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Fitness to Fly: Older Adults and Air Travel
Sleep in Older Adults: Pharmacotherapy
Discussing CPR with Patients and Families
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From the Editor

In this issue we are very pleased to present 4 articles on very relevant geriatric topics: substance abuse and addiction; improving communication to reduce hospital admissions; the distinction between behavioral issues and pain; and patient adjustment after a chronic disease diagnosis.

We also continue to feature our Elder Care Provider Sheets – practical, evidence based short guides for health science students and clinicians, funded by grants from the Arizona Geriatric Education Center and the Donald W. Reynolds Foundation. Elder Care topics are highly relevant for health professionals caring for older adults and we encourage you to check them out!

We welcome journal contributions on aging related topics from all of our readers, whether you are a student, researcher or a practicing clinician. Please contact us with any questions.

As always, we hope you find this issue educational and valuable!

Mindy J. Fain, MD

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Thank you!
Is it a Behavioral Issue or Pain?
Detecting and treating pain expressed as agitation in persons with severe dementia

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Patients with dementia are often given neuroleptic medications to relieve agitated behavior, typically producing poor symptom control. Often unrecognized or undertreated pain contributes to this agitation. Underdiagnosis of pain-related agitation is exacerbated when patients deny pain on direct inquiry. Medical and nursing staff then may conclude that pain is absent, or contributes only slightly to agitation. Poor symptom relief frequently leads to increased dosing of neuroleptics, adversely affecting quality of life. In this article, we describe a vivid instance of efficacy of opiates in reducing agitated behavior, and describe a feasibility study to explore pain assessment and effective interventions.

Behavioral flareups in older adults with dementia occupy, distract, exhaust and demoralize a great many medical and nursing practitioners both within geriatrics and more broadly in medicine. Patients with advanced dementia frequently experience agitation and other behavioral manifestations. Commonly, geriatricians and geriatric psychiatrists prescribe antipsychotic medications to treat these behaviors once acute medical contributing causes have been addressed or excluded. Recent federal initiatives, FDA warnings and mandates from regulatory bodies underscore the need for more effective management of behavioral symptoms in persons with dementia. Families and advocacy groups have urged measures to improve pain assessment and management throughout medical and nursing practice. Improved practice and education about under-recognition and under-treatment of pain in persons with dementia has risen sharply on priority lists including that of the Institute of Medicine.

People with dementia often express pain through agitated or distressed behaviors. Dispelling a widespread misconception among healthcare personnel, functional magnetic resonance imaging (fMRI) suggests that dementia does not diminish pain perception or processing; this modality suggests that the affective response to acute nociceptive pain is more protracted in dementia than in non-demented individuals.

We therefore designed a study to test the hypothesis that agitation in persons with dementia can often be relieved with analgesia targeted at pain expressed behaviorally rather than verbally.

Goals
Our short-term goal was to conduct a feasibility study of low-dose opiates to relieve agitation in a subset of distressed and disruptive demented persons. If the hypothesis were proven, clinicians could add small doses of opiates to the pharmacologic armamentarium for reducing agitation. Clinicians who recognize that agitation sometimes indicates treatable physical discomfort, rather than merely dementia-related affective dysfunction, employ analgesia to provide effective pharmacotherapeutic palliation. This process improves quality of life for persons with dementia AND for those who take care of them, as well as for all those within earshot of their vocalizations. In congregate living settings including nursing homes, effective pain management provides immense relief to fellow residents, who bear the highest burden of disruption and environmental stress via exposure to inescapable shouts and socially inappropriate speech. Effective use of analgesics to reduce these behaviors would reduce neuroleptic use with its attendant problems, and might enhance staff efficacy as well as lowering costs, three further benefits.

Our attempt to investigate this hypothesis proved extraordinarily challenging. A recounting of the difficulties will let others who look after similar patients know both the intensity of the frustrations, and the roadblocks to compelling scientific research on this subject.

Methods and Study Design
With IRB approval, a convenience sample of residents was to be solicited from the nursing staff of a 42-bed long-term-care special care dementia unit and from a 22-bed geropsychiatric inpatient hospital in the same facility. Inclusion criteria included history of orthopedic injury, chronic painful arthritis, and other clear-cut sources of ongoing pain; complete inclusion and exclusion criteria are available as separate documents. With informed consent from a responsible party, subjects were to be randomly assigned to a control group or to an intervention group. Nursing staff were to complete PAIN-AD assessments on all study subjects. The attending physician, in consultation with the study physician, would order immediate-release morphine solution, 5 mg sublingual, given on a scheduled thrice-daily basis at 6 AM, 2 PM and 10 PM, with proportionate 2.5 mg PRN doses for breakthrough pain.

CLINICAL PRACTICE
pain. Documentation about behaviors and activity levels would be recorded closely and analyzed by all members of the study team. Any adverse impact would be evaluated immediately by the attending physician or nurse practitioner and by the study physician; adjustments would be made accordingly.

We chose the PAIN-AD tool for pain assessment rather than any other tool available in the literature; this decision was based on proven record and user-friendliness. Staff education about the tool and about the purposes of the study incorporated extensive input from nursing leadership and line nursing staff. Nurses attended this education eagerly, and praised its utility and philosophy with enthusiasm. An information sheet was posted at nursing stations for reference and to answer questions from families and from other staff in simple, standardized fashion. Both the outcomes tool and the PAIN-AD were brought into the electronic medical record used throughout the organization, for convenience of charting and review.

What Actually Happened
Our attempted index case for the study underscored several lessons, some of them unexpected. A 93-year-old retired nursing supervisor with Alzheimer’s disease had resided on the special care dementia unit of this nursing home for 3 years; she had Stage 7 Alzheimer dementia on the Global Deterioration Scale. Severe baseline behavioral disturbances included yelling-out, resisting care and scratching staff. At times her behavior was labeled psychotic. Known pain sources included osteoarthritis with remote left hip replacement and persistent right hip discomfort, and osteoporosis; these problems had reduced her mobility; she required a special customized wheelchair. She had received at various times and in various combinations trazodone, quetiapine and lorazepam. All activities of daily living (ADLs) had to be performed by staff for her. Over a two-week period she became ever more agitated, with no discernible medical trigger; nonpharmacologic and neuroleptic interventions failed to alleviate the newer agitation and restlessness in her chair. She frequently yelled “Hurry up!” at passing or caregiving staff, residents and volunteers; this language was interpreted as reflecting her prior professional comportment. Attempts at reassurance (“I’ll put that report on your desk right away”) which had previously routinely elicited a “Thank you”), repositioning in her chair, and in the environment, no longer calmed her. Addressing basic care needs also conferred no relief. When fever later developed, a urine specimen was sent, and based on culture results putative urinary tract infection was treated with ciprofloxacin for one day, and then based on laboratory sensitivities, with doxycycline. Although fever cleared rapidly, behavioral deterioration did not ease at all.

Frustrations
After enrollment of this patient, low-dose oral morphine solution was begun. Immediately the patient’s behavior returned to her calmer baseline, without sedation, such that she continued to enjoy all activities and interactions. However, the next day a nondiagnostic maculopapular rash appeared on the back. At first this was ascribed to antibiotic allergy. For safety, both morphine and doxycycline were stopped. Behavior promptly reverted to its worst. She was disenrolled from the study. After a washout period, it was recognized that no further antibiotic was required and the fever did not recur. Ten days later she was once again given morphine both as therapy and as an antigen rechallenge; and the rash recurred. This confirmed the suspicion that she had a true morphine-related allergic rash, an infrequent but well known phenomenon.

Even initially skeptical members of the treatment team now openly acknowledged that pain had underlain much of this patient’s enhanced agitation and that the “smoking guns” of infection and antibiotic therapy were not implicated i.e., increased behavioral agitation was not an atypical manifestation of a delirium. Scheduled hydromorphone was selected as a safe alternative. It produced sustained, dramatic improvement, without sedation. Neuroleptics were tapered and stopped without return to adverse behaviors. The patient became more verbal than in the last several years; none of her verbal output was in the form of agitated outbursts. She regained the ability to socialize and to interact one-to-one and in small groups.

