redundancies or interactions. To help decrease or eliminate risks, careful assessment of the necessity of all medications also can take place at this time to ensure that unneeded medications are eliminated. To illustrate, in the creation of a predictive model of delirium, Inouye and Charpentier [24] identified the additions of more than three medications as one of the five precipitating factors for delirium. Physicians should actively engage in medication reconciliation, monitor drug effects, and administer drugs conservatively to the elderly.

#### *Infection monitoring*

Infection prevention can reduce morbidity and mortality in the elder patient [25]. Upholding standards, including preventive and appropriate treatment regarding infectious agents, can result in improved patient outcomes. It is essential that nurses and other professionals comply with Centers for Disease Control and Prevention hand hygiene guidelines. It has been recommended that providers manage death and loss of function as sentinel events if caused by infection.

#### *Evidence-based risk assessment and reassessment*

Screening for the presence of major risks to safety followed by a comprehensive risk assessment and ongoing reassessment for changes in safety risk can improve elders' safety-related outcomes. Risk assessment followed by evidence-based tailored intervention or care protocols that are responsive to the risk identified can improve patient safety. Critical to this is the use of evidence-based risk assessment tools that are appropriate and sensitive when used with hospitalized elder populations. The "one size fits all" approach does not meet the needs of any patient population, especially the elderly. Fall risk tools and skin assessment tools need to be specific to the characteristics of the elderly. For example, assessing fall risk, risk for delirium, and risk for

decubitus development can trigger protocols to monitor, prevent, or detect conditions early. Level of sedation, psychiatric disorders, drug or alcohol abuse, changes in physiologic status, and delirium are areas for assessment that are particularly germane to elder safety. Nurses should conduct risk assessments upon admission and at periodic intervals or as an elder patient's changes are identified.

#### *Appropriate staffing levels*

Appropriate staffing levels can improve safety [8]. Protocols for adequate staffing should be implemented to reduce the risk for patient harm [15]. There should be adequate staff to cover shifts without requiring nurses to work an excessive number or length of shifts or be scheduled routinely for overtime hours. Rogers and colleagues [26] demonstrated that error is three times more likely when nurses have worked shifts of more than 12.5 hours. Direct care provided by qualified professional nurses, rather than ancillary providers, can improve outcomes [27]. Needleman and colleagues [27] found a higher proportion of hours of nursing care provided by registered nurses and a greater number of hours of care by registered nurses per day were associated with better care for hospitalized patients, including lower rates of urinary tract infections, upper gastrointestinal bleeding, pneumonia, shock or cardiac arrest, and failure to rescue. Although all of the patients studied were not elderly, it is reasonable to generalize these findings to hospitalized elderly.

#### *Increasing geriatric knowledge*

Nurses who have received geriatric specialty education are ideal for leading and coordinating the care of elderly patients [17,28]. Geriatric education in nursing degree programs, continued education offerings, or unit- or hospital-based in-service presentations may alert nursing staff of the issues to be mindful of and can help to build capacity for anticipating the unique needs of elderly persons. More geriatric nurse experts or nurses with geriatric expertise will be needed to address the growing population of elderly who will require hospital care. Nurses prepared for the care of geriatric patients can be resources to educate nursing staff regarding common syndromes and to appropriately address the unique needs and safety challenges in the care of elderly patients.

### *Recommendations*

Several recommendations for institutional management and administration, policy, and nursing practice, education, and research are offered for those caring for elders in acute and critical care settings.

#### *Nursing administration and institutional management*

- Set budgets and pursue financial support for the needed environmental changes for the safe care of growing numbers of hospitalized elderly
- Continue the work of establishing longitudinal integration of care across settings and disciplines, including the use of electronic health records
- Support the institutional implementation of multifaceted programs of safety shown to be of clinical and economic benefit; programs should include focus on patient, staff, and environment.
- Measure safety performance so that benchmarks and progress may be tracked and evaluated for performance improvement; celebrate improvements achieved.
- Facilitate interdisciplinary root cause analyses to drill down to the underlying system problems in processes to decrease the likelihood of future system failures; monitor the effectiveness of those changes and improvements in safety of care.

#### *Policy*

- Support safety-related legislation and regulation; protect and expand disclosure in civil suits.
- Support health care legislation allocating resources to address the complex needs of hospitalized elders

#### *Nursing practice*

- Use evidence-based risk-screening tools appropriate to the geriatric population to identify those at high risk (eg, for falls or delirium) and implement evidence-based prevention protocols
- Engage the patient and family in safety initiatives related to their care and care setting
- Communicate error and system context so that others may learn from the error and so

that action may be taken to reduce the future likelihood of a similar error

- Promote the appropriate use of sensory aids and ensure their accessibility to elders
- Select medications and adjust their dosages specific to the needs of the elderly. Consider potential side effects, adverse events, and interactions, including complementary/alternative and over-the-counter medication
- Consistently conduct drug reconciliation at times of transfer or discharge
- Set protocols for comprehensive, consistent, safe “hand-offs” of care

#### *Research*

- Promote research to test innovations that target improvement in the safe care of elders
- Employ processes of research use to carefully evaluate the application of research findings to elders in specific institutions and settings
- Develop, test, and refine evidence-based standards for safety of hospitalized elders

#### *Education*

- Assess knowledge and educate to meet the needs of staff for the knowledge base for safe care of institutionalized elders (including content regarding the most common causes of injury of hospitalized elderly and protocols for care for patients at high risk for falls and delirium)
- Increase geriatric content in academic educational programs
- Promote interdisciplinary educational experiences that foster team-building and enhance communication and collaboration among professionals working with elderly patients

### **Summary**

There are many things that can help to keep elder persons safe in the hospital and avoid injuries or iatrogenic conditions. An integrated approach is needed that focuses on patients, providers, and the hospital environment to help vulnerable elders to feel safe, act safe, and be safe. Nurses have significant and strategic roles to play in these efforts.

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## Optimizing Reserve in Hospitalized Elderly

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Aging defined in the broadest sense is the sum total of all changes that occur in a living organism with the passage of time. Although, as a society, we tend to view aging negatively and associate it with loss and decline, a more balanced view of aging is that of a multidimensional process involving the physical, psychosocial, and spiritual domains. Clearly, the multidimensional reserves in each domain are tapped extensively during the stressful experience of hospitalization. Because of an inherent vulnerability of older adults to these stressors and a reduced resiliency to return to baseline, it is essential for acute and critical care clinicians to recognize when these domains are stressed and work aggressively to optimize the reserve capacity of each affected system. The failure to recognize and intervene early in the process may result in premature deterioration and decline and, sometimes, death [1].

Several attributes characterize the professional nursing environment that is responsive in optimizing the reserve of the hospitalized older adult. These include the appreciation for the physiologic changes with aging; reducing the risk for complications; reinforcement of resiliency; providing a safe and enabling physical environment; and optimizing physical, psychosocial, and spiritual reserve. Each of these attributes is described more in the narrative that follows.

### Appreciating the physiologic changes with aging

An appreciation for the physiologic changes that occur with aging is characterized by the

recognition that there is a fairly predictable decline in the functional reserve capacity of each organ system that results in a limited ability of that system to adapt [2]. Generally, the decline is slow and progressive and becomes evident only when the individual is physiologically challenged by a disease, illness, or an environmental insult.

We all age at different rates, and our individual body systems age at different rates as well. When evaluating the older adult who is hospitalized for an acute or critical illness, acute and critical care clinicians need to be familiar with the range of normal and expected changes that are associated with aging to assure that when the individual falls outside of the expected range, this is recognized quickly and interventions are taken expeditiously to correct the problem. This can prove more challenging to health care providers who often have not evaluated the patient before, are not familiar with what is baseline for any individual older patient, and who may not have immediate access to the medical record maintained by the primary care provider. Furthermore, distinguishing what is normal from what is subclinical or early disease is more difficult than one might expect in those of advanced age.

The physiologic changes that are associated with the usual aging process, the related functional changes, and associated implications are listed by system (Appendix A) [3]. It is important to note a few caveats here. The first is that some individuals defy the “norm or usual” aging process; they are healthier and are aging more successfully from a physiologic perspective. There is great variability in how one ages and how quickly one ages. The second is that what previously was considered to be a normal age-related change using a cross-sectional research study method might now be considered early disease based on increasingly available

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longitudinal research. The third is that as more sensitive markers of disease are being identified and the evidence is accruing that earlier intervention results in better outcomes (eg, elevated cholesterol, elevated blood pressure), the thresholds for treating disease are being lowered.

In reviewing the overall physiologic changes, the clinician should consider that the sum total of all changes impacts on three primary areas, as described previously by Fletcher [4] and summarized in Box 1.

### Reducing the risk for complications

As one ages, the margin between doing good and harm narrows with any therapeutic intervention. Kane and colleagues [2] illustrated this well in describing the risk:benefit ratio as a therapeutic window in which the margins narrow over time (Fig. 1).

An iatrogenic complication has been described as a condition that occurs as a direct result of a treatment received by the patient that is not a natural consequence of the patient's condition. Iatrogenesis can result from a medication, a diagnostic or therapeutic procedure, or an environmental hazard. Jacelon [5] described some of the most common complications for individuals in a critical care setting to include the symptoms associated with ICU syndrome, immobility, skin integrity, infection, and those that are a consequence of caregiver error. Hospitals are a hazardous setting for anyone; however, the elderly have the highest risk, and age is not necessarily the strongest risk factor. During periods of intensive care of the elderly, when the focus and priority involve technological interventions (eg, cardiovascular, respiratory, and

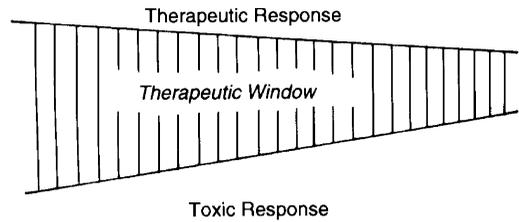


Fig. 1. Narrowing of the therapeutic window. (From Kane R. *Essentials of clinical geriatrics*. McGraw-Hill, 2004. Reproduced with permission of The McGraw-Hill Companies.)

neurologic support), the special needs of the elderly, such as prevention and treatment of pressure ulcers and prevention and expeditious treatment of delirium, may be overlooked or have a lesser priority. Calkins and Naughton [1] reviewed the evidence regarding antecedents of decline in the hospital, noting that advancing age, impaired functional status before admission, and the presence of dementia or delirium most consistently predicted prolonged hospital stay, functional decline, increased frequency of complications or iatrogenic events, the inability to be discharged home, and death.

Another factor that may be influential in the increased risk for complications is unnecessary hospital days in the acute care setting. Of the unnecessary days, most (63.2%) were attributable to nonmedical ones, such as delays in discharge planning or placement in a skilled facility [6]. These additional days of increased exposure to iatrogenesis pose an unnecessary disproportionate risk for the elderly.

Reducing the risk for complications requires a high level of vigilance on the part of the professional nurse, who is well aware of the iatrogenic potential in the acute care setting and the older patient's vulnerability to it [5]. Meticulous attention to safety and expeditious interventions when complications do occur help to promote a quicker recovery and reduce the cascade affect—one complication enhancing the vulnerability to another.

### Reinforcement of resiliency

Reinforcement of resiliency is characterized by the recognition that there is a remarkable ability of an organism to maintain homeostasis—constancy of the internal environment is maintained in the face of a threatening external environment.

#### Box 1. Summary of the impact of physiologic aging on body systems

Reduced physiological reserve of most body systems, particularly cardiac, respiratory, and renal

Reduced homeostatic mechanisms that fail to adjust regulatory systems, such as temperature control and fluid and electrolyte balance

Impaired immunologic function; infection risk is greater, and autoimmune disease is more prevalent

Aging is characterized by a narrowing of the environmental limits within which an individual is able to maintain homeostasis. Taffett [7] maintained that the elderly are actively employed using some of their physiologic reserves to compensate for age-related changes just to maintain homeostasis. The physiologic reserves have not disappeared, but they remain less available to counter additional challenges (Fig. 2).

A good example occurs in the aging cardiovascular system. The Baltimore Longitudinal Study of Aging identified that resting heart rate is largely unchanged with aging, but that the maximum heart rate, when stressed (through exercise, pharmacologic intervention), diminishes over time. Acute Physiology and Chronic Health Evaluation scales recognize that advanced age reduces reserve capacity and renders an individual less resilient; additional points for age are given to recognize this variability in the critically ill [8].

Aging has been typified by a decreased capacity to respond to stress, and the environment can do much to create and to reduce stress [9]. The infant is dependent on the environment; as the child matures, it is able to distinguish itself as separate from the environment and eventually learns ways of influencing the environment. With advancing age, the individual often becomes dependent on the environment again—physically and psychologically. The environment plays a critical role in affecting a person's physical and psychologic function. During hospitalization, older adults, particularly those with functional impairments, frequently need tailored interventions that include physical, psychosocial, and environmental aspects, to help reinforce resiliency to improve function, or minimally, to return to baseline status. Unfortunately, many clinicians are not always aware of the older patients' potential for rehabilitation or familiar with the

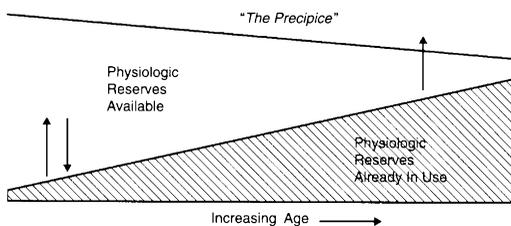


Fig. 2. Revised schematic of homeostenosis. (From Taffett, GE. Physiology of Aging. In: Cassel CK, et al, editors. Geriatric Medicine, 4<sup>th</sup> edition, New York: Springer; 2003, p. 27–35; with kind permission of Springer Science and Business Media.)

individual's baseline status and function; therefore, interventions to address these needs are not applied consistently.

### Providing a safe and enabling physical environment

Hospital design, especially in critical care units, has not been an elder-friendly one. The lighting imposes significant glare that can be problematic, the floor surfaces may be slippery, and furniture is on wheels, which allows ease of movement for the staff, but poses a risk for the older person who leans on it looking for stability; the biggest obstacle may be the cluttered environment, including equipment, technology, and even assistive devices. Environmental geriatrics uses age-appropriate design to improve the safety and function of older adults with physical, sensory, and cognitive disabilities (<http://cornellaging.com/gem/>). The Acute Care of the Elderly (ACE) unit is a specialized one in which the unit staff is specially trained in working with the frail elderly, and the physical environment is specifically designed and incorporates technology to create a physical environment that minimizes the adverse effects of hospitalization in this vulnerable population. At Bronson Methodist Hospital, LaReau and Raphelson [10] noted that the design included colors that are calm and therapeutic and enhance the appearance and contrast of walls and flooring, and color accents are used to promote easy navigation. Beds are low to the floor and have built-in bed alarms and scales. All rooms are private with large windows, easy-to-use recliner chairs, and accessible closets. Special window treatments are used that reduce glare without diminishing lighting. A unit dining area affords greater observation during mealtimes and fosters socialization among patients, staff, and family members. In addition to promoting safety, these modifications allow the individual a higher level of independence in functioning. In addition to environmental design, ACE units have programs designed to maintain and restore patient functioning. ACE units can reduce the incidence of functional decline in older patients, the length of hospital stay, the risk for nursing home admission from hospital, and the use of physical restraints as well as promote increased health professional satisfaction with patient care [11,12].

Not every hospital has an ACE unit and not every geriatric patient in the hospital is a candidate for ACE; however, the concepts can be

applied in any hospital unit setting, including critical care.

Providing a safe and enabling physical environment is a critical responsibility of the professional nurse given the antiquated design of hospitals and the plethora of technology now available at the point of care. This, coupled with the fact that most patients who require hospital care have functional impairments that limit mobility and heighten the risk for falling, poses a considerable nursing challenge. Furthermore, safety and quality are jeopardized in the period of posthospital care for patients undergoing transitions across care settings (hospital to home, hospital to nursing home) [13,14].

### **Optimizing the reserve capacity of multidimensional systems**

Aging is a multidimensional process that is progressive over time. We age physically, psychosocially, and spiritually. Optimizing the reserve capacity of the multidimensional systems that are affected by aging requires aggressive efforts to promote health and prevent disease and illness. Unfortunately, stereotypes about aging as inevitable decline have hindered progress [15]. Things are changing, and there now exists evidence-based recommendations for promoting health and preventing disease specifically for older adults. A critical threshold of system function exists above which the individual functions normally and below which failure may become apparent [16].

