

# Caring for the Hospitalized Elderly

## Current Best Practice and New Horizons

A SPECIAL SUPPLEMENT TO *The Hospitalist*

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## Geriatrics: A Vital Core of Hospital Medicine

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For decades, it has been a truism that hospitals are dangerous places for elderly patients. Modern health services research continues – with alarming clarity – to confirm this impression. Well documented are the risks of hospital complications, such as falls with possible fractures, delirium, nosocomial infections, medication interactions, and surgical complications. In addition, any elderly person, particularly a frail elderly person, put to bed for even a few days suffers a great risk of deconditioning and attendant loss of function (1,2). Older people in the hospital have a 23.3% (3) risk of being unable to return home and requiring nursing home placement, simply because they have lost the ability in some basic activity of daily living (ADL) during even a very short hospitalization. According to a study by Covinsky et al, 35% of older hospitalized patients declined in ADL function between baseline and discharge (1). Something as utterly simple as getting one's self to the toilet or feeding oneself can make the difference between returning to independent living and requiring institutionalization.

Of course, the steady press to reduce length of stay increases the risk of these deleterious outcomes. This observation has spawned a veritable industry of research and innovative programs to improve transitional care, that is, care post-hospital hopefully on the way to home. Many of these programs involve nurse practitioners, geriatricians, and community-based social workers engaging family members who are expected to provide intensive and high-level clinical care, sometimes even physical therapy, to their frail family members.

Recent attention to studies about medical errors has pointed out an additional risk for hospitalization: mistakes happen. These can be relatively minor mistakes, such as the timing of medication, or more major mistakes, such as the wrong medication given to the wrong patient, or, worse, the wrong surgical procedure. Elderly patients spend more time in hospitals and thus are statistically at higher risk for medical errors of this kind as well. One study found that 58% of elderly patients experienced some kind of complication related to treatment in a hospital (4).

A concept called “homeostasis,” articulated many years ago by early experts in the field, described how the reserve capacity of physiologic symptoms narrows as one ages so that the insult of a toxic drug to the kidneys, or the hearing, or a fall that might result in something as minor as a bruise or as major as a hip fracture, depends on one's underlying reservoir of resilience. As people age and become frail, that reservoir of resilience reduces and the ability to rebound after insults decreases.

Because of the demonstrated risk to older people in hospitalization and because older people are more likely to need hospitalization because of acute illnesses, researchers have worked on ways to prevent complications such as deconditioning, delirium, medication interactions, falls, and other injuries. The most literature has accumulated on the

concept of Acute Care for the Elderly (ACE) units. While outcomes have not been uniformly and overwhelmingly positive, some have shown dramatic reductions in loss of functional status at discharge and, perhaps more importantly, improvement in functional status and survival months to years later. These units are usually overseen by physicians with special training and certification in geriatric medicine but include substantial interdisciplinary team interaction as a core component of the ACE unit interventional philosophy. Early mobilization is key to preventing deconditioning and reducing the risk of loss of functional status over the course of the hospitalization. This can be done with physical therapy, but is more effectively done in combination with physical therapy, nursing, and even physicians who are encouraged to get patients out of bed and help them walk during daily medical rounds. Other advantages of the interdisciplinary team function is the ability to identify changes in the patient's condition early and to head off decline that may indicate an adverse effect of medication or a subtle incipient infection. Sharon Inouye and her colleagues at Yale have developed a confusion assessment method tool that gave them the opportunity to develop a randomized trial of the prevention of delirium in hospitalized elderly patients. Published in the *New England Journal of Medicine* in 1999 (5), this study demonstrates significant reduction in delirium, a condition which in itself carries a very high risk for mortality.

Many of the interventions inherent in the ACE unit methodology, or the delirium prevention method, include tight communication patterns with nurses and onsite evaluation of the patient at the moment any change in condition occurs. This clearly suggests a critically important role for the hospitalist in improving outcomes for hospitalized elderly patients.

Geriatric research has shown that the principles of prevention are vitally important in improving the outcomes for patients with acute illness or surgical needs. Perhaps the most obvious prevention is to keep these patients out of the hospital, but, given the high prevalence of acute illness, this is not going to make a huge difference. Secondly, intermediate solutions, such as same-day procedures, hold equally risky potential for elderly patients. Those that live alone are especially likely to suffer complications, for example, from a prep for a gastrointestinal procedure or intensive oral medication that may lead to unexpected and unintended side effects such as clouding of consciousness or dehydration.

So, hospital care is inevitable for older people, and, as any hospitalist will tell you, a substantial number (36% [2]) of patients in the acute care setting of any hospital are older people. Thus, in a very important sense, hospital medicine is geriatric medicine.

I had an inspiring experience as the first keynote speaker of the National Association of Inpatient Physi-

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cians (now SHM) Annual Meeting. Getting up to speak to a group of predominantly young, enthusiastic, well-trained, and intensely committed physicians, I was prepared to face skepticism as I talked about the importance of geriatric medicine in the care of the hospitalized patient. I needn't have been worried. The audience was not only receptive to, but eager for, information about how they could get more resources and better training in the principles of the management of the geriatric patient in the acute care setting. Hospitalists are practical people, and, recognizing the frailty of many of their elderly patients, they look for solutions to improve outcomes. This is a great opportunity for hospital medicine to make a huge statement about its commitment to improve patient care and about the potential that hospital medicine offers to reduce adverse outcomes for elderly patients.

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## Acute Hospital Care of the Elderly: Making a Difference

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Patients 65 years of age and older comprise 13% of the American population, but they account for 39% of all discharges from non-federal acute hospitals and 48% of inpatient days of care. (1) Indeed, the practice of hospital medicine resembles a geriatrics practice in the acute care medical hospital. The elderly patient presents diagnostic and therapeutic challenges to the hospitalist that are made easier through an understanding and application of the principles of geriatric care.

### The Geriatric Patient- What is Different?

Compared with younger patients, older patients have longer and more frequent hospitalizations and their illness severity is greater. Rates of hospitalization are more than twice as great for the age group 85 years and older compared with the age group 65 to 74 years. (1) During the course of hospitalization for an acute illness many older patients experience a loss of independence in their performance of basic activities of daily living (ADL), such as bathing, dressing, transferring from bed to chair, toileting and continence, and eating. This “functional decline” is associated with prolonged hospital stays, poorer satisfaction with care and greater risk of nursing home transfer. (2)

**Functional decline- the why and who.** Although loss of self-care ability is often attributed to the combined effects of aging, acute illness and chronic diseases, elements of hospitalization can contribute to functional decline. Factors that place the frail elderly patient at risk of functional decline include iatrogenic illness and forced immobility, altered sleep-wake cycles, disorienting effects of the environment, sensory deprivation and undernutrition. (2) Many patients enter the hospital with chronic diseases and pre-existing functional impairments that predispose them to functional decline. Increasing age, cognitive impairment at hospital admission, and lower pre-admission independence in instrumental activities of daily living (IADL) increase the risk of functional decline in hospital. Other predictors of functional decline in hospital include the presence of a pressure ulcer, functional dependence at admission, cognitive dysfunction, a low social activity level prior to admission, and depressive symptoms at admission.

**Functional decline- the how.** Elderly patients are vulnerable to functional decline resulting from physiologic impairments with age and diseases, and an adverse environment, including:

- Diminished homeostatic reserves and multiple co-morbid conditions (e.g., cognitive impairment, arthritis and joint diseases, and heart and respiratory failure).

- Diminished muscle mass and strength and aerobic capacity with usual aging.
- Deconditioning effects of sustained bed rest and immobility (e.g., from use of physical or chemical restraints; and tethers such as intravenous lines, tubes and catheters)
- Postural instability, often manifested as orthostatic hypotension or an accidental fall, associated with impaired baroreceptor reflexes, and exacerbated by prolonged bed rest.
- Environmental “barriers” (e.g., lack of handrails in hallways) that discourage mobility and self-care.

**Functional decline- the importance.** Independence in ADL performance is an important predictor of mortality and hospital discharge disposition:

- Functional measures are strong predictors of mortality and contribute prognostic ability beyond that obtained with combined measures of disease co-morbidity, severity, disease staging and diagnosis related groups. (3)
- The interaction of age, disease and functional status of hospitalized patients predicts mortality. In a cohort study, six independent risk factors for mortality were identified: male sex, number of dependent basic ADLs at discharge (stratified); congestive heart failure, cancer (solitary, metastatic); creatinine level higher than 3.0 mg/dL, and low serum albumin level (<3.5g/dL). As an index, the higher the score (number of risk factors) the greater the one-year mortality. (4)
- In a randomized clinical trial designed to prevent functional decline, those elderly patients receiving the intervention were less likely to be functionally impaired at discharge or to require transfer to a skilled nursing facility, and were more likely to return home. (5)
- Patients unable to independently perform basic ADL at the time of planned discharge are unlikely to be discharged to home to live alone. Caregivers (family or hired) or alternate site admission is required.

### Making a Difference

Clinical trials demonstrate the potential to improve outcomes of hospitalization of elderly patients. Most successful interventions include interdisciplinary teams and collaboration, targeted patient-centered therapies, and comprehensive geriatric assessment. Many are designed to prevent functional decline and to improve discharge planning. Hospitalists offer expertise to make these interventions

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applicable and effective in most acute care hospitals.

- Inpatient geriatric evaluation and management units can improve functional outcomes of hospitalization, reduce hospital lengths of stay, prevent nursing home admissions, or prevent re-hospitalization. (2, 6)
- Acute Care for Elders (ACE) Units improve functional outcomes. The ACE intervention includes: a prepared environment to foster patient self-care, patient-centered care including guidelines for maintaining or restoring patient functioning, interdisciplinary team rounds and discharge planning, and medical care review. (2) ACE Units can reduce the incidence of functional decline in older patients, the length of hospital stay, the risk of nursing home admission from hospital, and the use of physical restraints. They increase health professionals' satisfaction with patient care. (5,7)
- The Geriatric Care Program improves patient assessment. A gerontologic clinical nurse specialist working with trained geriatric resource nurses, focuses nursing care on patients at high risk for functional decline. The intervention includes identification and monitoring of frail older patients, twice weekly rounds of a multidisciplinary "Geriatric Care Team", and a nursing-centered educational program. The geriatric resource nurse model is widely implemented in the United States. (2)
- The Hospital Elder Life Program reduces the incidence of delirium. It identifies patients at risk for incident delirium shortly after hospital admission, using the Confusion Assessment Method. Protocols targeted at specific risk factors for incident delirium serve to optimize cognitive function (re-orientation, therapeutic activities), prevent sleep deprivation (relaxation, noise reduction), avoid immobility (ambulation, exercises, limited use of physical restraints), improve vision (visual aids, illumination), improve hearing (hearing devices), and treat dehydration (volume repletion). A 40% reduction in the incidence of delirium was seen in a clinical trial. (8)
- Advanced practice nurses improve discharge planning. They coordinate the patient's discharge planning with the attending physician and make home visits after hospital discharge. They reduce the rate of hospital readmissions of at-risk elderly patients with common medical and surgical diagnoses. (9) Rates of readmission for elderly patients with congestive heart failure are reduced with this and other multidisciplinary interventions. (10, 11)

### What the Hospitalist Can Do

Strategies to optimize the elderly patient's outcome from hospitalization begin with a structured but brief geriatric assessment to identify the patient's baseline (prior to the acute illness leading to hospital admission) and current functional status (Table 1). The patient's expected functional status by

**Table 1. The Hospital Trajectory**

#### Baseline

Determine baseline (prior to acute illness, reference point 2 weeks prior to admission) function:

- Able to perform basic ADL without assistance: bathe, dress transfer from bed to chair, toilet?
- Able to perform IADL without assistance: pay bills, handle medications?
- Mobility: able to walk without assistance? Use of cane, walker or wheelchair?
- Identify living situation: at home (alone or with other?), assisted living, board and care, skilled nursing facility, long-term care nursing home?
- Identify social supports: primary caregiver, spouse, children, other relatives, friends or associates, guardian?

#### Admission

Compare baseline to current functional status:

- Complete functional assessment (with nurse).
- Current performance (capacity) of basic ADL.
- Cognitive function: dementia, delirium?
- Assess nutritional status: malnourished, dehydrated?
- Assess affect: anxious, depressed?
- Assess mobility: observe gait, upper and lower extremity range-of motion.
- Estimate hospital length of stay (DRG diagnosis can be used as guideline).
- Meet with interdisciplinary team to review functional assessment, diagnoses, anticipated length of stay (LOS), and expected discharge site.

#### Daily Rounds

Patient-Centered Interventions:

- Identify the individualized interventions and health professional services needed for the patient in order to achieve the anticipated LOS and discharge site: physical therapy, occupational therapy, speech therapy, nutrition services, medication review (e.g., by pharmacist, geriatrician).
- Review trajectory daily by updating the functional status: identify any barriers to achieving anticipated LOS/length of stay and the anticipated date of discharging the patient, and modify interventions that are necessary to achieving length of stay and discharge goals.

#### Discharge

The patient's baseline level of physical functioning predicts the discharge level of functioning:

- Reassess performance of basic ADL: is patient able to bathe, dress, and transfer independently?
- Check mobility: is patient able to walk independently?
- Assess clinical stability: does the patient have new symptoms of delirium, fever, hypotension or hypertension?
- Discharge to home or alternate site based on the functional status, available home supports, need for rehabilitation or placement in long-term care setting.

the time of anticipated discharge from hospital is estimated and becomes the goal functional outcome. This assessment is most often completed in collaboration with nurses and other health professionals involved in the patient's hospital care. Instruments or scales found in the SHM geriatric toolbox (12) facilitate evaluation of:

- Basic ADL and IADL, which measure the patient's ability to independently take medications, handle finances, perform household tasks, shop, use public transportation, take medications, and use a telephone.

**Table 2. Medications to Avoid in the Elderly and Alternatives**

Medications of Risk	Recommendations	Alternatives
<b>Antihistamines:</b> Confusion, oversedation, orthostatic hypotension, falls, constipation and urinary retention due to anticholinergic effects		
Diphenhydramine Hydroxyzine	Avoid use as hypnotic Avoid use as opioid adjunct Use lowest effective dose for allergic reactions Use a non-sedating antihistamine for seasonal allergy	Hypnotics: Temazepam 7.5 mg hs Zolpidem 5 mg hs Trazodone 50mg hs Non-sedating antihistamines: Loratadine 10 mg daily Fexofenadine 60 mg daily or bid
<b>Narcotic Analgesics:</b> Meperidine - confusion, oversedation, orthostatic hypotension, falls, constipation and urinary retention due to anticholinergic effects; metabolite may produce agitation and seizures; short duration of analgesia. Propoxyphene - poor analgesic effect with usual opioid and anticholinergic effects		
Meperidine Propoxyphene	Use alternative pain medication	Acetaminophen - provides analgesia equivalent to propoxyphene; add codeine or oxycodone if pain relief inadequate: oxycodone 2.5 mg q4-6h Morphine: initially low doses (e.g. 2-4 mg q3-4h) suffice
<b>Benzodiazepines:</b> Confusion, sedation and falls		
Diazepam Chlordiazepoxide	Use shorter acting agent for anxiety, and for alcohol or benzodiazepine withdrawal; Use a low dose antipsychotic to treat agitation and psychosis	Anxiety or withdrawal: Lorazepam 0.5 – 1 mg q6h prn Oxazepam 10 mg q6h prn Agitation/ Psychosis: Haloperidol 0.5 – 2 mg bid or tid Risperidone 0.5 mg bid
<b>Tricyclic Antidepressants:</b> Confusion, oversedation, orthostatic hypotension, falls, constipation and urinary retention due to anticholinergic effects		
Amitriptyline Imipramine Doxepin	Use less anticholinergic TCA for neuropathic pain; use alternative agents (e.g., SSRI) for depression	Neuropathic pain: Desipramine 10 – 20 mg daily Nortriptyline 10 – 25 mg daily
<b>Histamine – 2 Receptor Antagonist:</b> Confusion, depression and headache due to decreased renal elimination		
Famotidine	Reduce usual dose by 50%	Famotidine 10-20 mg daily or 20 mg every other day

- Mobility, as measured through self-reports or observation of gait during transfer from chair to standing and walking (e.g., up and go test).
- Cognitive function to assess patients for dementia and delirium. Tests of attention (digit span) and of cognition (Mini-Mental State Examination, clock draw test) quantify admission mental status and changes occurring during the hospital stay.
- Depressive symptoms, which can be elicited with the use of screening instruments such as the short-form Geriatric Depression Scale.
- Nutritional status, especially the findings of protein-energy malnutrition, which is suspected when there is a history of a patient’s unintentional weight loss, physical evidence of muscle atrophy, or low levels of serum proteins (e.g., serum albumin <3.5 gm/dL), unexplained anemia and low serum cholesterol. Studies suggest that nutritional supplements containing balanced mixtures of amino acids, fat, carbohydrate, vitamins and minerals improve the prognosis of elderly patients with specific illnesses (13).

*Prevent iatrogenic illness.* Iatrogenic illness is any illness that results from a diagnostic procedure or therapeutic intervention that is not a natural consequence of the patient’s disease. Iatrogenesis is often categorized as resulting from medications, diagnostic and therapeutic procedures, nosocomial infections or environmental hazards. Adverse hospital events can also occur from negligence or medical systems errors.(2) Rational drug prescribing requires a knowledge of the pharmacology of drugs in relation to aging, the use of lower than usual doses when the geriatric dose is unknown, the avoidance of psychoactive drugs when alternatives such as behavioral or environmental alternatives are available, and the cautious monitoring of patients receiving two or more drugs that are inducers or inhibitors of phase I hepatic metabolism (cytochrome P450), or are highly protein bound. Inappropriate medication prescribing is the most often recognized iatrogenic illness. The risk of adverse drug events can be reduced by not prescribing medications with anticholinergic or psychotropic effects, avoiding the use of meperidine, and the judicious use of opioids, nonsteroidal anti-inflammatory agents and histamine-2 antagonists (Table 2).