Generalizable Insights
We had hoped to mine the electronic medical record for reported instances of background and baseline agitation. However, when we reviewed records, they lacked documentation of clear-cut instances of agitation, even in cases wherein we had ourselves observed such behaviors, and in cases wherein nursing staff had described such behaviors in conversation with us while recommending patients for the study.

This calamitous disparity between behaviors that were observed and even correctly interpreted verbally, but never written into the record despite each nurse’s serious efforts to document thoroughly, illustrates the major challenge of devoted nursing staff becoming comfortable with and profoundly protective of their patients with dementia. They then view behaviors that would be classified as agitated by other observers, as merely acceptable baseline expressions of advanced dementia. Every dementia practitioner must, of course, learn to differentiate between behaviors requiring intervention and background vocalization. The extensive training in dementia care provided to our staff includes elements of learning to distinguish background “noise” from acute change. However, those so inured palpably repeatedly fail to recognize agitation symptoms; failure to record these symptoms is a predictable consequence. This problem becomes a crucial source of the extreme underrecognition of the prevalence of pain-related agitation symptoms in persons with advanced dementia.

Nurses consistently ask residents if they are in pain, routinely as well as at times when symptoms or adverse behaviors arise. But they often accept the patient’s denial of pain at face value. Such acceptance laudably respects personhood; but it does so at the profoundly detrimental cost of undermining assessment for pain.

Absent a medical record that accurately reflects the insights of the nursing staff (even apart from errors of nonrecognition), delineation of the prevalence of pain would require prospective symptom monitoring of unselected patients by a paid research assistant. The resources to support such personnel are beyond most investigators including us.

Since so few people had any documentation of agitation, only 4 of 35 potential subjects met eligibility criteria, although we had personally heard agitated vocalizations from more than a
dozen. Our recruitment gap widened yet further because three of the four eligible families refused study participation.

Our experience with analgesia outside the study protocol has shown to our satisfaction, in tandem with sparse but crucial published literature that an analgesic intervention is often highly beneficial to patients and very well tolerated, impressions that we realize are not proven by our N-of-1 study.

Inferences and Opportunities
Quite apart from underrecognition and underdocumentation of pain, and of the expression of pain as agitation in persons with advanced dementia, underruse of analgesics for agitation incorporates at least three elements:

• Physicians and other medical staff often fail to recognize agitation as a common manifestation of pain in persons with advanced dementia. Once an order is in place to employ a psychoactive drug for agitation, the nurse’s own evaluation and opinion is too often ignored or overridden because medical staff are distracted with numerous other demands. Agitation in this context appears to the busy practitioner to be a problem that has been analyzed and solved already, as evidenced by the existence of an order for a psychoactive drug for agitation.

• Nurses internalize the incomplete and misleading teaching that agitation is often a behavioral symptom rather than a pain symptom. Ironically it is the nurse’s dedication and kindness that set the stage for a too-high threshold for recognizing verbal outbursts and other forms of antisocial behavior as expressive, at times, of untreated pain. In fact the inquiry as to whether the patient is in pain reflects excellent insight and skilled observation whereby the nurse correctly infers that something is altered from baseline for this individual patient. Keeping pain on the list of explanations would expand and improve the diagnostic options and so improve accuracy of assessment. By contrast, premature closure cloaked in the mask of tolerance and acceptance of the patient’s ways, preempts following-through on the educated insight that leads to an informed awareness that something is amiss, an awareness that is sound even when one is not certain about etiology.

• Nurses accept the lack of self-reported pain as conclusive exclusion of a pain source for agitation. Here, too, respect for the patient, such an intrinsic and valuable element in all medical and nursing care, undermines the objectivity and open mind that are necessary for optimal bedside diagnostic acumen.

These statements do not disparage medical or nursing staff. The devotion, skill and creativity of clinicians who take care of persons with dementia profoundly impress every sentient observer. Nurses’ intensity, regularity and duration of patient contact, along with their attitudes and skills, render them crucial to overcoming this shortcoming that is shared by most clinicians regardless of degree and title.

Action Plans
One element for change is educating medical staff. Some physicians reacted defensively to our hypothesis and our suggested intervention. This parallels conclusions expressed in the literature for four decades. Instances of intense negativity and even hostility surprised us, because each geriatrician possessed certification in geriatrics. Most geriatricians have read about agitation as a symptom of pain, and about its susceptibility to careful empiric opiate management. The topic is explicitly discussed in recent editions of the Geriatric Review Syllabus, a standard text used in preparing for the examinations that are part of initial certification and decennial recertification. Biases may be rooted in previous experiences of patients who had negative side-effects from opiates. These biases influence judgment about whether opiates can provide relief of agitation.

There is a need to alter our language of description and our language of inference. When we hear about agitation, we tend to think exclusively of mental and not physical triggers. In contrast, when we hear about pain, we think of physical triggers. We need to incorporate explicit acknowledgement that agitation can be the symptom of the physical experience of pain in the person who cannot articulate conventionally. Once this has been made part of awareness, and has been employed in daily practice repetitively, the clinician becomes a more seasoned and astute geriatric practitioner, by automatically including pain in the differential diagnosis of agitation without need of a checklist. Precedents and parallels in everyday life and in the care of persons with developmental disorders may illuminate this process, as does life experience among persons both medical and lay who have small children that can’t explain what ails them: The phrase, “She must be cutting teeth” is often spoken by parents to explicate the sudden inconsolability of an otherwise healthy and well-adjusted infant or toddler.

Addressing resistance in clinical practice incorporates overcoming emotional elements as well as improving factual knowledge. Wide distribution of a pain management pocket tool in both print and electronic formats provides rapid guidance. For anything new to be incorporated in the current climate of health care, it must be user-friendly. Posting such a chart where it is readily visible to both medical and nursing staff is a help.

Skilled geriatric clinicians unfailingly (and sometimes intuitively) gauge the ability of someone with advanced dementia, on first contact, to identify and express a pain source. Closely related is the patient’s capacity to request interventions for relief of pain. Clinicians who integrate this into their assessment then anticipate the need for effective pain relief in this vulnerable population, rather than deferring until pain becomes severe, or missing the issue outright.

Pharmacologic Remedies
If there is openness to trying analgesia, but opiates form a focus of intransigence, a trial of full-dose acetaminophen is warranted: one gram scheduled 3 times daily at 6 AM, 2 PM and 10 PM may prove effective. Purely as-needed (PRN) use is unlikely to achieve full benefit; it depends on each individual nurse being convinced that a dose is indicated by the immediate symptom. NSAID agents including the COX-2 selective agents are not recommended for older adults. Propoxyphene must be avoided. Gabapentin, pregabalin, and duloxetine can help with nociceptive pain as well as with neuropathic pain. A lidocaine patch is worth considering.

The most effective and safest pharmacologic treatment class is,
contrary to the widespread opiate-phobia in our society both medical and lay, the opiates.27,36 Consensus of an ever-enlarging group of both geriatricians and pain specialists affirms this; opiates are at least as applicable for nonmalignant arthritic pain as for cancer-related pain. Just as in conventional therapy for chronic pain, steady basal coverage throughout the 24 hours even absent immediate symptoms provides optimal symptom control.

We have had excellent results with concentrated immediate-release morphine solution, absorbable through mucus membranes of the inner cheek or under the tongue. We do not share the opinion of the Canadian consensus statements that codeine or tramadol warrants a trial before more effective opiates are utilized.33,34 Morphine immediate-release solution can be readily employed even in the patient with swallowing difficulty or inability to cooperate. This morphine solution can be given without awakening the patient, via a fraction of a mL administered with an eyedropper sublingually. The doses that we advocate are far below published typical safe doses for older adults, and are even lower than those of the extremely conservative Canadian guidelines33,34 and of the manufacturer’s own recommendations.35 Since the bowel does not adapt to opiates, we routinely increase bowel regimen, typically with a scheduled stimulant such as oral senna.36,37

Alternative opiates carry different benefits and risks. Hydromorphone (Dilaudid [TM]) has the reputation of safety in marked renal insufficiency. 18,27,36 Oxycodone offers another good alternative. Transmucosal fentanyl has been available for decades, and new formulations of diverse opiates keep coming out19, some with longer duration of action, some with newer routes of administration, many seeming to fill only an economic and not a clinical niche.