The hospital continues to remain the primary site for treating serious acute physical or psychological illness, although we have come to appreciate that it is not a conducive environment for healing. Even older patients who previously functioned independently at home before admission lost functional capacity during hospitalization so that they required permanent long-term care placement at discharge [17]. Hospitalization stresses the reserve capacity of the various systems; however, one also might argue that it provides the opportunity to strengthen them. A comprehensive geriatric assessment on admission, which includes an evaluation of the physical, psychosocial, and spiritual domains followed by daily reassessment and ongoing monitoring, provides the opportunity to recognize the opportunities in each of these areas to help the patient optimize reserve capacity to prevent decline. Several models for care of the hospitalized elderly, including ACE units and the Geriatric Resource Nurse

model—both of which involve conducting comprehensive assessments tailored to the geriatric patient and use evidence-based protocols to intervene expeditiously for problems, have demonstrated better patient outcomes [11,18].

### **Characteristics: top things science tells us**

Ensuring adequate capacity in later life means reducing the rate of physiologic aging by intervening on modifiable risk factors [19]. Studies identified several potentially reversible risk factors for reducing the loss of function [18,20].

Diminished reserve capacity is apparent in the hospitalized elder in acute and critical care settings, and interventions to conserve, reserve, and prevent iatrogenic complications promote better outcomes [21].

Improved transitional care of high-risk older adults from the hospital to home setting enhances care coordination and improved quality [22].

Implementing prevention programs and promoting healthy behaviors have a positive effect on overall well-being, no matter at what age they are begun or in which environment they occur [23–26].

Comprehensive initial and ongoing geriatric assessment assists in identifying the older adult who is at risk for decline to enable timely and targeted implementation strategies [27–31].

Outcomes evidence supports the quality and cost effectiveness of specialty geriatric nursing care [32–34].

Clinical experience and research validate the conclusion that multidimensional preventive risk factor modification, balanced with acute illness treatment, can result in positive outcomes for older adults [21].

Redesign of the environment and processes of hospital care can improve the quality of the care delivered to hospitalized elderly [35,36].

### **Strategies to optimize reserve capacity**

Several strategies are recommended to optimize reserve capacity of the elderly. These include that all professional nursing staff working with the hospitalized elderly will:

- Demonstrate an understanding of the physiologic changes with aging and modify the plan of care accordingly
- Obtain accurate information on admission about the patient's baseline physical and functional status

Recognize the vulnerability to iatrogenic complications, take actions to minimize the risk, and treat complications immediately

Conduct a comprehensive multidimensional geriatric assessment upon admission, reassess the patient as indicated throughout the hospital stay, and implement an individualized plan of care, targeting identified need

Appreciate the diminished reserve capacity of the multidimensional systems and take aggressive action to optimize reserve

Modify the hospital environment to assure that it is safe and enabling

Take appropriate measures to ensure a safe and smooth transition of older patients across settings of health care

Apply generated knowledge on optimizing reserve to the practice setting

Evaluate the effectiveness of optimizing reserve on quality of care

Study new ways to improve the transitions in care of older adults across settings

## Recommendations

### Practice

Every professional nurse working with the hospitalized elderly will be required to demonstrate ongoing competence in geriatric care.

Professional nurses working with the hospitalized elderly will be encouraged to obtain and maintain certification in gerontological nursing.

Hospital environments will be redesigned using the evidence-based data demonstrating what constitutes a safe and enabling environment for independent and frail older adults.

### Education

All nursing programs at all levels will have required evidence-based content in gerontological nursing in respective curriculum, and accrediting bodies will evaluate the level of compliance with this requirement.

All hospitals will have staff development programs that include continuing education in gerontological nursing, and nursing staff will have incentives to participate.

### Research

Nursing research centers in schools of nursing and hospitals will work together to:

Generate new knowledge and understanding about the diminished reserve capacity of the hospitalized elderly

Identify evidence-based nursing strategies on how to optimize the diminished reserve of hospitalized elderly

### Policy

Geriatric nursing education and research will be funded generously at the federal and state level.

Certification in geriatric nursing will be supported by hospital administration and the value recognized by surveyors of hospitals.

Hospitals will be mandated to be elder friendly in design and delivery.

Encourage that the Institute of Medicine conduct a large-scale study on transitions in care across settings, such as that done on hospitals (“To Err is Human”).

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**Appendix A: Physiological Influences of the Aging Process**

Age related change	Appearance or functional change	Implication	Physical assessment tips
Integumentary System			Examine all surfaces of the skin carefully including hair, nails, and mucous membranes. The hidden skinfold areas must also be inspected. Evaluate skin temperature, texture, thickness, mobility and moisture. Skin turgor is best assessed on non-sun exposed surfaces such as the abdomen or inner thigh.
Loss of dermal & epidermal thickness	Paper-thin skin	Prone to skin breakdown and injury	
Flattening of papillae	Shearing and friction force more readily peels off the epidermis	Benign and malignant skin changes are common.	
	Diminished cell-mediated immunity in the skin	Injuries may suggest falls or possible abuse.	
Atrophy of the sweat glands	Decreased sweating	Frequent pruritus	
Decreased vascularity	Slower recruitment of sweat glands by thermal stimulation	Alteration in thermoregularity response	
	Decreased body odor	Fluid requirements may change seasonally	
	Decreased heat loss	Loss of skin water	
	Dryness	Increased risk of heat stroke	
Collagen cross-linking	Increased wrinkling	Potential effect on one's morale and feeling of self-worth	
Elastin regression	Laxity of skin		
Loss of subcutaneous fat	Intraosseous atrophy, especially to back of hands and face	Loss of fat tissue on soles of feet—trauma of walking increases foot problems	
Decreased elasticity	Purpuric patches after minor surgery	Reduced insulation against cold temperatures; prone to hypothermia	
Loss of subcutaneous tissue			
Decreased number of melanocytes	Loss of pigment	Teach the importance of using sun block creams.	
	Pigment plaque appears		
Decline in fibroblast proliferation	Decreased epidermal growth rate	May be vitamin D deficient	
	Slower reepithelialization		
	Decreased vitamin D production and synthesis		
Decreased hair follicle density	Loss of body hair		
Decreased growth phase of individual fibers	Thin, short villus hairs predominate		
Loss of melanocytes from the hair bulb	Graying of the hair	Potential effect on self-esteem	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Alternating hyperplasia and hypoplasia of nail matrix	Longitudinal ridges Thinner nails of the fingers Thickened, curled toenails	Nails prone to splitting Advise patient to wear gloves, keep nails short, avoid nail polish remover (causes dryness); refer to podiatrist May cause discomfort	
Respiratory System			Determine breathing rate, rhythm, regularity, volume, depth and effort. Oxygen saturation measures may be indicated. Auscultate all lung fields with particular attention to the bases. A pediatric diaphragm may be helpful in order adults with predominant rubs, allowing a more firm application of the stethoscope between the interspaces. Check for thoracic symmetry and expansion.
Decreased lung tissue elasticity	Decreased vital capacity Increased residual volume Decreased maximum breath capacity	Reduced overall efficiency of ventilatory exchange Decrease pulmonary reserve	
Reduced respiratory center sensitivity	Ventilatory responses to hypoxia/hypercapnia are blunted	Risk for respiratory distress with illness and/or administration of narcotics	
Thoracic wall calcification	Increased anteroposterior diameter of chest Limited diaphragmatic excursion	Less effective inspiration/expiration Obstruction of heart and lung sounds Displacement of apical impulse	
Cilia atrophy	Change in mucociliary transport		
Decreased cough reflex	Cough is less effective	Prone to retained secretions and potential infection	
Decreased respiratory muscle strength	Reduced ability to handle secretions and reduced effectiveness against noxious foreign particles Partial inflation of lungs at rest	Increased susceptibility to aspiration, infection Prone to atelectasis	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Cardiovascular System			<p>Comprehensive cardiovascular exam including heart sounds, and murmurs. Monitor heart rate and rhythm.</p> <p>Check peripheral pulses bilaterally. A portable Doppler may facilitate recognition of an otherwise imperceptible pulsation.</p> <p>Check the presence of edema—it should be palpated since the fingertips are more sensitive than the eyes. Circumferential measurements are more objective than the +1-4 rating scale.</p> <p>Palpate the carotids for volume and auscultate for bruit.</p> <p>Check blood pressure in both arms to check for stenosis and in both supine and sitting position to check for orthostasis.</p> <p>A baseline electrocardiogram is recommended.</p>
	Heart valves fibrose and thicken	<p>Reduced stroke volume, cardiac output may be altered</p> <p>Slight left ventricular hypertrophy</p>	<p>Decreased responsiveness to stress</p> <p>Increased incidence of murmurs, particularly aortic stenosis and mitral regurgitation</p>
	Mucoid degeneration of mitral valve	<p>S4 commonly heard</p> <p>Valve less dense; mitral leaflet stretches with intrathoracic pressure</p>	
	Fibroelastic thickening of the sinoatrial (SA) node; decreased number of pacemaker cells	<p>Unchanged resting heart rate, may have an</p> <p>Irregular heart rate</p>	<p>Decreased heart rate in response to stress</p> <p>Increased prevalence of arrhythmias</p> <p>Encourage patients with baseline abnormalities to keep a copy of a rhythm strip to present as needed.</p>

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Appendix A (*continued*)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Increased subpericardial fat Collagen accumulation around heart muscle Elongation of tortuosity and calcification of arteries Elastin and collagen cause progressive thickening and loss of arterial wall resiliency Loss of elasticity of the aorta dilation	Increased rigidity of arterial wall Increased peripheral vascular resistance	Aneurysms may form Decreased blood flow to body organs Altered distribution of blood flow Increased systolic blood pressure, contributing to coronary artery disease	
Increased lipid content in artery wall	Lipid deposits form	Increased incidence of atherosclerotic events, such as angina pectoris, stroke, gangrene	
Decreased baroreceptor sensitivity (stretch receptors)	Decreased sensitivity to change in blood pressure Decreased baroreceptor mediation to straining	Prone to loss of balance— potential for falls Valsalva maneuver may cause sudden drop in blood pressure	
Gastrointestinal System			Conduct an oral examination including oral mucosa base of the tongue and posterior pharyngeal wall for lesions and check for moisture content of the oral cavity. Evaluate dentition and chewing capacity. Evaluate the presence of oropharyngeal and esophageal dysphagia Monitor dietary intake and labs reflective of nutritional status Abdominal assessment including bowel sounds, abdominal bruit, organ size and masses. Rectal exam as indicated checking for blood and the presence of stool or a mass. Determine bowel habits and function. Monitor for adverse drug reactions

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Liver becomes smaller and blood flow to the liver is diminished	Decreased storage capacity Increased evidence of gall stones	Liver is more susceptible to damage caused by alcohol intake, liver toxic medications such as acetaminophen and tobacco.	
Less efficient cholesterol stabilization	Influences side effects and adverse effects of medications	Higher risk for an adverse drug reaction	
Absorption			
Decreased gall bladder function			
Changes in hepatic and intestinal cytochrome P450 system			
Dental enamel thins	Staining of tooth surface occurs	Tooth and gum decay;	
Gums recede	Teeth deprived of nutrients	tooth loss	
Decrease in strength of the muscles of mastication.	Chewing properly and eating time may take longer	Food intake may diminish and food preferences change.	
Fibrosis and atrophy of salivary glands	Prone to dry mucous membranes Decreased salivary ptyalin	Shift to mouth breathing is common Membrane more susceptible to injury and infection	
Atrophy and decrease in number of taste buds	Decreased taste sensation	May interfere with breakdown of starches Altered ability to taste sweet, sour, and bitter Change in nutritional intake Excessive seasoning of foods	
Delay in esophageal emptying	Decline in esophageal peristalsis	Occasional discomfort as food stays in esophagus longer	
Decreased esophageal sphincter pressure, relaxation and contraction	Esophagus slightly dilated	Prone to develop dysphagia/aspiration.	
Decreased hydrochloric acid secretion	Reduction in amount of iron and vitamin B <sub>12</sub> that can be absorbed	Possible delay in vitamin and drug absorption, especially calcium and iron	
Decrease in gastric acid secretion		Altered drug effect	
Decreased muscle tone	Altered motility	Prone to constipation, functional bowel syndrome, esophageal spasm, diverticular disease	
Atrophy of mucosal lining	Decreased colonic peristalsis Decreased hunger sensations and emptying time	Altered oral drug passage time Increased risk of gastrointestinal reflux disease (GERD) Absorption of vitamins may change	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Decreased proportion of dietary calcium absorbed	Altered bone formation, muscle contractility, hormone activity, enzyme activation, clothing time, immune response	Symptoms occur earlier in women than in men	
Decreased basal metabolic rate (rate at which fuel is converted into energy)		May need fewer calories Possible effect on life span	
Genitourinary and Reproductive Systems			Monitor renal function Assess hydration status by checking skin turgor, mucous membranes and lab value indicators Evaluate for urinary symptoms and assess sexual health. Conduct gynecological, prostate, rectal and breast examinations
Reduced renal mass Loss of glomeruli	Decreased sodium conserving ability Decreased glomerular filtration rate Decreased creatinine clearance Increased blood urea nitrogen concentration	Administration and dosage of drugs may need to be modified	
Histological changes in small vessel walls Sclerosis of supportive circulatory system	Decreased renal blood flow	Decrease in efficiency of elimination	
Decline in number of functioning nephrons	Decreased ability to dilute urine concentrate	Altered response to reduced fluid load or increased fluid volume	
Reduced bladder muscular tone	Decreased bladder capacity or increased residual urine	Sensation of urge to urinate may not occur until bladder is full Urination at night may increase	
Atrophy and fibrosis of cervical and uterine walls	Menopause; decline in fertility Narrowing of cervical canal		
Reduced number and viability of oocytes in the aging ovary			
Decreased vaginal wall elasticity	Vaginal lining thin, pale, friable Narrowing of vaginal canal	Potential for discomfort in sexual intercourse	

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Appendix A (*continued*)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Decreased levels of circulating hormones Degeneration of seminiferous tubules	Reduced lubrication during arousal state Decreased seminal fluid volume Decreased force of ejaculation Reduced elevation of testes	Increased frequency of sexual dysfunction	
Proliferation of stromal and glandular tissue	Prostatic hypertrophy	Potentially compromised genitourinary function; urinary frequency, and increased risk of malignancy	
Involution of mammary gland tissue Neuromuscular System	Connective tissue replaced by adipose tissue	Easier to assess breast lesions	Thorough musculoskeletal assessment including bones, joints and surrounding muscles. Assess both active and passive range of motion. Assess body mass index. Neurological assessment including sensory and motor functions. Check posture, gait, and balance and test cerebellar function. Changes in mental status may be overlooked if a mental status evaluation is not conducted. Check deep tendon reflexes. Evaluate the presence and degree of pain and query sleep pattern and potential disorders. Evaluate Activity of Daily Living and Instrumental Activity of Daily Living Functions Conduct a Fall Risk Assessment
Decreased muscle mass	Decreased muscle strength Tendons shrink and sclerose	Decreased tendon jerks Increased muscle cramping Decreased exercise tolerance	
Decreased myosin adenosine triphosphatase (ADT) activity	Prolonged contraction time, latency period, relaxation period.	Decreased motor function and overall strength Increased muscle weakness and muscle fatigue	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Deterioration of joint cartilage	Bone makes contact with bone	Potential for pain, crepitation, and limitation of movement	
Decrease ligament and tendon strength	Tendons shrink may contribute to contracture	Predisposed to ligament and tendon injury	
Loss of water from the cartilage	Narrowing of joint spaces	Loss of height	
Decreased bone mass	Decreased bone formation and increased bone resorption, leading to osteoporosis	More rapid and earlier changes in women	
Decreased osteoblastic activity		Greater risk of fractures	
Osteoclasts resorb bone	Hormonal changes	Gait and posture accommodate to changes	
Shorter stride and velocity		Less able to withstand the stress from obesity or physical exercise that increases pressure and demand on the joints such as running	
Increased proportion of body fat	Centripetal distribution of fat and invasion of fat in large muscle groups	Anthropometric measurements required	
Regional changes in fat distribution		Increased relative adiposity	
Thickened leptomeniges in spinal cord	Loss of anterior horn cells in the lumbosacral area	Leg weakness may be correlated	
Accumulation of lipofuscin	Altered RNA function and resultant cell death		
Loss of neurons and nerve fibers	Decreased processing speed and vibration sense	Increased time to perform and learn	
Altered neurotransmission especially dopamine and serotonin	Altered pain response	Possible postural hypotension	
	Decreased deep tendon, Achilles tendon	Safety hazard	
Decreased condition of nerve fibers	Decreased psychomotor performance	Alteration in pain response	
Few neuritic plaques		Possible cognitive and memory changes	
Neurofibrillary tangles in hippocampal neurons		Heavy tangle formation and neuritic plaques in cortex of those with Alzheimer's	
Changes in sleep-wake cycle	Decreased stage 4, stage 3, and rapid eye movement phases	Increased or decreased time spent sleeping	
	Deterioration of circadian organization	Increased nighttime awakenings	
		Changed hormonal activity	
Slower stimulus identification and registration	Delayed reaction time	Prone to falls	
Decreased brain weight and volume		May be present in absence of mental impairments	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Sensory System			Conduct a vision exam including an evaluation of central and peripheral acuity. Evaluate hearing and check for the presence of cerumen accumulation in the ear canal. Check sensation to light touch, pain, and vibration in the distal extremities.
Morphological changes in choroid, epithelium, retina	Decreased visual acuity Visual field narrows	Corrective lenses required Increased possibility of disorientation and social isolation	
Decreased rod and cone function Pigment accumulation		Slower light and dark adaptation	
Decreased speed of eye movements	Difficulty in gazing upward and maintaining convergence		
Sclerosis of pupil sphincter	Difficulty in adapting to lighting changes Increased threshold for light perception	Glare may pose an environmental hazard Dark rooms may be hazardous	
Increase intraocular pressure Distorted depth perception		Increased incidence of glaucoma Incorrect assessment of height of curbs and steps; potential for falls	
Ciliary muscle atrophy	Altered refractive powers	Corrective lenses often required	
Nuclear sclerosis ( <i>lens</i> ) Reduced accommodation Increased lens size Accumulation of lens fibers	Presbyopia Hyperopia Myopia	Near work and reading may become difficult	
Lens yellows	Color vision may be impaired	Less able to differentiate lower color tones: blues, greens, violets	
Diminished tear secretion	Dullness and dryness of the eyes	Irritation and discomfort may result Intactness of corneal surface jeopardized	
Loss of auditory neurons	Decreased tone discrimination and voice localization High frequency sounds lost first	Suspiciousness may be increased because of paranoid dimensions secondary to hearing loss Social isolation	