*Understand patient values.* Ensure patients’ personal comfort and respect their personal wishes for care.

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Privacy and quiet at night, visits from family members and opportunities to socialize may help to lessen the stressful experience of hospitalization. Review advance directives with patients or families when patients cannot make decisions for themselves. Seek their wishes for end-of-life care including cardiopulmonary resuscitation, intensive care or nutritional support during acute or end stage illness. When facing difficult decisions, frequent discussions with the patient and family help to identify the patients' personal values about health and their expectations of hospitalization.

**Initiate discharge planning.** Discharge planning identifies patients who will need nursing home placement or home care services; estimates the patient's hospital length of stay; educates the patient and family about the patient's diagnosis, prognosis, and choices for discharge location; and reviews medications, home safety and plans to restore the patient's self-care. Patients should be discharged when clinically stable; when there is no new finding on the planned discharge day of incontinence, chest pain, dyspnea, delirium, tachycardia or hypotension and when the temperature is  $>38.3^{\circ}\text{C}$ ; and the diastolic blood pressure is  $\geq 105\text{mmHg}$ . (2)

**Make "walk" rounds (with nurse).** Observe the patient's ability to bathe, dress, transfer from bed to chair, toilet and feed independently, and determine if the patient is continent. Assess balance and gait by observing the patient getting out of bed or up from the chair and walking to the door of their room and back. Check mental status and screen for delirium. Observe the patient eating or swallowing liquids. (12)

**Hold family conferences.** Keep patients and families updated on the patient's diagnosis, prognosis, medical evaluation and treatment, and assumed discharge date and disposition. Overcome any barriers to communication and agreement among team members, family and patient, by considering:

- Second opinions from specialists
- Ethics consultation when ethical dilemma are identified and appear insoluble
- Second family conference when all family members are available for mediation of different opinions
- Additional support services (family counseling)
- Clergy consultation and assistance

The treatment of hospitalized elderly patients is challenging and often time-consuming, but can be rewarding if their care is approached in a systematic manner, working effectively with an interdisciplinary team. Hospitalists can make a difference.

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# Caring for the Postoperative Patient with Delirium

Reprinted from *The Hospitalist's Geriatrics Symposium*

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Delirium is a common, morbid, and costly syndrome that occurs preferentially in older surgical patients. The incidence of postoperative delirium varies widely between surgical procedures, occurring in 4% of cataract patients (1) and 35-65% of hip fractures (2). Table 1 describes the incidence of postoperative delirium associated with various surgical procedures. Delirium is associated with an increased risk of postoperative complications, including death (3). Additionally, delirious patients have increased length of stay (3), greater staff time requirements (4) (e.g., physicians, registered nurses, licensed practical nurses, nursing assistants), and higher rates of nursing home placement (3, 5). Postoperatively, delirious patients accrue higher total hospitalization and pharmacy costs than patients who do not develop delirium (4). Despite these factors, between 32% and 67% of delirium cases are unrecognized by physicians (6-8), and there is good evidence that some cases of postoperative delirium can be prevented (9).

## Diagnosis

A diagnostic algorithm, based on the criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders*, version IIR (10), called the Confusion Assessment Method (CAM) has been validated for the clinical diagnosis of delirium (11). In combination with mental status testing, the CAM has become the "gold standard" for the diagnosis of delirium (12). The CAM algorithm is shown in Figure 1, and its individual criteria are described in detail below. The diagnosis of delirium by CAM requires that the patient demonstrate Features 1 and 2 and either 3 or 4.

## Feature 1: Acute Onset and Fluctuating Course

The mental status changes in delirium develop over hours to days and represent a decline in the level of cognitive functioning. Delirious patients may have fluctuating periods of relative lucidity and confusion within a day. The fluctuating course in delirium represents a diagnostic challenge; physicians are not constantly present with patients and so cannot detect the fluctuating mental status throughout the course of a day. This history is better obtained from family, caregivers, or nurses.

Figure 1: Diagnostic Algorithm for the Confusion Assessment Method (CAM)

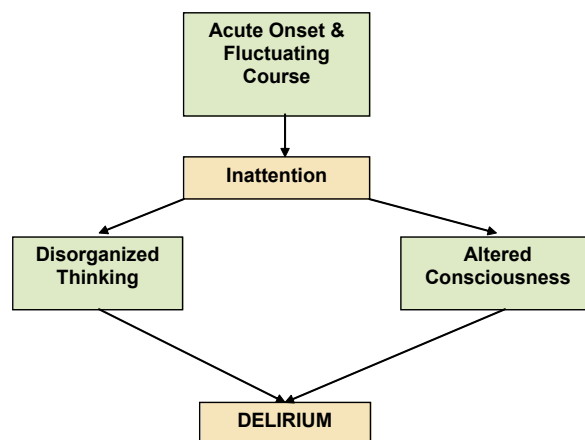


Table 1: Incidence of Delirium by Surgical Procedure

Surgery	Incidence of Delirium (%)	References
Coronary Artery Bypass Graft Surgery	37	24
Abdominal Aortic Aneurysm (infrarenal)	41-54	3, 25, 26
Abdominal	5-26	3, 27, 28
Peripheral Vascular	30-48	25, 26
Elective Orthopedic	9-15	3, 29
Head and Neck (major)	17	30
Cataract	4	1
Hip Fracture	35-65	2
Urologic	4-7	24



Caring for the Postoperative Patient with Delirium (continued)

Figure 2: Mnemonic for the Differential Diagnosis of Delirium

<b>Drugs</b>
<b>Electrolyte Abnormalities</b> (including glucose)
<b>Lack of Drugs</b> (inadequate pain control, sedative withdrawal)
<b>Infection</b>
<b>Reduced Sensory Input</b> (vision, hearing, teeth)
<b>Intracranial</b> (rare)
<b>Urinary Retention / Fecal Impaction</b>
<b>Myocardial</b> (arrhythmia, infarction, CHF)

**Feature 2: Inattention**

One needs to use clinical acumen to detect attentional disturbances such as distractibility or failure to keep track of what was said during an interview. Formal attention assessment to supplement the clinical interview is recommended to reliably diagnose and track attention fluctuations. This can be accomplished by asking the patient to recite the months of the year or days of the week backwards. Other formal measures, such as the digit span and Trailmaking test A, are more precise, but time consuming. Serial 7's (subtracting from 100 by groups of seven) requires significant calculation skill, in addition to attention and is not recommended.

**Feature 3: Disorganized Thinking**

Disorganization is often recognized by the clinician but dismissed as baseline personality traits, dementia, or sleep deprivation—physicians are often unsure what to do with the information. The patient with illogical flow of ideas or rambling, irrelevant conversation satisfies the criteria for disorganized thinking, as does the patient with delusions, illusions or hallucinations. Disorganized thought can be both verbose and illogical or scant and perseverative. These patients are the classic “poor historians,” which emphasizes the need to get the history from someone else. It is important not to dismiss this symptom, particularly in the older hospitalized patient.

**Feature 4: Altered Level of Consciousness**

There are three subtypes of delirium: hyperactive (25% of delirious patients), hypoactive (50%), and a mixed hyperactive and hypoactive disorder (25%) (13). Due to the disruption to the hospital routine, the patients with a hyperactive delirium are recognized more frequently than those with the hypoactive subtype, who have a slowed motor response and little spontaneous speech. Regardless of sleep deprivation or medication administration, it is not normal for a patient to repeatedly fall asleep during the clinical interview. An altered level of consciousness can be detected by holding a short conversation with the patient and assessing whether the patient is alert,

vigilant, lethargic or stuporous. Any level of consciousness other than alert is considered abnormal.

**Delirium Assessment**

Delirium is an emergent medical condition that warrants prompt assessment and treatment. In the older

patient, the differential diagnosis for delirium is broad and thus, physical exam and supplemental testing should be used to narrow the differential. A mnemonic for the differential diagnosis is shown in Figure 2. The physical exam on all delirious patients should focus on the cardiovascular, respiratory, abdominal, and neurologic systems and include an assessment of pain. The medication list must be reviewed for potentially harmful drugs. Focused laboratory testing should include a complete blood count with differential, urinalysis, electrolyte testing, and EKG on all patients. Additional laboratory and radiology studies can be ordered as appropriate from history and physical findings. The presence of an intracranial process without focal neurological signs is rare and thus the value of a non-contrast CT scan of the brain is of limited value (14), unless history or physical exam suggests an acute neurologic process (15).

Delirium is often of multi-factorial etiology; therefore, assessment for causes should continue through the full differential despite detection of a causative disease process.

The assessment of pain deserves special attention in the delirious postoperative patient. Under-treatment of pain can contribute to delirium. However, over-treatment with opioid medications can also precipitate delirium. The clinician and nursing staff should regularly assess pain and the effect of pain treatment using a validated pain scale. The management of pain in postoperative patients to minimize risk of delirium is described below.

**Prevention of Delirium**

Over half the cases of delirium on an inpatient ward develop after the patient has been admitted, suggesting that there is an iatrogenic cause of delirium (16).

Table 2. Predisposing and Precipitating Factors of Postoperative Delirium

Predisposing Factors	Precipitating Factors
Age	> 6 medications; > 3 new inpatient medications
Impaired cognition	Psychotropic medication use
Dependence in activities of daily living	Acute medical illness
High medical comorbidity	Vascular or cardiac surgery
	Hip fracture
	Dehydration
	Decreased sensory input
	Environmental change

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**Table 3: Clinical Prediction Rule for Delirium After Elective Non-Cardiac Surgery**

Risk Factor	Points
Age > 70	1
Alcohol Abuse	1
Cognitive Impairment (MMSE < 24)	1
Severe Physical Impairment	1
Markedly Abnormal Na, K, or Glucose	1
Aortic Aneurysm Surgery	2
Noncardiac Thoracic Surgery	1

Total Points	Risk of Delirium (%)
0	2
1 or 2	11
≥ 3	50

There are predisposing patient characteristics that put patients at risk for delirium and there are precipitating factors within the hospital and surgical environment that are associated with the development of delirium (Table 2). A validated algorithm to predict postoperative risk of delirium in elective, non-cardiac surgical patients is presented in Table 3 (3).

New medications are an independent risk factor for development of delirium after adjustment for age and cognitive status. Particularly offensive drugs are those with high anticholinergic activity or cognitive side effects; Table 4 includes a partial list of agents. Meperidine has been independently associated with a greater risk of postoperative delirium compared to other narcotics (odds ratio [OR]=2.7) (17). The long half-life, active metabolites, anticholinergic properties and cognitive effects of meperidine render it dangerous to the older patient. Medications used for sleep are associated with high anticholinergic activity and increased risk for delirium. Examples include diphenhydramine (OR=1.7) (18) and neuroleptic medications (OR=4.5)(19). Benzodiazepines also are independently associated with delirium (OR=3.0) (17), especially those with a long half-life. Prescription of medication should be consistent with the geriatricians’ adage “start low and go slow.” Avoidance of medications with known cognitive effects is the backbone of delirium prevention.

General principles of pain management can help prevent postoperative delirium. The use of local or regional analgesia can limit the cognitive side effects of systemic analgesia. Postoperative prescription of standing (around-

the-clock) non-opioid medications has been shown to limit the use of opioid agents and improve patient pain scores (20). Scheduled opioid dosing, rather than as needed dosing, has also been shown to reduce the total postoperative opioid dose and improve pain

scores (21). By using these practical prescribing principles for pain, the hospital physician can reduce the impact of pain and pain treatment on delirium in postoperative patients.

An important study in the prevention of delirium after hip fracture surgery was recently published by Marcantonio, et al (9). In this study, geriatric consultation was able to prevent one case of delirium for every 5.6 patients seen (RR 0.64; 95% CI 0.37, 0.98). While geriatric consultation is not available in all institutions, the modules and recommendations in the study are evidence-based, proactive, and practical geriatric interventions (Table 5). The surgical staff adherence to the recommendations of the geriatric consultants varied from 32% (acetaminophen for pain) to 100% (deep venous thrombosis prophylaxis). These modules could easily be adapted to a postoperative inpatient service as a measure to improve quality and patient outcomes in the at-risk older surgical population.

**Management of Delirium**

The primary treatment for delirium is to treat all of the underlying causative factors. Once the causative factors have been treated and unnecessary or toxic medications are discontinued, the delirium should improve over days to weeks. Unfortunately, the agitation associated with the hyperactive subtype of delirium will not immediately resolve with treatment.

This can be particularly troublesome in the postoperative patient. Sutures/staples, intravenous lines, and bandages are all targets for the hyperactive delirious patient, and surgical patient care staff will want to protect these targets.

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**Table 4. Medications Associated with Delirium**

Opioids (esp. meperidine, but also morphine, codeine)
Anticholinergics
Antidepressants (amitriptyline, imipramine)
Antihistamines (diphenhydramine, hydroxyzine, ranitidine)
Antipsychotics (haloperidol, thioridazine)
Antispasmodics (oxybutynin, cyclobenzaprine, belladonna)
Benzodiazepines (diazepam, flurazepam, chlordiazepoxide)
Cardiac (digoxin, amiodarone, methyldopa, procainamide)
Drugs with actions in the CNS (levodopa, lithium, phenytoin, divalproex, indomethacin)

Caring for the Postoperative Patient with Delirium (continued)

**Table 5: Geriatric Consultation Modules and Recommendations for Prevention of Delirium After Hip Fracture Surgery**

<b>Adequate CNS oxygen delivery</b>	<b>Adequate nutritional intake</b>
Keep O <sub>2</sub> saturation >90%	Dentures used properly, proper positioning for meals
SBP > 90mmHg	Supplements 3 cans daily for poor oral intake
Keep hematocrit >30%	If unable to take po, temporary feedings via nasogastric tube
<b>Fluid/electrolyte balance</b>	<b>Early mobilization and rehabilitation</b>
Restore K, Na, glucose to normal	Out of bed on POD 1 and several hours daily
Treat fluid overload detected by exam	Mobilize/ambulate with nursing staff as tolerated
Treat dehydration detected by exam or blood test	Daily physical therapy; occupational therapy as needed
<b>Treatment of severe pain</b>	<b>Prevention, early detection and treatment of major postoperative complications</b>
Around the clock acetaminophen (1gm Q6h)	Myocardial ischemia: EKG, cardiac enzymes if appropriate
Early stage break-through pain: low dose SQ morphine, avoid meperidine	Atrial fibrillation: appropriate rate control, electrolyte adjustments, anticoagulation
Late-stage breakthrough pain: oxycodone PRN	Pneumonia/COPD: screening, treatment
<b>Elimination of unnecessary medications</b>	Pulmonary embolus: appropriate anticoagulation
Discontinue/minimize benzodiazepines, anticholinergics, antihistamines	Urinary tract infection: screening, treatment
Eliminate drug interactions, adverse events, modify drugs accordingly	<b>Appropriate environmental stimuli</b>
Eliminate medication redundancies	Appropriate use of glasses and hearing aids
<b>Regulate bowel/ bladder function</b>	Provision of clock and calendar
Bowel movement by POD 2 and every 48 hours	Use of radio, tape record, and soft lighting
D/C urinary catheter by POD 2; screen for incontinence or retention	<b>Treatment of agitated delirium</b>
Skin care for patients with established incontinence	Appropriate diagnostic workup/management
	For agitation: calm reassurance, family presence, and/or sitter
	For agitation: if absolutely necessary, low dose haloperidol 0.25-0.5mg every 4 hours as needed

After assessing and treating the underlying causes, reorienting, redirecting, and restoring a calm, quiet environment should be attempted. Family members are of particular value because they are able to reorient and calm the patient better than the staff and physicians, who are unfamiliar to the patient. If family is unavailable or unwilling to remain with

the patient, a patient sitter can reorient and protect the patient. The sitter should try to maintain a quiet, calm environment, especially at night. Physical restraints are particularly problematic in the hyperactive delirious patient as they may exacerbate delirium and also carry the risk of injury to the patient.

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After reorienting and calming measures have been attempted, targeted medication therapy may be warranted. It is important to remember that elderly patients are more susceptible to actions and side effects of psychoactive medications. Low-dose haloperidol (0.25-0.5 mg) is considered the standard for treatment of hyperactive delirium. In cases of severe agitation in the intensive care unit setting, where the patient is threatening to dislodge vital devices (e.g., endotracheal tubes) higher-dose intravenous haloperidol (1-2 mg IV) may be required. The older patient is more susceptible to the side effects of antipsychotic medications, even at low doses. Anticholinergic side effects (decreased cognition, incontinence, QTc prolongation, etc.) and extrapyramidal side effects (rigidity, akathisia, pharyngeal dysfunction, etc.) can have a major impact on functional recovery after the agitation has resolved (deconditioning, G-tube placement, incontinence, etc). While the newer atypical antipsychotics are reported to have more favorable side-effect profiles than traditional antipsychotics, no trials are available to determine the efficacy of their use in delirious patients (22). If the antipsychotic medications do not achieve the intended effects, lorazepam (0.25-0.5 mg) can also be used, although it carries increased risks of a paradoxical reaction or over-sedation in the older patient. Benzodiazepines are the drug of choice to control agitation in delirium due to sedative withdrawal, in patients with Parkinson's or Lewy body disease and in patients with a history of neuroleptic malignant syndrome.

A 'delirium room' model, with four dedicated beds, trained staff (1:4), interdisciplinary rounds, and reduced environmental stimuli, has been employed to treat delirious elderly inpatients with minimal pharmacological treatments and without physical restraints (23). Despite higher comorbidities, age, and the diagnosis of delirium, the delirium room model maintained the same length of stay as a general medical floor.

### Summary

Delirium in the postoperative patient is a common condition that poses risks to the health and independence of the older patient. Delirium has many causes and warrants a thorough medical workup and treatment of all causative factors. Prevention of postoperative delirium is possible with the employment of risk assessment, sound prescribing practices, and practical geriatric interventions. By nature of their proximity, commitment, and desire to provide high-quality care to postoperative patients, hospitalists can effectively diagnose, manage, and prevent delirium after surgery.