Meperidine is unsafe in older adults.18,32-36 Methadone is seldom needed, and best prescribed by persons with extensive experience in doing so. The fentanyl patch has a slow onset and washout that create problems with both efficacy and clearance. For the large number of cachectic dementia patients, there is insufficient subcutaneous fat to permit the needed depot effect of drug. For the patient who sweats heavily, the patch may fall off repeatedly even with taping.39

Injections produce pain on their own, and warrant no further consideration.

Conclusion

No matter what other steps are taken, one must acknowledge and deal with extensive fears on the part of the public, families, and staff. The emotional backdrop is illustrated by a comment made by Leo G. Carroll, portraying a physician in the 1940 movie “Rebecca”: A villainess who has staged her own suicide turns out to have had deep-seated cancer of the cervix, and the physician pronounces, “Soon she would have been on morphia...” 40 as an indicator that death was imminent, with the clear implication that nobody would touch this horrid poisonous medicine except in extremis.

But the world has changed in the last three-quarters of a century, and opiates now offer a safe means to reduce pain, not only in cancer, but in persons with dementia who have pain. Wider rational use of analgesics in persons with dementia offers a desperately needed means of reducing agitation, easing the work of staff, and most importantly enhancing the quality of life of those who live with persons with dementia, care for them, visit them, or are living the difficult life of a human being trapped in a brain and body beset by dementia.

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Keywords and Indexing Terms

Pain; Pain*/drug therapy; Pain Measurement/*instrumentation; Atypical symptoms in persons with dementia; Opiate medication; Morphine sulfate immediate-release concentrated solution; Agitation /drug therapy/etiology; Dementia/complications/*therapy; Dementia, management; Alzheimer Disease/diagnosis/therapy; Nursing homes; Caregivers/psychology

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References

Reducing Hospital Admissions from Long Term Care by Improving Communications

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**Background:** Nurses working in Long-Term care facilities are in the best position to decrease hospital admissions by early recognition of changes in condition and communication of those changes to providers so early intervention can occur.

**Objectives:** To improve communication between nursing staff and providers and to decrease hospital admissions over a three month period.

**Methods:** Nursing staff at two long term care facilities were instructed in the use of the Situation, Background, Assessment, and Recommendation (SBAR) tool for use when communicating with providers.

**Results:** A significant difference was found in the results ($Z=-2.567, p<.05$), indicating the nursing staff felt communication was improved after the SBAR communication tool had been implemented. The hospitalization data however did not show a statistical difference ($Z=-.447, p>.05$).

**Conclusion:** The use of a standardized communication tool, the SBAR, caused the perception of improved communication in the nursing staff. However, it did not show a decrease in hospital admissions during the intervention period.

As of 2011 there were almost 28 million people over the age of 65 receiving Medicare benefits and almost 500,000 reside in Arizona. Six percent of Medicare beneficiaries live in some type of LTC facility and consume 17% of Medicare spending. Many of those living in LTC facilities have six or more chronic conditions and are repeatedly admitted to the hospital with a 30% higher readmission rate than those with fewer chronic conditions. If exacerbations of chronic conditions are recognized early they could be managed in the patient’s LTC facility, avoiding a costly and perhaps detrimental admission to the hospital.

The negative effects of hospitalization on frail older adults are well documented including anxiety, discomfort, pressure ulcers, iatrogenic events, and excess costs. It is estimated that for Medicare beneficiaries, 25% reduction in hospitalizations over one year would save $2.1 billion dollars. Not only is it better for LTC facility residents to remain in their own environment to be treated for their illness, it would significantly reduce the amount of healthcare resources spent. One of the possible solutions to the many problems associated with hospitalization of LTC residents is to reduce the number of unnecessary hospitalizations that occur. If facility staff can communicate resident conditions more effectively, the resident can be treated in the LTC facility before the problem becomes severe enough to require hospitalization. Ineffective communication between nurses and providers, most often occurring over the telephone, has been attributed to lack of structure, language, hierarchy, and differences in communication style. One method of improving communication is to utilize a standardized and structured communication tool, such as the Situation, Background, Assessment, and Recommendation (SBAR), to allow nurses to communicate clinical changes in a clear, concise manner, and make recommendations so the change can be addressed in a manner that improves patient outcomes.

To investigate the significance of hospitalization of older adults and how a structured communication tool can reduce hospital admissions, improve health outcomes and reduce the cost of care, a search of electronic databases was completed, including PubMed, Cochrane, and Academic Search Premier, with the limitations of peer reviewed articles, English only, and those studies published after the year 2000. The keywords, long term care, avoiding hospitalization, nursing home, SBAR in long term care, and health care providers were all used in combination and study abstracts reviewed to determine appropriateness to the clinical question. After the review of all evidence, ten articles were selected including three cohort studies, one evidence based practice (EBP) implementation project, and four randomized controlled trials (RCT) to address the main clinical question.

**Methods**
Two facilities in the Phoenix area were chosen for implementation, both patient populations were comprised of ventilator dependent patients, bed-side dialysis patients, and patients with the usual chronic conditions that require a higher level of care. Both facilities are for profit with the same corporate owner. The target participants were nursing staff at both facilities. This project was approved by the Arizona State University Institutional Review Board. Nurses participated in an educational session at a regularly scheduled staff meeting and multiple meeting times were available in order to attract as many participants as possible. The education consisted of a description of the importance of communication in the LTC setting to prevent unnecessary hospitalization, the negative effects of hospitalization on frail older adults, and a sample of the SBAR form the facilities had chosen to use. At the meetings a demographics questionnaire and a pre-intervention survey called the Communication, Collaboration and Critical Thinking Quality Patient Outcomes Survey Tool (CCCT) were administered to measure the perception of communication between staff and providers. Completion of the survey was determined to be consent to participate in the intervention. After the initial staff meeting, SBAR forms were placed at all nurses stations, cards reminding callers of the SBAR steps were placed on or near
telephones, educational materials regarding communication were distributed at staff meetings after the initial one and the investigator made site visits weekly to answer questions regarding the SBAR and assist as necessary. The Directors of Nursing (DON) and the Assistant Directors of Nursing (ADON) at each facility were part of the implementation team. A clinical coordinator, an employee of the corporate owner also acted as a champion of the project and facilitated the implementation at both sites. The SBAR forms were gathered at each nurse’s station as they were filled out to gauge the effectiveness of the education. After a three month intervention, the CCCT tool was administered to staff to gauge the perception of improvement in communication. Hospitalization rates were compared for the same time frame the prior year to allow for seasonal differences in hospitalization rates.

Descriptive statistics and a non-parametric test were used to analyze the data. This project is similar to an exploratory pilot study to generate a hypothesis. For the purposes of this study, due to the importance of detecting small to moderate differences with a limited sample size (p values >.05 but <.10 are referred to as trend) significance was tested at the p < .10.14

Results
The two facilities are both located in the Phoenix area, Site One was the larger of the two facilities with 155 beds, and 67 nurses, a combination of registered nurses (RN) and licensed vocational nurses (LVN) and Site Two was a facility with 127 beds and 24 nurses, RN and LVN. The educational intervention consisted of nurse meetings at both facilities and a meeting with providers at the larger facility. All meeting dates, times, and locations were determined by the facility and attended by the investigator. The original project design included a CCCT survey for providers as well as for nursing staff, however the opinion expressed by the majority of providers at their meeting was that communication between providers and staff was adequate and the intervention was not worthwhile, as a result only the nursing survey was completed. Due to the unlikely chance that providers would meet with the investigator a second time, evaluation of provider’s perception of communication was removed from the project plan. Nursing staff were receptive to the education and many had used the SBAR at prior facilities. The negative response from the providers to the use of the SBAR was unanticipated; the hope was their cooperation could be enlisted to encourage the use of the SBAR when receiving a call on an unfamiliar patient. Some providers expressed concern that another form to complete would cause the nurses to spend less time in patient care. Reassurances were given that the form was simple but allowed for less experienced nurses to learn a systematic method of collecting and reporting information so that it could be given to the provider in a manner that allowed for rapid concise decisions over the phone, if necessary.  

