

Critical Thinking Related to Complex Care of Older Adults

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## Introduction

Caring for older adults is both *complex and challenging*. It is *complex* because of the array and number of chronic illnesses facing older adults, only expected to increase with longevity (Department of Health and Human Services, Trends in Health & Aging, 2006; see Table 1). Nearly 90 percent of people over age sixty-five have one or more chronic conditions, with the average seventy-five year old experiencing at least three (Alliance for Aging Research, The Silverbook, 2005 [Level VI]). Similarly, it is *challenging*, given the demand for skilled healthcare providers in geriatrics/gerontology, which far exceeds the capacity of current geriatric nurses and other health professionals (American Geriatrics Society [AGS], 2004 [Level VI]). Further compounding the ability to supply older consumers with high quality care for chronic illness are inadequate administrative measures and/or healthcare systems (Bonomi, Wagner, Glasgow, & Vonkoff, 2002 [Level III]). The gravity of chronic care in our nation has spurred the introduction of a new public policy solution: Senate Bill S.40/House of Representative 46 “Geriatric and Chronic Care Management Act” (American Geriatrics Society, Section by Section Summary of S.40/H.R. 46). This bill calls for Medicare overhaul with designated reimbursement and investiture back to healthcare providers and to older consumers to assist them in managing their own chronic care. Even if this bill becomes law, the burden of chronic care continues to fall on all healthcare providers, *especially nurses*, healthcare institutions, family caregivers and older consumers themselves.

Caring for older adults is, and will continue to be, the “core business” of healthcare institutions (John Hartford Foundation Institute, 2007 [Level VI]). As a result of consequences of an aging population with chronic illness, older adults are the predominate users of the healthcare system. They comprise 63 percent of patients with cancer, 60 percent of visits to cardiologists, 53 percent of visits to urologists, 52 percent of visits to ophthalmologists and 46 percent of patients in critical care (Centers for Disease Control [CDC], 2006). Further, they have the highest use, both in terms of length of stay and costs across the care continuum, using 44 percent of the total days of hospital care (CDC, 2006), comprising 80 percent of home care patients and 93 percent of nursing home residents.

Therefore, we envision healthcare professionals in all healthcare settings, educators and new students entering nursing to question: “Am I prepared to provide the *very best* geriatric care when called to do so”?

Setting aside all of the complexities and challenges to geriatric care, conclusively we know that older adults experience positive health outcomes when *certain* evidence-based nursing assessments are made, *certain* evidence-based nursing management approaches are followed and *certain* evidence-based system approaches are provided. We also know that, in order to impart quality healthcare to *all* older adults in *all* healthcare encounters, nurses must consistently draw upon a standard set of skills. Similar to other disciplines, this set of skills routinely requires critical thinking, applied at varying “dosages” depending on situational contexts and healthcare issues identified.

In this module, we present a comprehensive approach to assist all those who teach, guide or provide nursing care to older adults to understand the multiple processes involved when called to answer the question: “how can I provide the *very* best geriatric care to older adults with complex illness?” Our approach and recommendations are drawn from national professional recommendations for geriatric assessment and existing gerontological nursing competencies (American Geriatrics Society Position Statement on Comprehensive Geriatric Assessment, 2005 [Level VI]; American Association of Colleges of Nursing and the John A. Hartford Foundation Institute for Geriatric Nursing, Older Adults: Recommended Baccalaureate Competencies, 2000 [Level VI]). Based on these recommendations, we drilled down key areas to form a *core set of elements* that nurses caring for older adults must think about and integrate into practice (see Table 2). Further, these key elements frame the five specific recommendations we present for nursing care of older adults of advanced old age with comorbidities.

The key elements presented in Table 2 are unique to *every* older adult. All of the elements are meant to be assessed and evaluated through the nursing process. They include such areas as *intraindividual considerations* of one’s values and beliefs, culture, spirituality, physical, cognitive, functional and emotional status, life expectancy, number of chronic illnesses and presence of frailty, as well as *situational contexts such as interindividual considerations* of the older adult’s current situation with respect to community, physical and social environment, safety, living arrangement, family resources and social support networks.

### **Why critical thinking related to complex care of older adults?**

Commitment to quality care for all older adults requires consideration of the interplay of equally important but often competing factors as plans of care are directed toward providing individualized positive health outcomes from every healthcare encounter. The main purpose of critical thinking in healthcare is to provide the best care possible in each healthcare encounter. The process requires a comprehensive analysis of all relevant factors known to influence healthcare outcomes. Decision-making without consideration of the key elements carries a risk for inaccurate assessment and sub-standard practice, two errors that impact on the recipient of care (i.e., the older adult patient and their family) and the profession of nursing.

Older adults living into advanced old age *can and should* expect to experience positive health outcomes despite chronic and complex illnesses. Just how this is realized occurs when new knowledge from effective evidenced-based approaches is integrated into practice. Over the past few years, evidence has increasingly tied chronic illness of *advanced age* to the adversities of comorbidities, functional decline, geriatric syndromes and frailty. Because many of these outcomes are foreseeable, nurses need to shift their thinking so plans of care reflect individualized interventions aimed at reducing risks. These risks can be found *only* when nurses assess older adults’ unique intra-and inter-individual circumstances (e.g., heterogeneity).

A central *critical thinking focal point in nursing care of older adults* is a process approach of learning about, understanding and respecting older adults’ heterogeneity, as evident in individualized patient-centered care. Individualized patient-centered care has an inherent ethic of care that honors and *respects the person’s* choices and right to self-determination. Inherent in individualized patient-centered care is the tenant of *beneficence*, whereby welfare and safety are promoted, while prevention of harm is

promulgated, juxtaposed to the tenant of *risk-taking* that holds that older adults of advanced age and with complex illness, when properly informed, have the right to make decisions that may place them at risk of untoward outcomes. In accordance with the older adults' values and wishes, options for care are presented and discussed so that shared and informed decision-making can occur. Consideration of risks and benefits (e.g., *justice*) are reviewed by providers when planning care, mindful of each person's heterogeneity. As it applies to foreseeable healthcare outcomes (e.g., potential for comorbidities, risk of disease, geriatric syndromes), the process is the same and every effort is made in the healthcare encounter to reduce risks and prevent declines in function or health.

**Why should nurses utilize critical thinking when caring for older adults with chronic/complex needs?**

Because practice with older adults covers a wide range of possible ages (65 years through 100 years and over), nurses must target plans of care individualized to the older persons age, presence of chronic illness and complexity of healthcare issues. The process of critical thinking allows nurses to realize that the plan of care for a ninety year old with chronic illness in all likelihood will and should differ from that of a seventy-five year old with the same illness. Further, nurses must ask, "how does the nursing plan of care effectively factor in advanced age, presence of comorbidities and risk of geriatric syndromes, e.g., the heterogeneity of the person into the decision-making process?"

To answer these questions and to assist professional nurses as they critically think about care of older adults with advanced age and/or complex illness/needs, we propose five recommendations with evidenced-based rationales and supporting documentation as to the potential of the recommendation to yield positive outcomes, e.g., decreased mortality, morbidity and length of stay and improved satisfaction:

- 1) In planning nursing care, adults with advanced age and/or complex illness should be helped to conduct advance health planning and make decisions as they relate to assessment, diagnostic testing and treatments for chronic conditions in light of the older adults' life expectancy, functional, physical and cognitive status, quality of life and availability of social supports.
- 2) In planning nursing care, adults with advanced age and/or complex illness should be considered at increased risk to develop adverse response and complications related to medications, treatment and geriatric syndromes.
- 3) In planning nursing care, adults with advanced age and/or complex illness should be viewed as an "at risk" population.
- 4) In planning nursing care, adults with advanced age and/or complex illness should be assessed for functional and cognitive status, pain, and geriatric syndromes (e.g., delirium, fall risk, presence of urinary incontinence, pressure ulcers) irrespective of setting in the hospital (e.g., emergency room, oncology unit, critical care).
- 5) In planning nursing care, adults with advanced age and/or complex illness should have access to hospital system-based models of care (e.g., Geriatric Resource Nurses; Acute Care of the Elderly Units (ACE); interdisciplinary assessment; volunteer programs (HELP); and case management known to implement strategies that prevent geriatric syndromes (e.g., limited or no use of physical restraints; early and consistent walking and ambulation; removal from pharmaceutical formularies of medication known to cause high adverse drug

events; and early treatment of functional decline and cognitive impairment due to delirium, depression and dementia).

The utility of incorporating critical thinking into all healthcare decisions made with older adults should prompt students to raise questions and seek effective solutions in the delivery of healthcare to older adults *they observe, advocate for or are involved in the direct delivery of care for.*

**Recommendation 1: In planning nursing care, adults with advanced age and/or complex illness should be helped to conduct advance health planning and make decisions as they relate to assessment, diagnostic testing and treatments for chronic conditions in light of the older adults' life expectancy, functional, physical and cognitive status, quality of life and availability of social supports.**

**Rationale and Supporting Evidence:** Older adults of advanced old age with chronic illness are at high risk for adverse healthcare events. Risk of frailty, adverse drug events, geriatric syndromes, hospitalization and institutionalization are daily realities for this population. Further, risk of diseases such as dementia and cancer increase with age, and this creates a need for nursing care sensitive to the unique requirements of this population. As advocates, nurses are at the helm of communicating and utilizing knowledge gained from their assessment to help patients and their families make decisions about their care. Such decisions might include testing, referral or seeking additional assistance and complex treatment decisions. Communications with patients and families should center on the type of outcomes they desire and consideration of care that allows for maximum physical, functional and social independence, maintenance of autonomy, safety and security and reducing risks while acknowledging individual, personal choice along the care continuum. Important overarching considerations guiding healthcare decisions are *quality of life for the years of life remaining.*

With the issue of life expectancy and longevity in mind, Lunney and colleagues (2003 [Level II]; see Table 3) describe four trajectories of death that will be experienced by approximately 85 percent of all persons. Each trajectory is associated with a pattern of decline in activities of daily living (ADL). Freedman and colleagues (Freedman, 2006 [Level V]) suggest that *interventions* targeted to modifiable risk factors may *change outcomes* by slowing the progression of the disablement process. Based on these two works, nurses should aim to help patients and families consider health promotion interventions (such as assessment or additional diagnostic testing) in light of their ability to reduce risk for the development of functional impairments in daily living as well as disease, thereby considering quality of life and targeting increasing years of life remaining.