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# Gastrostomy Tube Use among Patients with End-Stage Dementia: Scientific and Ethical Considerations

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Hospitalists frequently care for demented patients with eating problems. Artificial nutrition is considered in many of these individuals, with percutaneous gastrostomy (PG) serving as a route for nutrient administration. Unfortunately, there are no randomized clinical trials comparing PG feeding with other means of nutritional support in this population. Data from observational studies suggest that PG feeding does not result in any meaningful improvement among those with end-stage dementia, and may result in harm (1,2). Because concerns about eating difficulties among demented patients are often considered in the hospital, it is important that hospitalists understand the scientific and ethical issues surrounding the use of PG in patients with severe dementia.

## Dementia Is a Terminal Illness

Until recently, it was commonly believed that the average life expectancy after being diagnosed with Alzheimer disease was 8-10 years (3). Current evidence, however, suggests a shorter median survival of approximately 3.17 to 4.2 years for men, and 3.36 to 5.7 years for women (4,5). Mortality may be higher among the hospitalized, with one study citing a median survival of 6 months among severely demented patients recently admitted to the hospital with an acute illness (6).

Recent research has attempted to identify factors predictive of shorter life expectancy. Larson et al analyzed baseline measurements at the time of Alzheimer disease diagnosis and found that predictors of higher mortality include a baseline Mini-Mental State Examination score of 17 or less, a baseline Blessed Dementia Rating Score of 5 or greater, presence of frontal lobe release signs, presence of extrapyramidal signs, gait disturbance, history of falls, congestive heart failure, ischemic heart disease, and diabetes (5). **Table 1** depicts the effect of baseline characteristics on survival time at the point of initial diagnosis with Alzheimer disease (5). Mitchell et al have recently published a mortality risk index scoring system for stratification of nursing home residents with Alzheimer disease into levels of risk for 6-month mortality (**Table 2**) (7).

A progressive decline in functioning is characteristic of dementia, with anorexia and swallowing difficulties frequently encountered (8). Eating is typically the last activity of daily living to become impaired, and swallowing and eating problems are independently associated with mortality (2). Difficulty eating likely indicates that a patient has entered the final stages of illness (2). Sustaining life through artificial nutrition in this situation should therefore be questioned.

**Table 1: Effect of Baseline Characteristics at the Time of Alzheimer Disease Diagnosis on Survival\***

Variable	Survival Time Quartiles**		
	25%	50%	75%
Age ≤ 75y	4.2	7.5	10.9
Age > 85y	1.9	3.2	5.7
MMSE score 25-30	4.1	6.9	10.9
MMSE score ≤ 17	2.0	3.6	6.5
No extrapyramidal signs	2.8	5.1	8.5
Extrapyramidal signs	2.2	3.6	7.2
No frontal release signs	3.2	5.6	8.8
Frontal release signs	2.3	4.6	7.3
No gait disturbance	3.2	5.6	8.6
Gait disturbance	1.9	3.5	6.1
No falls	3.1	5.4	8.9
Falls	2.1	4.3	6.8
No congestive heart failure	3.0	5.2	8.5
Congestive heart failure	1.5	3.0	5.6
No ischemic heart disease	3.2	5.4	8.6
Ischemic heart disease	2.2	4.1	6.8
No diabetes	2.8	5.1	8.3
Diabetes	2.3	3.8	6.3

\* MMSE = Mini-Mental Status State Examination

\*\* Survival Time Quartiles = years until death when 25%, 50%, and 75% of the patients died

## Is Percutaneous Gastrostomy Beneficial?

Frequently suggested reasons why PG may be beneficial to demented patients include provision of adequate nutrition, prolongation of life, elimination of suffering, and prevention of aspiration pneumonia. Evidence suggests, however, that none of these are attainable goals.

The ability to provide nutrition may be compromised by problems such as tube kinking or clogging, inadvertent tube removal, and diarrhea. Observational studies have found no attenuation in the rates of weight loss or decline of lean or fat body mass among chronically ill patients fed through PG (1).

Descriptive investigations have found no survival advantage to PG use (1,2,9), and no difference in mortality rates among PG versus hand-fed demented patients (10). Survival in one facility whose residents were fed carefully by hand was no different between those with and without dementia (11). Mortality among the hospitalized demented

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*Gastrostomy Tube Use among Patients with End-Stage Dementia (continued)*

**Table 2: Scoring System to Estimate Risk of Death within Six Months among Nursing Home Residents with Dementia\***

<u>Risk Factor</u>	<u>Points</u>
Age > 83y	1.4
Not awake for most of the day	1.4
Bowel incontinence	1.5
Bed-bound	1.5
Unstable medical condition	1.5
Shortness of breath	1.5
Less than 25% of food eaten at meals	1.5
Congestive heart failure	1.6
Oxygen treatment needed within the last 14 days	1.6
Cancer	1.7
Male sex	1.9
Activities of daily living scale = 28**	1.9

\* The sum of points for the presence of risk factors is interpreted as follows:

<u>Point Total</u>	<u>Risk of Death Within 6 Months (%)</u>
0	8.9
1-2	10.8
3-5	23.2
6-8	40.4
9-11	57
>12	70

\*\* The Activities of Daily Living Scale is a measure of functional dependence that is calculated by summarizing the patient's performance rating on the following 7 activities: bed mobility, transfer, dressing, eating, toileting, grooming, and ambulation. Points are assigned for each activity as follows: 0=independent, 1=supervision, 2=limited assistance, 3=extensive assistance, 4=total dependence.

following PG is significant and may be higher than in ambulatory populations (12). A retrospective cohort study of consecutive inpatients requiring gastrostomy feeding found a 54% mortality rate at 1 month and a 90% mortality rate at 1 year among those with dementia (13). Median survival following admission is the same among demented patients receiving a feeding tube during their index hospitalization as those who do not receive a feeding tube (6).

Although it is difficult to interpret the subjective experiences of patients with dementia, no data suggest that they suffer due to eating problems. Studies of non-demented terminally ill patients with anorexia/dysphagia syndromes suggest little if any discomfort from these symptoms (14). An impaired thirst mechanism due to the typical consequences of aging may be beneficial in minimizing suffering related to dehydration (2), and natural mechanisms such as endorphin release may make dying with eating problems a relatively comfortable process (15). Furthermore, PG may cause suffering due to surgical and wound-related morbidity, increased use of physical restraints and pharmacological sedation, increased urine and stool production, decreased contact with care-providers, and deprivation of the joy of eating.

There is no evidence to indicate PG feeding prevents aspiration or minimizes the consequences of aspiration. Conversely, data from animal and pediatric studies suggest that gastrostomy tubes may increase the risk for aspiration by compromising lower esophageal sphincter tone (16,17). There is also evidence suggesting gastrostomy

tubes increase the risk for aspiration pneumonia in humans (1).

### Ethical Considerations

Ethical principles to consider when contemplating PG in the severely demented patient include autonomy, nonmaleficence, beneficence, professionalism, and informed decision making. A discussion by Brett and McCullough (18) of many of these principles may be applied. Conflicts about PG arise when physicians disagree with patients or families about the utility of the device. A question therefore raised is to what extent are patients entitled to therapies of their own choosing? If respect for patient autonomy were the only consideration, patients would always be entitled to receive any intervention requested. In therapeutic encounters, however, physician autonomy is equally worthy of respect. Physician autonomy is influenced by a number of ethical concepts. The principles of nonmaleficence (minimize harms as far as possible and justify them by appeal to benefits), and beneficence (act for the patient's good) (15) are core ethical principles at the root of all therapeutic decisions. In addition, society's expectation of professionalism influences physician behavior. Society acknowledges that the medical profession has a body of knowledge and an expertise that allow it to promote a social and personal good. If physicians are asked to act in directions contrary to the promotion of this good, the profession cannot function in its intended manner (18). Considering the above, Brett and McCullough suggest the

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**Table 3: Approach to Counseling about Percutaneous Gastrostomy Use in Demented Patients**

- Educate decision makers that eating problems are a sign of the final stages of dementia. Families and patients need to know that not eating is a normal aspect of dying with dementia and not the cause of death per se.
- Determine if the patient’s wishes about artificial nutrition are known. If necessary, contact primary care physicians and family members for this information.
- Elicit specific decision-maker concerns about the eating problem (i.e., malnutrition/dehydration, weight loss, aspiration, etc.). Doing so will identify issues to emphasize and misconceptions to correct when informing about risks, benefits, and alternatives to PG.
- Inform decision makers about the many risks of providing nutrition via PG.
- Inform decision makers about the lack of scientific evidence to support a benefit of providing nutrition through PG.
- Inform decision makers about alternatives to PG such as careful hand feeding, ad lib diets, diets consisting of easy-to-swallow high-energy foods, swallowing cues, elimination of anticholinergic and sedating medications, improvements in dental hygiene, etc.
- Recognize that if PG is pursued, the gastrostomy tube can be discontinued in the future if complications arise or decision makers’ wishes change.
- Recognize it is legally and ethically permissible to withdraw or withhold nutrition and hydration according to several court decisions and a strong consensus opinion in American bioethics.

following approach. In considering patient autonomy, a necessary condition when requesting treatment is that there be an established or theoretical basis to justify the expectation of benefit so as to not undermine physician autonomy. Succinctly stated, there must be at least a modicum of potential benefit as seen from the medical perspective to justify appeal to patient autonomy as a significant factor in therapeutic decision making (18).

In applying this approach to feeding the demented patient via PG, the physician’s interpretation of the literature is of key importance. If one believes that the evidence clearly indicates there is no established benefit to PG feeding, physicians should feel no compelling ethical duty to provide this therapy. Patient autonomy should be de-emphasized in this situation, as physician autonomy would be seriously undermined if PG were provided. However, if one believes the current evidence is flawed (such as from problems created by a lack of prospective, randomized, controlled trials of PG feeding compared to alternatives), then one may argue that a “theoretical basis to justify the expectation of benefit” still exists. In this situation, request for PG may be entertained, and patient autonomy considered in the decision analysis.

Specific comment about informed consent is necessary. Physicians have a duty to completely inform patients of the risks, benefits, and alternatives of any proposed therapy, as only completely informed patients can truly exercise their autonomy. This is particularly relevant to PG in the severely demented as studies indicate physicians perform poorly in obtaining informed consent in this situation (19,20). Those who believe the evidence clearly indicates a significant risk without benefit to PG argue that the discussion of risks, benefits, and alternatives should proceed in a *directive* manner such that patients and families are advised against PG (2). Those who believe that further investigation may yet document a benefit to PG argue that

counseling should be *non-directive* so as not to bias patients or families to decide for or against PG according physician opinion. In this situation, PG would be considered of uncertain benefit and directive counseling would undermine patient autonomy (21).

**Factors Affecting Physician Decision-Making**

Physician autonomy in decision making situations about PG is likely manipulated by a variety of external forces. Survey of physicians’ beliefs and practices suggest that many PG tubes are placed in demented patients despite physician opinion that artificial nutrition is not indicated. Shega et al. report that 41.6% of primary care physicians have ordered a PG tube despite believing that it was not the best course of action. Thirty-six percent stated they would order a PG tube if requested by a family member even if this was contrary to the patient’s wishes. Sixty percent of physicians believe that speech therapists, nurses, nutrition consultants, and nursing homes influence their decision-making (22). Nursing homes may be an especially powerful influence. As prevention of weight loss is a government-reported marker of the quality of nursing home care, this may lead many nursing facilities to strongly recommend PG use for their residents with eating difficulties. Financial incentives may also be operative. In many states, nursing homes are reimbursed by Medicaid at a higher rate for the care of residents with feeding tubes versus residents with eating difficulties who are fed by hand (23). Mitchell et al have additionally reported that feeding tube use is independently associated with nursing home demographic, fiscal, and organizational characteristics, specifically noting an increased likelihood of feeding tube use among residents of for-profit facilities (24).

**A Suggested Approach**

Most experts agree that the current evidence is robust enough to advocate against feeding severely demented patients via PG. These experts further highlight the complexity of designing prospective, randomized, controlled trials about ethically charged issues among populations lacking decision-making capacity, and suggest that our scientific evidence on the subject will be limited to observational investigation. **Table 3** suggests an approach to assist the hospitalist in caring for severely demented patients who have difficulty eating.

**Conclusions**

Hospitalists will care more frequently for demented patients as the elderly population increases. Given the incidence of eating problems in the final stages of dementia, understanding the science and ethics of delivering nutrition through PG is essential for all hospital physicians who advise patients and families about this treatment.

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## Polypharmacy and the Hospitalist

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Every clinician knows that older patients often take multiple medications. Every day, we encounter patients who take five, eight, or a dozen medications on a daily basis, some as high as 20 or more. A recent survey of ambulatory adults found that 12% of respondents 65 years and older reported taking 10 or more medications, and 50% took five or more medications (1). The use of multiple medications is often referred to as "polypharmacy." But polypharmacy has many definitions. The use of five or more medications is often used by researchers as a marker for further investigation. While this definition may be useful to screen and stratify persons in a database, it does not always mean the use of inappropriate or unnecessary medications. For example, a patient with diabetes and heart failure taking an oral hypoglycemic agent, a diuretic, an angiotensin-converting enzyme inhibitor, a potassium supplement, and a  $\beta$ -blocker would be taking five medications and the pharmacotherapy for his or her heart would be in agreement with clinical guidelines.

Polypharmacy was cited in Healthy People 2000 as the principal medication safety concern and was defined as "the concurrent use of multiple prescription and over-the-counter medications" (2). This definition does not include a measure of appropriateness. Another definition for polypharmacy is the use of one medication to treat the adverse effects of another medication. For example, a patient taking an angiotensin-converting enzyme inhibitor develops a cough and treats it with dextromethorphan, which leads to constipation and laxative use. On the other hand, some cases can be easily defended as rational, such as the use of laxatives in a patient taking opiates for pain secondary to cancer.

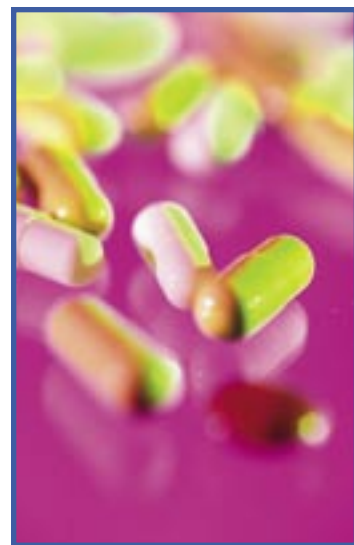
Other definitions include some measure of appropriateness, such as the prescription, administration, and use of more medications than are clinically indicated or when a medication regimen includes at least one unnecessary medication.

### Identifying Polypharmacy

There is no single tool that can be used to identify cases of polypharmacy. In fact, cases are probably best identified and corrected with a multidisciplinary or interdisciplinary approach.

Screening a patient's medication profile is a way to start. The hospitalist, pharmacists, and nurses should all be involved in screening. The hospitalist coordinates care and communications between the patient's primary care physician and specialists to ensure that all medications and indications are known, that the original prescriber understands why a medication was stopped, and that proper monitoring is performed. The pharmacist's knowledge in pharmacology, pharmacotherapy, and medication products is helpful in identifying duplicate pharmacologic effects (desired and undesired) and drug interactions that may be responsible for adverse effects or symptoms. Pharmacists make recommen-

dations in the selection of new medications or safer or more effective replacement medications. Nurses have the greatest contact with patients and are responsible for communicating how the patient is doing, as well as educating the patient about changes in his or her therapy. Nurses' input regarding the patient's or caregiver's ability to manage medications at home is invaluable when making decisions about the patient's course following discharge.



### How Does Polypharmacy Occur?

Polypharmacy often has numerous origins. The insidious accumulation of medications is one way polypharmacy develops. Medications are added to a patient's regimen but never subtracted. The diverse number of medications available, direct-to-consumer advertising, society's attitude of a pill for every ill, as well as physician willingness to prescribe based on patient expectation contribute to adding medications. The lack of regular, comprehensive medication review also allows for medications to be continued unnecessarily.

Medications are the cornerstone of the management of chronic conditions whose prevalence increases with age. A total of 80% of persons 65 years and older report at least one chronic condition, and 50% have two or more. This, in part, explains why persons 65 years of age and older have consistently taken an average of four to five medications daily.

Polypharmacy can also develop in patients under the care of multiple prescribers who do not communicate with each other and rely on the patient to tell or remind them of all the medications they are taking. Patients who see multiple prescribers are at greater risk for drug interactions (3). Patients who obtain their medications from multiple pharmacies are at greater risk for polypharmacy than those using a single pharmacy (3). Drug duplication, therapeutic duplication, and drug interactions may be missed if a pharmacy's database does not include all the medications a patient is taking. If a patient obtains his or her medications from different pharmacies, the patient needs to inform the pharmacist at each visit of all the medications they take so they can be recorded in their profile. Many patients don't know the name and purpose of every medication they take, which also compounds the problem.

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*Polypharmacy and the Hospitalist (continued)***Consequences of Polypharmacy**

Polypharmacy can have a variety of negative outcomes, including adverse drug reactions, drug–drug interactions, duplication of pharmacologic effects, decreased quality of life, and increased health care cost. Several studies have shown that the risk for adverse drug events increases as the number of medications increases. Medications that are considered inappropriate for older persons have also been associated with negative outcomes. Examples include the association of diphenhydramine and delirium (4); the use of long-acting benzodiazepines (such as diazepam) increasing the risk of hip fractures, presumably by contributing to falls (5); and chlorpropamide and hypoglycemia (6). In spite of more than 10 years of warnings about the use of such medications, they continue to be prescribed to older adults.

A study of hospital admissions for older adults found that between 10% and 17% of admissions were associated with an adverse drug event (7). A different study found that 73% of adverse drug reactions involved medications deemed unnecessary, the result of possible drug interactions or medications that were contraindicated (8). Therapeutic failure is another possible outcome of drug–drug interactions. This risk for drug–drug interactions also increases as the number of medications increases (9).