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## Appendix A (continued)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Angiosclerosis Clarification of inner ear membranes	Progressive hearing loss, especially at high frequency Presbycusis	Difficulty hearing, particularly under certain conditions such as background noise, rapid speech, poor acoustics	
Decreased number of olfactory nerve fibers	Decreased sensitivity to odors	May not detect harmful odors Potential safety hazard	
Alteration in taste sensation		Possible changes in food, preferences and eating patterns	
Reduced tactile sensation	Decreased ability to sense pressure, pain, temperature	Misperceptions of environment and safety risk.	
Endocrine System			A high level of suspicion of endocrine disorders should be maintained since diabetes and thyroid disease are very common in the older population and they may manifest atypically.
Decline in secretion of testosterone, growth hormone, adrenal androgens, aldosterone, thyroid hormone	Altered hormone levels	Increased mortality associated with certain stresses (burns, surgery) Increased prevalence of hormonal disorders	
Increase in parathyroid hormone, serum insulin and serum homocysteine levels			
Defects in thermoregulation Reduction of febrile responses	Shivering less intense Poor perceptions of changes in ambient temperature Reduced sweating; increased threshold for the onset of sweating Fever not always present with infectious process	Susceptibility to temperature extremes (hypothermia/hyperthermia) Unrecognized infectious process operative	
Alteration in tissue sensitivity to hormones	Decreased insulin response, glucose tolerance, and altered sensitivity of renal tubules to antidiuretic hormone (ADH)		
Enhanced sympathetic responsiveness Increased nodularity and fibrosis of thyroid		Increased frequency of thyroid disease Increased incidence of obesity	

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Appendix A (*continued*)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Decreased basal metabolic rate Hematological System	Alteration in carbohydrate tolerance		Assessment of the hematological system is typically confined to laboratory analysis. A complaint of fatigue, weakness or decreased exercise tolerance or the physical exam findings of petechiae, purpura or pallor of the conjunctivae may give clues to an underlying disorder.
Decreased percentage of marrow space occupied by hematopoietic tissue  Immune System	Ineffective erythropoiesis Bone marrow reserves diminished	Risky for patient who loses blood Attenuated reticulocytosis to erythropoietin administration	Symptoms or signs of an immune system disorder (infection, autoimmune disease) warrant a complete physical assessment that may give evidence of the underlying pathology. The usual symptoms of infection (fever, leukocytosis may be absent or blunted) and presenting symptoms of immune impairments may be atypical ones.
Thymic involution and decreased serum thymic hormone activity Decreased T-cell function Decreased production of B cells by the bone marrow Appearance of autoantibodies	Decreased number of T cells Production of antiseif reactive T cells Impairment in cell-mediated immune responses Decreased cyclic adenosine monophosphate (AMP) and glucose monophosphate (GMP) Decreased ability to reject foreign tissue Increased laboratory autoimmune parameters	Less vigorous and/or delayed hypersensitivity reactions' Increased risk mortality Increased incidence of infection Reactivation of latent infectious diseases Increased prevalences of autoimmune disorders	

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Appendix A (*continued*)

Age related change	Appearance or functional change	Implication	Physical assessment tips
Redistribution of lymphocytes	Impaired immune reactivity		
Changes in serum immunoglobulin	Increased immunoglobulin A (IgA) Levels Decreased immunoglobulin G (IgG)levels	Increased prevalence of infection	

*Adapted from* Fletcher, K. Appendix 6-1: Physiological influences on the aging process. In Stone, JT., Wyman, JF., Salisbury, SA. *Clinical gerontological nursing: A guide to advanced practice*, 2<sup>nd</sup> edition. Philadelphia: WB Saunders, 1999. p. 112–119.

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## Upholding Dignity in Hospitalized Elders

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Caring for the elderly in today's acute care setting can be a challenging and complex process. The elderly have unique needs that may not always be obvious. In addition, elderly frequently exhibit a myriad of needs and can be frail with less resilient compensatory reserves. Regardless of whether the interventions provided by caregivers are physical or psychosocial, one of the basic tenets of caring for elderly is to uphold their dignity. This article defines the concept of dignity, describes challenges to maintaining dignity for elderly in an acute care setting, and describes interventions that are key to maintaining dignity. In addition, strategies to uphold dignity are described and recommendations are made for education, practice, research, and policy development in the area of upholding dignity for hospitalized elderly.

### Dignity defined

Dignity is a foundational component of nursing care as evidenced by the first statement of the American Nurses' Association *Code of Ethics for Nurses with Interpretive Statements*. "The nurse in all professional relationships practices with compassion and respect for the inherent dignity, worth, and uniqueness of every individual, unrestricted by considerations of social or economic status, personal attribute, or the nature of health problems" [1]. One of nursing's goals is to give

dignified care incorporating the patients' values, choices, and decisions to maximize the patient's holistic well-being. But what exactly is dignity?

Dignity can be defined in multiple ways. Investigators have described dignity as having three separate components [2]. The first component is human dignity, an innate characteristic present simply by the fact of being human, similar to self-worth [3]. There is an external component of behavioral dignity. Behavioral dignity is a sense of respect that each person has and is demonstrated by behaviors that he or she would or would not exhibit if they were dignified. This component also encompasses behaviors that others exhibit toward them, particularly relevant in a health care setting. Staff have a role in enhancing or promoting patients' dignity if they are unable to do so for themselves [4]. Finally, there can be a cognitive component of dignity where people feel dignified. Dignity is strongest when behavior, a sense of one's own worth, and others' actions are in alignment to convey that sense of worth and value [5].

Characteristics that are closely aligned with dignity are respect, privacy, and autonomy. Although all three can be affected by the patient and the provider in an acute care setting, autonomy has more ability to be patient driven. Autonomy is based on physical independence and control over decision making. Autonomy is diminished in an acute care setting as the result of multiple factors: the acute illness itself, chronic disabilities, lack of clear and timely communication, increased forced dependence by staff, inadequate decision-making opportunities provided by health care

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professionals (based on presumptions of expertise and the urgency of the health crisis), and the inflexibility of the environment [6,7].

Where a patient is at in the course of hospitalization can give perspective on the ability to assert autonomy and need for respect, thereby influencing the sense of dignity. Jacelon [5,6] identified three phases of hospitalization for the elderly. The first phase is the stabilizing phase. The focus of this phase is on medical healing and feeling better. Elderly patients need assistance to meet activities of daily living and may be too ill to even participate in self-cares. This results in deferring to the expertise of the health care providers. Routines of the hospital reinforce this dependence.

The second phase of hospitalization is the reparative phase. Elderly independence starts to improve and the patient participates in more activities. It is during this phase that the elderly start to regain dignity. They start to insist on more participation in decisions and ask more questions.

The third phase of hospitalization is the reintegration phase. Activity during this phase is focused on regaining autonomy. Elderly patients take on more responsibility, increase control, plan for discharge, and prepare to resume independence after discharge to home. The goal is to not have the temporary loss of autonomy during hospitalization result in permanent decreased function and dignity after discharge to home [6].

Elderly may willingly give up control early in a hospitalization when they are primarily focused on healing. As they improve, however, their focus may shift to maintaining dignity in the hospital and regaining autonomy to maintain independence.

### **Background that impacts dignity on presentation to the acute care setting**

In addition to the impact that the hospitalization itself has on a patient's sense of dignity, sense of dignity before admission plays a role during hospitalization. Many factors can affect a patient's foundational sense of dignity.

#### *Cultural background*

The patient's cultural background influences how dignity is defined by the patient and what interactions uphold or negate dignity from the patient's perspective. With increasing diversity throughout the United States, it is a challenge

for health care providers to avoid making assumptions regarding values, dignity, and autonomy based on care provider beliefs or presumptions of heritage and ethnicity. The individual patient may define dignity in ways that are vastly different from his/her traditional cultural background or from the care provider.

The value of autonomy, and therefore its impact on dignity, is not obvious for each individual in today's diverse American society. Autonomy in health care literature is based on the value of "individualism," which may not be a value in all cultures [8]. Autonomy may not be a priority in cultures where the emphasis is on family and family presence in care [8].

Leino-Kilpi and colleagues [9] showed that conducting international research on the concepts of autonomy, privacy, and informed consent in five geographically close, yet vastly different countries, and therefore cultures, is a challenge because of differing perspectives about how each of those concepts is defined culturally and individually. Hospitalized patients see the direct effects of these concepts from an individual, personal perspective, whereas health care providers tend to look at these concepts from a more general and population-based viewpoint. Providers find it difficult to see the perspective from the patient's point of view.

The culture of each hospital varies in terms of meeting the dignity needs of patients. This may be evident in how employees are treated and the overall respect for cultural diversity. This hospital culture may be reflected in how health care professionals provide care to patients.

#### *History of elder mistreatment*

A history of elder abuse or neglect may affect the patient's sense of dignity on admission to the hospital. Elder mistreatment (EM) ranges from omission of care and attention (neglect) to the actual commission of acts that result in harm or threatened harm (abuse) [10]. This mistreatment can be intentional or nonintentional and can include physical, sexual, financial, and psychological abuse; neglect; self-neglect; failure to follow a plan of care; and abandonment [10–12].

Nursing needs to be aware of signs of EM to be able to identify potential victims on admission to the hospital. Patients who are at high risk for EM are those who are physically and cognitively impaired as well as those with behavioral symptoms, such as physically aggressive behaviors [10].

Patients admitted with a history or active EM may present with physical consequences in addition to emotional consequences, such as depression or anxiety disorders. Nurses should be aware of their particular state laws because most states have mandatory reporting by health care providers of suspected or known EM [10]. Hospitalized victims of EM may have an impaired sense of dignity that influences how they respond to interactions and interventions and complicates the goal of improving and upholding their dignity.

Finally, a patient's previous hospitalization experience may influence one's general sense of dignity during a current hospitalization. If treated respectfully and with dignity previously, the patient may engage in a trusting relationship with providers more quickly and take an active role in one's care. Conversely, if the patient had a poor experience in the past, one may be distrustful or withdrawn on admission.

### **Challenges to dignity in an acute care setting**

It is a challenge to promote dignity and autonomy in an acute care setting because of multiple issues, such as the physical environment, the patient's physical status, and adequate staffing. These issues are explored in more depth in [Box 1](#).

#### *Environment*

Elderly in the critical care environment face multiple challenges in the preservation of dignity. Clinicians need to respect and provide dignified care in these environments [13]. Fast-paced technology, now standard in the critical care environment and often a necessity in the successful treatment of the elderly, is placing greater demands on nursing resources [2]. Nurses may find themselves spending more time troubleshooting and managing the technology rather than focusing on the individual patient in the bed. Patients may find that disconcerting and may feel invisible to the care provider.

Entering any new environment for the elderly can begin a process of atypical experiences. For example, routine interventions in the critical care setting may include placing a Foley catheter, intubation for mechanical ventilation, use of cardiac monitoring, noninvasive or invasive blood pressure measurements, drainage systems, or sequential compression devices for preventing deep vein thrombosis to mention just a few. These

interventions make it difficult to view patients in a humanistic manner and further hinder staff in the communication that is necessary for dignified care and interactions [2].

Hospitalized elderly strive to manage their personal identity while struggling with a sense of context from the environment. They choose how they interact with health care providers and the actions they will take to manage their personal integrity. These actions are derived from the patient's goal of maintaining identity. It is not uncommon for staff and patients to have different views about the care that they believe is needed. With geriatric patients, staff expectations of independence are frequently lower than patient expectations of independence [5]. This can result in nursing "doing for" patients rather than taking the time to allow geriatric patients to do for themselves and not attending to that which the patient is capable [14].

Maintaining a dignified environment for the elderly cannot be the sole responsibility of the bedside nurse. It is imperative that this be addressed collaboratively with the multidisciplinary team. Dignity can be enhanced or diminished by all employees in the environment; the only way to help is to focus on the individual, rather than on one's diagnosis or one's "patient" status [6].

#### *Physical status*

The patient's physical status also affects dignity in the acute care setting. Consider how the loss of bodily functions can affect independence and dignity. Because the geriatric patient's physical status can change quickly, so can one's ability to participate in one's own care. This can lead to dependence being accepted by the patient willingly or being forced upon him or her by one's physical status or the staff.

Geriatric patients can be particularly sensitive to changes in electrolytes, oxygenation status, immobility, and medications. Staff who are trained inadequately in the unique physiology of the elderly may not be sensitive to the alterations in interventions that are needed to prevent negative responses in this population. Negative responses to what would be routine interventions in younger patients may quickly result in mental status changes, confusion, and uncharacteristic behavior. When geriatric patients later learn of uncharacteristic behavior that they exhibited because of physiologic changes, they may become embarrassed. This can result in a loss of dignity

### Box 1. Case study

#### *Case study*

Mrs. M. is an 82-year-old woman who arrived in the Emergency Department after being injured in a motor vehicle accident. No family arrived with the patient. She exhibited obvious signs of trauma to her chest, upper extremities, and face. Mrs. M. was stabilized, which required intubation, initiation of vasoactive infusions, placement of two chest tubes, and administration of morphine for pain. Then she was transferred to the Trauma ICU. Upon arrival to the ICU, Mrs. M. was met by the ICU team, which consisted of six interdisciplinary team members. She looked alarmed as team members started to perform simultaneous procedures and examinations with little regard to her exposure in the room and to passersby in the hallway. Mrs. M. was cooperative, but appeared to be experiencing increasing trouble breathing and nodded "yes" when asked if she had chest pain. She nodded appropriately to questions, but was delayed in responding. The nurse caring for Mrs. M. asked, "Do we need to be suctioned down the breathing tube?"; without waiting for a response, the nurse quickly inserted the suction catheter which caused Mrs. M. to grimace. Morphine continued to be administered for pain. Over time, the patient became increasingly agitated, pulling on the cardiac electrodes, the ventilator tubing, and her Foley catheter. Physical restraints were applied for patient safety. Surgeons determined that Mrs. M. required surgery to address bleeding noted in her chest tubes. Family members were contacted to obtain consent for surgery. The patient was transferred to the operating room, looking frightened, with little explanation of what was occurring.

#### *Commentary*

**Issue:** multiple team members interacting with Mrs. M. simultaneously with little regard for limiting exposure as much as possible or giving information as to what procedures they were performing.

**Alternative strategy:** ensure that one team member is accountable for giving as much information to Mrs. M. as possible, describing procedures before they are performed, assessing the patient's comprehension of the information given, and ensuring that her privacy is maintained by covering her body, controlling access to the room, and preventing viewing of the patient by others in the hallway.

**Issue:** incomplete assessment of the reason for delay in Mrs. M.'s response to questions.

**Alternative strategy:** further assessments of Mrs. M. to ascertain reason for delay in response. Does she have hearing or vision impairment? Is she having neurologic changes? Is she having difficulty in comprehending what is happening to her?