The DON and ADON of Site One were available to assist the investigator and were supporters of the project. The DON at Site Two, a project champion, relocated to another state near the midpoint of the intervention period but the ADON continued to support the project after her departure.

The data analysis was somewhat mixed, a Wilcoxon test examined the results of the CCCT before and after the implementation of the SBAR. A significant difference was found in the results (Z=-2.567, p<.05), indicating the nursing staff felt communication was improved after the SBAR communication tool had been implemented. The improvement in the perception of communication was demonstrated in the literature and was the expected result. The hospitalization data however did not show a statistical difference \( (Z=-.447, p>.05). \) The expected result for hospitalization rates was to have a decrease in the number of patients hospitalized; this did not occur during the intervention period. It is possible that the length of the intervention was too short to show an improvement in hospitalization rates, or that the number of facilities should be increased to show a statistical improvement. The differences in the causes of hospitalization rates would need to be more thoroughly examined and compared to determine a more detailed reason why the rates did not change with the implementation of the SBAR.

The intervention was fairly low in cost to implement, copies of the SBAR for use at the nurses stations and SBAR reminder cards were the only costs associated with the project. The staff was educated at a regularly scheduled monthly meeting so did not necessitate paying the staff to come in for another meeting. The benefits of perceived improved communication were worth the efforts of the nursing staff filling out the SBAR forms and the hope is that if tracked for a longer period of time the effect on hospitalization rates would show an improvement as well.

Comment
The mixed results can be viewed as positive in that the staff nurses felt communication with providers had improved with the use of the SBAR tool. It has been well documented that if nursing staff can communicate effectively, the resident can be treated early before the problem becomes severe enough to require hospitalization.9,10,13 This evidence based practice study was unable to show a significant decrease in the number of hospitalizations possibly because there were only two facilities participating and only a three month intervention time frame. The Interventions to Reduce Acute Care Transfers (INTERACT) II intervention occurred over a six-month period, in 25 LTC facilities in three states and demonstrated a 24% reduction in hospitalizations in participating facilities compared to a 3% reduction in a group of LTC facilities not participating.15 The intervention could be repeated as a future study with more facilities and over a longer time frame, six months to a year, and could possibly demonstrate a greater effect on hospitalization rates. A larger pool of participants could also possibly give a more statistically significant result.6 Nurses working in long term care could have a great impact on improving communication if the SBAR were routinely used when relaying information on a patient’s condition, particularly if the patient is not known by the provider.  

Nurses can have a great impact in the care of residents of LTC facilities; there is great opportunity for improvement in this setting. With the increasing number of Medicare patients expected to enter long term care over the next several years it is a golden opportunity for nurses to make a difference.

Author’s Advisor
Diane Nunez, DNP, RN, ANP-BC
References


Abuse and Addiction in the Golden Years: A Review of Commonly Abused Substances and Medication Interactions

Elizabeth Pogge, PharmD, MPH, BCPS, FASCP

Substance abuse in older adults is increasing; the most commonly abused substances are alcohol, tobacco, marijuana, and prescription medications. The high use of prescription medications in older adults puts patients who are abusing substances at risk for developing medication and substance related interactions. It is important for healthcare providers to be able to recognize substance abuse, identify important medication interactions with commonly abused substances, and treat those who need help with abuse and addiction.

Introduction
As the population ages, the risk of substance abuse will continue to rise.1 This will have a significant impact on healthcare costs and utilization. The most commonly abused substances among older adults include tobacco, alcohol, marijuana, and prescription medications.2 In older adults, substance abuse can contribute to a decline in cognitive function as well as affect other disease states and the pharmacokinetics of prescription medications. It is important for healthcare providers to be able to recognize substance abuse, identify important medication interactions with commonly abused substances, and treat those who need help with abuse and addiction.

Identifying Substance Abuse
Risk Factors
Some risk factors for substance abuse include co-morbid conditions such as mental health disorders and chronic pain.2 Older adults undergoing life transitions or taking on new and stressful roles are also at risk. Social isolation, being homebound, and the loss of a family member can contribute to substance abuse. It is important to note that those who use one substance are more likely to use additional substances; making the use of multiple different substances at one time common practice. Some physical symptoms that can be associated with substance abuse include: sleep complaints, cognitive impairment, seizures, malnutrition, liver abnormalities, irritability or agitation, incontinence, poor hygiene, blurred vision or dry mouth, unexplained nausea, changes in eating habits, slurred speech, coordination problems, and/or frequent falls.2 These physical symptoms, along with other risk factors, may help providers identify patients who would benefit from screening.

Screening Tools
Identification of substance abuse among older adults should include healthcare providers, as well as friends, family, and others who have frequent contact with the individual. As a healthcare provider, asking about substance abuse can be a strong detection method. Screening tools can be useful to help with recognition. However, there are limited tools designed to assess older adults for substance abuse. The CAGE questionnaire and the Michigan Alcoholism Screening Test-Geriatric Version (MAST-G) are common tests to consider when screening for alcohol abuse.3 The Drug Abuse Screening Test (DAST) is a commonly used test for drug abuse.4 The CAGE and DAST may be useful, but it is important to note that they are not specifically geared for older adults and therefore may include questions that are not applicable. While standardized screening tools can be helpful, it is important to not forget that simply asking about substance use in a nonjudgmental, nonthreatening manner may be enough to identify abuse and addiction. Many older adults are more sensitive to the stigma associated with alcohol and drug abuse, making them more willing to accept a “medical” as opposed to a “mental health” diagnosis.2

Medication and Substance Interactions
Adults over the age of 65 are more likely to be affected by at least one chronic disease state and are therefore more likely to use prescription medications, over-the-counter medications, or dietary supplements. A recent survey of community-residing individuals from 57 to 85 years of age found that 81% of adults in this age group used at least 1 prescription medication, 42% used at least 1 over-the-counter medication, and 49% used at least 1 dietary supplement.5 Furthermore, 29% of these individuals used at least 5 prescription medications concurrently. The high use of prescription medications combined with substance abuse can put a patient at risk for developing medication and substance related interactions.

To better understand how substances can interact with medications, an understanding of the pharmacokinetics (PK) and pharmacodynamics (PD) that relate to these types of interactions is helpful. PK is the study of how the body affects a specific drug after administration.6 This is often discussed in terms of absorption, distribution, metabolism, and excretion. Most PK interactions involve the metabolism of the medication through the cytochrome P450 (CYP) iso-enzyme system. PD, on the other hand, refers to the additive effects that the medication can have when taken with a substance. An example of this includes increased sedation with the use of substances and medications that both cause sedation.
When alcohol is consumed, about 10% undergoes first-pass metabolism and/or excretion of the medication or vice versa. It is important to discuss PK and PD. In terms of PK, alcohol alters the blood system is greater for an older adult verses a younger adult. Alcohol that enters the blood stream is transported to the liver where further metabolism by ADH as well as acetaldehyde is toxic and can lead to flushing, nausea, vomiting, sweating, tachycardia, and hypotension. In general, this interaction mostly occurs with antibiotics that have a similar chemical structure to the compound disulfiram. Some common examples include nitrofurantoin, trimethoprim/sulfamethoxazole, metronidazole, ketoconazole, tinidazole, and cefalosporins such as cefotetan. Some other medications that may cause this type of reaction are disulfiram, sulfonylureas, non-steroidal anti-inflammatory medications (NSAIDS), as well as nitroglycerin.