**Three Steps to Prevent and Reduce Polypharmacy**

**Step 1.** Make sure that each medication has an indication. Consider stopping any medication that does not have an indication. Some medications cannot be stopped suddenly but may need to be tapered. For example, stopping benzodiazepines,  $\beta$ -blockers, clonidine, and antidepressants can lead to withdrawal syndromes. Medications that are no longer necessary should be identified and discontinued. For most medications, this can be accomplished without an adverse effect. One study involving 124 patients enrolled in a Veterans Administration general medicine clinic who had one or more medications discontinued in the previous year as part of a larger study found that 74% of medications were stopped without an adverse outcome (10). Medications were discontinued based on recommendations by a clinical pharmacist. From the time of admission throughout the hospital stay and up through writing discharge orders, the hospitalist should review the patient's medication list and discontinue any medications that are not indicated. The hospitalist has a unique opportunity to make a huge impact in this regard, and working with the pharmacist can determine the appropriateness of each medication. The hospitalist should also educate the patient and the primary care clinician of changes that were made and why they were made.

**Figure 1. Example of a medication grid.**

Time	Analgesic	Bisphosphonate	Ace Inhibitor	Diuretic	B-blocker	Oral Hypo-glycemic	Stool Softener
0600		X					
0800	X		X	X	X	X	X
1200	X						
1400				X			
1600	X						
1700						X	
1800			X		X		X
2000	X						

**Step 2.** Before prescribing a new medication, ask yourself the following: 1) Is there a safer nonpharmacologic alternative? 2) Is the new medication to treat an adverse effect of an existing medication? 3) Does the new medication have any warnings or contraindications applicable to that patient (e.g., metformin, age, and renal function)? 4) Does the medication duplicate the effects of an existing medication that may result in an adverse effect? 5) Will it interact with any of the patient's other medications? 6) Will it increase the complexity of the patient's medication regimen?

**Step 3.** Look for medications that may have been added to treat drug-induced conditions. A case-controlled study of older nursing home residents found that residents who were prescribed metoclopramide (which has dopamine-antagonist properties) were three times more likely to be prescribed a product containing levodopa (11). Also, remember to review a patient's medication profile before discharging or transferring a patient so that unneeded medications are stopped (e.g.,  $H_2$  antagonists and stress-ulcer prophylaxis) and that those that are to be taken for a defined period have the stop date clearly written (e.g., antibiotics).

An effective way to reduce the number of medications a patient is taking is to complete a grid containing each dose of medication and logging the time taken each day of the week. In a randomized, controlled study, one group of housestaff was shown a grid (Figure 1) that allowed them to view the complexity of each patient's medication regimen for 1 week following admission (12). The control group was not shown a grid. The change in the mean number of medications from admission to discharge decreased by 0.92 medications for patients cared for by housestaff shown the grid. The mean number of medications increased by 1.65 in patients cared for by housestaff not shown a grid. Likewise, the mean number of doses taken per day decreased by 2.47 per patient with a grid compared with an increase of 3.83 in the nongrid patients. By keeping a grid, prescribers knew not only what medications a patient was taking but the number of medications and complexity of the regimen. A grid is a simple intervention that can be constructed with a pen and paper. Furthermore, a more complex computer-based grid that is part of a health care information system can be an effective way to present and document medications.



### Conclusion

The prevalence of medication use among older adults remains disproportionate to that of the general population. A U.S. Task Force on Prescription Drug Use in 1968 reported that 10% of the population was 65 years and older and purchased 25% of all prescription medications. Currently, it is believed that 13% of the population is in this age group and purchase 31% of all prescription medications. It is forecast that by 2040, 20% of the population will be 65 years and older yet purchase 50% of all prescription medications. Clearly, the use of multiple medications will remain a constant in the care of older patients and will most likely increase because of the development of new medications to manage chronic disease, the continued development of lifestyle drugs, the continued interest in the use of herbal and nutritional supplements, and the use of medications in the prevention of primary and secondary diseases or events. Hospitalists, as a part of the health care team, are in an opportune position to prevent, identify, and rectify cases of polypharmacy even in the brief time they care for a patient.

Furthermore, hospitalists are not only in a position to improve polypharmacy among the patients under their direct care but also should help develop systems to reduce polypharmacy and improve prescribing within their institutions. Leading a team of health care professionals, including pharmacists, nurses, case managers, housestaff, and others, the hospitalist should think about communication, education, and information technology tools to improve the safety and costs associated with polypharmacy.

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# Social Work Practice With Hospitalized Elders: Counselors, Case Managers, and Discharge Planners

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Since 1905, when social work was introduced at Massachusetts General Hospital in Boston, the hospital has been the primary setting for social work practice with older patients and their families. The importance of social work in hospitals today is a result of heightened awareness of the complex social, psychological, and economic problems surrounding illness. Given the gravity of the diagnoses that accompany hospitalization today, the older patient typically experiences severe psychological and social dissonance. They enter the hospital worried about their physical condition and about the impact on their spouses and families. The sudden loss of autonomy and confrontation with the culture of the hospital and its unfamiliar medical procedures tends to create anxiety. Many patients and families need help from social workers in dealing with the impact of hospitalization as well as complex post-hospital care needs. Working collaboratively with hospitalists, the social worker

evaluates the emotional, social, and financial needs of the patient and caregivers, offers counseling and case management services as needed, and is available as a consultant to the health care team (1).

## Social Work Evaluation

The social worker knows that the abilities (cognitive and emotional) of the individual and family members to use medical care, follow medical recommendations, and decide among alternative courses are closely related to the many social and psychological factors they must cope with during illness and hospitalization. In their evaluation, the social worker assesses the patient's psychosocial needs and also assesses the family constellation and each member's role within it. Adequate social support from family and friends can maximize the patient's ability to cope and can enhance self-esteem and self-control, both necessary to promote recovery. An understanding of the quality of family relationships, the family's attitudes toward the current illness, and the physical, emotional, and financial resources available to meet the identified needs are critical. In addition,

the patient's and caregiver's cultural, ethnic, and spiritual values must be considered in health care planning if the plan is to be successful.

Evaluation of these factors helps determine what services are needed during hospitalization and what options are available for the patient after hospitalization. With this information, the social worker can help the hospitalist develop a coordinated health care plan for the patient and hopefully prevent delays in discharge and/or early readmission, which might have been prevented had the necessary supports and resources been in place (2).

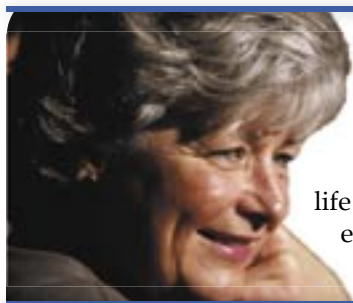
**Table 1**

**Problems Faced by Older Patients and Families in the Hospital: The Social Worker's Role in Collaboration with the Hospitalist**

Problem	Social Work Role
<b>Abuse</b>	Identifies abusive situations and deals with them socially, psychiatrically, and, if necessary, legally.
<b>End-of-life issues</b>	Helps the patient adjust to an uncertain prognosis or to imminent death. Provides case management and advocacy services for dying patients and their family members (e.g., helping patients transfer between levels of care and obtaining needed services).
<b>Environmental obstacles</b>	Assesses safety of home by identifying physical barriers and determines access to necessary resources (e.g., pharmacies, transportation, and recreation).
<b>Grief and loss</b>	Helps the older person cope with the losses common in old age (e.g., death of loved ones, loss of income, loss of self-esteem, loss of health).
<b>Hospitalization and post-discharge</b>	Provides social, psychological, and environmental support to help the older person adapt to illness and disability.
<b>Inadequate community and/or social support</b>	Helps the older person maintain independence by providing information and helping arrange for community services (e.g., senior centers, adult day care, meals-on-wheels, transportation) and obtains government income assistance as needed. Helps caregivers obtain services such as respite care.
<b>Legal and ethical issues</b>	Assists in establishing advanced directives (e.g., living wills, durable power of attorney).
<b>Psychological disturbances</b>	Uses standardized assessment tools to screen for psychosocial problems.

(Adapted from Berkman, B., (2000). Geriatric social work. In the Merck Manual of Geriatrics, p. 81.)





## Social Work Counseling

As counselors, social workers work directly with the older patient and his family to help them deal with illness, loss, and end-of-life issues (Table 1). They may engage in individual patient counseling or family counseling or may refer patients and family members to group programs that help them cope with the psychosocial effects of a particular illness or life crisis (e.g., returning home from the hospital, being unable to resume previous roles or functioning, or being placed in a long-term care facility). Thus, social workers help the older patient and family deal with the factors that create or exacerbate problems in recovery. And in the face of possible death, social workers can help the patient face the uncertainty of the prognosis or impending death and help the family deal with the crisis and loss.

## Social Work Consultation

As an indirect service on behalf of patients, social workers may give consultative services to the hospitalist and other members of the medical team or to community agencies and other groups seeking guidance in helping the patient. This consultation may be either informal or formal through patient-care conferences. Social workers can supply the most meaningful interpretations possible of the patient's psychological and social status and can provide information about necessary public or private resources available and about ways to gain access to these resources.

## Social Work in Discharge Planning

Discharge planning, while a professional task for all hospital-based professionals, becomes a primary responsibility for social workers when a patient's situation is identified as complex and arrangements are beyond rou-

tine, such as situations where there are problems between families and patients as to what post-hospital services are needed and when there is conflict over decisions related to the need for long-term care. Thus, the way in which the social worker can help the hospitalist in the discharge process is by helping patients and families deal with difficult life changes and by locating resources needed for post-hospital care. Arrangements for appropriate social and health services for the post-hospital period can minimize the chances of early or recurrent readmissions. Sometimes these resources are scarce and the social worker, as resource expert in this arena, serves as an advocate for the patient in order to access the needed help. For example, older cardiac patients may require rehabilitation and a range of supportive services, which can include counseling, home health care, meal preparation, transportation services, and adult day care. Elderly patients with cardiac disease are at particularly high risk for physical deterioration during post-hospital recovery and can suffer early readmission due to poor mental status and post-hospital stress (3). These types of patients often have complex post-hospital care planning needs.

## Screening for Complex Discharge Needs

With the hospital stay of persons 65 and older averaging 8.7 days (4), hospitals should begin the process of discharge planning early in order to determine whether discharge is likely to be routine or whether social work services are needed. Ideally, at point of admission, screening patients for potential complex discharge needs should be undertaken. A number of methods for identifying patients who need social work services have been developed; these include high-risk screening (Table 2), attendance on rounds, discharge-planning conferences, referrals from other health care professionals (usually nurses or hospitalists), and patient or family referral. Early discharge planning helps alert the medical and nursing staff to the patient's post-hospital care needs and gives the social worker, patient, and family the time they need to explore resources and

**Table 2: Factors Placing Patients at High Risk for Complex Discharge Planning Needs\***

- **70 years of age or older and living alone**
- **Admitted from skilled nursing facility or intensive care facility**
- **Comatose**
- **Complex medication schedule**
- **Disorientation, confusion, forgetfulness**
- **History of repeat admissions**
- **In need of special therapies (e.g., respiratory, physical)**
- **Lack of social supports**
- **Limited activities of daily living**
- **Multiple medical diagnoses**
- **Previously or newly diagnosed as disabled**
- **Requiring wound care**
- **Victim of severe accident**

\*Generally, any combination of two or more factors should trigger an early social work assessment.

Factors delineated by Jackson, D., & Cummings, S. (2000). "Hospital discharge planning."

In Schneider, R., Kropf, N., & Kisor, A., Eds, *Gerontological Social Work* (p 198). New York: Brooks/Cole.

arrange for needed care. With over a third of all nursing home admissions originating in hospitals and with research findings indicating many placements are inappropriate (7), it is critical that social workers be involved in planning for discharge early in the hospitalization.

Social workers recognize that patients and families must be involved in all aspects of discharge planning or the post-discharge patient's needs may not be adequately met (6). In addition, patient and family members' satisfaction with discharge plans have been linked to their level of involvement in the development of these plans (7). The following case example highlights the potential cost savings for the hospital when the social worker involves patients, family members, and hospitalists in the discharge planning process (8).

*Flora is an 83-year-old woman who is hospitalized with pneumonia. She spends four days in an acute care hospital. She is given a course of intravenous antibiotics and receives "routine" nursing care. She complains about stiffness in her left leg and is evaluated by a physical therapist. She is discharged soon thereafter.*

*Sylvia, her best friend and next-door neighbor, also 83 years old, is admitted the following week with a similar diagnosis. She receives similar treatment but responds more slowly. She appears frail and weak and displays a lack of energy, making walking without assistance difficult. Her son tells the hospitalist that he has grown increasingly worried about her ability to take care of herself living alone. He believes she should move to live with him and his family, but she has refused. She has become very upset at the idea. A social worker is called in to assess her needs and to help her and her son. She evaluates the family dynamics and the home situation. Together, the social worker, Sylvia, and her family, in conversation with the hospitalist, agree that Sylvia will return to her own home with follow-up home health care, and that her ability to remain at home will be assessed periodically.*

*Flora and Sylvia received different services, but the hospital will most likely be paid the same amount for the care it provided to each of them. Medicare will pay for care based on the diagnosis, factoring in overall differences in labor and other costs for the area in which the hospital is located. That payment will not specifically reflect Flora's physical therapy services and Sylvia's social work services. However, without the social work services Sylvia would have probably remained in the hospital several days more, increasing the cost of her stay.*

### Effectiveness of Social Work Practice

The effectiveness of social work with older adults and their families in hospitals is supported by many research studies. As a result of social work services, caregivers report decreased feelings of stress (9), communications between patient/family and health care providers is improved (10), care coordination is improved (11), quality of social and health care is improved (12), knowledge of community resources is increased (13), and cost savings for

hospitals can result (13). Recognizing the hospital's need to control costs, social workers have adopted strategies to provide effective care to older adults while helping the hospital remain efficient.

Working directly with geriatric patients and their families, social workers help the hospitalist by dealing with factors that create or exacerbate problems in patient recovery and discharge (14). They help older patients and their families navigate confusing systems of care and provide counseling and case management services that are designed to help older adults stay in control of their own lives and to improve their quality of life.

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## Training Hospitalists in Geriatric Medicine: Where Do We Stand?

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The fact that the hospital can be a dangerous place for older patients is not new (1,2), yet the dangers persist. Delirium continues to be endemic (3), functional decline and falls are frequent (4,5), pressure ulcers remain problematic (6), and incontinence is intractable and under-recognized (7). If over two decades of research and demonstrably effective clinical care innovations, which have yet to be widely adopted, have produced only limited improvements for older inpatients, what's a hospitalized elder, or health care system, for that matter, to do?

Geriatricians possess expert knowledge in the chronic medical problems of older adults, and they typically act as primary care physicians and advocates for their older patients. Hospitalists specialize in the up-to-date management of a wide array of acute medical problems and in shepherding their patients through the potentially perilous continuum of hospital care. In these respective roles, both disciplines are positioned to form a partnership that can lead to real improvements in the training of physicians and allied health care personnel who care for older, frail inpatients.

As with any partnership, open communication and exchange of knowledge is critical. Geriatricians have learned hospital medicine through their residency and fellowship training, and through their general experiences on the wards. Some, but not all, have experiences with dedicated in-patient geriatric units, such as Acute Care for Elders (ACE) units (8). Hospitalists have generally learned how to care for older adult in-patients through traditional channels of medical education that, while improving, are well-recognized to be lacking in sufficient geriatric medicine content and rigorous, formal curricula. According to the American Association of Medical Colleges (AAMC), for academic year 2001-02, preliminary data shows little more than one-half of the nation's 125 accredited allopathic medical schools have identifiable departments, sections, divisions, or units in geriatrics or gerontology (9).

This circumstance of complementary knowledge and expertise creates an opportunity for geriatricians and hospitalists to collaborate in creating training programs that will improve in-patient focused medical education, and ultimately lead to better, safer inpatient experiences for older adults. Unfortunately, this opportunity has thus far been unrealized. The typical situation today is one in which hospitalists and geriatricians operate independently in their roles as educators, clinicians, and agents for change within the hospital concerning the care of the most vulnerable patients. There are often geriatricians, and even the rare geriatrician-hospitalist, who work as part of a larger hospital medicine group, or parallel to a separate hospital medicine group. Occasionally, there are formal consultations, and likely many more curbside consultations, but this

is usually the extent of collaboration or cross-training, as formal mutual training programs are rare.

This past lack of formal training programs is more than mere perception. We performed

a literature review using combinations of the following sets of terms as either MESH headings or title terms or both:

1) Hospitalist; Inpatients, 2) Education, Medical; Education, Medical, Undergraduate; Education, Medical, Graduate; Education, Medical, Continuing; Faculty Development, Training 3) Aged; Geriatrics; Older; Elderly. No articles specifically addressing the training of hospitalists in geriatric medicine were identified. However, a limited number of quantitative studies and opinion pieces have addressed the topic of hospitalists as teachers of clinical medicine. The initial work in this area has shown that hospitalists are effective and respected clinical teachers of medical students and residents, and a well-delineated research agenda and professional development programs in teaching for hospitalists have been advocated (10-13).

### The Emergence of Formal Hospitalist Training for the Care of Older Patients

The major barriers to widespread training of hospitalists in geriatric medicine include time and money. Much of the present training in geriatric medicine for hospitalists takes place in the usual context of medical school and residency education and thus is directed at all trainees, some of whom are likely to go on to become hospitalists in the future.

Responding to concerns about the quantity and quality of undergraduate and graduate geriatrics education in medical schools and residency programs across the country, several efforts to strengthen geriatrics training have been launched by private foundations. Two foundations in particular deserve much of the credit for this current activity.