Chronic illnesses impact the function of older adults. Function (both ADL and instrumental activities of daily living [IADL]), rather than number of chronic conditions, is the *most important* factor cited by older adults when asked to judge their “self-perceived” health. In the day-to-day management of health and health-related conditions, older adults with functional impairment or lack of personal assistance often find that problems in daily living become insurmountable or are unresolved. Furthermore, functional status has been shown to have an important impact on life expectancy. Lubitz found that at age seventy, with no functional limitation, life expectancy was 14.3 years.

This number dropped to a life expectancy of 11.6 years at age seventy when one functional limitation in ADL was present. Further reducing life expectancy included institutionalization at age seventy (Lubitz, Cai, Kramarow, & Lentzner, 2003 [Level III]). Maintenance of function is therefore a vitally important consideration in any healthcare decision made by an older adult of advanced age.

**Critical thinking point:** When considering health promotion activities and risk reduction related to care of older adults with complex illness, associated benefits and burdens *relative to the potential for worsening functional ability* need to be continually weighed prior to making final decisions about care. Nurses, along with primary care providers, should openly discuss with older adult patients the risks for further diagnostic assessment and/or management of their condition. Options reflecting the pros and cons to each health maintenance or health promotion activity should be presented so that older adults make informed choices.

The benefits and burdens of routine immunizations and health screening like mammographies or colonoscopies as they relate to treatment decisions and life expectancy are all impacted by combinations of advanced age and comorbid conditions. Knowledge of the person's life expectancy and prognosis from known diseases can also help in decision-making for care management. As one example, biennial breast cancer screening after age sixty-five (to age eighty) reduces mortality at reasonable costs for women *without clinically significant comorbid conditions* (Mandelblatt, 2003 [Level I]). But, if the woman has comorbidity that impacts on longevity, then breast cancer screening may not be warranted. As a second example, screening for prostate cancer is not recommended for men age 75 years of age and older (U.S. Preventive Services Task Force, 2008 [Level 1]). This recommendation is based on an analysis that the harm of screening and treatment in men over the age of 75 out weigh the benefits.

### **Critical Thinking about Clinical Practice Guidelines and their Relevance to Care for Older Adults with Complex Illness**

Treatment recommendations for selected chronic comorbidities among older adults are reflected in clinical practice guidelines (CPGs). There are many CPGs and users of CPGs should bear in mind a recent critique of the relevancy of CPGs among those of advanced age. Boyd and colleagues reviewed nine CPGs and only one, diabetes, specifically directed their recommendations for patients with diabetes plus other comorbidities (Boyd, 2005 [Level V]). The other three CPGs, namely chronic heart failure, angina and hypercholesterolemia, specifically directed their recommendations for patients with those diseases and cardiovascular disease only. Except for diabetes, none of the other eight CPGs addressed the question of *time needed to treat the disease to benefit from the treatment in the context of life expectancy*. Hypothetically, these authors aggregated the recommendations from the nine CPGs listed and postulated that adhering to the current five CPGs in caring for a seventy-nine year old women with five chronic illnesses would have undesirable effects, including having to follow a very complicated medication and non-pharmacological regimen. So, one question for nurses to think about is, "what are the benefits and burdens or risks of adhering to the CPGs or not?" Through shared and informed decision-making between the patient and the provider this question can be answered; it is an important question to think about when the risks for adverse consequences can be disastrous or even fatal for an older adult.

Critical thinking about health promotion activities and risk reduction recommendations made in the CPGs must take into account the issue of complex care. Table 4 provides an overview of the types of questions that should be included when caring for an older adult of advanced age experiencing daily life with frailty, chronic illnesses, functional limitations and possibly a new onset of geriatric syndromes.

**Critical Thinking: Decision-Making with Adults of Advanced Age and/or Complex Illness:**

As with all adults, older adults who demonstrate full decisional capacity are free to make their own decisions about care, no matter the risk. Family members should *NOT* be approached when an older adult has the capacity to make a decision, even if it is a bad one in your opinion, no matter what their age.

To determine decisional capacity, the following principles should guide the process:

- 1) Older adults are presumed to have decisional capacity until proven otherwise.
- 2) Capacity is a clinical determination: assessment instruments such as the Folstein Mini-Mental State Examination are helpful, but do not determine the capacity to make a decision.
- 3) Capacity is decision specific. Older adults may demonstrate capacity to make some, but not all, treatment decisions.
- 4) Capacity is not an on/off switch. Rather it should be viewed as a dimmer switch with most older adults able to demonstrate capacity to make some, but not necessarily all, healthcare decisions.
- 5) The greater the consequences of the decision (e.g. amputation versus food choice), the greater the need for clarity as to the older adults decisional capacity.

Guidelines exist for a valid and reliable way to determine an older adult's decisional capacity to execute a healthcare proxy. In general, these and other capacity determination guidelines are based on the process of informed consent. The elements of the process of informed consent seek to assure that an older adult demonstrates:

- 1) Ability to make a choice
- 2) Understanding (e.g., by repeating in their own words the information given)
- 3) Ability to weigh options (e.g., showing an understanding of the consequences of a decision)
- 4) Consistency, by making the same decision at two or more points in time

It is important to keep in mind that, as with all adults with decisional capacity, older adults have the opportunity to take risks, to make decisions with which family members and healthcare professionals disagree and to make decisions that, from the perspective of the healthcare professional, have a high likelihood of "failure." Older adults should have the opportunity to make healthcare decisions that have both "serious" consequences and also "day to day" consequences as to their clothing, bathing and food preferences.

In shared and informed decision making, healthcare providers seek to assist older adults with decisional capability to make the best choices about assessment, diagnostic testing and treatments for chronic conditions in light of their inter- and intraindividual heterogeneity. Knowing that the bulk of subsequent care rendered will become the responsibility of the patient and or family caregiver, it is vital for open communication

with the healthcare provider. Based on the idea that healthcare providers can help patients and families better handle self-care tasks, the premise of collaborative management is to ensure that effective medical, preventive and health maintenance interventions take place (Korff, Gruman, Schaefer, Curry, & Wagner, 1997 [Level VI]). Korff et al (1997) recommend four strategies for collaborative management of chronic illness: these include a) collaborative define the problem- patient defined problems and medical problems diagnosis (this needs to be clarified); b) target, goal set and plan care, by patients and providers where patient readiness and preferences are considered (this also does not make sense to me); c) create a continuum of self-management training and support services for teaching patients the skills to manage diseases, guide behavioral change and provide emotional support and d) evaluate, monitor health status, identify complications and check on progress.

Assisting the older adult in self-managing their chronic illness underscores basic principles of geriatric care: to promote independence and autonomy in daily living.

#### Self-management of Chronic Illness Guided by Technology

Technological advances via the Internet and personal computers provide consumers of healthcare with the latest information about specific disease, activity, health maintenance and general tips on how to stay healthy. They directly impact on one's ability to self-manage conditions. Although there are some limitations of technology such as access, cost and failure to provide personalized recommendations according to each individual circumstance, there are many benefits. One benefit noted from the research of Eun-Shim Nahm (2002 [Level IV]) is an expanded social network for elderly women using the Internet. Although use of the Internet increased socialization, it failed to support their hypothesis that psychological well-being would improve. Improved computer skills and sustainability of skills for eight months were demonstrated in another study of rural women with chronic illness who participated in a computer-based intervention to manage their health (Weinert & Hill, 2005 [Level IV]).

Many home care and disease management programs are successfully using distance technology, e.g., home monitoring of blood pressure for those with hypertension and monitoring of serum glucose for type 2 diabetes. As part of a national effort for chronic disease management, a Chronic Disease Management System (CDMS) and registry has been electronically created and used by over fourteen states and hundreds of rural health clinics. These CDMS' store and monitor patient or provider entered data, provide reminder prompts for care, assist with providing users with printout information, such as graphs and charts of critical indicators to motivate and aid in self-management, and interface with other providers and systems of care (Skinner, Fraser-Maginn, & Mueller, 2006 [Level VI]). Some programs using technology for chronic disease management, as in the case of congestive heart failure, have shown good overall compliance as well as reduced hospitalization rates with this intervention (Knox & Mischke, 1999 [Level III]).

When self-management of chronic diseases is not feasible by older adults themselves, due to illness limiting or obliterating decisional capacity, as in the case of dementia, family caregivers and significant others assume primary or secondary roles and responsibility for care.

### Decision-making with Older Adults with Dementia and Chronic Illness

Dementia is a progressive irreversible disease of the neurological system resulting in organ failure of the brain and nervous system, ranking as the fourth leading cause of death for adults of advanced old age. Types of dementia are many and include etiology due to Alzheimer's Disease, multi-infarct dementia and Parkinson's disease. According to Lunney's illness trajectory, dementia fits into a pattern of slow and steady decline. As the disease progresses, frailty ensues when the daily tasks of living cannot be cognitively executed accurately or adequately (for more information visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select *Try This: Decision Making and Dementia*). Because of these organic changes, decisional capacity is impaired and ultimately, lost.

When the diagnosis of dementia is made, the nurse must recognize that the older adult has an automatic *safety risk* for inadequate or inaccurate ability to execute IADL and ADL activities. Informed and shared decision-making with the primary provider and team must therefore take place on behalf of the patient by a proxy, such as the family caregiver. The older adults' wishes for care can *still be shared and executed* by family caregivers appointed as the designated decision makers.