### Table 1: Common medication and alcohol interactions

<table>
<thead>
<tr>
<th>Drug Class/Medication</th>
<th>Proposed Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin/NSAIDS</td>
<td>↑ risk of GI bleeding</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>↑ risk of hepatotoxicity</td>
</tr>
<tr>
<td>Opioids/antidepressants</td>
<td>↑ risk of CNS depression and/or impaired psychomotor performance</td>
</tr>
<tr>
<td>1st generation</td>
<td></td>
</tr>
<tr>
<td>antihistamines/antipsychotics</td>
<td></td>
</tr>
<tr>
<td>barbiturates/benzodiazepines</td>
<td></td>
</tr>
<tr>
<td>Non-benzodiazepine hypnotics</td>
<td>↑ risk of “sleep driving”</td>
</tr>
<tr>
<td>Anti-diabetic agents</td>
<td>↑ risk of hypoglycemia</td>
</tr>
<tr>
<td>Insulin</td>
<td>↑ risk of lactic acidosis</td>
</tr>
<tr>
<td>Metformin</td>
<td>↑ risk of hypoglycemia</td>
</tr>
<tr>
<td>Alpha-1 adrenergic blockers</td>
<td>↑ risk of hypotension</td>
</tr>
<tr>
<td>Verapamil</td>
<td>↓ metabolism of alcohol</td>
</tr>
<tr>
<td>Anti-infective agents, sulfonylureas</td>
<td>↑ risk of disulfiram-like reaction</td>
</tr>
<tr>
<td>Warfarin</td>
<td>↑ anticoagulant effects with acute ingestion</td>
</tr>
<tr>
<td></td>
<td>↓ anticoagulant effects with chronic ingestion</td>
</tr>
</tbody>
</table>

### Disulfiram-like Reactions

Alcohol can interact with medications by causing a disulfiram-like reaction. This reaction occurs due to the inhibition of ADH, which can cause a buildup of acetaldehyde in the body. Elevated acetaldehyde is toxic and can lead to flushing, nausea, vomiting, sweating, tachycardia, and hypotension. In general, this interaction mostly occurs with antibiotics that have a similar chemical structure to the compound disulfiram. Some common examples include nitrofurantoin, trimethoprim/sulfamethoxazole, metronidazole, ketoconazole, tinidazole, and cefalosporins such as cefotetan. Some other medications that may cause this type of reaction are disulfiram, sulfonylureas, non-steroidal anti-inflammatory medications (NSAIDS), as well as nitroglycerin.

### Induction of CYP2E1

As mentioned earlier, chronic heavy drinking can induce CYP2E1, causing lower medication levels in drugs that are metabolized via this enzyme; while acute heavy drinking inhibits the metabolism, causing higher medication levels. Examples of medications that are metabolized via CYP2E1 include benzodiazepine, barbiturates, warfarin, phenytoin, propranolol, tolbutamide, highly active antiretroviral therapy, and isoniazid.
Additive Sedation
The most common PD interaction seen with medications and alcohol is an increased risk of sedation, which can lead to confusion, falls, and even respiratory depression. Commonly used medications in older adults that have PD interactions with alcohol include first generation antihistamine, antipsychotics, barbiturates, benzodiazepines, opioids, muscle relaxants, non-benzodiazepine hypnotics, and antidepressants.

Liver Toxicity
Acetaminophen is a well-known medication that interacts with alcohol. In adults who use alcohol chronically, there is an increase in the production of acetaminophen’s toxic metabolite, which causes liver toxicity. In a healthy individual, acetaminophen is metabolized primarily through glucuronidation or sulfation with minor metabolism occurring through CYP2E1. When acetaminophen is metabolized via CYP2E1, a toxic metabolite is formed. As mentioned above, in those who are heavy chronic drinkers, CYP2E1 metabolism is induced, causing higher metabolism through this pathway. This will in turn increase toxic metabolite formation. Another commonly used medication, methotrexate, has an increased risk of liver damage when consumed with alcohol.

Tobacco Abuse
Another commonly abused substance in older adults is tobacco. In 2012, the incidence of smoking tobacco among those 65 years and older was 8.9%.[12] Smoking continues to be the leading preventable cause of death in the United States.[13]

Polycyclic aromatic hydrocarbons (PAHs) are products of incomplete combustion and are formed when people smoke. In terms of PK interactions, PAHs are potent inducers of CYP1A1, 1A2, and possibly 2E1, causing lower medication levels of drugs metabolized through these enzymes. The most clinically relevant is CYP1A2. Furthermore, cigarette smoking has PD interactions with medications that are due to nicotine’s ability to activate the sympathetic nervous system. Those who consume high amounts of nicotine have less of a blood pressure and heart rate lowering effect with beta-blockers, experience less sedation with benzodiazepines, and feel less analgesia from opioids. Table 2 lists some select medication and tobacco smoking interactions.

Table 2: Common tobacco smoking and medication interactions[14]

<table>
<thead>
<tr>
<th>Drug Class/Medication</th>
<th>Proposed Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caffeine/olanzapine/theophylline/flecainide</td>
<td>↑ metabolism of interacting medication or class via CYP1A2 = ↑ clearance = ↓ medication levels</td>
</tr>
<tr>
<td>Haloperidol/warfarin/propranolol/tacrine/TCA</td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>↓ in sedation and drowsiness</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>↓ antihypertensive effects</td>
</tr>
<tr>
<td>Corticosteroids, inhaled</td>
<td>↓ in response</td>
</tr>
<tr>
<td>Hormonal contraceptives and/or estrogen replacement</td>
<td>↑ risk of CV adverse effects (risk ↑ with age and heavy smoking)</td>
</tr>
<tr>
<td>Opioids</td>
<td>↓ analgesic effect</td>
</tr>
</tbody>
</table>

Induction of CYP1A2
Caffeine is almost exclusively metabolized by CYP1A2 and its clearance is increased by 56% in individuals who smoke.[15] This results in lower caffeine levels in smokers. This interaction is most apparent in individuals who quit smoking and do not lower their caffeine consumption, causing irritability and insomnia. Clozapine and olanzapine, atypical antipsychotics, are primarily metabolized by CYP1A2. Studies have shown lower plasma concentrations of these medications in smokers and some professionals recommend a 1.5 dosage-correction factor in smokers.[16] Some other examples of medication metabolized by CYP1A2 are listed in Table 2.

PD Interactions
The most clinically significant PD interaction with smoking tobacco is the use of estrogen containing products.[14] When women use estrogen while smoking, they have an increased risk of cardiovascular side effects including clotting, stroke, and myocardial infarction. This risk appears to increase with age as well as the number of cigarettes consumed each day. Several medications also appear to be less effective in smokers, including beta-blockers, inhaled corticosteroids in asthma, and opioids.

Smoking Marijuana
The baby-boom generation has a relatively higher illicit drug use rate compared to previous generations. The most common illicit drug used is Cannabis, also known as marijuana. With the recent legalization of medical marijuana in many states, and the legalization of recreational marijuana in multiple states, it is expected that marijuana use among all age groups will continue to rise. Current 2007-2009 survey results showed that past use of marijuana among adults 50-59 was 5.9% and 1.1% in adults 60 years of age and older.[17]

Cannabis contains active chemicals called cannabinoids. The active ingredient in marijuana is delta-9-tetrahydrocannabinol (THC).[18] The THC component binds to receptors in the brain to produce anxiolytic, sedative, analgesic, appetite stimulation, and psychiatric effects. It is important to note that marijuana drug interactions are not as well defined due to the lack of research data surrounding this substance. Most of the drug interactions are based off case reports and theoretical mechanisms. THC is thought to be metabolized mainly through CYP2C9 and possibly CYP3A4, which could compete with other medications metabolized via these isoenzymes.[19] Similar to tobacco, when marijuana is smoked, byproducts are formed. These byproducts may induce CYP1A2, although this interaction is not as well defined as with tobacco smoking. PK interactions with marijuana include an increased risk of sedation and psychological side effects. Table 3 discusses some possible drug interactions with marijuana along with theoretical mechanism of these interactions.
Table 3: Potential marijuana and medication interactions