The Hartford Foundation in 2002 funded ten Collaborative Centers for Research and Education in the Care of Older Adults (for more information see <http://www.sgim.org/hartfordoverview.cfm>). Many of these centers included projects related to hospitalists. In addition, The Hartford

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*Training Hospitalists in Geriatric Medicine (continued)*

Foundation also supports the Society of Hospital Medicine (SHM) taskforce on geriatric medicine. Beginning in 2001, The Donald W. Reynolds Foundation began funding what are at present 20 medical schools, to improve physician training in geriatric medicine (for more information, see <http://www.dwreynolds.org/Programs/National/Aging/AboutAging.htm>). Several of these sites have also developed programs aimed at training hospitalists in the care of older patients.

### Academic Hospitalist Education Programs

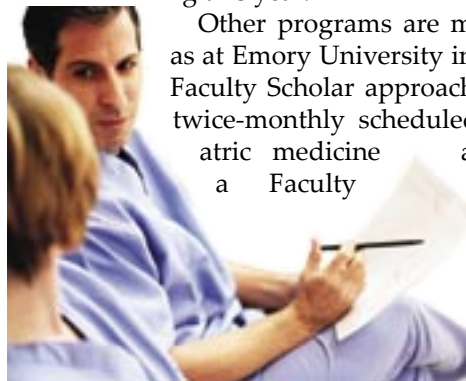
Foundation funding has primarily targeted academic training institutions. In order to gauge the current scope and type of programs targeting hospitalists, contact was made with every Hartford-SGIM Collaborative Center and every Reynolds Foundation site that included hospitalists as a specifically targeted group. In addition, an e-mail inquiry was sent over the Geriatric Medicine Educator Listserve housed through the Portal of Geriatric Medicine Online Education (POGOe, for details see article on page 41 in an effort to identify other geriatric training programs targeting hospitalists. Additional contacts were made on the recommendations of those responding initially. The education programs that were identified fall into two basic categories: Faculty Scholars and Group Training.

### Faculty Scholar Programs

Faculty Scholar programs aim to identify select individuals interested in further training in geriatrics. This Scholar then receives training that he is expected to disseminate to his hospitalist colleagues, residents, medical students, and allied health care personnel.

Sometimes the training program is designed specifically for a certain hospitalist. For example, at the Medical College of Wisconsin, a formal training program was developed for a hospitalist faculty member to complete his geriatric medicine fellowship training through a modification of the usual training schedule.

The training of hospitalists may be brief and, in the context of programs, targeted at a broad range of faculty. This is the case at the Geisinger Health System in Pennsylvania where 10 Faculty Scholars participate in a geriatric medicine CME day. Participation is open to all faculty, but participants are self selected. One hospitalist is participating this year.



Other programs are more intensive, such as at Emory University in Atlanta, where the Faculty Scholar approach involves a year of twice-monthly scheduled didactics in geriatric medicine and completion of a Faculty Scholar Project. One of four scholars in each of the first two years of the four-year project has been a hospitalist. The

first project resulted in the creation of a workshop for third-year medical students on the hazards of hospitalization for older patients, and the second will develop geriatric educational products for delivery through the SHM Web site.

At Baystate Medical Center in Boston, one of four geriatric medicine Faculty Scholars is an academic hospitalist. Over two years the participants receive formal didactic training and are paired with a geriatrician. The Faculty Scholar gives at least one formal presentation and is expected to design and complete a project, in this case entitled "Defining High-Quality Inpatient Medical Care: The Geriatric Patient's Perspective."

### Group Training

In some cases there is no formal program, but training is integrated into an existing curriculum. This is the case at the University of California, San Francisco, where there is no formal program to train hospitalists in geriatric medicine but a lecture series was created for hospitalists and house staff on selected geriatric issues such as discharge planning, functional decline, delirium, and perioperative care.

Some programs have taken a broader approach that targets many or all hospitalists at their institution. This training may address specific topics. For example, at the State University of Buffalo in New York, a hospitalist training program was developed targeting the evaluation and management of delirium. Guidelines were developed and targeted towards emergency physicians, nursing staff of an acute geriatric inpatient unit, and initially to three hospitalists most likely to admit to that unit. The training program has now been standardized and put into DVD format. It is being used for ongoing training for hospitalists, housestaff, and nurses throughout their multi-hospital health care system.

At the University of Rochester a partnership was developed between hospitalists at the Strong Memorial and Highland Hospitals and a Geriatrics Division faculty member. The primary goal was to prepare hospitalists to better teach students about delirium and falls, with the secondary goal of improving hospitalists' own knowledge base. This was accomplished by developing a "Train the Trainer" experience for all of the hospitalists at Highland and Strong Hospitals in Rochester, as well as a similar experience for the third-year medical students on the medical service. Eight academic hospitalist teaching faculties at both institutions were trained on specific evaluation and management tools

**"...such training is unlikely to occur in the absence of protected time for curriculum development and implementation."**

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### Cited Programs to Train Hospitalists in Geriatric Medicine:

#### **Baystate Medical Center (Massachusetts)**

**Funding:** Hartford Foundation-SGIM Collaborative Centers in the Care of Older Adults

**Contact:** Dr. Stewart Babbott; [Stewart.Babbott@bhs.org](mailto:Stewart.Babbott@bhs.org).

#### **Emory University**

**Funding:** Donald W. Reynolds Foundation

**Contact:** Dr. Lisa Tenover; [jtenove@emory.edu](mailto:jtenove@emory.edu)

#### **Geisinger Health System (Pennsylvania)**

**Funding:** Hartford Foundation-SGIM Collaborative Centers in the Care of Older Adults

**Contact:** Dr. Valerie Weber; [vdweber@geisinger.edu](mailto:vdweber@geisinger.edu)

#### **Medical College of Wisconsin**

**Funding:** Donald W. Reynolds Foundation

**Contact:** Dr. Steve Denson; [sdenson@mail.mcw.edu](mailto:sdenson@mail.mcw.edu)

#### **Oregon Health and Science University**

**Funding:** Hartford Foundation-SGIM Collaborative Centers in the Care of Older Adults

**Contact:** Dr. Sima Desai; [desais@ohsu.edu](mailto:desais@ohsu.edu)

#### **State University of New York at Buffalo**

**Funding:** Donald W. Reynolds Foundation

**Contact:** Dr. Bruce Naughton; [Bnaughto@buffalo.edu](mailto:Bnaughto@buffalo.edu)

#### **University of California-San Francisco**

**Funding:** Local

**Contact:** Dr. Adrienne Green; [green@medicine.ucsf.edu](mailto:green@medicine.ucsf.edu)

#### **University of Chicago**

**Funding:** Donald W. Reynolds Foundation

**Contact:** Dr. Greg Sachs; [gsachs@medicine.bsd.uchicago.edu](mailto:gsachs@medicine.bsd.uchicago.edu)

#### **University of Michigan**

**Funding:** Hartford Foundation-SGIM Collaborative Centers in the Care of Older Adults

**Donald W. Reynolds Foundation**

**Contact:** Dr. Brent Williams; [william@med.umich.edu](mailto:william@med.umich.edu)

#### **University of Rochester**

**Funding:** Donald W. Reynolds Foundation

**Contact:** Dr. Valerie Lang; [Valerie\\_Lang@URMC.Rochester.edu](mailto:Valerie_Lang@URMC.Rochester.edu)

related to inpatient falls and delirium using a single 1-hour workshop given by two geriatrics faculty. The goals were to improve hospitalists' understanding of these hazards, prepare them to conduct monthly workshops for third-year medical students, and reinforce the ideas with students during their inpatient rotations. Limited time for material and logistic difficulties in bringing busy hospitalists from two different hospitals together at the same time did not prove to be insurmountable difficulties. This was due to strong administrative support, and the recognition that the hospitalists all had a great deal of experience in the areas discussed, which allowed for more efficient use of the time available and a positive experience. The workshop will be repeated annually in order to refresh the trained faculty and train new faculty, and an on-line education module is being developed.

Some sites have been able to address a wider array of topics. At the University of Michigan, five academic hospitalists have undergone 14 hours of seminar-based training in geriatrics over seven sessions. Five sessions were taken from the Stanford Geriatrics in Primary Care Seminars. This material included an Overview on Caring for Older Patients; Assessment; Dementia, Depression, and Delirium; Longitudinal Care; and Difficult Decisions (Ethics). Two seminars were created specifically for this training and covered Complications of Hospitalization and Inpatient/Outpatient Transitions. Seminars focused on incorporating geriatrics into regular teaching, moving from disease-based teaching to geriatrics topics, such as functional assessment and falls.

At the University of Oregon Health Sciences, a collaborative effort was initiated with focus groups that included hospitalists, outpatient internists, and geriatricians who identified issues of importance regarding geriatrics and geriatric education. Participants were drawn from three institutions (community, VA, and university). Based on the results of the focus groups, a CME course was designed. The course is one day long and includes lectures focusing on geriatric topics, as well as two small group sessions between the learners/participants of the course, and a "standardized presenter." A Web site was developed to continue the teaching of the CME course, and pocket cards on key geriatric issues were created.

Perhaps the most comprehensive effort to train multiple hospitalists to teach geriatric medicine is underway at the University of Chicago, with the support of the Donald W. Reynolds Foundation. The institution's geriatricians, hospitalists, and outpatient internists together have created a faculty development program entitled CHAMP (Curriculum for the Hospitalized Aging Medical Patient). This curriculum focuses on bed-side teaching and includes two major components: 1) a series of didactics on topics targeted to the care of older hospitalized adults and organized around bedside "teaching triggers" and 2) two integrated modules aimed at improving in-patient teaching skills: a seven-session module taught by a Stanford Faculty Development Program Scholar on Clinical Teaching Skills, and a newly designed module, "Teaching on Today's Wards," developed jointly by a hospitalist, a health systems researcher, and a geriatrician at the institution. This program is delivered over more than 12 half-day sessions and is tied to a number of assessments, including traditional measures of knowledge and self-confidence, and more innovative assessments of process of care, clinical outcomes, and direct observation of participants teaching on the wards. The curriculum is facilitated by an e-curriculum component using the Blackboard™ e-learning system CHALK. The overall goal of CHAMP is to increase the quantity and quality of in-patient specific geriatric medicine topics taught on the wards by hospitalists, geriatricians, and many of the outpatient-based general internal medicine faculty. It is hypothesized that this approach will lead to a diffusion

of knowledge and improved management strategies in the care of older hospitalized adults.

### General Themes

Several themes become apparent when reviewing current academic efforts to train hospitalists in geriatric medicine. First, such training is unlikely to occur in the absence of protected time for curriculum development and implementation. The support of the Hartford and Donald W. Reynolds Foundations has been critical to pioneering the development of educational products. Many of these products will likely be published and made available through journals, SHM, and POGOe. As more products become available, the initial investment in person-time for the implementation programs to improve geriatric education for hospitalists should decrease.

Second, most present efforts are aimed at improving the care of older adults in the *next* generation of physicians. An education program with the primary goal of teaching a hospitalist to teach more effectively about geriatric medicine is not exactly the same as teaching the hospitalist to improve their care of older patients. Particularly powerful are the messages sent by the “unwritten curriculum” where actions speak louder to the learners than words. While it makes sense that improving knowledge and teaching skills will carry over into improving patient care, this is by no means certain. Third, the street seems mostly one way, that is, geriatricians training hospitalists. As the relationship matures, however, the conversation should become two sided. The issue is not that hospitalists do not have experience with delirium, falls, incontinence, and other risks for the geriatric population. Such things are all too common on inpatient wards.

The approach to these issues should be the result of a conversation. SHM has begun this process with the creation of a task force on the geriatric inpatient. This taskforce is composed of an expert panel of hospitalists and geriatricians and has been charged with identifying and addressing the needs of SHM members related to the care of older inpatients. Already key learning objectives have been identified, a “Geriatric Toolbox” CD containing important assessment and management tools has been created, and workshops for national and regional SHM meetings are being developed.

Optimizing the hospital care of older patients is a mutual responsibility of hospitalists and geriatricians. As opportunities for cross-training increase and educational products and methods are developed and studied, this goal will be more readily achieved.

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# Antimicrobial-Resistant Infections in Geriatric Patients: The Role of the Hospitalist

Reprinted from *The Hospitalist's Geriatrics Symposium*

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Both in the United States and globally, antimicrobial-resistant infections are a serious and growing problem, especially for clinicians caring for hospitalized older adults (age  $\geq 65$  years). Antimicrobial resistance has been associated with increased morbidity, mortality, and cost of care (1). The quality of care and patient satisfaction may be diminished for hospitalized older adult patients in contact isolation because of infections with antimicrobial-resistant organisms (2). Hospitalists play a key role in managing hospitalized older adults and consequently are central to any efforts to reduce antimicrobial resistance. This article will review the Centers for Disease Control and Prevention's (CDC's) Campaign to Reduce Antimicrobial Resistance in Healthcare Settings, with particular focus on key issues for hospital-based geriatric practice.

## Aging of U.S. Population

Although older adults (age  $\geq 65$  years) account for only 11% of the U.S. population, 36% of all hospitalizations occur in this group (3). Furthermore, older adults account for 74% of in-hospital deaths and 46% of the \$548 billion spent on hospitalization in the United States (3). The percentage of the population  $\geq 65$  years is expected to increase to 20% by 2025. Although medical advances have reduced the length of stay for most hospitalizations in recent decades, improved treatment of chronic diseases, such as ischemic heart disease, diabetes, arthritis, and cancer, has increased the likelihood that adults will live to an advanced age with these diseases and will continue to require periodic hospitalization for chronic disease complications. Consequently, it is likely that hospitalizations for older adults will continue to comprise a significant, if not growing, proportion of the resources devoted to hospital care for the foreseeable future.

For older adults, risk factors for infection include diminished immune response, malnutrition, the presence of multiple chronic diseases, polypharmacy with medications that diminish host defenses (e.g., immunosuppressants, central nervous system agents that diminish cough reflex), cognitive deficits that may complicate basic sanitary practices (e.g., hand and personal hygiene), and functional impairments (e.g., fecal and urinary incontinence, immobility, diminished cough reflex).

Common infections in older adults requiring hospitalization include community-associated pneumonia, influenza, and urinary tract infections. Once hospitalized, older adults are at risk for nosocomial pneumonias; urinary tract infections; skin infections, especially those related to pressure or stasis ulcers; surgical wound infections; and bloodstream infections.

## Preventing Antimicrobial Resistance Campaign at CDC

The CDC is currently promoting a Campaign to Prevent Antimicrobial Resistance in Healthcare Settings (4). The program to combat antimicrobial resistance uses a multifaceted approach consisting of four major strategies: 1) preventing infections, 2) effective diagnosis, 3) optimizing antimicrobial use, and 4) preventing transmission. Currently, campaign resources, such as professional publications, slide sets, posters, 12-step fact sheets, and pocket cards, have been produced for hospitalized adults, dialysis patients, and surgical patients. These resources are available from the CDC Web site (4) or can be ordered. Materials are currently in development for patients in long-term care and will be available in late spring 2004.



## Preventing Infections

A key strategy for preventing infections is to vaccinate older adults for influenza and pneumococcal infections. Influenza and pneumococcal vaccinations reduce the likelihood of infection, and, if older adults do become infected, these vaccinations reduce the duration and severity of illness. In addition to vaccinations, minimizing the use of medical devices (e.g., central venous lines, urinary catheters) reduces the likelihood of developing a nosocomial infection. While these devices may be essential to the initial management of hospitalized older adults, hospitalists should ensure that these devices are discontinued as soon as possible during the patient's hospitalization.

## Effective Diagnosis

Older adults who are hospitalized present a particular challenge regarding diagnosis of infection and treatment. Obtaining a history and symptoms from elderly patients is complicated by the presence of aphasia, hearing loss, and cognitive impairment. Many elderly patients may present with atypical symptoms (e.g., altered mental status with urinary tract infection) or signs (e.g., absence of fever), presenting the hospitalist with a diagnostic challenge. Hospitalists should obtain historical information from family and other caregivers when possible and judiciously use diagnostic tests. For older patients, the presence of a true fever (temperature  $> 100.5$  degrees F), leukocytosis, or

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signs/symptoms of respiratory infection (e.g., productive cough, tachypnea, hypoxemia) should warrant very careful assessment for infection.

### Optimizing Antimicrobial Use

While recommendations for empiric antimicrobial therapy for specific infections are beyond the scope of this article, several excellent resources and guidelines are available to direct the hospitalist in empiric antimicrobial choice (5, 6). However, key principles to optimize antimicrobial use include practicing thoughtful antimicrobial control, using local antimicrobial-susceptibility data (e.g., hospital antibiogram) to guide prescribing, avoiding antimicrobial use for positive cultures that are likely the result of either contamination or colonization, and stopping empiric antimicrobial therapy when the infection is cured or diagnostic studies suggest that the patient is not infected. Hospitalists should work closely with hospital antimicrobial-control committees, when available, and with infectious disease and microbiology consultants to optimize antimicrobial prescribing and use.

### Preventing Transmission

The most important step hospitalists can take to prevent transmission of antimicrobial-resistant organisms is to perform excellent hand hygiene. In 2002, the CDC joined with the Society of Healthcare Epidemiology in America, the Association of Professionals in Infection Control, and the Infectious Disease Society of America to produce an evidence-based guideline for hand hygiene (7). A key recommendation in this guideline is the use of alcohol-based hand cleaners. These products allow for more frequent hand cleaning and are actually superior to soap and water regarding bacterial elimination. When hands are visibly soiled, soap and water should be used first to remove debris, followed by the alcohol hand rub.

Infection-control precautions/isolation guidelines are divided into two major groups: standard precautions for use in all patients and transmission-based precautions (e.g., contact precautions, droplet precautions, airborne precautions). Hospitalists should become familiar with these guidelines and work closely with infection-control professionals in their hospitals to ensure that these precautions are properly applied (8).