**Issue:** use of speech that is potentially demeaning by use of the terms "we" and "dear," communicating at a fast pace, and not allowing the patient to process the question before initiating the procedure.

**Alternative strategies:** avoid terms that can be perceived as patronizing. Use an even pace of speech and ensure that the patient comprehends information before proceeding with invasive or sensitive procedures.

**Issue:** use of physical restraints before assessing the cause of her increasingly agitated behavior.

**Alternative strategy:** fully assess the underlying cause for increasing agitation. Potential causes to explore fully before initiating the use of restraints include worsening oxygenation status, reaction to the use of morphine, increasing pain, increasing confusion, and increasing fear/anxiety. Explore alternatives to physical restraints.

**Issue:** assumption that the patient was unable to give consent for her own surgery.

**Alternative strategy:** take time, as feasible, to fully explain patient's condition to her and explore her ability to comprehend the situation. Notification of family is still appropriate, but giving information to the patient and allowing her to participate in decision making as appropriate would ensure that her wishes are acknowledged and may ease her anxiety.

and may impede staff/patient interactions. Patients actually may become withdrawn and exhibit depression.

### *Physical/chemical restraints*

The use of physical restraints in the acute and critical care setting have long provided an appearance of safety and rationale for prevention from injury and protecting the patient from inadvertent harm [15]; however, the use of physical restraints is inconsistent with dignity, essentially denying patient autonomy [15]. Ongoing research and evidence suggest that physical restraints elicit psychologic responses in patients that may include agitation, withdrawal, emotional devastation, fear, and loss of dignity. In turn, the psychologic responses may potentiate adverse physical effects that may include all of the complications related to mobility, impaired circulation, nerve injury, and broken bones. The elderly population is at higher risk for experiencing the psychologic responses and the physical effects mentioned above.

Physical restraints, also called “protective devices,” are being included in protocols and care plans as safety measures. With national regulations increasing the awareness of physical restraints and the promotion of other nonrestraint measures, health care team members’ knowledge and attitudes must be considered [15]. Successful initiatives decreasing the use of physical restraints in acute and critical care settings require an understanding of the many factors that support and oppose this practice, maintaining vigilant awareness of the patient’s dignity.

Physically restrained patients are unable to protect their modesty, scratch their nose, pull the covers up if cold, pull down a hospital gown if exposed, or even turn if uncomfortable. Patient dignity may not take priority for staff who are unaware of the patient’s rights or alternatives for maintaining patient safety. Staff may believe that they do not have adequate time to address alternative measures before applying physical restraints. This factors into the use of chemical restraints as well.

A significant consideration in the Center for Medicare and Medicaid Services’ (CMS) standards is the inclusion of chemical restraints. Chemical restraint is defined by CMS as a medication that is intended to restrict patient movement for physical or psychologic reasons; however, it should not be used as a standard of care [15,16]. Case study reviews identify situations

in which health care team members medicate patients. The activity level of the critical care unit, other nursing assignments, and, in general, an overall increase in patient acuity can result in less time for the nurse to be addressing alternatives to restraining a patient [15].

Physical and chemical restraints are interventions that affect dignity in the elderly. All disciplines need to consciously address the reason behind the behavior that requires the use of restraints so that it can be resolved promptly and appropriately [15].

### *Staffing shortages*

Nationally, staffing shortages are not a new topic. In the acute and critical care environment, nurses consistently strive to provide holistic care to patients and their families. This can become difficult in the increasingly busy critical care environments. With staff shortages, it is likely that day-to-day assignments are renegotiated frequently and outside staffing resources, such as agency or per diem nurses, are used. This leads to a lack of continuity of care that alters the ability to track patient needs and wishes over time [14].

Patient acuity continues to increase, which makes it more difficult to spend adequate time addressing patient and family needs. This may have a direct effect on upholding dignity in the elderly. Staff may become frustrated with complex assignments, feeling rushed in providing the necessary basic care, which results in a lack of awareness of the patient’s dignity. There also may be a perception that it takes more time to allow elders to make their own choices and to fully participate in their own cares according to ability.

With the potential for basic cares to become a low priority in a fast-paced acute care setting, physical appearance also may become a lower priority for the staff. A person’s perception of poor physical appearance may lead to a change in sense of dignity, regardless of the nurses’ need to prioritize more urgent cares [17].

### *Decreased individuality*

Hospitalization of the elderly may threaten their identified independence and ability to return to home. Once hospitalized, routines become evident and each shift has structured assignments that the staff feel obligated to follow. In a recent study by Jacelon [5], one patient participant explained that “it felt like staff took everything away, being at everyone’s mercy and you didn’t

count..." This loss of control relates to decreased individuality affecting how dignity is altered. Most often, the feeling of loss of control can be addressed if staff provide a simple explanation of the plan for the shift or for the upcoming procedure.

In some reviewed case studies, the elderly population shared that even conscious efforts to communicate with them, keeping them informed, and allowing them time to formulate an answer were respected and dignified means of maintaining his/her individuality [5].

Staff can express dignity and respect by exploring individual preferences, communicating those to other providers, and finding ways to accommodate those preferences as feasible [14].

#### *Interactions and communication with the elderly*

Elders' dignity also can be affected by negative interactions between staff and patients. Many health care providers hold unfounded, stereotypical negative attitudes toward elders [18]. These attitudes can be conveyed overtly and covertly through behaviors and statements. Examples of interactions that can erode dignity include a lack of regard for privacy, treating geriatric patients as incompetent, and insensitivity to patient needs and requests [14,17]. Simple acts of courtesy can go a long way to conveying worth, respect, and dignity [14,17].

Communication is a key component to treating elderly with dignity. Communication difficulties arise from a variety of issues ranging from physical impairments to extent of information sharing by staff and their commitment to encouraging decision making by the geriatric patient. Providing adequate information and the use of effective communication are key in assisting elders in making informed choices [18,19]. Often, there is a disparity between patient expectations and staff expectations related to information giving and opportunity for decision making [5,7,8,20].

It has been shown that health care providers alter speech patterns when communicating with elders: slowing rate of speech, elevating pitch and volume, repeating words and phrases, and using simple words and grammar and inappropriate terms of endearment [13,21]. Although providers may believe that they are communicating more clearly by using these techniques, elders may find this type of speech demeaning and patronizing [21]. It is important to avoid treating all geriatric patients as if they are deaf or talking to them as

if they are children [17]. Responses by the elderly to this type of communication can result in lowered self-esteem, withdrawal, and increased dependence [22]. Care providers may not recognize when they are using this communication style and the negative response it can engender.

Maintaining dignity in the elderly who suffer from impairments, such as hearing, vision, physical, or mental incapacities, provides an additional challenge for the patient and for the health care team. Staff need to be aware of the patient's potential physical or emotional challenges and assure that the issues are addressed on the plan of care. It is imperative that communication remains consistent among the health care team, addressing each issue as it is identified. Patients who are hard of hearing or deaf may need interpreters. Too often staff assume that the patient is hearing and comprehending information only to find out with reciprocal sharing that the patient does not demonstrate knowledge of understanding [5].

Ensuring that patients have the communication devices that they need near to them is key. Consider patient accessibility to appropriate communication assistive devices, such as glasses, hearing aids, interpreters, and written communication with large-type print and appropriate reading level. Use of eye contact and appropriate body language can be simple and effective communication techniques that convey a sense of worth and respect.

#### *End-of-life care*

At no time during hospitalization is the concept of dignity more imperative than surrounding end-of-life care issues. It is not uncommon for health care providers to exhibit difficulty in discussing end-of-life care with patients, and, therefore, wait too long to initiate these conversations with elderly. Poor and nondirect communication frequently occur.

It may be difficult to determine at what level of cognition a patient loses the ability to make decisions, particularly in an acute care setting with many confounding variables. Providers may assume that a physically frail elder is not capable of making decisions, even for the most basic situations. Without having these discussions, providers may err on undertreatment or overtreatment.

It is important at this point in care to ensure autonomy as much as feasible, with full information sharing and engaged decision making. Education programs, such as End of Life Nursing

Education Consortium (ELNEC) and Toolkit for Nurturing Excellence at End of Life Transition (TNEEL), can ensure that nurses caring for elders can address complex symptom management and provide holistic, dignified care [23,24].

### Elder mistreatment in the acute care setting

Potential for signs of EM on admission to the inpatient setting were addressed previously. What about the potential for EM in the acute care setting? There is some governmental data available about the extent of EM, although experts believe that it is underreported, underestimated, and likely to increase as the number of elders older than the age of 65 years increases [10,11].

Traditionally, examination of EM in an institutional setting has focused on nursing homes or residential facilities. It is believed that employees in those settings who receive low wages and are working in stressful situations are at the highest risk to become abusers [11].

There is extremely little data or discussion available about mistreatment that occurs in the acute care setting. Little nursing or other discipline research has been done in EM in general and essentially none is available related to the acute care setting.

Conditions in today's acute care setting may be prime for potential cases of EM because of stressful work environments, staff burnout, and staffing shortages that lead to potentially lax hiring and screening practices and a lack of oversight by supervisors and leadership. In addition, if staff have not been trained properly in how to manage aggressive or demanding behavior from elderly patients it may lead to EM ranging from avoidance of cares to patronizing responses to the extreme of physical or emotional abuse of the elderly patient [10,11]. Teamwork is especially important in identifying and dealing effectively with EM because it is such a multifaceted problem [10,11].

### Strategies and recommendations

Although maintaining dignity for the elderly patient in an acute care setting is a challenge, there are many strategies that can be implemented to prepare nurses and health care providers to meet this population's needs. There are recommendations that are pertinent for the education of nursing students and practicing nurses, for the

practice setting, and for future research and policy development to improve care for hospitalized elderly (Box 2).

#### *Education*

It is becoming increasingly clear that focused education on care of the geriatric population is needed in academic and practice settings as the number of elderly increase in the United States. Overall, improved geriatric care knowledge will help nurses to interact and intervene appropriately with the elderly, thereby maintaining their sense of dignity in what can be an undignified setting. Extensive and ongoing training in this

#### **Box 2. Key strategies to uphold dignity in hospitalized elders**

##### *Education*

Improved education on geriatric care  
Identifying, preventing, and mandatory reporting of EM  
Management of aggressive behaviors  
Improved communication with elders  
End-of-life care

##### *Practice*

Increased awareness regarding elders' autonomy and cultural differences  
Use of individual assessments and communication approaches  
Nurse administrator support of restraint-free environments  
Implementation of interdisciplinary-focused geriatric units and care programs  
Implementation of quality improvement projects related to end-of-life care  
Emphasis on palliative care

##### *Research priorities*

Use of physical restraints  
Hospital care of elders  
Individual interventions to address suboptimal behaviors  
EM in the acute care setting

##### *Policy development*

Standardization of end-of-life legislation  
Requiring Health and Human Services annual report on status of end-of-life care in the United States  
Public education on EM

area should help to reduce ageist attitudes and stereotypes that can be present today [18]. More exposure to the geriatric population is helpful in increasing comfort in working with elders and seeing them as individuals with unique needs [18].

The prevalence of EM is likely to increase as the geriatric population increases. EM education should begin in nursing school curricula, including defining the many forms of EM, how to identify it in the community and acute care setting, and requirements for mandatory reporting by health care providers. This education also should occur in the acute care setting. In addition, nurses and students should be educated on how to deal with aggressive behaviors on the part of elders (including the appropriate use of restraints and alternative measures) because this may be a trigger for EM in the acute care setting [10,11,15].

Ongoing and initial education on improved communication techniques will improve the status of patient dignity substantially. Highlighting questionable behaviors, statements, and body language can heighten staff awareness and may greatly diminish demeaning interactions that staff may not be aware that they exhibit [21].

Many elderly spend extensive time in the hospital in their final years of life. Improving communication and training in end-of-life care, through programs such as ELNEC and TNEEL, can promote a focus on upholding dignity, which is vital at such a crucial time for patients and families [23,25,26].

### *Practice*

Strengthening educational programs in nursing school curriculum and in the acute care setting ideally translates into improved practice of bedside geriatric care. Increased awareness of the unique needs of elders may lead to the use of individualized assessments and approaches that result in better communication and comfort. This can ensure care that upholds dignity in hospitalized elders [15].

Professional nurses working with hospitalized elders should be encouraged to maintain the patient's personal choices and autonomy and have a greater awareness of cultural differences [27]. Nurse administrators and clinical leaders should actively support environments that are conducive to the quality care of elders. This includes promotion of privacy, an absence of restraints, and therapeutic, patient-focused practice [13,15].

Greater emphasis on palliative care is essential for elders in the acute care setting. Institutions should implement quality improvement projects related to end-of-life care [28]. As a result, nurses may implement palliative care earlier and use protocols, symptom management, advance directives, and bereavement services [23,28]. This will assist elders in trusting that their wishes will be known and followed in the ultimate act of promoting dignity.

Interdisciplinary-team geriatric programs should be instituted to promote comfort and dignity [29]. There has been an increase in the development of specialized geriatric units or formal geriatric programs (eg, Acute Care for Elders (ACE) units or Nurses Improving Care to Health System Elders (NICHE) projects) that can promote care that attends to the particular needs of the geriatric patient. Geriatric skills of nurses, as well as patient outcomes, improve in these environments [29,30]. These outcomes include decreased confusion [31,32], decreased lengths of stay [33], decreased falls [31], and decreased costs [31,34,35], in general, as well as the decreased use of restraints with no increase in falls [36]. In addition, there have been reports of increased patient and family satisfaction as well as staff satisfaction [36–40]. With increased knowledge of nurses regarding geriatric care, elders perceive themselves as being less of a burden and nurses perceive fewer obstacles and an increase in the use of best geriatric practice [30].

### *Research*

Nursing has a great opportunity to lead the science in the care of the elderly. Research in the care of hospitalized geriatric patients can assist hospitals to improve practice for this frail population [41].

Research priorities from the National Institute of Nursing Research consistently have promoted research related to elder care. Proposed areas of emphasis have included the use of physical restraints, hospital care of elders, and individualized interventions to address behaviors that interfere with quality of life and comfort at end of life [42]. There is a dearth of research on the mistreatment of elderly in acute care settings. Emphasis for research in this area should be on prevention of mistreatment [10]. Research in any of these areas will become needed increasingly and will all address aspects of maintaining dignity for this population.

### Policy

Public policy opportunities related to elderly in the acute care setting seem most appropriate in the area of end-of-life care. Public policy varies widely from state to state across the United States. Federal legislation should be enacted to standardize end-of-life care [28]. Key opportunities include ensuring coverage of prescription medications for symptom relief; changing Medicare regulations so that patients who are nearing death are afforded continuous care, regardless of the site of care; expanding policies to cover patients who have terminal illnesses in addition to those with a 6-month prognosis; and requesting that the Health and Human Services Department publish an annual report on the state of end-of-life care [43]. Finally, the government should promote and support public education about EM [10].

### Summary

In today's increasingly chaotic and complex acute care environment, the unique needs of the elderly can be overlooked easily, leading to the potential loss of dignity in the process. Despite these challenges, nurses can implement a myriad of strategies to focus on upholding dignity, regardless of the type or acuity of interventions being performed. Implementing strategies in education curricula, practice, research initiatives, and policy development can ensure that hospitalized elders receive the dignified care that they deserve.

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## Maintaining Vigilance to Promote Best Outcomes for Hospitalized Elders

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Since Florence Nightingale, vigilance has been viewed as a central component of nursing care. Vigilance is the “purposeful, careful watching over” by nurses that involves observations for the purpose of anticipating and recognizing patient risks with the intention of remaining ready to act in the event of occurrences [1,2]. Vigilance by nurses is a central component of nursing care for older persons who are hospitalized. In fact, the main reason why many elders are in an acute care setting is the need for professional nursing vigilance. Maintaining vigilance can occur on many levels, consisting of the individual, family, community, and health care system. Vigilant observations can involve one cue or clusters of cues, use retrospective data or concurrent data, or entail anticipatory scanning of the patient and environment. Meyer and Lavin [1] described the essential domains of vigilance by nurses as attaching meaning to what is, anticipating what might be, weighing and minimizing risk, staying ready to act, and monitoring results/outcomes. Vigilance is a complex skill in which important cues are recognized and meanings and inferences are made, including determining what is within normal limits and differentiating the signals from the background “noise.” The ability to make astute and timely observations is considered one of the hallmarks of the expert nurse [3]. Early recognition and monitoring reduce injury and enhance outcomes. This article presents contemporary evidence regarding the promotion of a culture of caring for

hospitalized older persons through nursing vigilance. A summary of the literature regarding the need for vigilance, what to be vigilant about, and how vigilance can be enhanced for hospitalized older persons is provided, as well as recommendations for practice, education, research, and policy.