Care management when a diagnosis of dementia is present is complex as the impact of other comorbidities is very likely. As noted by researchers from Johns Hopkins, almost 95 percent of persons with dementia have at least one other chronic condition: 30 percent have coronary artery disease, 28 percent have congestive heart failure, 21 percent have diabetes and 17 percent have chronic obstructive pulmonary disease [COPD]. In many healthcare settings, the impact of dementia is observed as escalating healthcare costs.

In ambulatory care, researchers from Johns Hopkins (2004) found older patients with Alzheimer's disease had higher Medicare expenditures in part due to increased hospitalization (Bynum et al., 2004 [Level III]). Hospitalization accounted for 54 percent of adjusted costs, and the odds of hospitalization associated with dementia were 3.68 (95 percent confidence interval (CI) = 3.62-3.73). There is a growing body of evidence that the combination of dementia and chronic condition significantly increased in-hospital mortality, length of hospitalization and costs. Some researchers have noted that older men with Alzheimer's disease and with the comorbidities of gastrointestinal hemorrhage, congestive heart failure and acute MI are at greater risk of in-hospital mortality than older men without Alzheimer's disease (Laditka, Laditka, & Cornman, 2005 [Level III]).

Given the nature of dementia, its spiraling decline and associated comorbidities the older adult of advanced old age should be evaluated to determine if they are interested or would benefit from palliative care. Ideally this discussion should take place as early as possible to afford the older adult with the best quality of life for their remaining years.

### Older Adults with Cancer and Needing Palliative Care

Decisions to conduct assessment and diagnostic testing and to treat are very much dependent on evaluation as to the older adult's survival potential. The leading causes of death in persons sixty-five and over are heart disease, cancer, stroke, COPD and pneumonia (Matzo, 2004 [Level VI]). While the evidence for predicting survival is not strong, guidelines that can help the practitioner determine when to consider referral of an older adult with chronic and complex illness for palliative and end of life care do exist. The following four clinical indicators have been shown to be generic predictors of survival in older adults with non-malignant life threatening illness: 1) increased

dependency in ADL's; 2) presence of comorbidities; 3) poor nutritional status and weight loss; and 4) abnormal vital signs and lab values (Coventry, Grande, Richards, & Todd, 2005 [Level I]). There are several other measures with evidence of efficacy in helping clinicians predict mortality of older adults. They are as follows:

1. The Karnofsky Performance Status (as cited in Matzo, 2004 [Level VI])
2. Specific end-stage predictors for chronic illness such as CHF, pulmonary disease, stroke and dementia
3. Guidelines to identify when to refer persons with dementia to hospice (Alzheimer's Disease Association)
4. Flacker and Kiely's Assessment of Residents at High Risk of Dying Within One Year (as cited in Matzo, 2004)
5. Mitchell Predicting 6 Month Mortality in Nursing Home Residents with Severe Dementia (as cited in Matzo, 2004)

Measures that predict survival can help older patients and family make decisions about use of palliative care programs and/or hospice. Currently, older adults with cancer make up 80 percent of the enrollment in Medicare reimbursed hospice, while patients with COPD, for example, make up *only* 3 percent of Medicare hospice beneficiaries (Matzo, 2004 [Level VI]). Breaking the barriers that exist for stigmas related to usage of palliative care and/or hospice may need to be considered. Palliative care and hospice services truly benefit those with poor prognosis and limited months of survival, whether they are from incurables diseases such as cancer or chronic illness. Open communication with informed and shared decision-making about options for quality care are possible at any stage of the illness continuum and in any healthcare setting.

**Recommendation 2: In planning nursing care, adults with advanced age and/or complex illness should be considered at increased risk to develop adverse response and complications related to medications, treatment and geriatric syndromes.**

**Rationale and Supporting Evidence: Medications:** The average seventy-five year old experiences at least three chronic illnesses and consumes at least five perspective drugs (Alliance for Aging Research, *The Silver Book*, 2005 [Level VI]). As the prevalence of chronic illness increases with age (see Table 5), older adults are at risk from the medications taken to manage such conditions. In fact, more than one-half of adults sixty-five years of age and over took three or more prescription drugs in the *past month* (CDC, USDHHS, 2006). Patients taking multiple medications are at high risk for medical errors and non-adherence (Gurwitz et al., 2003 [Level V]). In a review of twenty-one published studies related to adverse drug reactions [ADR; see glossary for World Health Organization definition], rates among older patients ranged from 1.5 to 43.5 percent, most averaging between 10 and 25 percent (Nolan & O'Malley, 1988 [Level III]). Twenty-three percent of people sixty-five and over (6.6 million Americans) living in the community received at least one of the twenty contraindicated drugs in 1987 with 20 percent receiving two or more (National Medical Expenditure Survey, 1987; IOM Report 2001, p. 234-235.). Adverse drug reactions leave older adults at risk for the development of geriatric syndromes (see Table 5).

There is a vast literature with strong evidence as to the need to modify dosage, route of administration and side effects of medications in adults of advanced age and/or with complex illness driven by physiological age changes and consideration of the

consequences of multiple chronic illnesses experienced by many older adults. While any medication can produce adverse effects in people at any age, adults of advanced age have higher incidences (Ray, Griffin, & Shorr, 1990 [Level VI]). Noted reasons for adverse effects include age-related pharmacokinetic changes affecting how the drug is absorbed, distributed, metabolized and eliminated and pharmaco-dynamic changes due to drug interactions. Other factors influencing the development of adverse effects include drug-nutrient interactions and drug half-life. In older adults, some drugs stay active even days after consumed due to active metabolites, which then can potentate the effects of other medications. Other known factors which affect the potential for adverse effects include the older persons' body weight, hydration status, muscle mass and serum albumin. If frailty exists, many of the highly protein bound drugs used in the management of chronic illness further impact on pharmacokinetics and the potential for ADRs (adverse drug reaction)(I am not sure what this means—just want to make sure it is correct) (see Table 6).

**Rationale and Supporting Evidence: Geriatric Syndromes:** In frail older patients, many diseases present with well-established and highly prevalent atypical symptoms (e.g., immobility, instability, cognitive impairment, incontinence) referred to as *geriatric syndromes* (Rikkert, Rigaud, van Hoeyweghen, & de Graaf, 2003 [Level VI]; see Glossary). *Geriatric syndromes* primarily refer to one symptom or a complex of symptoms, resulting from multiple disease and risk factors (as opposed to multiple symptoms with a single pathogenetic pathway; Rikkert et al., 2003 [Level VI]). A lack of causal and epidemiological surveillance research makes it impossible to know or predict all of the multiple etiological and pathogenetic pathways of selected geriatric syndromes. Conceivably, geriatric syndromes could stem from adverse drug reactions as well as multiple diseases.

**Supporting evidence: geriatric syndromes:** The “geriatric giants” of syndromes most notorious among older adults of advanced old age and/or with complex illness include pressure sores, cognitive impairment, gait instability, falls, urinary incontinence and sleep disturbances. Pressure sores have been noted to be deadly and entirely preventable, often caused by reduced mobility or immobility from disuse or from ADRs from medications. The number of pressure sores (decubitus ulcers) in hospitalized patients has increased 63 percent between 1993 and 2003 (Russo & Elixhauser, 2006). Seventy-two percent of pressure ulcers that occur in all hospitalizations are in people over sixty-five years of age.

In addition to our knowledge of the adverse effects of medications causing cognitive impairment or delirium, there is emerging literature documenting that older people experience a cognitive decline associated with a variety of treatment interventions. Cognitive declines are reported in pilot work in older women receiving adjunct chemotherapy for breast cancer (Hurria et al., 2006 [Level IV]), after endarterectomy (Bo et al., 2006 [Level III]) and following bypass coronary artery grafting, where older adults experienced changes in executive function (Rudolph et al., 2006 [Level III]). Among the risks associated with cognitive impairment and ADRs is the propensity to fall. Injury mortality due to falls for persons over age sixty-five rose between 1981-2002 from 28.4 percent to 35.2 percent respectively (CDC, National Center for Health Statistics, 2006). Unintentional falls are the eighth leading cause of death among persons sixty-five and over (CDC, National Center for Injury Prevention and Control [NCIPC], 2006).

Urinary incontinence among an adult of advanced old age can occur secondarily to an ADR or disease. Urinary incontinence is known to increase with age (CDC, National Health Interview Survey [NCIS], Medicare Current Beneficiary Survey [MCBS]). The estimated overall percent of urinary incontinence among all persons age sixty-five between 1992-2003 was 27.1 percent, with individuals of advanced old age living in facilities experiencing a higher share (62.7 percent) than those living in the community ([25.6 percent]; CDC, National Center or Health Statistics, 2006).

#### Impact of Geriatric Syndromes

Geriatric syndromes compound the burden of complex care in any healthcare setting (Rikkert et al., 2003 [Level VI]). Geriatric syndromes often have multifactorial etiological factors, many of which have detectable risk factors. When detected early, risk factors leading to the development of pressure sores, delirium, falls and urinary incontinence can be targeted and reduced through early intervention. Because individuals of advanced old age often have several of these syndromes simultaneously, with one syndrome leading to the development of another, as is the case of cascade iatrogenesis (discussed below), early detection is key. Knowing the older adults' baseline intraindividual history related to syndrome onset, progression and response to intervention is an essential communication point that needs to be shared among the healthcare team managing the older adults' care.

It is also important in the assessment and evaluation phase, prior to knowing *which* intervention has been causative to *what* outcome, that nurses follow an acceptable standard of practice for a particular clinical entity and *refrain* from unnecessary intervention that may worsen an underlying symptom presenting in a geriatric syndrome. A classic example is the problem of gait instability, reduced mobility and fall risk detected on admission nursing assessment whereby nurses may be tempted to inappropriately use a physical restraint to prevent a fall from bed.