### Special Issues for Older Adults

#### Surgery

Specific recommendations in the Campaign to Prevent Antimicrobial Resistance in Healthcare Settings regarding surgical patients have been published previously (8). In addition to the components of the general campaign discussed above, surgical patients present some special challenges. A key component of surgical

**"The most important step hospitalists can take to prevent transmission of antimicrobial-resistant organisms is to perform excellent hand hygiene..."**

care for most operations is the appropriate use of antimicrobial prophylaxis. Choosing the appropriate antimicrobial for a given operation is aided by several evidence- and expert-based guidelines. However, the greatest challenge for the appropriate use of antimicrobial prophylaxis to prevent infection is ensuring that the patient receives the antimicrobial within 1 hour of incision. If hospitalists are involved in the prescribing of surgical antimicrobial prophylaxis, they should ensure that a system exists that will promote appropriately timed antimicrobial administration. Following surgery, discontinuing antimicrobial prophylaxis in noninfected patients within 24 hours is recommended for most procedures. Several

excellent guidelines are available for recommendations regarding surgical antimicrobial prophylaxis (10–12).

### Long-term Care

Infections with antimicrobial-resistant bacteria among older adults in long-term care facilities (LTCFs) are a growing concern. Over 40% of adults will spend some time in LTCFs before death, and the majority of residents in LTCFs will spend  $\geq 1$  year (12, 13). Hospitalists admit patients transferred from LTCFs with acute infection and transfer patients to either postacute care or long-term care facilities following hospitalization. Historically, the typical LTCF resident was a woman, >80 years of age, cognitively impaired, and living with several underlying medical conditions. While this description may accurately portray a large proportion of LTCF residents, it grossly understates the broad diversity of residents in contemporary LTCFs. Indeed, with the growth of skilled-nursing facilities and postacute care, residents may receive therapy (e.g., central venous catheters, hemodialysis, parenteral antimicrobial or nutrition therapy, mechanical ventilation) approximating that in many acute care hospitals. The introduction or emergence of antimicrobial-resistant bacteria in LTCFs has resulted in both regional outbreaks of antimicrobial-resistant infections and increasing prevalence of antimicrobial-resistant organisms (14,15). In addition to the individual risk factors listed above, LTCF residents are at increased risk for transmission of infectious agents because of frequent group activities, such as meals, physical therapy, or recreational activities and shared facilities (e.g., showers or whirlpool baths) (14–16). In addition, frequent turnover of LTCF staff and the broad variation in educational levels of staff are substantial barriers that complicate appropriate use of infection-control guidelines.

Colonization with important antimicrobial-resistant pathogens, such as methicillin-resistant *Staphylococcus aureus*; vancomycin-resistant enterococcus (VRE); and multiply-resistant gram-negative rods like *Escherichia coli*, *Acinetobacter*, *Enterobacter*, or *Pseudomonas aeruginosa*,

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*Antimicrobial-Resistant Infections in Geriatric Patients (continued)*

may also increase the likelihood of both epidemics and high rates of endemic disease with antimicrobial-resistant pathogens in LTCFs (17–20). Risk factors for the development of infection with multidrug resistance include exposure to antimicrobials, lack of handwashing sinks, and lower levels of registered nurse staffing. Finally, previous studies have found relatively high rates of antimicrobial use and substantial inappropriate use of antimicrobials in LTCF residents.

For hospitalists, providing complete clinical and microbiologic data when transferring patients to LTCFs is critical if LTCF clinicians are to appropriately plan for patients with antimicrobial-resistant infections or manage continuing antimicrobial therapy. Since 25% of transfers from LTCFs to hospitals are due to presumed infections, hospitalists should also request complete clinical records, including any microbiologic results on transfer.

### Conclusions

Hospitalists play a central role in preventing antimicrobial-resistant infection in older hospitalized adults. The CDC Campaign to Prevent Antimicrobial Resistance in Healthcare Settings offers a broad set of resources to assist hospitalists in this effort. In addition to preventing infections, all hospital physicians should practice diligence in the diagnosis of infections and appropriate use of antimicrobial therapy. They should prevent transmission through good hand hygiene and appropriate application of infection-control precautions. For more information on the CDC's Campaign, please visit [www.cdc.gov/drugresistance/healthcare](http://www.cdc.gov/drugresistance/healthcare).

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## Health Literacy: Do Your Geriatric Patients Understand You?

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**Understanding is a two-way street. —Eleanor Roosevelt**

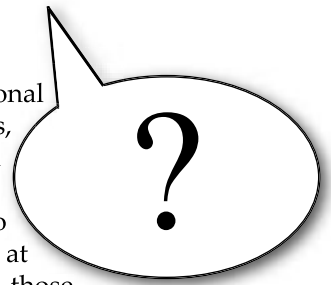
*On morning rounds, the team of residents introduced me to a newly admitted patient. An elderly woman with multiple chronic illnesses, she exemplified patients at our urban, public hospital and had been admitted after falling and injuring herself. As I commonly do now, I asked her “What did the doctors tell you is wrong with you?” She politely, and correctly, responded that she had a “pelvic fracture.” Impressed, I responded that yes, her pelvic bone was broken. A look of astonishment washed across her face. “My bone is broken” she exclaimed realizing her diagnosis for the first time.*

**H**ow often do you comfortably walk out of patients’ rooms after rendering your thorough advice and education, not realizing that they didn’t understand you? They don’t comprehend your discharge plans for follow-up? They don’t know which medications to stop or which to take? They can’t discern the warning signs they need to know?

Physicians’ core clinical skill is communication, yet many patients, especially the elderly, have difficulty understanding their doctors’ attempts at explanation and instruction. As a recent case reported in the AHRQ Web M&M noted, this is a problem for both literate and low-literate patients. However, patients with inadequate literacy skills probably account for most patients who have poor understanding of common medical terms and written health materials. An individual’s *health literacy*—“the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions”—may be significantly worse than their

**“Physicians cannot assume they can identify patients with limited health literacy because most individuals with this problem try to hide their inadequacies.”**

general literacy, because functional literacy is context specific. That is, an individual may be able to read and understand materials with familiar content, but struggle to comprehend materials written at the same level of complexity if those materials contain unfamiliar vocabulary and concepts. Therefore, it is likely that patients of all literacy levels may leave the hospital without a clear understanding of their illness, basic comprehension of their test results, or adequate knowledge of how to respond to changes in their condition. Given the growing burden of chronic illnesses and their increasingly complicated treatment regimens, geriatric patients are especially susceptible to the impact of inadequate health literacy.



A marked expansion in patient education requirements has paralleled the exponential growth in medical technology during the past few decades. Thirty years ago patients were hospitalized for 6 weeks when diagnosed with an acute myocardial infarction, compared to just 2 to 4 days now. While little or no specific therapy was available back then, today such patients will probably be discharged on 5 or more medications (e.g.,  $\beta$ -blocker, aspirin, anti-platelet agent, ACE inhibitor, lipid-lowering agent), given specific dietary and exercise instructions, and subsequently need to undergo complex diagnostic testing. The complexity of diagnosing and treating a variety of common medical conditions challenges many physicians. Yet, we expect geriatric patients to acquire disease knowledge and complex self-management skills in busy practice settings that equate time with money.

### Magnitude of the Problem

Health care providers implicitly assume patients provide complete information on medical forms and comprehend their written and oral explanations. However, 40 million or more Americans have limited literacy, and certainly many of them are unable to process adequately and use the health information they receive. Another 50 million with marginal literacy skills probably struggle with health communications. Unfortunately, literacy skills decline with age, even among patients not suffering from dementia. Approximately one-third of insured patients over age 65 have inadequate or marginal health literacy. Ramifications of poor health literacy, and associated lack of understanding of written or oral health communication, include difficulties navigating the health care system, inaccurate or incomplete histories, missed doctors’ appointments, pills taken at incorrect times or inappropriate dosages, and lack of “informed” consent.

*continued on page 33*

*Health Literacy (continued)*

According to the National Adult Literacy Survey (NALS), considered to be the most accurate portrait of literacy in our society, about one fourth of American adults may lack the necessary skills to function adequately in our society. Millions of Americans do not have the ability to “read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one’s goals, and develop one’s knowledge and potential.” People with inadequate literacy skills come from a variety of backgrounds; they are native-born and immigrants, come from all races and classes, and have no visible signs of disability. However, functionally illiterate adults are more likely to have more health problems, to live in poverty, to have fewer years of education, and to be older. Of note, lack of adequate literacy is twice as common for Americans over 65 and inner city minorities, the primary users of Medicare and Medicaid.

#### Medical Terminology – Another language

The terminology or “language” health care providers use to communicate with patients represents a significant barrier for patients with inadequate health literacy. Physicians’ facile overuse of medical terms combined with patients’ limited health vocabulary results in inadequate and even confusing communication. Multiple studies document the lack of understanding or misunderstanding of common medical terms. Not surprisingly, patients commonly complain that physicians do not explain their illness or treatment options to them in terms they can understand. An older, yet still relevant, study assessed 125 hospitalized patients’ comprehension of 50 of the most common health words found in transcripts of physician-patient interviews. There was a large amount of variation in comprehension of commonly used terms ranging from 13% of patients having an adequate understanding of “terminal” to almost all (98%) understanding “vomit.” Only 35% of patients understood the word “orally,” 22% understood “nerve,” and just 18% comprehended “malignant.” However, it is important not to assume that simplifying written materials or relying solely on oral explanation will bridge the gaps in health communication created by poor health literacy.

While we should not completely eschew use of medical terminology, as patients find it validating, we should also not allow our use of medical terms to obfuscate our intentions. Physicians often bombard patients with a litany of medical terminology, resulting in misunderstood diagnostic and treatment plans. Imagine a routine day when you are rushed and needing to explain to a patient events scheduled for the next day. “Mrs. Smith, tomorrow the cardiologist will be doing a cardiac cath and angioplasty

on you with a little balloon, and placing a stent to open up that clogged blood vessel. I’ll check you afterwards to make sure you’re not having any angina and no bleeding from the anticoagulants.... Do you understand?” Typically, Mrs. Smith will smile and nod yes. Of course, I am sure you may not do this, but I’ve lost count of the number of times I have personally observed this type of scenario.

Patients’ limited health vocabulary and knowledge, especially when compounded by physicians’ facile use of medical terms, becomes a major source of miscommunication between patients and their providers. Doctors are bilingual; they speak their native everyday language but they are also fluent in “medical” language. While physicians may believe they are switching to everyday language when communicating with patients, their patients and nurses do not perceive this. Research shows that physicians typically re-word information into non-technical language in only 12% of explanations to patients. Not surprisingly, patients commonly do not feel their physicians adequately explain illness or treatment plans in understandable terms. Many busy practitioners are probably aware that some misunderstanding exists between them and their patients, but hope that easily accessible health educational brochures will help patients clarify their understanding and answer any remaining questions. Unfortunately, there is a growing disparity between patients’ reading abilities and their health literacy needs. Numerous studies now document that many health materials, including patient education brochures, discharge instruction sheets, contraception instructions, and informed consent documents are often written at levels far exceeding patients’ reading abilities.

#### Identifying and Helping Patients with Low Health Literacy

Unfortunately, it is difficult to identify patients with low health literacy skills. Self-reported education level will not provide an accurate measure of their health literacy. Physicians cannot assume they can identify patients with limited health literacy because most individuals with this problem try to hide their inadequacies. Additionally, people with low literacy are often ashamed and anxiously guard their secret. Previous studies found that 67% of patients with low literacy had not told their spouse, over half had not told their children and 19% had never told anyone. Physicians cannot tell by looking at a patient if he or she has low literacy; many well-groomed, articulate, bright patients have limited health literacy skills. Tests such as the REALM (Rapid Estimate of Adult Literacy in Medicine) and TOFHLA (Test of Functional Health Literacy in Adults) can identify patients with low literacy skills. However, I recommend that these instruments be reserved for research projects. In

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**Do you understand?**  
**Do you have any questions?**



addition to patient age and education completed, practical clues to limited literacy include patients claiming they have forgotten their reading glasses, or requesting the help of family members.

Once identified, physicians need to recognize that individuals with low literacy skills probably deal with communication differently than those with higher skills. For example, they are likely to interpret words literally, have difficulty identifying key concepts, prioritizing them, or separating them from minor details. This often results in a mismatch between medical advice and a communication process that enables the patient to understand and remember information. The most frequent mismatch relates to providers' choice of words. For example, concept words ("normal range"), category words ("ACE inhibitors") and value judgment words ("excessive bleeding") are often misunderstood. Comprehension and compliance may also be compromised with a mismatch in logic. Logic problems may occur because patients may lack scientific and medical training. For example, it may seem logical to stop taking medicine as directed once a patient begins to feel well. Because of their scientific background, physicians may be influenced (and motivated) by facts; however for patients, factual information may obscure behavioral information that may be more relevant and empowering. Patients and providers may think they are communicating adequately with a shared basic understanding of common medical terms. However, patients' ubiquitous misunderstanding of medical terms leads to miscommunication.

A number of communication strategies may improve patient knowledge about their medications. While advances in information technology and the Internet have provided improved access for some patients, patients with inadequate health literacy are probably on the wrong side of the gap between the health information "haves" and "have-nots." Access to health information technology needs to be improved for patients with inadequate health literacy, but this may require use of health information "intermediaries" such as peer educators or younger family members. Use of video is another option as it has been shown to increase patient comprehension among lower literate patients compared to written materials. If written materials are to be used, they need to be clearly written following recommendations from experts in the development of brochures, and will benefit from review by focus groups consisting of patients from the target audience.

A few interventions have proven successful in enhancing both understanding and outcomes among patients with inadequate health literacy. While certain techniques have been recommended in preparing written materials, success in improving patient understanding by simplifying written brochures, has not been confirmed in other research.

One study has shown use of video increases comprehension among low-literate patients compared to written materials. Pictographs, pictures that represent ideas, enhanced recall of spoken medical instructions from 14% to 85% among literate individuals. A study of 21 people with less than fifth grade reading skills demonstrated 71% correct recall of information contained in pictographs after 4 weeks, suggesting that patients with low health literacy can recall important medical information for significant periods of time by using pictographs as a visual aid. Use of cartoon illustrations has also been shown to improve comprehension of and compliance with discharge instructions. International experts have known for some time that visual aids can successfully be used to communicate with non-literate persons. Multimedia represents yet another alternative that may be successful in educating patients with inadequate health literacy. Qualitative research documents that though patients perceive physicians to be the authorities on health, patients with low literacy skills turn first to family members and friends for health information. Thus, significant others also need to be considered part of the educational process. Try to make sure they are present for important discussions, especially at the time of discharge instructions.

### Summary

The problem of health literacy has been overlooked because patients do not fit a stereotype, do not volunteer their difficulty reading due to shame, and physicians have typically been unaware and short of a precious commodity—time. Yet inadequate health literacy is prevalent, especially among geriatric patients, and needs to be addressed or patients suffer. Hospitalists must be aware that patients with inadequate literacy skills may be anxious and feel ashamed about being expected to read and fill out discharge instructions, question the physician when confused, or sign consent forms. For such patients, clinicians may want to institute a system in which someone in the hospital routinely offers help in completing forms and relatives are invited to participate in the medical interview or patient education sessions. Qualitative research documents that patients with low literacy skills turn first to family members and friends for health information, though patients perceive physicians to be the authorities on health. Thus, significant others may need to be invited to be present during the patient visit and be included in the educational process. Educating health care providers and sensitizing them to the barriers faced by patients with inadequate health literacy certainly is a first step to increasing recognition of patients with low health literacy. Of note, the American Medical Association (AMA) Foundation has developed an inexpensive videotape that can be used in teaching students, trainees, and practicing health care providers.



Given dramatic increased learning demands placed on patients, physicians need to appreciate the need to change their usual approach to patient education. This is particularly important for patients with poor health literacy. Physicians should be extensively trained in providing patient education, just as they are in diagnosis and treatment. Based on published research and our experience caring for patients with inadequate and marginal health literacy, we recommend the following simple steps delineated in the Table. First, slow down and take time to assess patients' health literacy skills. Second, use "living room" language that patients can understand while eschewing medical terms. Third, show or draw pictures to enhance understanding and subsequent recall. Fourth, limit information given to patients at each interaction and repeat instructions. Fifth, use a "teach back" or "show me" approach to confirm understanding. Place the responsibility for adequate teaching on the health care provider and ask patients to demonstrate their instructions (i.e. teach back to you how to take their medications) to ensure that you have done an adequate job of instruction. Never ask, "Do you understand?" as patients will typically acquiesce and say yes. Lastly, be respectful, caring and sensitive to the plight of low-literate patients. Such an approach will reassure and empower patients to optimize their participation in their health care. Patients truly appreciate a physician who takes this approach and will reward you with improved satisfaction and trust.

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### **Table. Steps to enhance patients' understanding and compliance**

- **Slow down and assess health literacy skills**
- **Use "living room language"**
- **Show or draw pictures**
- **Limit information; repeat instructions**
- **Use a "teach back" or "show me" approach to confirm understanding**
- **Be respectful, caring, and sensitive**

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## Anesthesia and the Geriatric Patient

Reprinted from *The Hospitalist's Geriatrics Symposium*

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### Introduction

From its humble beginnings in the 1840s using ether, the practice of anesthesia has evolved into an indispensable and integral corequisite of surgery, with over 40 million inpatient procedures performed in 2000 in the United States. That same year, 14.7 million persons aged 65 years and older underwent inpatient surgical procedures, which accounted for 38% of all inpatient surgeries. In fact, persons 65 years and older had the highest rate of surgical procedures that year. As the population ages, both the actual number and the percentage of geriatric surgeries will increase.

Although improvements in anesthesia and monitoring have reduced surgical risk in general, perioperative morbidity and mortality increase with age. This is because geriatric patients typically have an increased incidence of comorbid conditions and a decline in end-organ function. In fact, it appears that preoperative comorbidities are more important than intraoperative events in predicting adverse postoperative outcomes. Furthermore, it may be difficult to distinguish between organ systems that are normal but have diminished reserve due to aging and those that are abnormal because of disease. Such changes may be clinically insignificant when the patient is at rest but may have significant adverse effects during cardiovascular stress. Thus, while age itself may not be a risk factor for perioperative complications, the associated physiologic and pathologic changes can lead to increased surgical risk.