### The need for vigilance in the care of hospitalized elders

A major reason for enhanced vigilance in the care of older hospitalized persons is the need to differentiate normal aging from abnormal pathology. It is important to understand how the body ages, the common changes that the systems of the body undergo with aging, and the intersection of those changes with pathology common in older adults. All body systems undergo changes, but the rate of the changes varies from person to person and even from system to system within the same person. The changes with aging that affect the integumentary, cardiovascular, respiratory, renal, and immune systems are often the determinant of crisis or recovery. In addition, older adults are the most likely to suffer from chronic diseases and to be on multiple medications before any acute incident. Without the knowledge of physiologic changes that are common in older adults and their implications to nursing care, a subtle presentation of change in condition could go unrecognized by even the most vigilant nurse.

As the body ages, biologic changes increase the risks associated with acute care hospitalization [4]. Older adults can have rapid physiologic and

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psychologic responses to hospitalization and treatments, creating the need for enhanced vigilance on the part of the nurse [5,6]. The changes may be insidious and often are not obvious until they have become a crisis. Older adults also present common problems in uncommon ways; the familiar symptoms may be absent. Cues from older adult patients are not always those expected and experienced in younger adults. Compared with younger adults, hospitalized older adults are more likely to have adaptation mechanisms that are unpredictable, the need for differently dosed medications, and a greater risk for permanent disability.

Another reason for the need for increased vigilance in the care of hospitalized elders is the increased risks that are associated with the applications of hospital diagnostic procedures and interventions. Almost all interventions carry risk, and this risk is magnified in older persons. Also, the most desirable interventions for older persons are the ones that maintain or improve functional ability. A treatment that results in decreased function, no matter how technically successful, will not be advantageous for that patient.

Hospitalization also places older persons at risk for errors that occur with great frequency in health care organizations; thus, there is need for vigilance for the prevention of these errors [6]. The Institute of Medicine [7] reported that the most common errors in hospitals for elders are those associated with medication administration, falls, and hospital-acquired infections. Analysis of these errors indicates that they can be prevented through better observations on the part of nurses and through better hospital surveillance systems. Lastly, because of the complexity of care required for the hospitalized older person, communications about that care often are complex among health care providers and between care providers and patients and their families. This creates an increased risk for error during the movement of information between care providers, between professionals and patients, between shifts, within and among disciplines, when delegating to unlicensed personnel, and when making referrals [7–10]. These “hand-offs” are sentinel times for vigilance.

### **What to be vigilant about**

Vigilance is needed to accurately identify signs and symptoms in hospitalized older persons that commonly are subtle and may be atypical [11].

The vigilant nurse has knowledge about how the body ages and recognizes that older adults present common problems in uncommon ways. The nurse makes optimal use of assessment and monitoring tools and protocols specific to hospitalized older persons, such as the Comprehensive Geriatric Assessment [12]. By careful determination of the baseline mental status and feedback from family or significant others, the nurse supplements the initial assessment with regular repeat assessments to confirm maintenance of baseline status.

Delirium is an example of a symptom of particular importance in the care of older persons. Delirium may develop from acute changes in almost any system: cardiac, respiratory, renal, endocrine, urinary tract, and electrolyte balance. It is important that the nurse understands that mental decline is not a normal part of aging and dementia does not appear suddenly. Thus, the nurse should delve more deeply into the cause of the change in mental status and address treatable causes. Delirium is particularly devastating with consequences that can result in increased morbidity and mortality and longer hospitalization [13]. Even a subtle change in mental status may signal the development of delirium and the sequelae that accompany a particular condition.

Infection often presents atypically in older persons and warrants special consideration. Immunosenescence increases susceptibility to infection. Coupled with the absence of typical signs of infection that present in younger adults—temperature elevation or increase in white cell counts—the presence of infection may go unnoticed in its earliest treatable state [14]. When an older adult develops a change in mental status or experiences a fall, infection should be considered. Impeccable infection control measures, including the most elementary prevention—washing hands—guards the vulnerable immune system of the older adult and may prevent the acquisition of resistant infections [15]. Vigilant monitoring also can prevent breakdown of the skin and the development of pressure ulcers [16]. The nurse implements frequent repositioning or use of special mattresses to prevent skin breakdown based on knowledge of the common physiologic changes in older adults, such as smoothing of the basement membrane, decline in subcutaneous tissue, thinning of the epidermis, and decreased lean muscle mass.

Because almost all interventions carry some risk, it is necessary to be vigilant regarding the risk inherent in any course of action by nurses and other members of the health care team, including

the unintended consequences of interventions and outcomes [7,17]. Common interventions that may be viewed as benign, such as bedrest, feeding, or ambulation, present risks in older persons that rarely affect younger adults. Medication is the most universal intervention instituted in the care of older adults. Medications cause more adverse events in older adults compared with younger adults; they increase from 10% in those who are 40 years of age to 25% in those who are older than 80 years [18]. Medications also may need to be dosed differently because of the increased risk for drug–drug interactions and the decline in renal function that is common in older adults. A serum creatinine within normal limits may mask the decline in renal function due to the decrease in lean muscle mass in older adults [19]. The fundamental and simplistic rule that nurses are responsible that every medication administered is the correct medication, in the correct dosage, given at the correct time, to the correct patient, through the correct route becomes more complicated given the special needs of older adults. Indeed, older adults may need a different medication, a different time, a different dose, or a different route based on their personal physiology, concomitant medication, or comorbid conditions.

The common changes that are associated with aging—high comorbidity, polypharmacy, and unpredictable responses to interventions—combine to increase the likelihood that older adults will experience an adverse event during hospitalization. Thromboembolism, decubiti, aspiration, and falls are just some of the iatrogenic problems that can result from acute hospitalization. Older adults also are at high risk for nosocomial infections, such as pneumonia, urinary tract infection, wound infection, and the development of *Clostridium difficile* infection. Although bedrest has the risk for atelectasis, immobility, contractures, and skin breakdown, getting out of bed also poses risks. Falls are a significant cause of injury and death in older adults. The risk for falls increases in the delirious patient [14]. Older adults who have preexisting cognitive impairment also may not be capable of using hospital call lights or other common assistance-signaling devices to prevent falls. The vigilant nurse understands that the hospital environment presents a risk for negative outcomes to the older adult and acts proactively to prevent them.

Another area requiring vigilance by the nurse is the application of technology in the care of older persons. For example, mechanical

ventilation is a frequently used technology in the care of critically ill hospitalized elders [20,21]. One of the problems with the use of technology, such as mechanical ventilation, in the older hospital patient is that it reduces mobility, which has its associated risks. Vigilance by the nurse can reduce the period of time that patients are on ventilators, hospital length of stay, and rehospitalization [20]. Conversely, technology can help nurses be vigilant in the care of hospitalized elders. The use of point-of-care information, electronic health records, patient care information systems, and computerized adverse events detection systems assist nurses to monitor symptoms and outcomes and prevent errors [22,23]. Although electronic care systems are built to improve patient safety, several unintended negative consequences in their use require vigilance by care providers. Ash and colleagues [17] found that electronic patient care information systems are subject to two kinds of errors: those related to entering and retrieving information and those related to communication and coordination. An example of a problem in entering and retrieving information that is important to the care of older patients is the required use of structured input screens that do not allow the input of “unusual” doses of medication. An example of a communication and coordination problem is the lack of opportunity to document team decisions regarding plans of care. Although electronic patient care systems offer great promise for reducing errors in acute care agencies, vigilance is needed in their design, implementation, and use to support safe, high-quality care for older persons who require complex care.

### **Enhancing vigilance in the care of hospitalized older persons**

A summary of evidence-based strategies to enhance vigilance in the care of hospitalized elderly is presented in **Box 1**. The vigilant nurse recognizes that the body changes with aging and that hospitalization places the older person at increased risk for deterioration of functional status and the development of potentially life-threatening complications. Hospital nurses need to have knowledge of the normal aging process so that they do not treat older adults’ physical and mental changes (signs and symptoms) due to aging as pathology. Similarly, they do not want to disregard pathology because it is erroneously attributed to normal aging.

**Box 1. Evidence-based strategies to enhance vigilance in the care of hospitalized elderly**

Recognize hospitalization as placing the older person at increased risk for deterioration of functional status and the development of potentially life-threatening complications

Engage in data-driven decision making, including the use of evidence-based geriatric care guidelines, computer-driven algorithms, and computerized adverse event monitoring systems

Make optimal use of assessment and monitoring tools and protocols specific to hospitalized older persons, such as the Comprehensive Geriatric Assessment

Limit interruptions during communications around handoffs between and among care providers and between care providers and patients and families

Work with administrative leaders to ensure sufficient staffing to assure that adequate time for observations of patients in care environments can occur

Support the implementation of models of care specifically designed for elders, such as Acute Care for Elders program and Geriatric Evaluation and Management units, the use of advanced practice nurses, and geriatric resource nurses

Participate in continuing education to assure competency in caring for hospitalized elders

Specialized models of geriatric care and assessment protocols also can enhance the nurse's ability to provide vigilant care. Evidence has accrued indicating that geriatric specialized models of care, such as the Acute Care for the Elders program [24,25], Geriatric Evaluation and Management program [26], and the Hospital Elder Life Program [27], have improved patient outcomes and less hospital complications than models of care not specific to the elderly. Additionally, the use of advanced practice nurses to coordinate care [28,29] and geriatric resource nurses

[30] have been shown to support better outcomes. These models have several characteristics in common. The specialized models of geriatric care have specially trained personnel, a strong philosophical framework guiding care to prevent disability and promote optimal functioning in older persons, wide use of specialized geriatric assessment and monitoring tools and protocols specific to hospitalized older persons, and an interdisciplinary team approach to care.

Family members can assist nurses to promote vigilance during hospitalization of older persons. Structured communication with families of critically ill patients (proactive involvement of families in care planning) has been shown to reduce mortality and hospital length of stay [31,32]. Determining the family's desired level of involvement during the hospitalization is an important initial step in engaging family members in the care of older hospitalized person [33]. Listening to family concerns and pursuing even the most unlikely sounding concern may result in the prevention of negative outcomes. Educating families and encouraging their feedback is a way to engage them in recognizing and reporting important patient cues.

Vigilance also can be used to promote safety and reduce errors in the care of hospitalized older persons. One way to reduce error is to coordinate work through standardization using standardized guidelines. Clinical guidelines made readily available to care providers using advanced information technology have been shown to reduce the variation in clinical decision making. Clinical practice guidelines are standardized specifications for (efficient) care developed by a formal process to incorporate published scientific evidence with expert opinion [34]. Often, practice guidelines are part of integrative pathways, which are clinical management tools that organize, sequence, time, and coordinate the major intervention of health care providers across the continuum of care for particular case-types or conditions. Integrative pathways help bridge clinical specialties, functional departments, care settings, and organizational boundaries. Data-driven decision making, including the use of geriatric practice guidelines, computer-driven algorithms, and computerized adverse event monitoring systems, can assist the nurse in reducing errors and improving outcomes.

Another approach to improve safety and prevent error is enhanced attention at crucial "hand-off" points in the care of hospitalized older persons. Examples of crucial handoffs are patient

transitions from one care environment to another (ie, admission, unit transfer, discharge), transfer of information between patients and families and care providers, and change of shift reports among care providers. Patient transitions from one care environment to another increase the chances of error because important information is lost or inadequately communicated [35]. From a preventive viewpoint, older patients who are at greatest risk for complicated posthospital transitions can be identified using hospital admission functional status and diagnostic information [36]. Change-of-shift reports recently have been identified as high-risk times for communication errors among health care professionals. Data indicate that limiting interruptions, use of standardized reporting formats, and repeating back information during communications at change-of-shift report reduce errors of omission and commission [7–10].

Lastly, the availability of sufficient numbers of nurses who are knowledgeable about the care of hospitalized older adults is essential to providing vigilant care. Vigilance can be learned and is enhanced through experience. More educated and experienced nurses have better assessment and diagnostic and patient communication skills [37,38], and hospitals with greater numbers of baccalaureate and higher education–prepared nurses have lower failure to rescue levels [29]. Programs in which nurses are taught skills specific to assessment and monitoring of risk factors in hospitalized elders are effective in reducing complications and improving the quality of life of elders [27,37]. Participation by nurses in continuing education regarding the use of evidence-based guidelines, error management, and use of technology to aid the care of older hospitalized persons should be required to assure competency. Nurses also must have time for vigilance. Staffing patterns with high patient/nurse ratios are associated with greater patient mortality, failure to rescue, medication errors, and rehospitalization [39]. Also, working more than 12 hours a day is associated with a greater risk for making errors [40]. Thus, it is important that administrative leaders in hospitals ensure sufficient staffing to permit adequate time for vigilant care.

## Recommendations

Improved outcomes for hospitalized elders can be achieved by enhancing vigilance by nurses. Several recommendations are provided to enhance

a culture of caring through vigilance. Recommendations are provided for practice, education, research, and policy.

### *Practice*

1. Practice models and assessment tools specific to the elderly should be part of the care in all hospitals that admit elderly patients.
2. Sufficient staffing and staffing patterns should be provided to assure nurse time for adequate patient observations.
3. Computerized systems that provide support information regarding care, safety, and improvement should be in greater use by nurses caring for patients.
4. Assurance of nurse competencies in the care of older persons should be required by hospitals.
5. Continuing education opportunities should be provided by hospitals to nurses regarding the care of older persons in acute care.

### *Education*

Nursing education programs should have didactic content regarding aging and its effects on the health and healing in older adults.

Nursing education programs should include familiarity with and use of assessment and intervention tools and protocols specific to hospitalized elders.

Nursing school curricula should include training in the nurse's role in maintaining a culture of safety and continuous improvement.

Simulation should be used to teach medication error mitigation, safety protocols, and the use of best practices for the care of elder persons.

### *Research*

More research is needed on the safe application of technology for hospitalized elders, including the ethics of using technology at end of life.

More research is needed on the effectiveness of the use of computer systems for environmental scanning, data organization and retrieval, and point-of-care information for nursing care and health outcomes.

More research is needed on the effectiveness of assessment and reassessment clinical tools.

### *Policy*

Policies that support adequate salary and working conditions are needed to increase

nursing as a profession for young people entering the workforce, thus decreasing the nursing shortage.

Policies that support incentives for high-quality patient outcomes are needed.

Policies that restrict nursing hours and support adequate staffing are needed to assure safety and high-quality decision making.

In summary, vigilance is a central concept in the care of hospitalized older persons and is a useful lens through which to view care for this population. Vigilance can be learned and made systematic in the care culture. Vigilance is one of the essential components that the discipline of nursing brings to the care of hospitalized older persons. Nursing is the only discipline that has a 24-hour responsibility to the patient; other disciplines depend on nurses to be vigilant on their behalf and to provide them with observations to assist them to do their work. Hospitalized elders present unique challenges regarding nurse vigilance, and specialized skills are needed to systematically assess, recognize patterns, and make meaningful inferences from cues and data presented by these patients.

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# Using Nurse Practitioners to Implement Best Practice Care for the Elderly During Hospitalization: The NICHE Journey at the University of Virginia Medical Center

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## Selecting Nurses Improving Care for Healthsystem Elders (NICHE) as the framework

The proportion of hospitalized patients who are of advanced age has increased gradually over the years to the point where older patients have become the dominant population served by hospitals. Nearly 50% of all hospital discharge patients nationally are older than 65 years. It has long been recognized that although hospital-associated complications are common in all age groups, older adults demonstrate the highest vulnerability. The age wave and associated implications were recognized more than a decade ago at the University of Virginia Medical Center (UVAMC), a 450-bed academic tertiary care

center in largely rural central Virginia. At the time, approximately 35% of the inpatient adult population was older than age 65 years. With the recognition that the community rapidly was becoming a mecca for retirees, a conscious decision was made to address more specifically the health care needs of an aging population. A commitment to providing the highest quality of care to the hospitalized elderly was declared; in 1994, University of Virginia Health System (UVAHS) responded to an initial round of proposals and became one of the first four hospitals selected nationally to be a dissemination site for NICHE (Nurses Improving Care for Healthsystem Elders).