Physical restraint use has been shown to be harmful to hospitalized older patients, as it is associated with increased severity of injury (Tan et al., 2005 [Level V]). Elevated bedrails used with older adults deemed "nonrational" were more likely associated with increased falls from bed and with deaths (van Leeuwen et al., 2002 [Level IV]). In the nursing home, use of bilateral side-rails has been shown to not reduce risk of falls, recurrent falls or serious injury (Capezuti et al., 2002 [Level III]).

Overlap between medications and geriatric syndromes: Included among possible adverse effects from medications in adults of advanced old age are *geriatric syndromes* such as cognitive impairment, instability and falls and/or urinary incontinence (see Table 5 for a listing of potential ADRs related to geriatric syndromes). High-risk medications and absolute contraindicated medications should serve as reference to all healthcare providers of older adults (see Table 7; for more information visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Try This Series: Beer's Criteria for Potentially Inappropriate Medication Use in the Elderly). Problematic symptoms associated with ADRs are presented in Table 7.

The pharmacoepidemiology of medications and their impact as causative agents for geriatric syndromes is still not completely known, but are a topic of ongoing investigation. Typically ad hoc epidemiological studies of adverse drug reactions are conducted only after substantial questions concerning a drug's safety has been raised (Ray et al., 1990 [Level VI]). Psychotropic drugs are of particular note. For example,

epidemiologic studies found that elderly persons receiving psychotropic drugs had a 70 to 100 percent increase in risk of hip fractures due to falls (Ray et al., 1987 [Level II]). Hip fractures are significant due to mortality increases, nearly a 50 percent decline in ability to walk independently and potential for long-term nursing home care as cited in one investigation (Cummings et al., 1985 [Level IV]). Likewise, other geriatric syndromes due to ADRs include urinary incontinence, classically induced by diuretics used as the first-line therapy for management of hypertension.

**Critical thinking point:** In their analysis of the history of the presenting illness or in the case of *geriatric syndromes*, nurses need to consider: “is this a new onset of incontinence, delirium or falling?” If the answer is “yes,” then “could it be considered an outcome of previous intervention?” For instance, “could it be an ADR?” Once this information is communicated to the primary provider and/or geriatric specialist, interventions can be re-evaluated and decisions made about alternative interventions that are less likely to produce undesirable effects. When available, hospital interprofessional teams comprised of geriatric specialists are ideal referral sources for these sorts of problems encountered in practice (for more information visit Module Nine in this series).

#### Unresolved and Multiplying Geriatric Syndromes: Cascade Iatrogenesis

Cascade iatrogenesis is a term used to describe the spiraling, unintended decline of health from a series of severe effects caused by medical interventions that have been used to solve the previous symptoms or conditions (Wikipedia; see Glossary for more details). Iatrogenic complications are extremely common in hospitalized adults of advanced old age, who have complex illness and long lengths of stay. There are ongoing efforts to identify predictors of cascade iatrogenesis. One study reports predictors as persons unable to walk without assistance and with low Glasgow Coma scores among other factors (Lefevre et al., 1992 [Level III]). Other research has isolated the incidence of cascade iatrogenesis to be highest in the oldest patients, those most functionally impaired and those with a high severity of illness on admission (Potts et al., 1993 [Level III]).

Medical management of any illness in adults of advanced old age and/or complex illness carries a risk for untoward consequences and cascade iatrogenesis. For example, in the case of hypertension, drug therapy is expected to normalize blood pressure. However, in the case of older adults of advanced age and with additional chronic illness, medication management of hypertension may, in reality, contribute to a new onset of geriatric syndromes such as cognitive impairment or falls. Consider this clinical scenario:

#### Clinical example:

Ms A, an eighty year old woman who lives alone in the community has a history of severe osteoarthritis and hypertension, which is managed with a diuretic. After a few doses of the diuretic, she develops sudden urinary incontinence. On a follow-up visit to the primary care provider, Ms. A’s blood pressure has escalated and another agent (alpha adrenergic blocker) is added. Ms. A fails to tell the provider about her urinary incontinence, and the provider does not ask about incontinence or other potential ADRs. Further, the provider only checked Ms. A’s blood pressure while she was sitting. One night Ms. A experiences incontinence while getting up out of bed to urinate, slips and falls on the wet floor, incurring a pelvic fracture. In the hospital, Ms. A cannot walk and is reported to be confused,

having a history of falls. Nurses consider use of a physical restraint to reduce further *risk of falling* out of bed.

In hindsight, one ADR from a medication, namely urinary incontinence, led to other physiological problems (the orthostatic hypotension) which then led to yet another, a fall with serious injury. The injury caused hospital admission, and the change in location caused acute confusion and the potential for physical restraint. When the basic etiology or at least the *likely etiology for iatrogenesis* is not investigated or resolved, the potential for other syndromes to develop or multiply' are very likely.

#### Critical Thinking as an Intervention for Prevention of Cascading Iatrogenesis

There are several points of nursing intervention to prevent the cascading iatrogenesis evident in the above case scenario. It requires a *definitive action* beyond recognition and monitoring of the person's condition. It also requires asking the right questions at the right time. The communication process must be maintained when judging the effectiveness of the selected intervention and its outcome. Nurses as direct care managers know the patient's story, the idiosyncrasies, what interventions are effective and what ones are ineffective or have lead to the development of other problems. This knowledge of the intervention and its effect must be communicated and then re-evaluated. Knowledge derived from the nursing assessment of the older person's baseline intraindividual heterogeneity—for instance “does the older adult already possess symptoms of urgency prior to use of a diuretic?”—would be helpful in determining whether a diuretic is really the best drug of choice for Ms. A. Determining the older adult's functional status and especially level of independence in mobility could yield a plan of care to prevent urinary incontinence. In light of the frequency of adverse drug reactions when older adults are started on new medications, assessment needs to elicit common ADRs, including, in the case of diuretics, urinary incontinence.

#### **Recommendation 3: In planning nursing care, adults with advanced age and/or complex illness should be viewed as an “at risk” population.**

**Rationale and Supporting Evidence:** Epidemiological studies of disease (Centers for Disease Control, National Health Interview Survey [NCIS], Medicare Current Beneficiary Survey [MCBS]) and evidence-based research reaffirm *advanced age* constitutes an “at risk” population [*at risk* denotes “more likely to develop” certain conditions and diseases]. Multiple and chronic illnesses increase with age. Sixty-seven percent of people over age sixty-five have two or more chronic conditions, and the average seventy-five year old has 3 (Alliance for Aging Research, The Silver Book, 2005 [Level VI]; see Table 1 for chronic illness types). The likelihood of being disabled by disease doubles every five to seven years (Alliance for Aging Research, 2005 [Level VI]). With advanced age, risk for functional limitation increases. Among non-institutionalized persons sixty-five and over, reports of needing the help of another because of physical, mental or emotional problems is the highest for those eighty-five years and over, particularly women. (CDC, National Health Interview Survey [NCIS], 2003; see Table 8).

The double burden of physiological decline and disease is associated with excess morbidity and resultant disability, i.e., difficulty in performing physical and mental tasks necessary for daily life (AGS, Comprehensive Geriatric Assessment Position Statement, 2005 [Level VI]). Among *all* persons sixty-five and over (both community dwelling and institutionalized persons), 36 percent have physical limitations with 18.3 percent

experiencing limitations in one to two Activities of Daily Living [ADL] and 11.7 percent experiencing between three to six deficits in ADL. Disability epidemiologist Nagi (1976) further classifies physical limitation and disability in activities such as stooping, lifting, reaching, grasping and walking (Nagi, 1976 [Level IV]; see Table 9). Among community dwelling elders, over 40 percent had disability related to walking alone, which increased to over 90 percent once institutionalized (see Table 9).

Advanced old age brings *risk* for many diseases and conditions such as dementia, delirium and limited social supports. Statistically, an eighty year old person is at much higher risk for the development of dementia than a sixty-five year old. In 2004, deaths due to Alzheimer's disease increased with age, ranking as the eleventh cause of death for persons sixty-five to seventy-four years of age, the sixth cause for persons seventy-five to eighty-four years of age and as the fourth cause for persons eighty-five and over (CDC, National Center for Injury Prevention and Control [NCIPC], WISQARS, 2006). Similarly, the risk for developing delirium increases with age, although national prevalence rates are not easily retrievable. In one study, 72 percent of older adults in a medical intensive care unit experienced delirium (Peterson et al., 2006 [Level IV]).

**Additional Rational and Supporting Evidence:** Traditionally, across the world, aging has come to include all persons sixty-five and over. Twelve percent of the United States Population (36.3 million people) is currently over age sixty-five. By 2050, 86.7 million (21 percent of the US population) will be over age sixty-five (US Census, March 24, 2005). Geriatrics and gerontology refer to the specialized needs of this aged population. There is much evidence, however, that the older adult in most need of expert nursing care are those with advanced age (over age eighty), complex illness and with comorbidities. Nearly five million people (13.5 percent of the population) are currently over age eighty-five and by year 2030, it will climb to 9.6 million (Administration on Aging [AoA], 2003). In many respects this subset of older adults constitute a frail, vulnerable and "at risk" population (see Glossary for more information). As life expectancy increases, so too does the "at risk" population. Currently there are 64,000 centurions (US Census, March 24, 2005), a number projected to increase to 700,000 by year 2050 (NY Times, February, 22, 2004). Presently, the life expectancy for older American women at birth is seventy-nine. At age sixty-five, people have an average life expectancy of an additional 18.2 years (19.4 years for women and 16.4 years for men (AoA, US Department of Health and Human Services, 2003).