<table>
<thead>
<tr>
<th>Drug Class/Medication</th>
<th>Theoretical mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants</td>
<td>↓ metabolism of interacting medication or class via CYP2C9 = ↓ clearance = ↑ medication levels</td>
</tr>
<tr>
<td>SSRI/TCA</td>
<td></td>
</tr>
<tr>
<td>Warfarin</td>
<td>↓ metabolism of interacting medication or class via CYP3A4 = ↓ clearance = ↑ medication levels</td>
</tr>
<tr>
<td>Sildenafil</td>
<td>↑ risk of CNS depression and/or impaired psychomotor performance</td>
</tr>
<tr>
<td>Theophylline/lithium/barbiturates</td>
<td>↑ metabolism of interacting medication or class via CYP1A2 = ↑ clearance = ↓ medication levels</td>
</tr>
<tr>
<td>Anti-hypertensive medications</td>
<td>May blunt the medication effects = ↓ efficacy</td>
</tr>
<tr>
<td>Anticoagulant and antiplatelet agents</td>
<td>Inhibit platelet aggregation</td>
</tr>
</tbody>
</table>

**Induction of CYP Isoenzymes**

Fluoxetine and tricyclic antidepressants (TCA) are metabolized via CYP2C9. There is a case report in the literature of a patient developing manic symptoms after smoking marijuana and taking fluoxetine, which could have been due to higher levels of fluoxetine. Several medications are metabolized by CYP2C9 and CYP3A4. There is a case report of a male who developed a myocardial infarction 12 hours after taking sildenafil and smoking marijuana, potentially due to toxic sildenafil levels. Another commonly used medication in older adults, warfarin, has several case reports of elevated INR readings after patients’ smoke marijuana. Theophylline also has a documented interaction with marijuana, thought to be due to the induction of CYP1A2 that comes from marijuana smoking byproducts.

**PD interactions**

Since marijuana is a depressant, any medication that causes central nervous system depression can have an additive effect. This includes medications taken for psychiatric disorders as well as for pain. Another potential concern with marijuana is that it can cause an increase in heart rate. This can put older patients at an increased risk for heart attacks. One study has found a 4.8 fold increase risk of heart attacks 1 hour after smoking marijuana.

**Non-prescription use of prescription medications**

An increase in prescriptions for controlled substances has increased 154% from 1992 to 2002. While the majority of these prescriptions are for legitimate medical purposes, there is also a percentage that is being abused. The number of people admitting to intentionally abusing their medications has increased by 93.8% from 1992 to 2003. In 2020, it is predicted that 2.7 million adults age 50 and older will be using psychotherapeutics without medical directions. Another potential reason for the increase in prescription medication abuse is that prescription medications are more readily available. There is an increase in the number of retail pharmacies as well as an increase in internet pharmacies which make it easier for patients to pharmacy shop for their medications. The most commonly abused medications in older adults include opioids, benzodiazepines, and muscle relaxants.

There are two types of misuse that can be seen in older adults, unintended misuse and abuse. Unintended misuse occurs when older adults are given doses that are too high for their PK or PD, they misunderstand prescription labels or directions, and/or they keep old medications and then self-treat. In contrast to unintended misuse, abuse occurs when individuals purposely take medications for uses other than the prescribed use, or in excess duration. Both types of misuse are important to recognize and treat. Education and counseling can be important treatment for unintended misuse. Abuse, on the other hand, is often difficult to diagnose and treat in older adults. Abuse requires a screening process and a treatment program.

**Addressing the Problem**

The first step to addressing these problems includes educating the public, including patients, providers, and caregivers. Once a patient is diagnosed, finding an appropriate treatment program may be challenging. There are currently limited alcohol and substance abuse treatment programs that will treat adults older than 65 years of age due to the number of comorbid conditions that need to be managed as well as the risk of falls and other safety issues. As is evident by the current tools for screening, as well as the limited treatment programs, further research and development is needed in the area of substance abuse in older adults.

**Conclusion**

As the population ages, substance abuse will continue to grow. With the rise in substance abuse, there will also be a rise in medication related interactions as well as medical complications from substance abuse. Healthcare professionals can play a critical role in the diagnosis, management, and treatment of older patients with substance abuse.

**References**

5. Qato DM, Alexander GC, Conti RM, Johnson M, Schumm P, Lindau ST. Use of prescription and over-the-counter...


Interprofessional Senior Mentor Program

The Interprofessional Senior Mentor Program (IPSMP) is offered to University of Arizona and Arizona State University health science students, and is designed to increase their exposure to healthy older adults by allowing them to get to know an older adult in a non-clinical environment. This out-of-classroom experience pairs each student with a socially and physically active 65+ year-old community-dwelling adult who will be their senior mentor for a semester. They meet 3-4 times for approximately 2-3 hours each visit. Each meeting has activities aimed to increase the student’s geriatric knowledge, reduce stereotypes about aging and add meaning to their geriatric curriculum content, thus improving the way future health professionals care for older adults. The students also participate in one Interprofessional Team Meeting for a case review. This relaxed and engaging roundtable discussion allows them to increase their knowledge of the roles and expertise of other health professionals and learn the importance of team health care. During the spring semester of 2014, our program brought together 34 mentor/student pairs in Tucson and 11 mentor/student pairs in Phoenix. We received glowing reviews from all parties and are continuing to expand this very successful program. We are looking forward to our Spring 2015 Program!

The Hartford Center of Gerontological Nursing Excellence

A primary mission of the Hartford Center of Gerontological Nursing Excellence at ASU is to increase the number of quality doctoral and post-doctoral level faculty who focus on the care of older adults to teach in academic nursing programs throughout Arizona and surrounding Southwestern states.

In support of this mission, the center offers pre-doctoral and post-doctoral opportunities with an emphasis on increasing nursing capacity in the area of aging through research, practice and education, and leadership.

Scholarship goals and opportunities, include:
• Teach in graduate and undergraduate academic nursing programs.
• Develop academic career goals and scholarships.
• Develop leadership skills and interprofessional partnerships in the care of older adults.

The center receives grant funding from The John A. Hartford Foundation to support graduate students in gerontological nursing. Financial support through scholarships may be available for one year with option for renewal.

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Biopsychosocial Adjustment to a Chronic Illness Diagnosis

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Change is inevitable and constant in our bodies; fortunately we are often unaware of most of these changes. However, once we are made conscious of current and continuing long-term changes as a result of disease, our capacity to make the necessary adjustments to our new reality is challenged. The biological, psychological and social adjustments that follow a chronic illness diagnosis can bring a new level of resilience regarding our self-perception, current lifestyle, and acceptance of new curative regimes.

Chronic illness has been defined as “any disorder that persists over a long period and affects physical, emotional, intellectual, vocational, social, or spiritual functioning.” 1 After a patient is diagnosed with a chronic illness, there are many biological, psychological and social adjustments that occur for both the patient and the patient’s support systems. The biopsychosocial adjustment to the diagnosis causes stress-related consequences. The stress brought on by the change and resulting lifestyle adaptations can hinder healing especially when patients become depressed. According to the DSM 5, Adjustment Disorder is the development of emotional or behavioral symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s).2 Adjustment Disorder can be specified as with depressed mood, with anxiety, or with mixed anxiety and depressed mood, with disturbance of conduct or with mixed disturbance of emotions and conduct. Additional stressors upon a patient include: adjustment of caregiver to patient condition; necessity to use special equipment or medical devices; changes to employment status; financial strains; mobility issues; societal status and lifestyle changes; friends and family attitudes, and a personal sense of helplessness. Therefore, a patient with a new chronic illness diagnosis not only needs to be provided with curative support for physical wellbeing but also psychological and social support.

Many patients who suffer from a stroke go through post stroke depression (PSD).3 Some of these patients are diagnosed as suffering from grief related to chronic illness rather than clinical depression. 4 Patients may show signs of reactive depression by becoming anxious, having poor social skills, refusing caregiver requests, and having outbursts of anger. 3

This article will use a case study to further illustrate the complexity of adjustment to chronic illness and the consequences of such illnesses.

Background
Mo, 67, had spent his life being an active pastor, giving sermons, visiting the sick and homebound elderly, and conducting Bible study groups. However, after his wife was diagnosed with cancer, he became depressed. He began drinking more than one glass of hard liquor each evening. He rarely exercised, neglected to maintain a good diet and avoided visiting his primary care provider.