NICHE is an innovative program initiated in 1992 with funding from the John A. Hartford Foundation; its primary purpose was to provide hospitals with the resources to foster system-wide improvements in the care of older adults [1]. Although there were other models for hospital care of the elderly, such as the groundbreaking work of the Veterans Administration Health System, the attractiveness of the NICHE framework was its comprehensive and adaptable nature, its grounding in evidence-based research, and the

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focus on nursing. At the time, UVAHS had two well-established nurse practitioner (NP) leaders who were highly regarded within the medical center and the community for their expertise in geriatrics. The decision to participate as an early adopter of NICHE demonstrated to be a critically important one for UVAMC when positive outcomes for hospitalized elderly were realized after implementation of one NICHE model: the geriatric resource nurse (GRN) [2]. As the number of hospitalized elderly at UVAMC has increased steadily from 35% in 1992 to approximately 41% today, so too has the imperative to continue to develop, enhance, and sustain efforts to improve the quality of elder care provided. Support for NP leadership in inpatient care grew stronger in 2003 when the Accreditation Council on Graduate Medical Education implemented restrictions on the number of hours that residents can work to promote patient safety and the health of the resident. The American Academy of Nurse Practitioners survey [3] revealed that NPs are becoming increasingly specialized and working in inpatient and outpatient areas; this also is reflected at UVAHS where more than 100 NPs are employed. The UVAMC has 9 NPs who specialize in geriatrics who use NICHE as the framework and provide the leadership necessary to achieve this goal of improving geriatric care; the focus has expanded throughout the entire health system to include inpatient, outpatient, and the community, including long-term care. It has been impressive to see that NICHE has been implemented in several hospitals, largely in the United States but also in Canada and The Netherlands; many hospitals are appreciating impressive outcomes as a result of NICHE partnership.

### **Developing, enhancing, and sustaining NICHE initiatives**

The GRN model was the first NICHE initiative to be implemented in 1994. The GRN model (described more fully in the exemplar below) involves having unit-based registered nurses learn (under the leadership and mentorship of NPs with geriatric expertise) to enhance their knowledge, skills, and abilities in geriatric care and, “in turn,” serve as a resource on care of the elderly for the entire health care team on acute and critical care units. The GRN model of best practice has been sustained at the UVAMC for more than a decade [4]; however, by 2002 it was recognized that the GRN model alone would not be enough to address the growing needs of the elderly requiring

health care. Demographics in 2002 showed that approximately 41% of the UVAMC inpatient adult discharges were older than 65 years of age, with 20% of this cohort older than age 75 years. By this time, the GRNs numbered 60, and the program had expanded beyond the inpatient to include an outpatient focus. Although the model continued to be a successful one for improving the quality of geriatric care and being a satisfier for nurses, it was speculated that with additional geriatric nursing leadership, much more could be accomplished in enhancing the quality of geriatric care. The NICHE best practice “tools” were reexamined and consideration was given to implementing an Acute Care for the Elderly (ACE) model. In addition to examining the demographic data, further justification for ACE was provided in early 2003 when the NPs in geriatrics participated in unit-based discharge-planning rounds. This experience provided further insights into the unique needs of older inpatients, particularly with regard to the challenges in addressing multiple/complex health needs, the vulnerability to complications during the hospital stay, family caregiver issues, and the need for an aggressive discharge-planning process that eased transitions in care across settings. On the inpatient medicine units alone, of the 52-patient capacity, 6 to 8 patients (12%–15%) were considered by the NPs to be potential candidates for ACE using the broad and tentative criteria listed in **Box 1**.

The second NICHE initiative to be implemented was a 10-bed ACE unit that began in 2004. About this time, UVAHS nurses responded to a Robert Wood Johnson Quick Strikes call for proposals. The modest award received in late 2003 for the project entitled “Developing a Nurse Administered, Family Centered Acute Care Unit for The Elderly” helped to secure some preimplementation funding for the 10-bed ACE unit.

#### **Box 1. Draft criteria for the acute care of the elderly at University of Virginia Medical Center**

Older than age 75 years  
 Acutely ill in need of hospitalization  
 Multiple/complex problems  
 Actual or potential risk for functional decline  
 Actual or potential risk for hospital complications

Unlike the first two initiatives, the third NICHE initiative, the Geriatric Consultation Service (GCS), was not part of thoughtfully considered strategic planning in geriatric care nor was it typically considered part of the NICHE toolkit. The GCS began in 2005 as the NPs were looking for appropriate patients to transfer to the ACE unit. During active screening, the NPs were asked increasingly to consider bringing their expertise to the patient and staff on the current unit rather than moving the patient to ACE. The concern raised by the staff often was legitimate. For example, transferring a frail older adult from a specialized orthopedic unit postoperatively to the ACE unit may prove more harmful than beneficial. In addition, the NPs were criticized sometimes for being overly restrictive in the ACE admission criteria and preferentially accepting patients who were most likely to have favorable outcomes. The GCS was launched, and an NP/geriatrician team began responding to consultation from a variety of inpatient services. The GCS might best be described as the ACE concepts applied outside of the confines of a specialized geriatric unit. All three of the NICHE initiatives remain in place at the UVAMC—and although the ACE and the GCS involve an interdisciplinary approach, like the GRN model—they are led and administered by nurses. The following three exemplars illustrate these unique and complementary attempts to improve care of hospitalized elderly and, where outcomes already have been established, they are presented here. Because the GRN and ACE models have been described in the current literature, most attention will be given here to the third exemplar: the GCS.

#### **NICHE exemplar: the geriatric resource nurse/geriatric education model**

The GRN model at UVAHS initiated in 1994 has evolved and changed over time, and through continued nursing leadership, administrative support, and staff nurse interest, it has been sustained for more than 12 years. This model of care originated at Beth Israel Hospital in Boston and was refined at the Yale New Haven Hospital in 1988 [5]. The GRN model remains the preferred model of most NICHE hospitals, with 63% using this approach [1]. The attractiveness of this model is largely that it is a grassroots approach that brings a geriatric skill set to the patient by enhancing the knowledge of the direct care provider. The

GRN at UVAHS is a registered nurse who commits to develop these competencies in partnership with an NP with geriatric expertise. It is an educational and mentorship model that prepares the GRN to provide and model best practice and be a unit-based/service line resource for it. The preparation of the GRN is tailored based on the needs of the GRN, the staff, and the patient population on the unit, and it typically includes classroom activities, self-learning education, and bedside consultation.

The key component to improving geriatric care is providing educational opportunities in geriatrics. Evidence-based knowledge is the prerequisite for behavior change. A geriatrics core curriculum is offered every fall, not just for the purpose of preparing the GRNs; it is open to the entire nursing and professional staff. The curriculum outlined in Table 1 includes some broad generalized content and a detailed focus on medications as an important issue underlying every aspect of acute care and function [6] and addresses common geriatric syndromes. It also includes a separate session held on special areas of interest and need relevant to UVAMC. The topics have included end-of-life care and cultural considerations in care of the elderly. This session is less structured to provide the staff with the opportunity to network and to strategize together how to address a common need or area of concern.

Recognizing that the staff providing direct care in the hospital is not always a licensed one, a 1-day program is offered annually in the spring for patient care attendants (PCAs). The core curriculum for PCA staff has an emphasis on observation and documentation skills. Geriatric-specific

Table 1  
Geriatrics core curriculum for professional staff

Content area	Time frame
Multidimensional assessment	6 hours
Medications and the older adult	6 hours
Geriatric syndromes Delirium Incontinence Falls	4 hours
Geriatric syndromes Pain Sleep Immobility	4 hours
Geriatric retreat	4 hours twice a year

topics, such as confusion, falls, nutrition, and communication with staff, patients, and families, also are emphasized during the class sessions. Simulation of geriatric physical changes, such as visual, hearing, and mobility limitations, also are experienced by staff using special devices to improve staff awareness of aging changes [7].

Self-learning methods have been used at UVAHS to improve health care knowledge and skills in geriatrics of all of the professional staff, including the GRNs. Computer-based learning on the NetLearning Health System Web site provides educational opportunities for all staff in geriatric education 24 hours a day. The NetLearning modules listed in Table 2 are a modified SPICES acronym as originally developed at the first GRN sites [8] and address common areas of concern in the elderly. The SPPICEES topics complement and supplement the content in the geriatric core curriculum and afford an individual the opportunity to enhance one's geriatric knowledge through distance learning. NetLearning modules also provide a readily available learning resource for staff who are having specific patient care issues, such as difficulty managing a patient who is in pain or experiencing delirium or if abuse is suspected.

A modified version of these self-learning modules was published as a series in *Medsurg Nursing* by UVAHS NPs in 2004/2005 [9–16]. As of August 2006, 892 UVAHS staff had completed the core curriculum or the self-learning modules [17].

Integration and application of knowledge is best accomplished at the bedside during direct care activities. The NPs serve as expert consultants and mentors for the GRNs; this has been accomplished through regularly scheduled rounds with the NP or through formal or informal consultation as the need arises.

The underlying assumption of the GRN model is that knowledgeable nurses can enhance

the quality of care to hospitalized elders; this was confirmed by a research study conducted at UVAHS that included qualitative and quantitative measures. Patients 65 years and older who were cared for on a unit with GRNs had fewer problems with pain, incontinence, and mobility and were significantly less likely to experience physical restraints during their hospitalization [2].

Sustaining the GRN model has not been without its challenges, which were described well by Lee and Fletcher [4]; however, it is impressive to note that 5 years ago, there were 30 GRNs and two NPs with geriatric expertise, and today there are more than 60 GRNs and nine NPs with geriatric expertise. One of the most important testimonials to the success of the model is that since implementation, 5 of the GRNs have furthered their education and are now certified gerontological NPs, and two additional GRNs are enrolled in a gerontological NP program.

#### NICHE exemplar: acute care of the elderly unit

The concept of ACE units was pioneered by the University Hospitals of Cleveland in 1990, and it has been adopted by nearly 20 organizations in an effort to promote quality of care to older hospitalized persons [18]. ACE units are small (typically <25 beds) and are designed specifically from a program perspective—and ideally from environmental design perspective—to enhance the care of acutely ill older persons. An interdisciplinary approach to care is essential in this model, and all staff have special training in the care of older adults. The primary focus on the ACE unit is to prevent functional decline, restore function, and prevent hospital-associated complications while promoting the recovery of acutely ill older patients. Calkins and Naughton [19] reviewed the limited literature on ACE outcomes, noting that protocol-driven, interdisciplinary ACE interventions can facilitate functional recovery and return home.

The UVAMC opened a 10-bed ACE unit in 2004 and merged it with an existing distinct, yet complementary, 7-bed palliative care unit. Individualized approaches to care delivery were embedded in family-centered care—a model based on the belief that the family has a significant influence on an individual's health and well-being. The family-centered approach has proven to be

Table 2  
Net learning: SPPICEES

S	Skin integrity
P	Problems with nutrition
P	Pain
I	Immobility
C	Confusion
E	Elimination (bowel and bladder)
E	Elder mistreatment
S	Sleep

one of the keys to success in ACE unit programs [20]. Defining specific criteria for admission to ACE units frequently is a challenge for those hospitals implementing them, and it remains a challenge at UVAHS as well. The criteria described previously continue to be refined.

The start-up support from the Robert Wood Johnson Quick Strikes grant provided some initial salary support for NPs in geriatrics, NICHE, and team leadership training and expert consultation in three areas: ACE units, transitional care, and family-centered geriatric care.

Initially, an ambitious goal of having 24-hour a day/7-day a week NP coverage for the unit was attempted; however, a more realistic time frame for achieving this has been recognized over time. Currently, the NPs provide 12-hour a day/7-day a week coverage for the geriatric consultation service and provide support to the unit and the staff as requested. The ACE unit became operational in 2004 and began with cohorting geriatric patients who met the admission criteria. The unit remains a traditional resident/attending model with geriatric consultation as requested, with a vision of implementing an NP/geriatrician attending model.

### **NICHE exemplar: geriatric consultation**

The Geriatric Inpatient Consult Service (GCS) at the UVAMC was initiated in 2005 at the request of specialty services, who recognized the need for geriatric expertise to achieve better outcomes in patient care. The CGS team consists of an NP and a geriatrician performing collaborative consults. Although the geriatric team is available for consults throughout all inpatient areas, a partnership was formed early with orthopedic surgery when the director of the joint replacement program requested that every one of his elderly patients receiving joint replacements undergo a geriatric consult. It was not long before other orthopedic surgeons recognized the value of geriatric consultation and established the same standard.

Older adults requiring orthopedic surgery are a particularly high-risk group in that they often are of advanced age, have multiple/complex interrelated health problems, and often are on multiple medications. Older adults, even those who function at a high level of independence at baseline, have diminished physiologic reserves in most organ systems, making them more

vulnerable to complications following surgery. This attribute is heightened in those who enter the health care system with serious comorbidities, such as diabetes or renal or heart disease, that may not have been controlled well preoperatively.

Practitioners managing these patients must recognize these concerns and incorporate information gathered in the assessment and monitoring process to provide prompt and accurate treatment for aberrancies [21]. The risk for delirium or acute confusion and other geriatric syndromes in this population is recognized as being extremely high [22]. Additionally, to prevent the common complication of deep venous thrombosis (DVT), virtually all require immediate and longer-term anticoagulation management. The need for anticoagulation assessment and close monitoring and management, combined with the precarious vulnerability to instability in the geriatric patient, pose significant challenges to orthopedic surgeons who spend a considerable amount of time in the operating room and are less available for urgent response.

The process established for GCS is that the NP is the first to respond to the consultation and perform a comprehensive geriatric assessment. Comprehensive geriatric assessment is more sensitive than the traditional assessment framework to geriatric conditions, and it can provide a broader evaluation on which to plan care [23]. A GCS form (Fig. 1) was developed at UVAHS to be used for GCS consults or ACE as needed; it follows the guidelines presented by Kane and colleagues [24]. The GCS general content is highlighted in Box 2.

After completing the geriatric assessment, the NP presents the patient and findings to the geriatrician in daily rounds. They use their combined geriatric expertise to make recommendations, plan for further assessments, and suggest modifications in the plan of care. The NP serves as the leader and the coordinator of the GCS team and communicates with attending hospital physicians, hospitalists, primary care physicians, the nursing staff, and other appropriate members of the health care team as well as the patient and family. Additionally, the NP often is the “first responder” for complications and is increasingly given the authority through the consultation process not just to “evaluate” but to “evaluate and treat” as needed. All orders for treatment are communicated to the attending physician through verbal or text message in addition to written notations in the patient’s medical record.

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PLACE LABEL HERE.

IF LABEL NOT AVAILABLE, WRITE IN PT NAME & MR#

GERIATRICS SERVICE

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Chief Complaint: \_\_\_\_\_

HPI: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
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PMH:

- |   |                                       |   |   |   |   |   |  |   |                                      |
|---|---------------------------------------|---|---|---|---|---|--|---|--------------------------------------|
| <input type="checkbox"/> Y <input type="checkbox"/> N | <input type="checkbox"/> A fib _____  | <input type="checkbox"/> Y <input type="checkbox"/> N | <input type="checkbox"/> Cancer _____       | <input type="checkbox"/> Y <input type="checkbox"/> N | <input type="checkbox"/> Delirium / Dementia  | <input type="checkbox"/> Y <input type="checkbox"/> N | <input type="checkbox"/> Hypertlipidemia | <input type="checkbox"/> Y <input type="checkbox"/> N | <input type="checkbox"/> PUD         |
| <input type="checkbox"/>                              | <input type="checkbox"/> Anemia _____ | <input type="checkbox"/>                              | <input type="checkbox"/> Cataracts          | <input type="checkbox"/>                              | <input type="checkbox"/> Depression / Anxiety | <input type="checkbox"/>                              | <input type="checkbox"/> Hypothyroid     | <input type="checkbox"/>                              | <input type="checkbox"/> PVD         |
| <input type="checkbox"/>                              | <input type="checkbox"/> Appendectomy | <input type="checkbox"/>                              | <input type="checkbox"/> Cerebrovascular Dz | <input type="checkbox"/>                              | <input type="checkbox"/> DM                   | <input type="checkbox"/>                              | <input type="checkbox"/> Hyperthyroid    | <input type="checkbox"/>                              | <input type="checkbox"/> Renal - ARF |
| <input type="checkbox"/>                              | <input type="checkbox"/> AS           | <input type="checkbox"/>                              | <input type="checkbox"/> CHF                | <input type="checkbox"/>                              | <input type="checkbox"/> ETOH abuse           | <input type="checkbox"/>                              | <input type="checkbox"/> MI              | <input type="checkbox"/>                              | <input type="checkbox"/> Renal - CRF |
| <input type="checkbox"/>                              | <input type="checkbox"/> Asthma       | <input type="checkbox"/>                              | <input type="checkbox"/> Compression Fx     | <input type="checkbox"/>                              | <input type="checkbox"/> Falls                | <input type="checkbox"/>                              | <input type="checkbox"/> OA / DJD / RA   | <input type="checkbox"/>                              | <input type="checkbox"/> Seizure d/o |
| <input type="checkbox"/>                              | <input type="checkbox"/> BPH          | <input type="checkbox"/>                              | <input type="checkbox"/> Constipation       | <input type="checkbox"/>                              | <input type="checkbox"/> GERD                 | <input type="checkbox"/>                              | <input type="checkbox"/> Obesity         | <input type="checkbox"/>                              | <input type="checkbox"/> Sleep apnea |
| <input type="checkbox"/>                              | <input type="checkbox"/> CABG         | <input type="checkbox"/>                              | <input type="checkbox"/> COPD               | <input type="checkbox"/>                              | <input type="checkbox"/> GI bleed             | <input type="checkbox"/>                              | <input type="checkbox"/> Osteoporosis    | <input type="checkbox"/>                              | <input type="checkbox"/> THR R L     |
| <input type="checkbox"/>                              | <input type="checkbox"/> CAD          | <input type="checkbox"/>                              | <input type="checkbox"/> CVA                | <input type="checkbox"/>                              | <input type="checkbox"/> HTN                  | <input type="checkbox"/>                              | <input type="checkbox"/> Pacemaker       | <input type="checkbox"/>                              | <input type="checkbox"/> TKR R L     |