Advanced age also increases risk for limited social supports. Aging women in particular are at greatest risk for widowhood and living alone. Current evidence shows that 30 percent of women between sixty-five and seventy-four years of age live alone, rising to 50 percent between ages seventy-five and eighty-four and 78 percent of all women over age eighty-five are widowed (CDC, Aging Statistics, 2004). Living alone and widowhood impact negatively on women's social environment. If functional limitations occur, the person living alone may need to garner assistance from a support network of family, friends, neighbors or professionals. One study found network type to influence mortality during a seven year period as compared in diverse friend, family or community-clan networks (Litwin & Shiovitz-Ezra, 2006 [Level III]).

**Critical thinking point:** In the delivery of care to older adults of advanced age and/or with complex illness, nurses should ask themselves: "what might the older adults be *at risk* to develop?" When risks are minimized, improved health outcomes are possible.

Longitudinal studies now link good health risk status with reduced lifetime disability, as those with few health risks had only one-fourth the disability of those with more risk and the onset of disability was postponed from seven to twelve years (Fries, 2006 [Level VI]).

Frailty as an “at risk” Condition:

Frailty is an outcome of chronic illness and/or functional limitation among adults with advanced age. Multiple chronic conditions are criteria for frailty and place older adults at greater risk for untoward health events. Medicare beneficiaries with more than five chronic conditions see an average of fourteen different physicians in a year, and those with more than four chronic conditions are ninety-nine times more likely to be admitted to the hospital than beneficiaries without chronic conditions (Alliance for Aging Research, The Silver Book, 2005 [Level VI]).

There is no universal consensus for a definition of *frailty* (Hammerman, 1999 [Level VI]; Fried, 2004 [Level VI]; Markle-Reid & Browne, 2003 [Level VI]). Generally, *frailty* is regarded as a “dominant determiner of ill-health,” attributed to both loss of physiological organ reserve with age and chronic illness, believed to accelerate its development (Fries, 2005 [Level VI]). Frailty is thought to have a biological basis and distinct clinical syndrome with identifiable phenotypes (Fried et al., 2001 [Level II]). Specific and recognizable signs and symptoms based on physiological changes include unintentional weight loss, symptoms of exhaustion, slow walking speed, grip weakness and low physical activity (Fried, 2001 [Level II]).

Frailty has been shown to increase with age, be greatest in women and more commonly seen in African Americans and in persons with lower education, income, poor health and higher rates of disease and disability. *Comorbidity was an etiologic risk factor for frailty* and the *frailty* phenotype was an independent predictor of falls, worsening mobility, hospitalization and death. Frailty is typified by a gradual progression over months or years. The fact that pre-frail states exist suggest that interventions for the prevention of “full-blown” frailty can be identified and those at risk targeted for specific interventions to thwart its onset (Gill, Gahbauer, Allore, & Han, 2006 [Level III]).

Not only is frailty important to recognize, *it must be responded to*, if quality healthcare outcomes are to be achieved. Progressive resistance exercise training along with multinutrient supplementation reduced overall *frailty* in an intervention group of one hundred frail elderly nursing home residents over a ten-week period, as evidenced by increased muscle strength, increased gait velocity and increased stair climbing power (Fiatarone et al., 1994 [Level II]). Given that over 70 percent of hospitalized older patients were able to walk, but *did not do so* during a three-hour period leads one to ask: “why do patients continue to have orders for bed rest, despite evidence of adverse effects” and “why don’t hospital nursing make ambulation a focus of this work given the speed at which functional decline occurs in the elderly?” (Graf, 2006 [Level VI])

**Recommendation 4: In planning nursing care, adults with advanced age and/or complex illness should be assessed for functional and cognitive status, pain and geriatric syndromes (e.g., delirium, fall risk, presence of urinary incontinence, pressure ulcers) irrespective of setting in the hospital (e.g., emergency room, oncology unit, critical care).**

**Rationale and Supporting Evidence:** Strong evidence exists that nursing assessment of adults of advanced old age, which considers their interindividual heterogeneity relative to

physical, emotional, functional and cognitive capacities in the hospital, yields positive outcomes related to patient mortality, morbidity and lengths of stay. Many designated high-risk conditions (e.g., frailty, cognitive impairment related to delirium, depression, functional impairment, urinary incontinence and pressure sores) can be assessed using standardized measurement tools (for more information see Appendix B or visit [www.ConsultGerRN.org](http://www.ConsultGerRN.org) and select Try This Series: Confusion Assessment Method; Urinary Incontinence Assessment, Fall Risk Screening; Recognition of Dementia in Hospitalized Older Adults; Executive Dysfunction or Geriatric Topics: Pressure Sores, Depression, Delirium, Dementia, Falls).

As examples, a few assessment domains are presented here (frailty, function, cognitive impairment, depression and falls) along with supportive rationale for their clinical utility.

Assessment of Frailty: The benefit of screening and assessing older adults of advanced old age in the hospital for frailty has been well established. Dating back to 1991, Winograd and colleagues found a frailty screening measure derived from geriatric criteria to be significantly associated with hospital lengths of stay, mortality and nursing home utilization (Winograd et al., 1991 [Level II]). A recent, five year longitudinal study of global measures of frailty outperformed individual measures of cognition, function and comorbidity in assessing risk for death (Rockwood et al., 2005 [Level III]). In short, we now have strong evidence that assessment of frailty yields useful information about those older adults of advanced old age that are at greatest risk for poor health outcomes.

Practice standards for frailty assessment require consideration of the ideal time to assess an elderly hospitalized patient, e.g., on admission, during the stay and/or prior to discharge; who should perform the assessment; and how the results of the assessment will influence the overall plan of care. As a starting point to incorporating frailty into our nursing assessment, consideration must first be given to how frailty could be measured.

Measuring Frailty: Measuring frailty is dependent upon how it is conceptually or operationally defined. Measures of frailty for use with older adults include 1) *The Frailty Index*; 2) the *Clinical Frailty Scale*; and 3) the *Frailty Wheel*. All measures discussed are valid and reliable. Some measures are summed scores of impairments while others rely more on clinical judgments by healthcare professional.

*The Frailty Index* is derived from information gathered by a comprehensive geriatric assessment and can be scored so that risk stratification for adverse outcomes are possible—mild frailty, moderate frailty and severe frailty (Jones, Xiaowei, & Rockwood, 2004 [Level II]).

Severe frailty was significantly associated with worse function and mental status. The *Clinical Frailty Scale* is a seven-point scale which is highly correlated to the *Frailty Index* and was found to out perform other measures of cognition, function or comorbidity in assessing risk for death (Rockwood et al., 2005 [Level III]). This scale measures frailty according to clinical judgment.

*The Frailty Wheel* identifies those with a high probability of dependency on others for daily care within the next twelve months. It relies on information gathered about self-reported ADL abilities due to a disability or health problem. This tool is hand-held and scores the individual as either frail or non-frail. Cohort mortality rates and survival rates computed among these two groups of interest—frail and non-frail—revealed its

prediction for mortality and health service utilization (Kaiser Permanente Center for Health Research, 2002 [Level II]).

**Critical Thinking Point:** Decisions as to which tools to use to assess frailty, as with other assessments, are best made by the healthcare organization rather than the unit. Hospital policy and procedures need to include appropriate tools and forms for which pertinent data about frailty can be obtained uniformly across units. When no such hospital policies exist, nursing units can develop criteria for which patients to assess based on relevant patient parameters. In the case of frailty, the unit might consider patient age, number of chronic illnesses, number of medications taken and unexplained loss or decline in functional status.

Assessment of Function: Hospitalization is known to carry a risk for functional decline among older adults. Thirty-five percent of older patients declined in ADL function between baseline and discharge (Covinsky et al., 2003 [Level III]). The frequency of ADL decline, measured on admission and discharge among adults hospitalized for medical illness, increased markedly with advancing age (Covinsky et al., 2003 [Level III]). Age was also associated with a failure to recover ADL function lost during hospitalization. Findings from this and other research underscore the clinical imperative to mobilize older hospitalized adults frequently and to avoid reduced mobility and immobility at every possible point of patient contact.

Knowledge of an older adult's functional status prior to an acute medical event or pre-hospitalization is predictive of survival (Covinsky et al., 2000 [Level III]). Steadiness at admission, determined through history taking, has been shown to predict in-hospital functional decline (Lindenberger et al., 2003 [Level II]). Older adults who were unsteady were three times more likely to have ADL decline than those who were steady. Further, unsteadiness independently predicted failure of recovery (Lindenberger et al., 2003 [Level II]).

Measures of Function: Functional assessment represents one's ability to perform routine aspects of self-care (e.g., activities of daily living such as bathing, walking) and other activities necessary to maintain independence in daily living (shopping, cooking, travel, meal preparation, etc.; for more information visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Geriatric Topics: Function). In clinical practice, measurement tools to assess function are used as baseline screening, on admission and periodically to monitor progress. Classic measures and the gold standard functional assessment tools include the Katz ADL and the Lawton-Brody IADL assessment tools. The Hospital Admission Risk Profile (HARP) categorizes older adults into one of three risk categories for ADL decline based on the presence of certain predictor variables (Sager et al., 1996 [Level III]). Its use in the hospital allows for improved overall plans of care and early identification of at risk conditions. As intended, its use also includes those best suited for comprehensive discharge planning.

Assessment of Cognition: In older adults, cognitive impairment (CI) is a term used to describe a state of mind where the person has difficulty processing or the inability to process information. CI may be temporary in the case of delirium, which is an acute, often life threatening event, or it may be chronic. Dementia is the most common chronic progressive deterioration of cognition in advanced old age. Numerous investigations correlate both acute and chronic CI with poor health outcomes (e.g., functional decline), prognosis (condition of delirium) and survival (mortality due to delirium). In hospitalized

older adults, for example, delirium was the sole predictor of loss of function even at three months post-discharge (Murray et al., 1993 [Level II]). For persons over age seventy, delirium or CI assessment as part of a multifactorial intervention has been shown to significantly reduce the total number of days with delirium and total number of delirium episodes (Inouye et al., 1999 [Level II]). CI assessment protocols that include staff education and caregiver-patient interventions significantly reduce the duration of delirium, length of hospital stay and mortality in delirious patients (Lundstrom et al., 2005 [Level III]).