Hospitalists have a key role in working with anesthesiologists and surgeons in the perioperative management of geriatric patients. In particular, hospitalists should perform a thorough risk assessment and provide recommendations for risk reduction for each patient. This requires accurate preoperative evaluation, along with appropriate postoperative care to decrease surgical morbidity and mortality. It is therefore essential that hospitalists understand the basics of anesthesia care and the unique surgical risk factors of geriatric patients.

### Anesthesia in Geriatric Patients

In broad terms, the goals of general anesthesia are to induce unconsciousness, provide analgesia, cause amnesia, and provide a quiescent surgical field. A variety of medications are available that allow surgery to be performed safely and with only minimal discomfort. These medications can be classified as anesthetics (intravenous or inhaled), analgesics, and sedative-hypnotics, such as benzodiazepines. Adjunctive medications include neuromuscular blocking agents like succinylcholine and vecuronium.

Regarding the type of anesthesia, regional (spinal, epidural, peripheral, or local) versus general, there is no consensus on which type may be safer for geriatric patients. Physiologically, regional anesthetics appear to offer benefits of decreased endocrine, metabolic, and catabolic response to the stress of surgery. However, there is no clear-cut ben-

efit to either type of anesthesia based on current studies. On the other hand, some patients may be suitable candidates for a local anesthetic or peripheral nerve block. The final decision regarding anesthetic technique should be left to the anesthesiologist.

Modern anesthesia is extremely safe, with a mortality of 1 in 250,000 cases. However, surgical risk is increased because of certain physical conditions. **Table 1** gives the American Society of Anesthesiologists Classification of Physical Status (commonly used to denote preoperative risk), along with the percent mortality for a given surgical procedure.

**Table 1. American Society of Anesthesiologists Classification of Physical Status**

1. Normal healthy patient. Mortality less than 0.03%.
  2. Mild systemic disease that results in no functional limitations. Examples include well-controlled hypertension and well-controlled diabetes mellitus. Mortality 0.2%.
  3. Severe systemic disease that results in functional limitations. Examples include angina, previous myocardial infarction, poorly controlled hypertension, and respiratory disease that limits activity. Mortality 1.2%.
  4. Severe systemic disease that is a constant threat to life. Examples include unstable angina, congestive heart failure (CHF), and advanced respiratory disease. Mortality 8%.
  5. Moribund patient not expected to survive 24 hours without surgery. Example is ruptured abdominal aortic aneurysm. Mortality 34%.
  6. A declared brain-dead person whose organs are being removed for donor purposes.
- E. Suffix to indicate an emergency procedure.

The process of anesthesia, along with the surgical stress, can have significant effects on patients, and these effects may be enhanced in geriatric patients. Common effects of anesthesia and surgical stress, along with suggested treatment options, are outlined below. In addition, a brief overview of airway management in elderly patients is given at the end of this section. Always remember to monitor these patients for subclinical events, because the elderly often have nonspecific signs and symptoms.

### Nervous System

#### *Effects of Anesthesia and Surgery*

- Local anesthetics like lidocaine and bupivacaine may rarely cause central nervous system effects, including sedation, seizures, and coma.
- Regardless of the choice of anesthetic agent, elderly patients commonly develop delirium in the postoperative period. Geriatric patients with an underlying dementia,

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active illness, or on multiple medications are at higher risk to develop delirium.

- Age-related autonomic dysfunction can affect compensatory response to intravascular fluid shifts and response to medications like  $\beta$ -blockers. This may lead to postoperative orthostasis and difficulties in maintaining optimal heart rate and blood pressure.
- Malignant hyperthermia is a rare inherited disorder affecting the skeletal muscle sarcoplasmic reticulum. Succinylcholine and volatile anesthetics can trigger this potentially fatal condition.

#### Treatment Options

- Preventive measures against delirium include maintaining a normal sleep-wake cycle, minimizing use of opioids (while maintaining adequate analgesia) and anticholinergics, normalizing electrolytes and fluid status, maintaining adequate oxygenation and ventilation, treating infections, and maintaining adequate hemoglobin ( $\geq 10$  g/dL).
- Cardioactive medications should be carefully titrated to normalize heart rate and blood pressure.
- Baseline medications in patients with Parkinson disease should generally be continued, although some authorities suggest holding the morning dose of carbidopa/levodopa immediately before surgery and then resuming it as soon as possible.
- Some authorities suggest holding cholinesterase inhibitors used to treat dementia because of possible interaction with succinylcholine.
- Patients should be asked about any personal or family history of neuromuscular disease or reactions to anesthesia that could indicate malignant hyperthermia.

- Patients with a history of alcohol abuse should be monitored for evidence of withdrawal.

#### Cardiovascular System

##### Effects of Anesthesia and Surgery

- Coronary artery disease is the leading cause of perioperative morbidity and mortality.
- In general, elderly patients may have greater hemodynamic instability intraoperatively and postoperatively than nonelderly patients.
- Intubation of patients may cause transient hypertension and tachycardia.
- Induction of anesthesia may cause hypotension. Elderly patients with diminished cardiac reserve are at increased risk to develop hypotension.
- Volatile inhaled anesthetics, such as sevoflurane, isoflurane, and desflurane, cause vasodilation with a resulting decrease in mean arterial pressure. These drugs also cause myocardial depression, which can be exaggerated in elderly persons.
- Spinal anesthesia may cause significant initial hypotension that can be worsened in elderly persons who are volume depleted.
- Severe aortic stenosis can cause decreased cardiac output if preload is decreased.
- Severe pulmonary hypertension can lead to cardiovascular collapse.
- Intraoperative and postoperative stress (increased catecholamine release) may precipitate cardiac arrhythmias.

##### Treatment Options

- Accurate assessment of cardiac risk and functional status can be performed using an algorithm, such as the American College of Cardiology/American Heart Association or ACP guidelines. Note that most perioperative myocardial infarctions occur in the first 48 to 72 hours of the postoperative period.
- Patients with peripheral vascular disease are at high risk for concomitant coronary artery disease and may need preoperative noninvasive cardiac testing.
- Ensure that patients have adequate intravascular volume without fluid overload before surgery.
- All CHF patients must be at baseline "dry" weight and fully compensated before surgery. Remember that the left ventricular ejection fraction alone gives no indication as to whether or not a patient has compensated CHF.
- Alert the anesthesiologists if the patient has severe aortic stenosis or pulmonary hypertension. Valve replacement may need to be performed prior to elective surgery. Patients with valvular disease may need endocarditis prophylaxis.
- Continue all cardiac and antihypertensive medications except diuretics preoperatively. Some authorities suggest holding angiotensin-converting enzyme inhibitors

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the morning of surgery. It is recommended that elective surgery be postponed if diastolic blood pressure is greater than 110.

- Anticoagulation for low-risk atrial fibrillation patients may be reasonably withheld during the immediate perioperative period without the need for bridging heparin.
- High-risk atrial fibrillation patients (mechanical valve, CHF, ejection fraction  $\leq 0.35$ , hypertension, previous cardioembolic event, thyrotoxicosis, rheumatic heart disease, or persistent atrial thrombus by transesophageal echocardiography) should be given bridging heparin while warfarin is held.
- Patients with atrial fibrillation detected for the first time in the preoperative exam should have elective surgery deferred until an appropriate evaluation and plans for rate control, cardioversion, and anticoagulation have been made.
- Postoperative care includes adequate analgesia to blunt excessive sympathetic activity.

## **Pulmonary System**

### *Effects of Anesthesia and Surgery*

- Pulmonary gas exchange may be affected by atelectasis caused by the combined effects of neuromuscular blocking agents, patient positioning, and the inability to clear mucus secretions.
- Volatile anesthetics attenuate hypoxic pulmonary vasoconstriction, which may result in impaired oxygenation through V/Q mismatch.
- The type of surgery (laparoscopic or open) and the location (thoracic, upper abdominal) also impacts pulmonary function.
- Elderly patients who have decreased pulmonary function because of age effects, chronic obstructive pulmonary disease, and sleep apnea are at increased risk to require prolonged mechanical ventilation postoperatively.
- Nitrous oxide can conceivably diffuse into emphysematous bullae and lead to enlargement and rupture.

### *Treatment Options*

- Preoperative pulmonary toilet, including incentive spirometry, has been demonstrated to decrease postoperative pulmonary complications.
- Patients with asthma may require pre- and perioperative treatment with nebulizers and corticosteroids.
- Pulmonary function tests are usually not needed unless a patient has dyspnea or exercise intolerance that can't be explained based on the clinical exam or if it can't be determined that a patient with known chronic obstructive pulmonary disease or asthma is at his or her baseline.
- Patients who smoke should stop, preferably at least 8 weeks before surgery.
- Opioids and benzodiazepines should be carefully dosed in elderly patients to decrease risk of respiratory

depression and apnea, while allowing adequate analgesia.

- Patients should begin ambulating as soon after surgery as possible.

## **Gastrointestinal System**

### *Effects of Anesthesia and Surgery*

- Gastroesophageal reflux is a risk factor for aspiration, particularly during anesthesia induction.
- There have been rare reports of hepatotoxicity with anesthetic agents, primarily with halothane. The risk is increased with underlying liver disease.
- Postoperative ileus is a common occurrence that may be due to the particular surgical procedure, the type of anesthesia, and the analgesic medications (particularly opioids). Elderly patients who have chronic constipation or who may be taking laxatives on a regular basis are at increased risk for developing an ileus.

### *Treatment Options*

- Give patients with gastroesophageal reflux disease an acid-blocking medication perioperatively. Laryngeal-mask airways should generally not be used in patients with gastroesophageal reflux disease because of the risk for aspiration.
- Assess liver and biliary system function preoperatively in patients with known liver disease.
- Medications that are metabolized by the liver may require dose adjustment.
- Minimize use of opioids (while allowing adequate analgesia) and anticholinergics to decrease the risk of postoperative ileus.

## **Genitourinary System**

### *Effects of Anesthesia and Surgery*

- Elderly patients with pre-existing renal impairment may have worsening function because of perioperative hypovolemia, hypotension, and nephrotoxic drugs like nonsteroidal anti-inflammatory drugs and aminoglycosides.
- Most drugs used in the anesthesia process are not nephrotoxic, but volatile anesthetics produce dose-dependent decreases in renal blood flow, glomerular filtration rate, and urine output. These effects are most likely secondary to decreased systemic blood pressure and cardiac output. Spinal and epidural anesthetics generally cause only minimal decrease in renal blood flow and glomerular filtration rate.
- Renal insufficiency may lead to difficulty with maintaining fluid and electrolyte balance.
- High-risk surgeries like abdominal aneurysm resection, renal artery revascularization, and procedures requiring cardiopulmonary bypass have increased risk of renal failure.
- Painful stimulation during surgery leads to increased levels of antidiuretic hormone and aldosterone, thus

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causing decreased urine output.

- Urine retention may occur as a result of anesthesia, opioids, or anticholinergic medications.

#### **Treatment Options**

- Fluid status and blood pressure should be optimized before surgery.
- Patients should avoid nonsteroidal anti-inflammatory drugs and other nephrotoxic drugs.
- Patients with chronic renal disease on hemodialysis should be dialyzed before surgery. These patients often respond to anesthesia as if they are hypovolemic, and they have a narrow margin of safety between insufficient and excessive fluid administration.
- Serum potassium level should be obtained before surgery.
- Anuric patients should not be given fluids containing potassium.
- Postoperative management should focus on maintaining normal blood pressure (to ensure adequate renal perfusion) and fluid status, while monitoring urine output.
- Urine retention can be treated with bladder catheterization, while minimizing use of any offending medications. Workup for infection may be necessary.

### **Metabolic, Endocrine, and Hematologic Systems**

#### **Effects of Anesthesia and Surgery**

- Patients with a decreased basal metabolic rate and a decline in the volume of distribution, metabolism, and clearance of drugs require dose adjustment of anesthesia medications.
- Patients who are malnourished have increased perioperative morbidity and mortality.
- Although patients who are morbidly obese are at increased risk of having comorbid medical conditions, obesity itself is not a risk factor for postoperative complications.
- Patients with hyperthyroidism may have an exaggerated sympathetic response to anesthesia induction and surgical stimulation. Rarely, thyroid storm may be precipitated.
- Aside from surgical bleeding, the major perioperative hematologic concern is for immobilized patients to develop a deep vein thrombosis. Regional anesthesia may decrease the risk of thromboembolism, compared with general anesthesia.

#### **Treatment Options**

- Medications should be titrated to effect based on presumptive changes in metabolism.
- Protein-calorie malnutrition is seen in up to 30% to 60% of nursing home patients, those in hospice sites, and those who have been hospitalized for several days. The daily caloric goal for preoperative patients is 35 kcal/kg, with 1 g/kg of protein.
- Patients with hyper- and hypothyroidism should have

elective surgery postponed until they have been treated and are euthyroid.

- Patients with hyperthyroidism who cannot delay surgery can be placed on an esmolol drip intraoperatively. These patients should have frequent measurement of body temperature to monitor for thyroid storm.
- Diabetic patients should be instructed on medication use before surgery. Sulfonylureas should be held the morning of surgery. Metformin should be held at least 1 day before surgery. Insulin can be given the morning of surgery in a dose dependent on the patient's usual regimen and the time of day of the surgery. For example, a patient taking twice per day NPH insulin can be given one third to one half of the usual morning dose for a morning surgery.
- Diabetic patients should have frequent glucose monitoring perioperatively.
- Patients at risk for adrenal insufficiency should be given perioperative stress-dose steroids.
- There is considerable controversy regarding the optimum time to transfuse anemic patients. Some authorities recommend transfusing patients with known coronary disease to maintain a hemoglobin level of 10 g/L or greater.

#### **Airway**

Airway evaluation is a critical part of the preoperative assessment to identify factors that indicate a person may be difficult to intubate. These factors include the Mallampati classification (based on the view of structures of the posterior oropharynx), neck range of motion, mouth range of opening, thyromental distance (the distance from the mentum to the thyroid cartilage, measured in fingerbreadths), and whether or not the patient has loose or missing teeth or caps or dentures. Geriatric patients may be edentulous or have dentures or may have temporomandibular joint dysfunction. They may also have osteoarthritis or rheumatoid arthritis that prohibits adequate neck flexion or extension and increases the risk of cervical spine injury during intubation. Patients with known longstanding rheumatoid arthritis can have preoperative C-spine flexion and extension radiography to help determine intubation risk.

#### **Conclusions**

Anesthesia is a safe and necessary part of any surgical procedure. However, geriatric patients may have medical conditions that increase their perioperative risk. These conditions may be related to the natural changes of aging, or they may be due to a significant comorbid disease. An understanding of the physiologic and pathologic processes commonly associated with aging can allow the hospitalist to best prepare a patient for surgery. Likewise, knowledge of the effects of anesthesia will allow the hospitalist to communicate any medical concerns to the anesthesiologist and surgeon. Only with a team effort can we ensure that the patient arrives in the operating room fully prepared and

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*Anesthesia and the Geriatric Patient (continued)*

medically optimized. While we can't guarantee success, we can maximize the patient's chances for a good outcome.

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## Portal of Geriatrics Online Education (POGOe): A New Source of Geriatrics Educational Materials for the Practicing Hospitalist

Reprinted from *The Hospitalist's* Geriatrics Symposium

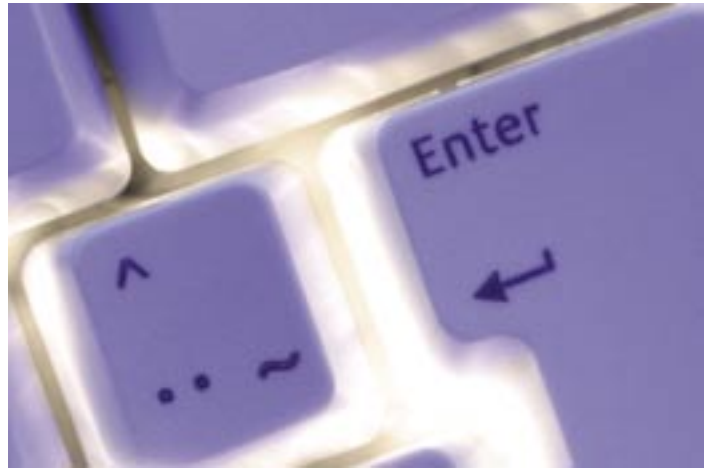
The Portal of Geriatrics Online Education (POGOe), [www.pogoe.org](http://www.pogoe.org), is a new online clearinghouse that provides those interested in geriatrics education with a single source for high-quality educational products. Funded by the Donald W. Reynolds Foundation in a grant to the Association of Directors of Geriatric Academic Programs (ADGAP), POGOe will enhance the ability of physicians in training and physicians in specialties and sub-specialties to meet the health care needs of older adults and aid clinician-educators in their scholarship and promotion.

Currently, older adults represent only 12% of the United States population; however, they consume about one-third of all health expenditures and fully one-half of the \$140 billion annual U.S. federal health care budget (1). By 2030, there are expected to be 70 million people 65 years of age or older. Seniors already account for 36% of all acute hospitalizations, and these percentages can only be expected to grow. The implications of these numbers for hospitalists are considerable and underscore the need for more education and research efforts in the care of hospitalized elders.

"The SHM, with the help of a grant from the John A. Hartford Foundation, has developed a Geriatrics Leadership Task Force to address this issue. There have been a series of articles in *The Hospitalist*, the SHM publication, over the past year, and a commitment to a session on geriatrics at the SHM meeting. Formal educational core competencies are being developed as well, and there is an educational CD in production," states Jonathan M. Flacker, MD, Assistant Professor of Medicine, Division of Geriatric Medicine and Gerontology, Emory University School of Medicine.