Other PMH/PSH: \_\_\_\_\_

Functional Status (pre-hospital): I = Independent P = Partially dependent D = Dependent

ADL's -  I  P  D \_\_\_\_\_ IADL's -  I  P  D \_\_\_\_\_

Equipment -  Cane  Walker  W/C  Home O2  Home Nebulizer  CPAP / BiPAP  Other \_\_\_\_\_

Code Status:  Full  DNR  Other: \_\_\_\_\_  Advanced Directive: in chart  Y  N

SH:

- Occupation: \_\_\_\_\_
- Marital Status:  Married  Single  Widowed  Children \_\_\_\_\_
- Living Situation:  Alone  With \_\_\_\_\_  Facility: \_\_\_\_\_  SNF  LTC  ALF
- Tobacco:  Current  Past  Never  Pack-years \_\_\_\_\_  Year quit \_\_\_\_\_
- Street drugs:  Current  Past  Never  Type \_\_\_\_\_
- Alcohol:  Current  Past  Never  Date of last drink \_\_\_\_\_ Drinks/week \_\_\_\_\_

FH:  HTN  CVA  DM  MI  CAD  Cancer  Non-contributory

Allergies/Reactions: \_\_\_\_\_

Meds: O = Outpatient I = Inpatient

<input type="checkbox"/> O <input type="checkbox"/> I	_____	<input type="checkbox"/> O <input type="checkbox"/> I	_____	<input type="checkbox"/> O <input type="checkbox"/> I	_____
<input type="checkbox"/>	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	_____
<input type="checkbox"/>	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	_____
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<input type="checkbox"/>	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	_____
<input type="checkbox"/>	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	_____
<input type="checkbox"/>	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	_____

Immunizations: Influenza  N  Y - Year \_\_\_\_\_ Pneumococcal  N  Y - Year \_\_\_\_\_ Tetanus  N  Y - Year \_\_\_\_\_

Screenings:  Colonoscopy \_\_\_\_\_  Mammogram \_\_\_\_\_  Dexa \_\_\_\_\_  Cancer  Vision  Hearing

Fig. 1. GCS form. (Courtesy of the University of Virginia Medical Center, Charlottesville, VA; with permission.)

<b>ROS:</b>	<input type="checkbox"/> Unable to obtain ROS from patient d/t <input type="checkbox"/> Delirium <input type="checkbox"/> Unresponsive <input type="checkbox"/> Drowsy <input type="checkbox"/> Dementia <input type="checkbox"/> Other _____ <input type="checkbox"/> History obtained from:			
<b>General:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Weight loss/gain	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Fever / Chills / Sweats <input type="checkbox"/> <input type="checkbox"/> Pain ___/10 Location _____	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Fatigue <input type="checkbox"/> <input type="checkbox"/> _____ continuous /intermittent	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Δ in appetite
<b>Eyes:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Dry	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Drainage <input type="checkbox"/> <input type="checkbox"/> Irritated	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Pain <input type="checkbox"/> <input type="checkbox"/> Diplopia	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Poor vision <input type="checkbox"/> <input type="checkbox"/> Visual changes
<b>ENT:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Dry mouth	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Nasal congestion	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Dysphagia	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Poor hearing
<b>Cardiovascular:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> CP rest / exertion	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Edema	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Claudication	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Palpitations
<b>Respiratory:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Cough <input type="checkbox"/> <input type="checkbox"/> Sputum	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Hemoptysis <input type="checkbox"/> <input type="checkbox"/> Wheezing	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> SOB <input type="checkbox"/> <input type="checkbox"/> Pleuritic pain	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Orthopnea <input type="checkbox"/> <input type="checkbox"/> Dyspnea rest / exertion
<b>GI:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Nausea / emesis <input type="checkbox"/> <input type="checkbox"/> Anorexia	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Melena <input type="checkbox"/> <input type="checkbox"/> Constipation	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Diarrhea <input type="checkbox"/> <input type="checkbox"/> Fecal Incontinence	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Hemorrhoids <input type="checkbox"/> <input type="checkbox"/> Jaundice
<b>GU:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Urinary incontinence <input type="checkbox"/> <input type="checkbox"/> Urinary retention	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Urinary urgency <input type="checkbox"/> <input type="checkbox"/> Urinary frequency	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Urinary hesitancy <input type="checkbox"/> <input type="checkbox"/> Dysuria	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Hematuria <input type="checkbox"/> <input type="checkbox"/> Dribbling
<b>Musculoskeletal:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Joint pain / swelling	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Joint redness / warmth	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Muscle pain	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Loss of strength
<b>Skin:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Discoloration / rashes	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Lesions / itching	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Hair loss	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Nail changes
<b>Neurological:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Headache / Migraine <input type="checkbox"/> <input type="checkbox"/> Weakness <input type="checkbox"/> <input type="checkbox"/> Loss of sensation	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Numbness / tingling <input type="checkbox"/> <input type="checkbox"/> Tremors <input type="checkbox"/> <input type="checkbox"/> Restless legs	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Vertigo <input type="checkbox"/> <input type="checkbox"/> Seizures <input type="checkbox"/> <input type="checkbox"/> Δ in sleep pattern	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Δ in concentration <input type="checkbox"/> <input type="checkbox"/> Gait changes <input type="checkbox"/> <input type="checkbox"/> Loss of memory
<b>Endocrine:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Heat/cold intolerance	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Polyuria	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Polydipsia	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Lethargy
<b>Hematologic Lymphatic:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal <input type="checkbox"/> <input type="checkbox"/> Easy bruising	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Bleeding gums	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Node swelling	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Recurrent infections
<b>Allergic Immunologic:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Seasonal allergies	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Chronic rhinitis	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Chronic sinusitis
<b>Psychiatric:</b>	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> All normal	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Hallucinations	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Delusions	<input type="checkbox"/> <input type="checkbox"/> Y N <input type="checkbox"/> <input type="checkbox"/> Suicidal ideation
<b>Other:</b>				

Fig. 1 (continued)

Evidence-based clinical pathways and order sets in place at UVAHS address the most common goals/concerns related to specific diagnoses or related treatment, yet these often are not geriatric sensitive or tailored. The GCS team used the most commonly identified problems associated with older

patients who had undergone orthopedic surgery and, using evidence-based support, tailored pharmacologic and nonpharmacologic management strategies for them (Table 3). These complications and interventions are applicable to all postsurgical elderly, especially those who are critically ill.

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PLACE LABEL HERE. IF LABEL NOT AVAILABLE, WRITE IN PT NAME & MR#

GERIATRICS SERVICE

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Physical Exam: VS: T \_\_\_\_\_ Tm \_\_\_\_\_ P \_\_\_\_\_ RR \_\_\_\_\_ BP \_\_\_\_\_ / \_\_\_\_\_ SaO2 \_\_\_\_\_ RA / O2 \_\_\_\_\_ LPM 24 hr I/O \_\_\_\_\_ / \_\_\_\_\_ Transfusions: \_\_\_\_\_ Ht: \_\_\_\_\_ Wt: \_\_\_\_\_ CrCl \_\_\_\_\_

- General: [ ] Apparent age: nl /older /younger [ ] Cooperative / pleasant / NAD / distressed [ ] WDOWN /obese /cachectic [ ] Memory - remote / recent / new learning ability [ ] Oriented x person /place /time [ ] MMSE \_\_\_\_\_ / 30 [ ] CAM [ ] LOC - alert / somnolent / comatose [ ] Speech - clear / fluent / hoarse / aphasic [ ] Mood - happy / depressed / angry / agitated / anxious [ ] Attention - focused / attentive / easily distracted

- HEENT: [ ] All normal [ ] PERRL [ ] EOM: intact / \_\_\_\_\_ [ ] Masses: none / \_\_\_\_\_ [ ] Neck: [ ] Conjunctivae: nl / pale / exudates / erythema [ ] Thyroid: nl / enlarged / nodule / \_\_\_\_\_ [ ] Sclera: nl / discoloration [ ] Bruits: none / L / R [ ] Oral cavity: nl / dry /lesions \_\_\_\_\_ [ ] Teeth & Gums: nl / edentulous / poor dentition [ ] Hearing: nl / hard of hearing [ ] Dentures: upper / lower / partial

- Cardiovascular: [ ] All normal [ ] Rhythm: RRR / irregular / irregularly irregular [ ] JVD: none / \_\_\_\_\_ [ ] S1 & S2: nl / split S1 S2 / muffled / S3 / S4 / Rub / Heave [ ] Murmurs: none / \_\_\_/6 [ ] Peripheral pulses: Radial: /4 Pedal: /4

- Respiratory: [ ] All normal [ ] Labored / non-labored [ ] Cough: productive / non-productive [ ] Auscultation: CTA / crackles / rhonchi / wheezes / decreased / rapid / shallow Location: \_\_\_\_\_

- GI/GU: [ ] All normal [ ] Soft / firm / guard / distended / obese / round / flat [ ] Bruit - RUQ / RLQ / LUQ / LLQ [ ] Non-tender /tender in RUQ / RLQ / LUQ / LLQ [ ] Foley [ ] Urine: clr / straw / yellow / amber / bloody / cloudy / sediment [ ] Bowel sounds nl / hypo /absent / hyper [ ] Feeding tube: PEG / NGT [ ] None / hepatomegaly / splenomegaly [ ] Mass: none / \_\_\_\_\_

- Extremities: [ ] All normal [ ] Edema \_\_\_/4 \_\_\_\_\_ [ ] Capillary refill <3 seconds [ ] Strength RUE /5 LEU /5 RLE /5 LLE /5

- Musculoskeletal: [ ] All normal [ ] Joints: nl / erythema / swelling [ ] Epidural / Femoral catheter [ ] Joints: warmth / tenderness [ ] ROM nl / decreased / contracted RUE / LUE / RLE / LLE [ ] Scoliosis / kyphosis

- Neurological: [ ] All normal [ ] CN2 to CN12 intact \_\_\_\_\_ [ ] Motor nl / \_\_\_\_\_ [ ] Sensory nl / light touch / \_\_\_\_\_ [ ] DTR nl / \_\_\_\_\_ [ ] Speech nl / fluent / dysarthric / non-verbal / aphasic

- Skin: [ ] All normal [ ] Hot / warm / cool / cold / pale / cyanotic / mottled / flushed [ ] Rashes: nl / \_\_\_\_\_ [ ] Turgor nl / tented [ ] Lesions/Ulcers: nl / \_\_\_\_\_ [ ] Drsg intact [ ] Ecchymosis: nl / \_\_\_\_\_ [ ] Incision nl / drainage / red / \_\_\_\_\_

Labs and test results ECG: \_\_\_\_\_ UA/Micro: \_\_\_\_\_ CXR: [ ] No acute process [ ] \_\_\_\_\_ Other tests: \_\_\_\_\_

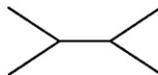
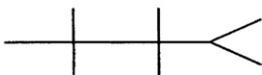


Fig. 1 (continued)



**Box 2. Comprehensive geriatric assessment Geriatric Inpatient Consult Service domains**

- A geriatric-oriented history and physical examination attending to such matters as communication skills and ability to interact effectively with others, sleep patterns, bowel routines, gait problems, and ability to take own medications
- A comprehensive review of systems with evidence-based tools used where available to direct and validate the assessment process
- Medication review plus a review of tobacco, alcohol, and illicit drug use
- A functional assessment documenting the patient's performance of activities of daily living (ADLs) and instrumental ADLs before admission
- Environmental and social assessment to include the caregiver support system and other resources available upon discharge
- Discussion of advanced directives and do not resuscitate status
- A list of the patient's medical, surgical, functional, psychosocial, and spiritual needs
- Screening for immunizations and preventive health care needs
- Specific recommendations in each domain

One can conjecture safely that early recognition and treatment of postoperative complications in the elderly by acute and critical care nurses will have a positive impact on patient outcomes. Outcomes data at UVAHS reflect this. Data was gathered on 151 older adults who had undergone orthopedic surgery and were seen by the GCS between March 2005 and April 2006. Variables examined included length of stay, readmission rates, hospital costs, and postoperative complications. A random sample of comparable patients who had similar procedures in the previous year (2004–2005) who did not have a GCS was identified. Analysis of the data in the two groups reflected that although more hospital complications (eg, urinary tract infection, pneumonia, and anemia) were identified and treated by those

receiving a GCS, those who had a GCS had a shorter length of stay (4.14 days versus 4.56 days), with no difference in the rate of readmission within 30 days between the groups. Other factors may have influenced this important finding, and continued data collection and analysis are underway to examine and document the benefits that can be attributed to the CGS. Some of the most common postoperative complications that are experienced by elderly patients who have undergone orthopedic surgery are described below, providing additional justification and guidance for assessment, monitoring, and management by the inpatient team.

**Acute renal failure**

About 1.4% of postsurgical patients develop acute renal failure; contributing factors include hypoperfusion from sepsis or dehydration or the use of nephrotoxic agents (eg, aminoglycosides, angiotensin-converting enzyme inhibitors, nonsteroidal anti-inflammatory drugs, and contrast media). The mortality for elderly patients who have acute renal failure is roughly twice as high as for elderly patients who do not have acute renal failure [25].

A review of preoperative laboratory values provides a general picture of baseline renal function. Creatinine clearance is calculated by the NP for each elderly patient using the Cockcroft/Gault equation. All medications ordered are scrutinized for nephrotoxicity and adjusted appropriately. Serum urea nitrogen and creatinine are monitored postoperatively on a daily basis; any abnormality is evaluated for evidence of acute renal failure and is treated per established medical protocols. Consults to the nephrologists are ordered whenever indicated.