Measures of Cognitive Impairment: Assessment of CI includes measures of Executive Function, which depict early dementia, the Mini-Mental State Examination [MMSE], a gold standard measure of CI, and the Mini-Cog. Measures of acute confusion include the Confusion Assessment Method [CAM] (visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Try This: Mini-Cog and the Confusion Assessment Method). Traditionally, the MMSE has been used as part of a routine comprehensive assessment to screen for dementia. Recent research supports its use serially to diagnose and monitor delirium in elderly hospitalized patients as well (O’Keeffe, Mulkerrin, Nayeem, Varughese, & Pillay, 2005 [Level III]).

Assessment for Depression:

Depression is a medical disease based on standardized clinical criteria. In older adults, it is considered a treatable form of CI. In one study of depressive symptoms and three year mortality among older hospitalized patients with a mean age of eighty, those with six or more depressive symptoms had the worse outcomes (Covinsky et al., 1999 [Level III]). Adults with six or more depressive symptoms had increased comorbidities, increased functional impairments, increased CI and were 1.5 times more likely to have higher mortality rates during the three years after admission.

Independent of health status or severity of illness in the hospital, individuals over age seventy with more symptoms of depression were more likely to deteriorate and less likely to improve during or after hospitalization (Covinsky et al., 1997 [Level III]).

Treatment of depression depends on detection. In depression, clinical signs are often recognizable to a trained professional. As such, classic signs and symptoms of this affective disorder can be elicited during observation and an interview with the older adult. Assessment tools specifically designed for the elderly can aide in providing reliable information about depressive symptoms.

Measures of Depression in the Elderly: The Geriatric Depression Scale (GDS) is a well recognized, valid and reliable tool to assess depression in older adults. The complete GDS has thirty items; just as valid, the shorter version contains fifteen items. Each item can be responded to with “yes” or “no” answers (visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Geriatric Topics: Depression).

Fall Assessment: Falls among older adults may be isolated occurrences or events due to environmental hazards, acute medical illnesses, medications or specific diseases, or they may be part of a larger geriatric syndrome of declining function. In the very old, their outcomes can be devastating and include fatality, serious injury such as hip fracture or traumatic functional decline and hospitalization. Falls rank in the nation as the eighth leading cause of unintentional injury (CDC, National Center for Injury Prevention and Control, 2006).

Because we observe falls in clinical practice often as the heralding event leading to a spiraling decline, they are often a marker of poor health outcomes. The current

evidence on falls in the elderly typically evaluates mortality, morbidity, functional recovery and cost-related outcomes *when serious injury* occurs. The main injuries observed are hip fractures and traumatic brain injuries. Hip fractures have been shown to reduced life expectancy by 1.8 years or 25 percent compared to the general population and cause ADL deficits that contribute to substantial morbidity, mortality and costs (Braithwaite, Col, & Wong, 2003 [Level IV]).

Eradication or at least reduction of falls in hospitalized older adults is entirely possible when fall prevention programs include environmental safety, fall risk and post-fall assessment, education, a fall focused plan of care that is tailored to individual needs and a team approach. Although relatively few studies focus on interventions to prevent falls in hospital-based elderly populations, a large meta-analysis supports multifactorial intervention for fall prevention in the elderly (Chang et al., 2004 [Level I]). Other less rigorous studies also support the effectiveness of a multiple intervention program to prevent in-hospital falls. In one study, a multi-pronged approach of education, intervention and exercise reduced falls by 30 percent and had less injury outcomes (Haines, Bennell, Osborne, & Hill, 2004 [Level II]).

#### Measures for Fall Assessment

Falls refer to an event in which the person lands to the lowest level or ground surface. Falls can be either witnessed or unwitnessed. Even if unwitnessed, falls are often unreported especially if the older adult has concurrent CI. All falls are important events requiring assessment, even if their immediate outcome—such as no injury or a minor skin scraping—seems trivial. Emotional trauma can occur without physical trauma. National and professional organizations recommend two inclusions in any formal fall prevention program: 1) perform a fall risk assessment to identify modifiable factors and 2) perform a comprehensive post-fall evaluation by a professional (American Geriatric Society [AGS], 2001 [Level VI]; American Medical Directors Association [AMDA], 1998). Many standardized tools for fall risk assessment exist, including those specified for various settings. In the hospital, the Hendrich II Model is widely used with favorable outcomes reported (For more information visit [www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Try This: Fall Risk Assessment). Guiding the post fall evaluation or assessment includes a focused history, focused physical examination, review of functional ability and review of medication.

**Recommendation 5: In planning nursing care, adults of advanced age and/or with complex illness should have access to hospital system-based models of care (e.g., Geriatric Resource Nurses; Acute Care of the Elderly Units (ACE); interdisciplinary assessment; volunteer programs (HELP); and case management known to implement strategies that prevent geriatric syndromes (e.g., limited or no use of physical restraints, early and consistent walking and ambulation; removal from pharmaceutical formularies of medications known to cause high adverse drug events; and early treatment of functional decline and cognitive impairment due to delirium, depression and dementia).**

**Supporting Evidence and Rationale:** Projections are for a 78 percent increase in inpatient acute care admissions for persons ages sixty-five and older from 2002 to 2027 (Agency of Healthcare Research Quality [AHRQ], 2002). These expected changes create

an imperative for healthcare organizations to recognize older adults as their “core business” and to implement evidence-based system-wide approaches to address the needs of patients of advanced old age who have multiple comorbidities and complex illness.

These are the patients at greatest risk for new onset of comorbidity, functional decline, adverse drug reactions, geriatric syndromes and long lengths of stay that plague hospitals.

**Critical Thinking Point:** There is mounting evidence that geriatric care can best be delivered when certain principles are incorporated, certain practices followed and certain system-wide approaches adopted. The best geriatric care incorporates, among others, these elements in the delivery of healthcare:

- Staff knowledgeable in care of older adults
- A user-friendly organizational climate for older adults
- Patient and caregiver education
- Resources and models of care that address specific geriatric practice issues
- Delivery of healthcare that is coordinated, collaborative and continuous
- Communication
- Staff commitment and dedication
- Continual reassessment of patient, staff and organizational needs related to care of older adults

These ingredients have been shown to yield measurable outcomes: *greater* patient satisfaction (and ultimately, better patient confidence in the care received); reduced risk for geriatric syndromes; less functional decline; reduced comorbidities and mortality; shorter lengths of stay; and adequate preparedness for discharge. Presented are six exemplars of state of the science system-based approaches that incorporate these necessary elements to provide excellence in caring for hospitalized older adults.

Case and Disease Management Models: There is limited but mounting evidence that case and disease management programs improve outcomes for older adults. Older adults with congestive heart failure who were exposed to hospital-based case management interventions experienced a 6 percent decrease in hospital readmission rates (Kim & Soeken, 2005 [Level I]). Improvement for patients with Congestive Heart Failure (CHF) is important given their one-year survival rate which ranges between 30 and 50 percent (American Heart Association, 2002 [Level VI]). A systematic review of sixteen clinical trials of multidisciplinary team intervention, case management intervention with telephone follow-up and home visit; or follow-up clinic visits provided weaker evidence for the case management intervention with congestive heart failure patients (Taylor et al., 2005 [Level I]).

Case management models for cancer have realized improved continuity of care, appropriate treatment and symptom management for physically and socially vulnerable older adults (Bourbonniere & Kagan, 2004 [Level V]). Bourbonniere & Kagan (2004) conclude that interventions of four weeks duration yield better outcomes than programs of shorter duration. Evidence as to the benefits of disease management programs for older adults with multiple chronic illness and/or complications are less clear than case management approaches, since management of a single disease is impeded by the multiple comorbidities that these patients exhibit.

Interdisciplinary Assessment Units: Geriatric assessment teams appear to decrease mortality and morbidity for hospitalized older adults (additional references pending are

these going to be added?). In one study, a substantial reduction in three and six month mortality was observed when frail, acutely ill older patients over age seventy-five were treated in a geriatric evaluation and management unit versus a general medical ward (Saltvedt, Opdahl, Fayers, Kaasa, & Sletvold, 2002 [Level II]). The interdisciplinary assessment by a committed geriatric team was associated with prevention of complications and iatrogenesis, early mobilization and comprehensive discharge planning.

Acute Care of the Elderly (ACE) Units: Acute care of the elderly (ACE) units are exemplars of the geriatric interdisciplinary model of care that focus on the unique needs of older adults during hospitalization. ACE units staffing includes expert gerontological nurses, physicians and other supportive staff trained and dedicated to care for older adults, as well as a physically supportive environment. Evidenced-based outcomes of ACE units vary, but overall there is beginning evidence that they yield positive outcomes related to reduced lengths of stay and lowered readmission rates following discharge. In one study of an ACE unit focused on early rehabilitation and discharge planning, the mean length of stay was 1.4 days shorter than the control unit. Three months post-discharge, older patients had fewer incidences of impaired cognitive function than the control groups (Asplund et al., 2000 [Level II]). Outcomes from a twenty bed ACE unit in another study showed significant decreases in readmission during the thirty days following discharge (Barrick et al., 1999 [Level III]). Other ACE units reported higher patient, family and staff satisfaction as compared to control units (Counsell et al., 2000 [Level II]). One study also found improvements in functional outcomes compared to older adults receiving general medical care (Landefeld et al., 1995 [Level II]). For more information on ACE units, visit [www.NICHE.org](http://www.NICHE.org) (NICHE™ [Nurses Improving Care to Healthsystems Elders] is a national geriatric nursing program currently implemented in over two hundred hospitals in more than forty states as well as parts of Canada and the Netherlands. Since 1996 the Hartford Institute has administered NICHE, a national program aimed at system improvement to achieve positive outcomes for hospitalized older adults.