POGOe is an opportunity to share the fruits of these labors. POGOe's educational products have primarily been designed for physicians in training and practicing physicians, and have applicability to other disciplines. Products are available in many formats: audiotapes, CD-ROMs, computer software, DVDs/VHS, overheads, paper form, PDAs, pocket instructional aids, Power Point presentations, and Web-based products. Materials have been developed for medical students, medical and surgical house staff, practicing physicians, and other learners.

Although POGOe just went "live" in April 2004, already there are several products of interest to hospitalists. Brent Williams, MD and colleagues at the University of Michigan produced *A Pocket Card on Approach to Older Patients and Common Drug Side Effects*. The front side of the pocket card is a "road map" for key components of assessment of older patients and specific assessment tools that help accomplish each component. The reverse side of the pocket card lists physical complaints and common side effects of medications. Joseph Myslinski, MD and associates at the University of South Carolina Medical Center developed *Delirium in Elderly Emergency Department (ED) Patients*.



This product reviews some causes of delirium, the common presentations of delirium, high-risk patients, and how the *Confusion Assessment Method (CAM)* can help with making the diagnosis. Other geriatric hospital medicine products can be found on POGOe by searching the specific content area or the specific learner to be taught, e.g., hospitalists.

When possible, users can directly download products. Otherwise they will be shown how to obtain the educational materials from the product's Web site or authors. Anyone with an interest in geriatric health care and promoting the field of geriatrics among clinicians is welcome to register and use materials posted on the POGOe Web site. Some materials are free; others must be purchased. Those created through grants from the Donald W. Reynolds Foundation are available for the price of duplication and shipping.

"POGOe has two major purposes. The first is to ensure that clinician-educators have easy access to materials for students, trainees, and practicing physicians that will enhance their ability to provide state-of-the-art care to their older patients. For this to work, we need those who have developed educational products applicable to physician training in any area of geriatrics to submit their work to us, so that those responsible for medical education in places with little or no geriatrics resources will be easily able to teach how best to care for older patients," says Rosanne M. Leipzig, MD, editor-in-chief of POGOe and Professor and Vice Chair of Education at Mount Sinai School of Medicine, New York, New York. "The second purpose is to provide a mechanism for clinician-educators to get credit for their educational products that can help with academic promotion."

POGOe is actively seeking the submission of geriatric educational materials applicable to practicing physicians or physicians in training. Materials should have been pilot tested with learners and revisions made based on results. Whenever possible, a formal evaluation of learner satisfac-

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*Portal of Geriatrics Online Education (POGOe) (continued)*

tion, attitudes, knowledge, and/or performance should be provided as part of the submission. Authors can submit educational products at [www.pogoe.org](http://www.pogoe.org). All products are peer reviewed. Peer reviewer comments are provided to the authors along with a decision as to whether the product has been accepted or needs revision. These acceptance letters indicate that the product has passed peer review and how to reference the posting in other publications and curriculum vitas. POGOe is organized as an online journal with an editorial staff, associate editors, and a prominent advisory board. Anyone interested in submitting an educational product or becoming a peer reviewer should contact POGOe's Managing Editor, Michelle A. Adams, at [pogomeditor@mssm.edu](mailto:pogomeditor@mssm.edu) for more information.

“Our intent is to develop one-stop-shopping for geriatric educational products that reduces duplicative effort, while helping geriatrically oriented clinician-educators receive national recognition for their creative efforts, hopefully helping them achieve promotion and remain active in teaching how to care for older adults in their discipline,” states Dr. Leipzig.

POGOe is made possible by funding from the *Donald W. Reynolds Foundation*, under its Aging and Quality of Life program (<http://www.dwreynolds.org/Programs/National/Aging/AboutAging.htm>).

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## **Involving the Older Adult and/or Family Member in Discharge Planning**

*M. Colleen Royer, MSN, RN, Department of Case Management and Social Work  
Lorraine C. Mion, PhD, RN, Department of Nursing  
MetroHealth Medical Center, Cleveland, OH*

The goals of discharge planning are to help patients and their families receive the most appropriate level of care, remain in the hospital for shortest possible time, and have a planned post-hospitalization program to meet continuing care needs (Dash, Zarle, O'Donnell, Vince-Whitman, 1996). A prevalent clinical issue facing hospital professionals is how to discharge older patients in a timely manner while ensuring the appropriate medical, social, and healthcare safety nets are implemented. The hospitalized elderly are at high risk for poor post-discharge outcomes including rehospitalizations, frequent ED visits, and institutionalization.

While traditionally many hospitals utilize selected personnel (i.e., social workers, case managers, discharge planners), the frail older adult requires an interdisciplinary approach to the problems and issues of continuing care. When patients and their families get involved, the process of discharge planning is more comprehensive and more likely to ensure continuing care and avoiding re-hospitalization.

Ideally, planning for continuing care post-discharge begins at time of admission to the hospital. A number of social, physical and economic issues can affect the success of the discharge process. A simple checklist, “Getting Ready to Go Home” was devised to help older adults and their families to begin thinking about these issues upon admission or transfer to a general medical or surgical unit. Patients and their families are asked to think about transportation issues, ability to obtain medications or medical supplies, follow-up appointments, need for assistive devices in the home, ability to obtain groceries or prepare meals, and knowledge and ability to follow a therapeutic regimen. We have found this checklist helpful in discussing discharge plans with our older patients. (See Next Page)

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# Getting Ready to Go Home

Preparation is the key to making a smooth transition from the hospital to your home. Review the questions below and talk to your doctor, discharge planner or nurse about your questions or concerns.

## 1. Transportation to Your Home

**Is there someone who can pick you up from the hospital and take you home?**

## 2. Medications

If you have questions about your medications, ask your nurse, pharmacist or doctor to help you understand.

**Are you able to get your prescriptions filled when you leave the hospital?**  
*(A nurse, discharge planner or pharmacist can help make arrangements.)*

**Do you understand what your medications are supposed to do?**

**How often should you take them?**

**How many should you take?**

**For what side effects should you call your doctor?**

## 3. Medical Supplies

**Do you need any medical supplies (for example, surgical wound dressings or oxygen)?**  
*(You may be able to get these supplies before leaving the hospital or have family members pick them up before you go home.)*

## 4. Follow-up Appointments

You will likely need to see a health care provider a few days or weeks after this hospitalization. If you think you may have trouble with transportation, speak to the nurse, discharge planner or social worker before leaving the hospital.

**Who is making your follow-up appointments?**

**What is the time and location of your appointment? What is the doctor's name?**

**Will you have transportation to the appointment?**

## 4. Moving About Your Home

Sometimes after a serious illness or surgery, people may have trouble getting in and out a chair, bed or bathtub or climbing stairs. It may not always be possible for family to help. It is important to avoid a fall.

It is also important to avoid inactivity. Speak with the nurse, discharge planner or physical therapist to discuss a plan for moving around.

**Will you need physical aids in the home, such as a bedside commode or bathroom grab bars?**

**Should you speak with a physical therapist to determine if you could benefit from the use of a cane or walker?**

**Should you have a “LifeLine” installed to summon help quickly in the event of a fall?**

### **5. Groceries and Meal Planning**

It is important to eat well during your recovery. You may need help grocery shopping and bending to reach food, pots, pans, and plates on lower shelves. If you are unable to drive because of your condition, ask family or friends to do some grocery shopping for you or deliver meals when you first arrive home. Also, be sure to check that refrigerated food did not spoil while you were away.

**Can family or a friend drive you to the store or do shopping for you?**

**Can family or a friend move food, plates and pots to easy to reach shelves?**

### **6. Treatments**

For most people leaving the hospital, ongoing treatment and management is necessary. You might need to change wound dressings, perform certain exercises, or keep a certain diet. Be sure you understand how to manage your condition. Your doctor may also order home health services. Your nurse or discharge planner can explain what to expect in terms of services, frequency of visits, and insurance coverage.

**What should you do at home to help manage your condition?**

**Should you follow a special diet?**

**Should you do any special exercises?**

**Do you need any home health services? What type? How often?**

**Does your insurance cover home health services ordered by your doctor?**

### **7. Financial Concerns**

If you have any concerns about utilities, paying for medications or ongoing therapy, please contact the social worker. There may be assistance available.

**YES**

**NO**

Do you need to take off work? Speak to your discharge planner or nurse to plan a date and time for discharge.

Speak with the nurse or discharge planner to arrange transportation.



## Improving Care for Older Adults: SHM Educational Initiatives

Tina Budnitz, MPH, Senior Advisor for Planning and Development, Society of Hospital Medicine

The Society of Hospital Medicine's Education Committee and Core Curriculum Task Force have identified improving care delivery for older adults as a key area of focus for educational programming. For hospitalists to improve care they must not only be proficient in clinical best practices and leading multidisciplinary teams, but also must possess the leadership and management skills needed to implement changes in the hospital system. Over the past two years, SHM has developed geriatric education curricula to train members on best practices in the inpatient care of older adults and provide members with commonly used bedside tools. The next step is to reach beyond traditional continuing medical educational programs and provide leadership training, resources, and mentorship to assist hospitalists as they develop and implement quality improvement programs at their hospitals to improve outcomes in hospitalized older adults.

The SHM Education Committee and Geriatrics Task Force (GTF) have developed an impressive array of educational programs for the SHM membership to improve inpatient care for older adults. Many of these programs were made possible through support by the John A. Hartford Foundation through a subcontract from the American Geriatrics Society. Development of these programs would not have been possible without the dedicated efforts of the SHM Geriatric Task Force, Leadership Task Force and Education Committee members.

After an initial needs assessment of the membership, the GTF determined that educational programs should incorporate applied learning activities and provide specific clinical tools for members. More specifically, the GTF determined that educational programs should train members to recognize and respond to the unique clinical issues of hospitalized older patients, select and use assessment tools appropriately, and overcome institutional barriers to apply best practices. Some of the GTF educational programs are detailed below:

### 1) *Annual & Regional Meetings*

Prior to these meetings, the GTF identified the leaders of educational sessions relevant to geriatric care and suggested key points to address in their presentations related to the unique needs of older patients. The GTF also made itself available for consultation on geriatric issues to any regional or annual meeting speaker.

### 2) *Tools and Solutions for Perioperative Care Workshop*

The GTF, in collaboration with course directors Frank Michota MD, and Robert Palmer MD, developed this three hour, applied learning workshop at the 2004 SHM Annual Meeting. The presentation slides and other materials from the workshop are available on the SHM Web site. ([www.hospitalmedicine.org](http://www.hospitalmedicine.org) in the "Educational Programs" section.)

### 3) *"Clinical Toolbox for Geriatric Care" CD-ROM*

The GTF, lead by Editor in Chief Jeanne Huddleston, MD and Managing Editor Tina Budnitz, MPH and Lead Writer Jan Clarke, MD, MPH developed this CD-ROM compendium of resources for inpatient care of the elderly. This CD-ROM includes such assessment tools as the Geriatric Depression Scale, Performance-Oriented Mobility Assessment, and Braden Scale for Predicting Pressure Sore Risk and resources such as the Restraint Alternative Menu, Nutritional Intervention Pearls and Medications to Avoid in the Elderly. To facilitate physician selection of tools and resources, each item has a brief description that details its strengths, limitations and appropriate context for use. This CD-ROM was distributed to all SHM members attending the 2004 Annual Meeting. All 1000 copies of the CD-ROM have been distributed to date and additional copies have been ordered. To request a copy of the "Clinical Toolbox for Geriatric Care," contact SHM Customer Service at 800-843-3360, ext. 2437.

### 4) *"Getting Ready to Go Home" Discharge Planning Checklist*

The GTF in collaboration with lead authors Lorraine Mion PhD, RN and M. Colleen Royer, RN, MSN created this patient centered checklist to assist patients and families in preparing for the transition from the hospital to home or an outpatient care facility. This original resource is available on the SHM Web site and the *Clinical Toolbox for Geriatric Care* CD-Rom.

### 5) *Geriatric Aspects of Hospital Medicine Symposium in The Hospitalist*

The GTF commissioned the following series of articles, reprinted in this supplement, to highlight important patient safety issues in inpatient management of older adults:



*Improving Care for Older Adults (continued)*

**Nov/ Dec 2003:**

*Anesthesia and the Geriatric Patient*

A. Scott Keller, MD

**Jan / Feb 2004:**

*Polypharmacy and the Hospitalist*

Todd Semla, MS, PharmD and Alpesh

Amin, MD, MBA

**March /April 2004:**

*Antimicrobial-Resistant Infections in Geriatric Patients: The Role of the Hospitalist*

Chesley Richards, MD, MPH

**May/ June 2004:**

*Caring for the Postoperative Patient with*

*Delirium*—James L. Rudolph, MD, SM and

Edward R. Marcantonio, MD, SM

### What's Next?

SHM will continue to expand its efforts to improve inpatient care for the older patient over the next two years. The John A. Hartford Foundation has generously awarded approximately \$370,000 to SHM in support of efforts to improve inpatient care for older adults. SHM has earmarked approximately \$340,000 in resources towards the same goals. Over the next two years, SHM efforts to improve inpatient care for older adults will focus on three main goals:

- 1) Continue development of high-quality educational programs and products for SHM membership
- 2) Enhance and expand leadership training for hospitalists
- 3) Develop, implement, and evaluate a quality improvement demonstration project at three institutions

### Educational Programming

Educational programming will continue to focus on how best practices can be applied in real settings. SHM will go a step further to complement educational programs with leadership and research training for members that will empower them to implement and evaluate quality improvement programs at their institutions. Specific educational products and programs under development are detailed below:

#### *Discharge Planning Optimization*

*A discharge planning tool for clinicians will be developed by the Health Quality and Patient Safety Committee (HQPS) and an interdisciplinary team (including experts in hospital medicine, medical subspecialties, pharmacy, nursing and nutrition). The short-term goal of the project will be to provide a tool that facilitates discharge planning activities and instructions through a centralized record. Long-term, HQPS will pilot the instrument in the hospital setting and determine "winning strategies" for hospitalists to implement the tool at their institutions. The previously developed "Getting Ready to Go Home" patient centered discharge planning tool will be updated and serve as a companion to the clinician centered tool.*

*The Education Committee and staff are developing symposia for upcoming Annual and Chapter Meetings on how to improve discharge planning processes at the hospital and how to take advantage of discharge planning tools.*

#### *Visualizing the Optimal Hospital Stay for the Older Patient*

*This innovative educational program will help physicians understand the experience of the elderly patient from hospital admission through discharge follow-up. The offering will help hospitalists gain a deeper patient-centered perspective of the hospital stay and shed light on the challenges facing geriatric patients in the post-discharge period.*

#### *Web-based Resource Room*

*A Caring for the Elderly Resource Room will be added to the SHM Web site, providing many resources for members including (but not limited to) links to "best practices" guidelines; mental, functional and nutritional status assessment tools; pain assessment tools; slide sets for instructional use; patient education materials; the "Getting Ready to Go Home" discharge planning checklist; and the clinician Discharge Planning Tool.*

#### *Clinical Toolbox for Geriatric Care*

*SHM is producing an additional 1000 copies of the CD-ROM clinical toolbox for geriatric care and publishing its contents on the SHM Web site in the Caring for the Elderly Resource Room. Contact SHM Headquarters to order copies for your hospital free of charge. Shipping and handling fees apply.*

#### *Spotlight on Quality Improvement Programs*

*The SHM eNewsletter will begin highlighting QI programs implemented by SHM members that have improved outcomes for older adults. If you have a success story to share, contact Jason Stein, MD, Web Editor, at [webeditor@hospitalmedicine.org](mailto:webeditor@hospitalmedicine.org).*

#### *Leadership Training*

To effect positive change in inpatient care for the elderly, hospitalists must be adept in leading and managing change. SHM convened a Leadership Task Force to determine how to best impart leadership skills to its membership. The Leadership Task Force conducted forums, reviewed existing literature and SHM membership survey data, and reviewed feedback from the "Leadership Survival Skills" pre-course delivered at the 2004 Annual Meeting to determine the training needs of its members. Based on this research, the Leadership Task Force developed a four day "Leadership Academy" for hospitalist leaders. The first Leadership Academy will be held January 10-13, 2005 in Tucson Arizona. Workshop topics will include: Strategic Planning, Leadership Challenges in Hospital Medicine, Leading and Managing Change, Conflict Resolution

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*Improving Care for Older Adults (continued)*

and Negotiation, Effective Communication, Understanding the Business Drivers for Hospital Survival and Success, Understanding Critical Hospital Performance Metrics: How to interpret all those reports, and Achieving Success as a Leader: Applying what you've learned. In response to overwhelming interest in the course, the Leadership Academy will be offered again September 12-15, 2005 in Vail, Colorado. For more information contact [meetings@hospitalmedicine.org](mailto:meetings@hospitalmedicine.org).

**Quality Improvement Demonstration Project**

The HQPS and Education Committees and project staff will conduct a demonstration project to improve outcomes in older adults. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) National Patient Safety Goals will serve as a guide in defining specific target outcomes. Research will determine the facilitating factors and barriers to implementation of the QI project in the hospital. Research sites and site principle investigators will be selected through a competitive review process and will receive a modest stipend to implement the program. Site principle investigators will be assigned a mentor and participate in a training program to include the SHM Leadership Academy and selected symposia on quality improvement, research methods and caring for older adults.

After the barriers to and facilitating factors in program implementation have been determined, the project team will develop an "off the shelf" toolbox for SHM members to implement the same program at their institution including research protocols; sample project plans, budgets and communications to key institutional stake holders; and guidance for implementing the project.

The Society of Hospital Medicine membership has both challenges and opportunities to improve the coordination and provision of care for hospitalized older adults. SHM is dedicated to providing its members with the educational programs, clinical tools and resources needed to be effective change agents for improved outcomes in hospitalized older adults. SHM hopes the programs outlined above will help you, the members, improve care delivery at your institutions. For more information about the programs and activities mentioned in this article, or to make suggestions for future programs contact Tina Budnitz, MPH, Senior Advisor for Planning and Development at the Society of Hospital Medicine, at [tbudnitz@hospitalmedicine.org](mailto:tbudnitz@hospitalmedicine.org).