Donna, 65, a homemaker with psoriasis and psoriatic arthritis, was recently diagnosed with breast cancer. Soon after her diagnosis and resulting mastectomy, she is diagnosed with depression.

Mo’s Diagnosis
One morning Mo walked into the kitchen and Donna noticed he had facial palsy and called an ambulance. Mo was diagnosed with having had an ischemic stroke. Such a stroke occurs when a blood vessel in the brain is blocked by a blood clot and as a consequence, brain cells get damaged.5 Mo was also diagnosed with having high cholesterol, high blood pressure, and diabetes. Mo was left with only 75% mobility in his left leg. His left hand curled inward when he tried to sit or stand up. He had difficulty with his speech and suffered from occasional drooling. He had little appetite and took frequent daytime naps. He became sensitive to sound. His vision was somewhat impaired. He became easily irritable and anxious if Donna was not close to him.

Physical Adjustment
Mo was unable to go to work. Due to his speech impediment, he was unable to give sermons or conduct Bible study classes. He was unable to drive, and became homebound and dependent on others. Limited finger movements and difficulty with concentration, his activities were severely limited. He had to be mindful that he did not drool when he spoke. His sleep pattern became altered. He lost weight due to his lack of appetite. He had to adjust to checking his blood sugar levels, keeping track of what he ate, and taking his new medications. He had to use a walker. He found it difficult to sit still and often became impatient.

Caregiver Adjustment
Mo’s wife Donna became his primary caregiver. She did not expect this additional burden, and therefore adjusted to her new role with great resentment. She felt Mo’s negligence to monitor his health had put her own recovery from breast cancer in jeopardy. Their lives revolved around Mo’s specialist, primary care providers, physical therapy (PT) and occupational therapy.
Although depression is common among post-stroke patients, it is a new situation that was humbling and a spiritual struggle. As a pastor, Mo felt he had special protection from God. His spiritual balance had to contend with his curled hand that affected his ability to work. His impaired gait also forced the use of a walker and he was restricted to traveling in his car, which took away his sense of independence. Since a large part of Mo’s work was done at the pulpit, his larger-than-life persona had dwindled to a person who listened to sermons rather than be the orator who stood at the pulpit. His friends and family had difficulty adjusting to his physical and psychological needs.

Psychological Adjustment
Mo developed intolerance for certain social norms and resisted contact with friends and parishioners. He felt embarrassed by his drooling and the curling of his hand as he tried to balance to stand or walk. He became quiet, ill-tempered and socially isolated. He had difficulty concentrating on lengthy dialogue and as a result spent hours watching sports on TV. His sense of helplessness intensified, as he had to rely on others to help him with money management, transportation, and the caring for his congregation. The possibility of being sent to a day care program for stroke patients in order to provide Donna some respite increased his overall anxiety and depression.

Family and Social Adjustment
Mo’s vulnerability was difficult for all involved. His friends and family became fearful of his frail condition, and they had difficulty adjusting to his physical and psychological needs. Many openly worried he would continue to deteriorate and possibly die. As a result they visited frequently. However, because of their overall lack of knowledge about strokes, the treatment process, and required recovery time, they put too much pressure on Mo to recover faster than he could.

Status Adjustment
Prior to his diagnosis, Mo was an active pastor of his church and loved his job. After symptom onset, he was forced to hand over his work to a committee of elders in the church. He was relegated to listening to sermons rather than be the orator who stood at the pulpit. His larger than life persona had dwindled to a person who was disabled and felt helpless.

Mobility Adjustment
There is a strong link between the ability to drive a car and our sense of independence. Since a large part of Mo’s work was done by traveling in his car, the inability to drive took away his sense of self. His impaired gait also forced the use of a walker and he had to contend with his curled hand that affected his ability to balance.

Spiritual
As a pastor, he had felt he had special protection from God. His new situation was humbling and a spiritual struggle.

Solutions
Although depression is common among post-stroke patients, it is often not recognized and can be a barrier in the path to recovery. Research shows that a patient’s depression will worsen if their caregiver also suffers from depression. Fortunately for Mo, his medical team was aware of depression symptoms in post-stroke patients and provided a consultation with a psychologist. The ability to visit the psychologist was not only helpful for Mo but Donna as well. Caregiver burnout is very common among stroke patient caregivers.

For Mo and Donna, coping with their situation improved as they gradually learned to adjust to their situation. Mo continued to suffer from depression and anxiety but adjusted to the routine of managing his chronic illness. Donna initially resented her role as caregiver but also eventually adjusted to the new routine, and her new caregiver role. Lazarus and Folkman have defined two forms of coping: problem focused and emotion focused. Donna, as a caregiver had to become problem focused regarding medication and chronic illness management by finding alternative solutions to defined problems and learning new skills. Her emotional focus came with decreasing emotional distress by letting Mo take increasing responsibility for his own recovery, surrounding herself with people from her support systems, and going to a bi-weekly yoga class to find inner peace.

Together they also utilized other coping strategies, such as goal setting. They set a mutual goal to attain a satisfactory level of health and financial security to attend a relative’s wedding overseas so Mo could bless the union. They learned new skillsets to better manage their chronic diseases and accepted the social support offered by friends and family.

Donna and Mo’s ability to adjust gradually and cope with their chronic illnesses created stepping stones to gradual improvement in their quality of life. They were both able to attend the wedding: 5 months after Mo’s stroke; and one year after Donna’s diagnosis of breast cancer.

References
Frailty in Patients Undergoing Elective and Emergency Surgery
Bellal Joseph, MD, Bardiya Zangbar, MD, Mindy Fain, MD, University of Arizona College of Medicine

The number of older adults undergoing surgery is increasing rapidly as the population ages. Various studies have shown that frailty, independent of age, is an important risk factor for poor outcomes after surgery. National Surgical Quality Improvement Guidelines call for pre-surgical frailty assessment for all elders 85 years and older.

Frailty is a general state of increased vulnerability due to a decrease in physiological reserve, physical activity, and social and cognitive skills. Although frailty may overlap with conditions such as sarcopenia and malnourishment (Figure), it is usually considered as a standalone condition referred to as the “frailty syndrome.”

Risk Assessment Prior To Surgery
Risk stratification of older surgical patients is not standardized and often based only on limited data and subjective impressions of a patient’s condition. A formal assessment of frailty in geriatric patients can provide professionals, patients, and their families a better understanding of the risks of undergoing surgery. Frailty assessment can predict in-hospital complications and mortality rates, as well as long-term outcomes including the need for institutionalization. Frail patients are at a higher risk of institutionalization after surgery, and for a longer period of time. Patients and families can be informed of these prospects in a more objective fashion by preoperative frailty assessment.

There are a variety of assessment tools available to aid in identifying frailty in older adults (see table on reverse side). These tools can be particularly useful for evaluating “young” older adults, in whom frailty might not be apparent based on a patient’s general appearance or gait, thus answering the question “Is this a 68-year-old going on 90?” Use of these tools can provide surgeons, and primary care clinicians referring patients to surgeons, with a systematic way to identify frailty, and thus include frailty in the consideration of surgical risks.

Preoperative Optimization
When possible, modifiable factors should be optimized if frailty is identified prior to elective surgery to improve the likelihood of favorable outcomes. Preoperative optimization can include attention to prehabilitation, nutrition, psychosocial factors, and possibly drug therapy. Prehabilitation can improve frailty, and may be particularly important for frail patients with cardiac disorders. Improving nutritional deficiencies, including attention to vitamin replacement, protein supplementation, and iron supplement when indicated, may also be of value though more research is needed to explore the benefit of these interventions. Screening with a depression instrument such as the PHQ-9, and dealing with other psychosocial factors, including social support, and “will to improve” should also be addressed. Finally, it is thought that “performance-enhancing drugs” (e.g., anabolic steroids) may be helpful, though the mechanism, benefit, and safety of such treatments is unclear.