- The *goal* of NICHE is to achieve systematic nursing change that will benefit hospitalized older patients.
- The *vision* of NICHE is for all patients sixty-five and over to be given sensitive and exemplary care.
- The *mission* of NICHE is to import principles and tools to stimulate a change in the culture of healthcare facilities in order to achieve patient-centered, evidenced-based care for older adults. NICHE includes several approaches, each of which facilitates the transference of evidence-based geriatric best practices into hospital care.

NICHE is unlike other programs in that it does not prescribe how institutions should modify geriatric care; rather, it provides the materials and services necessary to stimulate and support the planning and implementation process. The focus of NICHE is on programs and protocols that are dominantly under the control of nursing practice; in other words, areas where nursing interventions have a substantive and positive impact on patient care.

Geriatric Resource Nurse (GRN) Model

The Geriatric Resource Nurse (GRN) Model offers a unit-based approach to managing the needs of older adults by adding the resources of a staff nurse who has participated in didactic and often also clinical training programs in the hospital. The GRNs have the backup of a gerontological advance practice nurse (APN; nurse practitioner or clinical specialist) and, in some hospitals, further back up from a geriatrician or geriatric team. APNs serve as role models and offer mentoring to the GRN as well as provide educational programs, curricula and other forms of support. One hospital reported a 20 percent reduction in the incidence of delirium and reduction in the severity of delirium by the addition of GRNs (Guteri, Edinger, & Schumacher, 2002 [Level IV]). A second hospital reduced restraints by 17 percent in one year and 21 percent in another year and significantly reduced in-hospital acquired urinary incontinence by use of the GRN model (Pfaff, 2002 [Level III]). Other hospitals using the GRN model report significant reduction in incidences of aspiration pneumonia for those patients on a neurology unit and a decreased rate of urinary track infections (Swauger & Tomlin, 2002 [Level III]).

Transitional Care: National recommendations, based on a consensus of opinion from nursing experts, exist for older adults at highest risk for poor discharge outcomes, such as those of advanced old age. The strategies to ensure continuity of care follow the four Cs: communication, coordination, continual reassessment and collaboration (Zwicker & Picariello, 2003 [Level VI]).

For adults of advanced old age and/or with chronic complex illness, transitioning from hospital to home is not easy, especially if debilitation is newly acquired and prohibits independence in daily activities once home. Naylor's et al randomized controlled clinical trails (RCTs) (Naylor et al., 1994; 1999; 2004 [All Level II]) provide strong evidence as to the added value of an APN caring for older adults during vulnerable periods of transition from hospital to home. A model that uses a geriatric nurse to care for older adult patients in the hospital and then follow them for a short period of time after discharge has been shown to significantly reduce readmission rates, time to first readmission and costs and to improve functional status. In their most recent study of hospitalized older adults over age seventy admitted for cardiac care, APN participation in care and in comprehensive discharge planning during hospitalization and home visits and telephone outreach after hospital discharge was associated with fewer medical readmissions, fewer total days rehospitalized, lower readmission charges, improved functional outcomes and fewer discharges to the nursing home (Naylor et al., 2004 [Level II]).

#### Use of Volunteers (HELP) Program

The Hospital Elder Life Program (HELP) is a nationally recognized program originally conceived by Inouye and colleagues at Yale University. HELP was designed to use trained volunteers in order to reduce delirium and to maintain cognitive and physical functioning of high risk older adults during hospitalization, among other goals. Because of its success, HELP has been disseminated nationally and adopted at numerous hospitals. Use of volunteers from the community has shown to increase patient and caregiver satisfaction with care. Staff report that they can carry out their jobs better when volunteers helped offset their time spent with non-professional duties (for more information visit The Robert Wood Johnson Foundation; see Appendix B for details).

One academic hospital setting where the HELP model was integrated into a community based hospital (Rubin et al., 2006 [Level II]) achieved absolute rate reduction of delirium as well as reduction in total hospital costs over six months (Rubin et al., 2006 [Level II]). (For more information, contact [hospitalelderlife@yale.edu](mailto:hospitalelderlife@yale.edu) or visit [www.hospitalelderlifeprogram.org](http://www.hospitalelderlifeprogram.org).)

There is growing and sustained research related to improving system-based approaches to care of hospitalized older adults. These ground breaking programs and approaches have strong evidence supporting their success. Further utilization of these approaches and programs of delivering healthcare services to high risk older adults is mandatory if strides are to be made toward impacting on all older adults hospitalized in this country.

**Conclusions:**

Geriatric nursing is a distinct specialty of nursing legitimized by its own standards and scope of practice and set of nationally recognized competencies for which clinical care is to be delivered (ANA Standards of Gerontological Nursing Practice and BSN Competencies for Care of Older Adults). Clearly these written works speak to the specialized skills, knowledge and competencies that must be practiced when providing quality healthcare to this population.

In the five recommendations presented, we make a clear distinction for nursing care of older adults with advanced old age and comorbidities. This population of advanced old age typifies now and for the future the bulk of our healthcare delivery efforts. Shifts in the nursing process and plans of care which clearly earmark interventions directed at the primary and secondary prevention of frailty, functional decline and geriatric syndromes are therefore required in order to truly meet the needs of this population. In order to do this successfully, nurses working with hospitalized older adults must continually critically think about improving patient outcomes by reducing the burden of these healthcare problems during individualized and team assessments of older adults.

Table 1 Prevalence of Various Chronic Illness Experienced for those 65 and over (2003-2004)

<u>Age-group:</u>	65 +	65-74 years	75-84 years	85+
<u>Chronic Illness (prevalence [%] reported):</u>				
Hypertension	51.9	49.0	56.0	50.0
Doctors diagnosis of arthritis	50.0			
Chronic joint symptoms	46.0			
All types of heart disease	31.8			
Coronary heart disease	21.4			
Any cancer	20.7	18.0	23.0	24.0
Diabetes	16.9	18.0	17.0	12.0
Ulcer	11.9			

Reference: \*Data extrapolated from CDC, National Health Interview Survey (NCIS), Prevalence of Selected Chronic Conditions by Age, Sex and Race/Ethnicity: United States, 1997-2004

Table 2 Intra and Interindividual Factors Influencing Healthcare for Older Adults

Examples:Intraindividual Factors (Persons)

Longevity  
 Physical, cognitive, and emotional status  
 Functional status (independence, impairment or disability)  
 Ability for self-care education/management  
 Presence of chronic complex disease  
 Presence of geriatric syndromes  
 Spirituality  
 Culture/ethnicity

Interindividual Factors

Physical Environment  
 Social environment (social supports, living arrangement)  
 Family  
 Community  
 Transportation  
 Financial resources  
 Eligibility/coverage for medical insurance  
 (Medicare/Medicaid)

Self-determination/decision-making capacity (autonomy)

Prescriptive coverage

Adapted from: The American Geriatrics Society Position Statement on Comprehensive Geriatric Assessment  
 American Association of Colleges of Nursing and the John A. Hartford Foundation  
 Institute for Geriatric Nursing, Older Adults: Recommended Baccalaureate Competencies, 2000

Table 3 Illness Trajectory for “Typical Persons”

Types of Death	Clinical Course	Types of Disablement/Example
Sudden death	Sudden	None, very active until right before death (e.g., motor-vehicle accident)
Cancer deaths	3-month decline	Active until ADL decline (e.g., lung cancer)
Organ Failure	Slow decline	Fluctuating pattern of ADL decline with poorer function in the 3 months prior to death; loss of function is slow with intermittent exacerbations (e.g., CHF)
Frailty*	Slow and steady decline	Slow and steady decline in ADL function one year prior to death, with a more precipitous drop in function noticed in the last month

\*Frail elders are 8 times more likely than sudden death decedents to be ADL dependent at the time of death.

References: Lunney, J.R., J. Lynn, D.J., Foley, S., Lipson, S. and Guralnik, J.M. (2003). Patterns of functional decline at the end of life. *Journal of the American Medical Association* 289 (18): 2387-92.

Table 4 Examples of critical thinking to consider when planning care for older adults with complex care related to chronic illness, frailty and geriatric syndromes; Instructions for completing: given your knowledge of the older adult of advanced old age, can you determine, with a reasonable degree of certainty, if the presence of the underlying conditions impacts on aspects of safety in daily living and other care management issues.

Chronic Illness:

Do any of the chronic illnesses (type 2 diabetes, HTN) limit ability to perform ADL?	___no	___yes
Do any of the chronic illnesses limit ability to self-manage medications?	___no	___yes
Do any of the chronic illnesses carry the potential for additional risks to their health? (DM at risk for hypoglycemia, stroke, infection)	___no	___yes
Do any of the chronic illnesses pose safety concerns? (risks of bleeding, injury, falls, blackouts, memory loss, depression)	___no	___yes

Frailty:

Given the definition of frailty, is the criteria met?	___no	___yes
Does frailty limit ability to self-manage medications?	___no	___yes
Does frailty pose safety concerns in daily living?	___no	___yes

Geriatric Syndrome

Is the older adult at risk of or do they possess geriatric syndromes?	___no	___yes
Do any of the syndromes limit ability to self-manage medications?	___no	___yes
Do any of the syndromes pose safety concerns in daily living?	___no	___yes

Social Support Network

Does the older adult have direct access to a primary caregiver (lives nearby?)	___no	___yes
Can the caregiver assist or enable the older adult to attain independence in ADL?	___no	___yes

Table 5 Possible Adverse Effects from Medications Used in the Elderly to Manage Chronic Diseases

Type of Disease	Classification	Example	Possible Outcomes and Geriatric Syndromes
Hypertension	Diuretic	Lasix; Hydrodiuril	Urinary incontinence; volume depletion; orthostatic hypotension; electrolyte disturbance
Diabetes	Anti-diabetic agent	Glyburide/insulin	Hypoglycemia, syncope, falls; glyburide and aspirin increase the risk of hypoglycemia
Osteoarthritis	Anti-inflammatory	Aspirin/NSAID	GI ulceration/bleeding; fatigue; NSAID increase sodium retention raising blood pressure
Atrial fibrillation	Anti-platelet	Coumadin	risk of bleeding/hemorrhage
Parkinson's disease	Levo-dopa	Sinemet	Acute confusion; orthostatic hypotension
Anxiety disorders	Benzodiazepines		Acute confusion, somnolence (reduced alertness), falls; interaction with alcohol; reduced coordination

Adapted from: Beers, M.H., (1997). Explicit criteria for determining potentially inappropriate medication use by the elderly. An update. *Archives of Internal Medicine*, 157(14), 1531-1536.