**Adverse drug events**

The prevalence of adverse drug events on geriatric hospitalized patients is estimated to be about 35% [26]. NPs on the consult service take detailed medication histories from patients and their families to supplement those taken by the physicians; often, discrepancies are found. In addition, special attention is paid to accurate medication reconciliation, ensuring that the medications that have been ordered by the physicians are up to date. This is especially important for drug allergies, because at times the medical records are incomplete. Steps taken to avoid renal

Table 3  
Common problems in older patients who have undergone orthopedic surgery and suggested pharmacologic and nonpharmacologic interventions

Problem	Intervention	
	Pharmacologic	Nonpharmacologic
Acute renal failure	Avoid nephrotoxic medications Insure renal dosing using calculated creatinine clearance	Detailed history Strict I&O Provide appropriate fluid replacement Monitor serum urea nitrogen/creatinine daily Urine electrolytes/serum urea nitrogen/creatinine as necessary Low threshold for referral to nephrologist
Adverse drug event	Review of hospital medication list, removing "Beers" List medications when possible Appropriate renal, hepatic dosing	Careful medication reconciliation, including allergy list Informing patient/family of potential problems and s.e. to monitor
UTI/urinary retention	Treat UTI promptly with appropriate antibiotics	Avoid catheter if possible; if used, remove ASAP Monitor for urinary retention Order urinalysis screen postoperatively on every patient
Deconditioning, immobility, and functional decline	Adequate pain management to maximize mobility	Detailed patient/family education with reiteration Prompt and intense PT/OT OOB ASAP Encourage independence with ADLs Intensive postoperative rehabilitation
Electrolyte disturbance	Replete promptly Avoid diuretics unless indicated Order IV fluid preparations taking laboratory values into account (eg, Na, K)	Monitor laboratory tests on daily basis Assess for causes of abnormal results (eg, vomiting, diarrhea, swallowing or cognitive impairment, diuretics, infection, renal disease) Excessive sodium-containing foods
Dehydration	Avoid diuretics unless indicated Use IV fluid replacement when NPO	Strict I&O Patient/family education Maintain adequate fluid intake: po or IV at ~2000 mL/d Assess for adequate swallow function Provide ready source of po fluids
Infection	Empiric prophylaxis against most com- mon wound, urinary and respiratory infections following CDC guidelines: usually Cefazolin, 1 g every 8 hours × 6 doses Treat positive findings promptly with least toxic antibiotic possible	Detailed assessment of wound, urinary, and pulmonary status daily Monitor WBC trend daily with differ- ential (nl WBC does not preclude but often see left shift with infection) Avoid hypoxia Remove Foley catheter ASAP Vigorous pulmonary hygiene Highly nutritious food: protein supplements MVI and vitamin C

(continued on next page)

Table 3 (continued)

Problem	Intervention	
	Pharmacologic	Nonpharmacologic
Thrombotic events	Anticoagulation prophylaxis beginning night of surgery using low molecular weight heparin, warfarin, or both	Sequential compression devices on lower extremities with or without compression stockings Early mobilization Early physical therapy
Hypoxia	Administer O <sub>2</sub> to keep SaO <sub>2</sub> > 95 for most patients	Determine source (eg, infection, anemia, baseline COPD, atelectasis, pulmonary embolism) and treat appropriately
Heart failure	Maintain home medication regimen as closely as possible Diurese prn, being careful not to over-diurese (many elderly patients have diastolic failure or AS that require strong preload to maintain adequate cardiac output)	Detailed preoperative history Monitor fluid status closely Keep HCT > 30 Monitor B-type natriuretic peptide values Serial chest radiographs prn Cardiology consult prn
Delirium	Avoid anticholinergic medications, benzodiazepines, Meperidine, NSAIDs, sedatives, tricyclic antidepressants, H <sub>2</sub> blockers, CCB, antihistamines Avoid diuretics unless indicated Adequate pain control Prophylactic stool softeners	Explain and reiterate all procedures to patient and family Assess for diminished visual and hearing acuity Reduce environmental stimuli and distraction as much as possible Allow adequate time to rest Maintain adequate fluid intake (~2000 mL/d unless contraindicated) Monitor for and avoid hypoxia Treat electrolyte abnormalities, s/s infection promptly Maintain HCT > 30 Avoid/treat constipation Encourage family visitation and participation in care

*Abbreviations:* AS, aortic stenosis; ASAP, as soon as possible; CCB, calcium channel blocker; CDC, Centers for Disease Control and Prevention; COPD, chronic obstructive pulmonary disease; HCT, hematocrit; I&O, intake and output; IV, intravenously; MVI, multivitamin; NPO, nothing by mouth; NSAIDs, nonsteroidal anti-inflammatory drugs; OOB, out of bed; OT, occupational therapy; po, by mouth; prn, as is needed; PT, physical therapy; s.e., side effects; s/s, signs and symptoms; UTI, urinary tract infection; WBC, white blood cell.

failure and delirium also are helpful to prevent adverse drug events. In addition to synchronizing medications to match home prescriptions, medications prescribed are reviewed for appropriateness for elderly patients. The GCS team is guided in this process with the use of the “2002 Criteria for Potentially Inappropriate Medication Use in Older Adults: Independent of Diagnoses or Conditions” [26]. This list is commonly referred to as the “Beers List,” named after the original researcher, Dr. Mark Beers. A chart was devised by the NPs (see Table 3); it identifies many of these inappropriate medications and provides alternative

medications and doses. Whenever possible, suspicious medications are substituted with ones from the hospital formulary that are deemed to be less offensive. Pharmacists are consulted frequently in the medication review and management process.

#### Urinary tract infection/urinary retention

Because of the nature of joint replacement surgery and the need for strict monitoring of output for the first day or two postoperatively, bladder catheters are routinely inserted perioperatively.

Ideally, they are placed after the first dosage of prophylactic antibiotics to prevent colonization of bacteria that are introduced into the bladder inadvertently during insertion. Optimally, catheters should be removed from elderly patients within 24 hours of surgery to avoid problems with urinary retention and infection. [27] The routine for the orthopedic service is to remove bladder catheters on postoperative day 3. With elderly patients, the NPs encourage earlier removal if possible, but the comfort level and mobility of the patient must be considered when making that decision. After removal, a urinalysis is obtained, and careful attention is paid to urinary retention. If retention is a problem, it may be necessary to replace the indwelling catheter or use intermittent catheterization.

### **Deconditioning, immobility, and functional decline**

After joint replacement surgery, there is a prescribed plan for early mobilization with intensive physical and occupational therapy designed to avoid functional decline; however, many postoperative complications can interfere with this prescription. Close monitoring and early attention to the complications outlined in this article can help to avoid costly delays in therapy. All patients receive postoperative physical therapy, whether they are discharged to home, to a rehabilitation facility, or to a skilled unit in a nursing home. When possible, elderly patients are encouraged to transfer to a rehabilitation facility to attain the highest level of function possible postoperatively.

### **Thrombotic events**

The prevalence of DVT or pulmonary embolism (PE) in an 85-year-old orthopedic patient is about 15 per 1000 patients—a five-fold increase over younger patients on the orthopedic service [21]. There is 20% mortality for the hospitalized elder who experiences a PE. Factors contributing to this increase include a state of hypercoagulability induced by the surgery and venous stasis from immobility and physiologic changes in lower extremity musculature. A proactive approach to avoiding foreseeable problems, such as DVT and PE, is the accepted standard of care in most institutions. DVT and PE prevention regimens at the UVA include the use of low molecular weight heparin and warfarin. In the elderly patient, appropriate dosing of any of these medications must take into account the creatinine clearance of each patient. The use of sequential compression

devices or compression stockings on the lower extremities in combination with early mobilization and physical therapy are nonpharmacologic means of preventing thrombus formation [21].

### **Infection**

Empiric antibiotic prophylaxis against the most common wound, urinary and respiratory infections, is administered to all patients who have undergone orthopedic surgery following Centers for Disease Control and Prevention guidelines. [21,25], In most cases, the antibiotic used is cefazolin; it is infused preoperatively, perioperatively, and postoperatively for a total of six dosages. Nonpharmacologic methods to minimize infection risk include the removal of Foley catheters and unnecessary venous access lines as soon as possible after surgery. Early mobilization and vigorous pulmonary toilet using incentive spirometers or flutter valve devices are valuable in avoiding respiratory infection.

### **Hypoxia**

Frequent monitoring of O<sub>2</sub> saturation should be part of routine postoperative care for any patient. Elderly patients tend to decompensate rapidly, and abnormal oxygen levels should be investigated and addressed immediately. Patients who have preexisting chronic obstructive pulmonary disease should be monitored closely for signs and symptoms of respiratory distress; they may require scheduled nebulizer treatments if they are unable to use their metered dose inhalers effectively. Chest radiography is used more often in this population to help determine the treatment plan [21,28].

### **Fluid and electrolyte imbalance**

Strict records of intake and output are important in the elderly population because of the fragility of the balance. Many patients receive aggressive fluid resuscitation in the operating room to maintain blood pressure and may require careful postoperative diuresis to regain homeostasis. Management of fluid overload can be complicated by comorbidities, such as diastolic heart failure or aortic stenosis, that require a certain amount of preload to maintain effective cardiac output. Familiarity with the history of each patient is especially important in these cases.

Daily laboratory tests of elderly patients include complete blood cell count, serum urea

nitrogen, creatinine, magnesium, and phosphorous. Depending on comorbidities, other tests may be requested routinely. Maintenance of hematocrit levels above 30% is a standard practice for prevention of cardiovascular ischemia, to treat existing delirium, and to avoid precipitation of delirium [21]. A study by Halm and colleagues in 2003 [29] demonstrated a 45% lower readmission rate for those patients post hip surgery who received transfusions in order to maintain a hematocrit level at 30 or above. The risks for infection, fluid overload, and transfusion reaction must be weighed carefully on an individual basis.

### Heart failure

Heart failure (HF) occurs in approximately 8% to 10% of patients older than the age of 65 years and increases in incidence as age increases [30]. Perioperative morbidity of these patients was shown to be between 10% and 50%. Many of these patients are on strict regimens, including such medications as  $\beta$ -blockers, angiotensin-converting enzyme inhibitors, and diuretics. Optimally, a patient with known preexisting HF should be screened for signs and symptoms of an exacerbation preoperatively to correct any existing problems. Postoperatively, HF medications must be restarted as soon as possible. Careful instructions must be delivered to the nursing staff that these drugs must not be withheld even for "low blood pressure" unless patients are symptomatic. A blood pressure of 100/60 mm Hg is not uncommon in a patient who has well-managed HF. Withholding  $\beta$ -blockers may result in tachycardia or rebound high blood pressure that may cause an HF exacerbation. Close monitoring of electrolytes, magnesium, phosphorus, serum urea nitrogen, creatinine, and complete blood cell counts may help to avoid other precipitating factors of HF, including arrhythmias, renal failure, and anemia. Although fluid overload often is associated with HF, diuresis must be monitored carefully with elderly patients who have HF. The prevailing type of HF is diastolic in nature and requires a certain amount of preload to maintain adequate cardiac output [30].

### Delirium

Delirium and often-associated agitation is one of the most common and most difficult problems

in the elderly patient, affecting many patient outcomes, such as morbidity and mortality, length of stay, and hospital costs. Some researchers estimate that up to 60% of elderly patients experience some degree of delirium postoperatively. Precipitating events may include pain, polypharmacy, toxic doses of medications, infection, fluid and electrolyte imbalances, dehydration, poor nutrition, sleep deprivation, hypoxia, fever, constipation, urinary retention, and anemia. Sleep deprivation and diminished visual and hearing capacity can contribute to the problem. Patients who have underlying dementia may develop an overlay of delirium with a sudden deterioration of behavior, function, or level of consciousness. Mortality of delirium that persists up to and beyond 30 days is 7% [31–33].

It is important to recognize that—despite its prevalence—delirium is never "normal." Identification of risk factors and preventive strategies is critical to assuring better outcomes [34,35], and all of the management guidelines presented in this article are valuable components of delirium prevention. Adequate pain control is essential with a regimen that is planned for the individual patient.

Despite best efforts, delirium does occur. When it does, the patient must be assessed thoroughly to determine likely causes, and these are addressed individually. In the meantime, the behaviors of delirium must be managed. Non-pharmacologic means of addressing the problem are strongly preferred over pharmacologic ones. Providing a safe, supportive environment with constant supervision is optimal, although not always feasible. Families are encouraged to stay with the patient as much as possible, providing comfort, familiarity, and reassurance. Restraints are to be avoided, if possible, because they often exacerbate agitation and confusion; occasionally, in the interest of patient safety, they must be applied. Hospital policy dictates strict monitoring and documentation about restrained patients with removal of the restraints as soon as possible.

Haloperidol is the first-line pharmacologic treatment of delirium because of its mostly benign side effect profile when used in appropriate doses. The dosage that is suggested most commonly is 0.5 mg, by mouth, intravenously, or intramuscularly, to be repeated at 4- to 6-hour intervals. Occasionally, the dosage must be titrated upward to effect. Generally, benzodiazepines should be avoided in elderly patients, although they can be

useful to treat withdrawal from alcohol or other addictive substances [21,31–33]. The atypical antipsychotics, Seroquel, Xyprexa, and Risperdal, are used rarely on this service because of recent “black box warnings” from the US Food and Drug Administration. These drugs have been linked to an increased risk for death in the elderly from heart-related events or infections, such as pneumonia [36].

## **Pain**

Pain control is essential in all patients, and it poses some challenges in the postoperative elderly. Pain can cause tachycardia which in turn increases the workload of the heart, which predisposes the patient to cardiovascular events. A patient who is in great pain is less mobile and is at considerable risk for the adverse effects of immobilization, including embolic events, skin breakdown, loss of muscle tone and function, dehydration, and constipation. In the postoperative period, early mobilization is crucial to a more favorable outcome. Assessment of pain must be performed routinely and in a consistent fashion. If the patient is confused, it is important to look for nonverbal manifestations of pain, such as grimacing, splinting, agitation, or moaning. Because of the unique responses to pain and pain management, the regimen must be tailored to the individual. Epidural anesthetics are used often in these patients [21], because the effects usually are more localized and less sedating than oral or parental medications. Opioids, either oral or intravenous, are first-line medications for elderly patients but they must be titrated to avoid side effects, such as confusion and sedation. Opioids, such as oxycodone, given alone, rather than combined with acetaminophen, provide greater flexibility in dosing. Acetaminophen, given at regular intervals throughout the day and night, can provide a good baseline pain relief with few side effects. Care must be taken not to exceed 4 g/d (even less if the patient has a history of regular alcohol intake). Medications such as Meperidine must be avoided in elderly patients because a toxic metabolite may trigger a seizure. The fentanyl patch, although not recommended for the opioid naive, offers the advantage of prolonged pain control with less frequent dosing. Slow titration of the patch is advised. It is important to remember that opioids can cause constipation, particularly in the patient with reduced mobility and fluid

and fiber intake. Stool softeners should be administered daily and a gentle laxative added if constipation persists.

## **Opportunities, challenges, and direction of NICHE**

NICHE has proven to be a supportive framework and an invaluable resource in guiding the implementation and evaluation of geriatric programs at the UVAHS for more than 12 years. NICHE initiative implementation at UVA has required administrative support, strong clinical leadership, and interdisciplinary collaboration.

Support from the highest levels in administration, including the Chief Executive Officer, Chief Operations Officer, and the Chief Clinical Officer, has been essential in approving programs and assuring that they are consistent with the mission of the health system and in providing adequate program start-up support. Initial support for each NICHE initiative required collection, analysis of data from a variety of sources, including clinical and administrative, and a convincing proposal presentation. At times, case studies of older adults have been helpful in demonstrating the need for a particular initiative and have complemented and supplemented the data.

Ongoing support from administration has remained contingent upon demonstrating positive financial and clinical outcomes that can be attributed directly to NICHE. Identifying and analyzing highly sensitive and specific outcome indicators has posed significant challenges.

Clinical leadership in each NICHE initiative has been provided by NPs with geriatric expertise. Hamric [37] described advanced practice nursing as a multidimensional wheel with direct clinical practice focused on patients and families at its hub. Spokes of the wheel that reinforce its strength are the core competencies of consultation, collaboration, expert coaching and guidance, strong clinical and professional leadership, ethical decision-making, and research skills. Because of the training and focus described, NPs have been in an ideal position to provide the NICHE leadership. They function in a primary care role (evaluating and managing patients directly) and in a leadership role (teaching and mentoring others and changing systems of care). The advantages of having an NP in a primary care role in the acute care setting are that (1) the NP generally can intervene in clinical situations more quickly

than the physician because of one's full-time location within the hospital; (2) the NP can understand the resources and difficulties that the nurse might be having and is able to support the nursing staff easily by providing needed treatment or problem-solving ideas to help treat the patient; and (3) the NP can consult the geriatrician directly on medical matters that require clarification and validation and determine if the patients should be seen promptly by the geriatrician.

The third essential component to NICHE is an effective interdisciplinary team that works well together. Interdisciplinary collaboration facilitates improved outcomes for the hospitalized elderly by communication between team members, patients, and families to plan care in a manner that coordinates services to promote function and prevent debility of hospitalized elders. Studies have shown that 70% to 80% of errors in health care are associated with communication issues among team members; there are fewer errors in settings in which cooperation and collaboration are effective among team members [36].

A collaborative relationship with all health care specialties is crucial to effective geriatric acute care. Preventing functional decline of hospitalized elderly requires a team approach, involving all specialties in addition to medicine and nursing, and the consistent use of standardized, agreed-upon geriatric assessment tools to measure changes in the patient's condition more objectively. Preventing iatrogenic complications, including avoiding drugs such as anticholinergics and benzodiazepines to reduce the risk for delirium and involving physical and occupational therapy early to prevent functional decline, are important components in geriatric care. Discharge planning, including social work, long-term care facilities, and home health agencies from the time of admission, improves patient outcomes. One study showed a significant relationship between collaborative discharge planning and the rate of readmission to the emergency department of people with multiple comorbidities [38].

Collaboration promotes communication and encourages involvement by everyone participating in the team to make health care decisions that improve patient care of older adults in the acute care setting. A collaborative environment requires the group to develop many skills, including understanding of the perspectives of all members of the team, the ability to resolve conflict in a constructive manner, and shared decision-making to solve complex geriatric problems [39]. All

members of the interdisciplinary team have important skills to contribute to improving outcomes for older adults in our care. Commitment to building a collaborative team in any health care setting is beneficial to the patient and all participants. It promotes communication in difficult emergent situations and promotes respect among team members who have varied skills to contribute to patient care [40]. Most importantly, collaboration keeps geriatric care patient focused, with function and prevention of complications paramount to the individual's care and recovery.

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