Boyd, C.M., Darer, J., Boulton, C., Fried, L.P., Boulton, L., Wu, A.W. (2005). Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. *JAMA* 294: 716-724.

Table 6 Symptoms of Problematic Adverse Side Effects from Medications Used in the Elderly

Memory loss/amnesia (among sedative-hypnotics and certain antidepressants such as Prozac)  
 Dizziness/lightheadedness (among beta-blockers, anti-anginal agents)  
 Acute confusion (delirium)  
 Loss of balance/falls  
 Urinary incontinence  
 Xerostomia (dry mouth)  
 Constipation  
 Orthostatic hypotension  
 Drowsiness/somnolence

Table 7 Classifications of High-risk Prescriptive Medications Used in the Elderly

Classification	Type	Examples
Anti-hypertensive agents	Angiotensin converting enzymes inhibitors	Captopril
	Central alpha agonist	Clonidine
	Beta-blocker	Propranolol
Psychoactive agents	Anti-psychotics/neuroleptics	Haloperidol/phenothiazines
	Sedative-hypnotic	Chloral hydrate
	Anti-anxiety	Benzodiazepines
Anti-cholinergic	Anti-depressant	amitriptyline, doxepin
	Atropine	Scopolamine, oxybutynin
Cardiotonics	Anti-arrhythmic	Digoxin, Quinidine
Anti-ulcer	H2 receptor antagonists	Cimetidine, ranitidine, famotidine

Reference: Fulmer, T., Forman, M., Zwicker, D. Medication in older adults. In Mezey, M., Fulmer, T. and Abraham, I. (Eds.), Geriatric Nursing Protocols' for Best Practice. Springer Series, 2003.  
 Beers, M.H., (1997). Explicit criteria for determining potentially inappropriate medication use by the elderly. An update. Archives of Internal Medicine, 157(14), 1531-1536.

Table 8 Functional Limitations Experienced by Persons 65 and over (2003-2004)

Age-group:	65 –74 years	75-84years	85 and over
<u>Functional Limitation (prevalence [%] reported):</u>			
Reports needing help with personal care:			
Female	3.3	7.3	25.3
Male	3.1	5.5	17.4

Reference: \*Data reported from CDC, National Health Interview Survey (NCIS), Percentages needing help with personal care needs among non-institutionalized persons, 2003.

Table 9 Functional Limitations (Physical and ADL) Experienced by All Persons 65 and Over (1992-2003)

<u>Age-group:</u>	<u>65 and over</u>
All persons	
None	20.7
Physical limitations using Nagi Classifications (%):	36.1
1-2 ADL limitations	18.3
3-6 ADL limitations	11.7
Community Dwelling	
Stooping	69.8
Lifting	35.8
Reaching	25.5
Grasping	24.9
Walking	44.7
Facility	
Stooping	91.2
Lifting	88.3
Reaching	66.8
Grasping	59.1
Walking	90.0

Reference: \*Data reported from the Medicare Current Beneficiaries Survey (MCBS), 1992-2003 are estimates for both sexes, all persons and are age-adjusted.

*Glossary of Terms Cited.*Terms:

*Adverse event:* an injury resulting from a medical intervention, rather than a disease process that resulted in either a prolonged hospital stay or disability at discharge (Bates, D.W., Spell, N., Cullen, D.J. et al., The costs of adverse drug events in hospitalized patients, JAMA 277 307-311, 1997 in Institute of Medicine Report, *To Err is Human* ).

*Adverse drug reaction (ADR):* any noxious, unintended and undesired effect of a drug, which occurs at doses in humans for prophylaxis, diagnosis or therapy; excludes therapeutic failures, intentional and accidental poisonings and drug abuse; also does not include errors in drug administration or non-compliance (taking more or less of a drug than prescribed; World Health Organization, IOM)

*At risk:* Refers to an event in which the person is more likely to develop than not to develop a symptom or disease

*Comorbidity:* Refers to an additional incidence of disease that occurs concurrent to another disease

*Disability:* i.e., difficulty in performing physical and mental tasks necessary for daily life (AGS position statement)

*Frail:* Refers to a condition or state of the person who has functional decline and/or is based on several specific physiological parameters

*Geriatric syndrome:* refers to one symptom or a complex of symptoms with high prevalence in geriatrics, resulting from multiple disease and multiple risk factors; examples include instability, falls, urinary incontinence and impaired cognition (Rikkert et al., 2003 [Level VI])

*Iatrogenesis :* “brought forth by a healer”; can be good or bad, typically refers to state of ill health or adverse event, which is caused or results from misguided medical intervention. *Noscomial* refers to the acquisition during hospital care. *Cascade* iatrogenesis refers to increasingly more severe effects on the health of the patient brought on by medical intervention applied to solve the previous one (Wikipedia, online, 2006)



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## Appendix A: Levels of Evidence Cited

Level I:

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 Kim and Soeken, 2005  
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Level II:

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 Counsell et al, 2000  
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Level III

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 Capezuti, et al, 2002  
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#### Level IV

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- Braithwaite, RS., Col, NF., Wong, JB, 2003
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- Nolan and O'Malley, 1988
- Nagi, S.Z., 1976
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- van Leeuwen, et al, 2002.
- Weinert, C., Hill, W.G., 2005

#### Level V

- Bourbonniere & Kagan, 2004
- Boyd, C.M., Darer, J., Boulton, C., Fried, L.P., Boulton, L., Wu, A.W., 2005
- Gurwitz, J.H., Field, T.S., Harrold, S.R. et al. 2003
- Freedman, et al., 2006
- Tan et al, 2005

#### Level VI

- American Geriatrics Society (AGS), 2004
- Alliance for Aging Research. The Silver Book, 2005
- American Geriatrics Society, Comprehensive Geriatric Assessment Position Statement, 2005
- Alliance for Aging Research, Silver Book, 2005

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 Korff, M.V., Gruman, J., Schaefer, J., Curry, S., Wagner, E.H. 1997  
 Markle-Reid & Browne, G, 2003  
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 Ray, W.A., Griffin, M.R., Shorr, R.I., 1990  
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 Skinner, A., Fraser-Maginn, R., Mueller, K. 2006.  
 Zwicker, D., and Piccariello, G. 2003.

#### Appendix B: Web-based resources

On the Internet visit:

[www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Try This:

Decision Making and Dementia

Beer's Criteria for Potentially Inappropriate Medication Use in the Elderly

Confusion Assessment Method

Urinary Incontinence Assessment

Fall Risk Assessment

Recognition of Dementia in Hospitalized Older Adults

Executive Dysfunction or

[www.ConsultGeriRN.org](http://www.ConsultGeriRN.org) and select Geriatric Topics:

Depression

Delirium

Dementia

Falls

Function

Pressure Sores

For more information on ACE units visit: <http://www.NICHE.org>.

#### **Other helpful resources:**

Alzheimer's Disease Association: visit [www.alz.org/](http://www.alz.org/)

American Geriatrics Society/practice guidelines: visit

<http://www.americangeriatrics.org/products/positionpapers/abstractPF.shtml>

[Hospitalelderlife@yale.edu](mailto:Hospitalelderlife@yale.edu) or [Hospitalelderlifeprogram.org](http://Hospitalelderlifeprogram.org)

Robert Wood Johnson Foundation, Available on the Internet at:

[http://www.rwjf.org/search/gsa/search.jsp?output=xml\\_no\\_dtd&client=default\\_frontend&getfields=\\*&filter=0&stylesheet=rwjf.xslt&doProcess=true&entireSite=default\\_collect ion&q=HELP+program+and+hospitalized+elderly](http://www.rwjf.org/search/gsa/search.jsp?output=xml_no_dtd&client=default_frontend&getfields=*&filter=0&stylesheet=rwjf.xslt&doProcess=true&entireSite=default_collect ion&q=HELP+program+and+hospitalized+elderly).

## Appendix C. Examples of Teaching Pedagogies for Critical Thinking Related to Complex Care of Older Adults

<u>Topic Area: Content</u> <u>Pedagogies</u>	<u>Recommended</u>
Critical thinking related to complex care of older adults senior-level nursing curricula to determine placement of Module 1.	<ol style="list-style-type: none"> <li data-bbox="1096 682 1356 787">1. Critically analyze appropriate</li> <li data-bbox="998 871 1390 1291">2. Review and critically analyze clinical site placement for senior- level students to determine the best site. For example, do any of the sites offer evidenced based programs such as those described in recommendation 5?</li> <li data-bbox="1096 1344 1372 1808">3. Review and critically analyze clinical assignment for student. Reflect on recommendations 1-4 in this Module. Determine appropriate selection of clinical cases assigned to students which represent recommendations 1-4.</li> </ol>