TIPS FOR DEALING WITH FRAILTY
• When older adults are being considered for elective surgery, use a validated assessment tool (see Table) to evaluate them for frailty.
• If frailty is present and surgery can be delayed, recommend interventions to lessen frailty prior to scheduling surgery. Interventions can include exercise programs, addressing nutritional deficiencies, and dealing with psychosocial factors.
• When emergency surgery is necessary, a frailty assessment should still be performed, when possible, as interventions to address frailty may still be useful as part of post-operative care.
Frailty in Elective Surgery

Many pre-operative assessment instruments and scoring systems are available for evaluating patients prior to elective surgery. However, most of these assessment and scoring systems focus on risk-reduction interventions related to specific procedures or organ systems, or on individual risk factors or interventions (e.g., interventions to reduce morbidity and mortality following cardiac surgery).

In contrast, frailty assessments are pertinent to a wide variety of elective surgeries. Indeed, frailty scores have been shown to predict complications in patients undergoing procedures ranging from cardiac to colorectal surgeries.

Patients undergoing elective surgery usually have the ability to perform the physical tests required for some of the frailty assessments. As a result, surgeons and clinicians referring patients to surgeons, should use these assessment tools to aid in identifying frailty. The diversity of instruments provides options to choose the appropriate assessment, tailored to the patient’s specific circumstances.

Frailty in Emergency Surgery

In contrast to elective surgery, there have been few studies on the utility of frailty assessments in older patients undergoing emergency surgery. In emergency situations, there is insufficient time to implement pre-operative optimization if frailty is identified. However, frailty assessment can still be helpful in guiding post-operative care, and in providing patients and families with realistic expectations of the post-operative course.

Frailty Assessment Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Variables Assessed</th>
<th>Pros</th>
<th>Cons</th>
<th>Website/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Study on Health and Aging (CSHA) Frailty Index</td>
<td>• 70 variables</td>
<td>• Has few objective components, making it usable in emergency/trauma situations</td>
<td>• Has few objective components, raising possibility of incorrect assessments</td>
<td><a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1188185/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1188185/</a></td>
</tr>
<tr>
<td>Frailty Score (Fried Criteria)</td>
<td>• Weight loss</td>
<td>• Widely used in research</td>
<td>• Requires measurements (e.g., grip strength) not always available in routine practice settings</td>
<td><a href="https://rds185.epi.ucsf.org/ticr/syllabus/courses/83/2012/02/15/Lecture/readings/fried%20frailty%20202001.pdf">https://rds185.epi.ucsf.org/ticr/syllabus/courses/83/2012/02/15/Lecture/readings/fried%20frailty%20202001.pdf</a></td>
</tr>
<tr>
<td>Kinematic Assessment Methods</td>
<td>• Acceleration</td>
<td>• Quick</td>
<td>• Evolves only limb motion</td>
<td><a href="http://www.karger.com/Article/Pdf/354211">http://www.karger.com/Article/Pdf/354211</a></td>
</tr>
<tr>
<td></td>
<td>• Balance</td>
<td>• Objective</td>
<td>• Must be individualized and tailored or each patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Angular velocity</td>
<td>• Technology-based</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Delay</td>
<td>• Can be performed on upper or lower extremities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Range of motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Swing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study of Osteoporotic Fractures (SOF) Index</td>
<td>• Ability to rise from chair five times without using arms</td>
<td>• Validated</td>
<td>• Depending on surgical condition, it may not be possible to assess rising from chair</td>
<td><a href="http://sof.ucsf.edu/interface/">http://sof.ucsf.edu/interface/</a></td>
</tr>
<tr>
<td></td>
<td>• Weight loss</td>
<td>• Simple</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References and Resources


ACOVE Quality Indicators

IF a vulnerable elder is to have inpatient or outpatient elective surgery, THEN the medical record should document the patient’s ability to understand risks, benefits, and consequences of the proposed surgical operation before the operative consent form is presented for signature.
Activity Scheduling for Depression in Older Adults

Genevieve Riebe, MD, Department of Family and Community Medicine, University of Arizona

Most older adults with depression initially present to a primary care clinician and up to 10% of the older adults seen in primary care practice are affected by depression. Many factors can influence the severity of depression, one of which is social isolation. Addressing social isolation can improve outcomes for older adults who have depression.

Activity Scheduling

Activity scheduling (AS) is an effective behavioral treatment that addresses social isolation in patients with depression. It is an approach that actively involves patients by increasing the number of daily activities in which they participate. Activity scheduling is an established core component of evidence-based depression treatment that has been shown to be just as effective as other forms of cognitive behavioral therapy (CBT). Research shows a strong association between AS and both self-reported activities and depression improvement over the course of 12 months.

AS can take many forms in depression treatment, but the goal is the same - to increase contact with the environment in a positively reinforcing way. Traditionally, AS involves scheduling “pleasant” activities, defined as activities that are pleasurable to patients and which elevate their mood. However, any activity that includes the intention to socialize is associated with better depression outcomes.

Indeed, in an analysis of behavioral management in the recent Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) program, it was shown that a wide variety of activities can be effective, and not all of these activities need to be considered “pleasant” activities in the typical sense. Nonetheless, participation in any of these (Table 1) can improve depression outcomes. Even activities such as organizing medications and reflecting on symptom improvement related to medications may reduce stress and lessen symptoms of depression.

### Table 1. Examples of “Activity Scheduling” Activities Associated with Improvements in Depression

<table>
<thead>
<tr>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranging from vigorous physical exercise to less-vigorous activities like walking, gardening, or yoga</td>
</tr>
<tr>
<td>Less-Active Physical Activities</td>
</tr>
<tr>
<td>Shopping, baking, attending community events, arts and crafts, singing in a choir, lunch with friends or family</td>
</tr>
<tr>
<td>Passive Activities</td>
</tr>
<tr>
<td>Television, radio, looking at photos, writing in a journal</td>
</tr>
<tr>
<td>Medication Management</td>
</tr>
<tr>
<td>Organizing medications; reflecting on symptom improvement after starting medications</td>
</tr>
</tbody>
</table>

Incorporating Activity Scheduling Into Practice

Incorporation of activity scheduling into clinical practice involves five steps: diagnosis, discussion, homework, motivation, and reassessment.

**Step 1 Diagnosing Depression** The U.S. Preventive Services Task Force recommends screening adults for depression when resources are in place to assure accurate diagnosis, treatment, and follow-up. The American Geriatrics Society also supports depression screening for older adults in primary care settings.

Several tools are available for depression screening. The 9-item Patient Health Questionnaire (PHQ-9) is well-validated for use in geriatric populations. The questionnaire takes just a few minutes to administer, can be self-administered, and is available at no cost. Another option is the Geriatric Depression Scale (GDS), a well-validated instrument for which a short form is also available. Both instruments can be easily located with an Internet search.

**TIPS for Incorporating Activity Scheduling (AS) into Primary Care Treatment of Depression**

- Use AS as part of an interprofessional approach to late-life depression treatment. Include a care manager when possible and a psychiatrist for refractory cases of depression.
- Use a validated tool, like the PHQ-9 or GDS, to assess baseline depression and monitor depression severity throughout treatment.
- Encourage active participation from patients, including tracking activities and consistent reassessment of which activities improve their mood.
- Encourage activities that are socially engaging and physically activating.
Step 2 Discuss Activities Once the diagnosis of depression has been confirmed and the patient is felt to be stable (e.g., not suicidal or needing psychiatric hospitalization), AS is initiated by discussing with patients the various activities in which they currently participate, activities they enjoy or think they might enjoy, and activities in which it is realistic for them to participate. These activities can range from traditional pleasurable activities to others, such as those shown in Table 1.

Step 3 Give the Patient Homework Patients should be assigned the task of scheduling and completing the selected activities. Scheduling can be as strict as having a daily calendar that details a specific time for each activity (Table 2). Or, it can be a more relaxed approach of simply jotting activities down in a planner or even making a mental note of the activities that need to occur. Either way, the point is for the patient to actually complete the activities. There is a strong association between discussing and planning activities and self-reported activity engagement at 12 months, lending support to the importance of working with patients to generate an activity plan.

Step 4 Motivate and Encourage AS often means a change in individual daily routines. Changing routines is best done in supportive environments.

Step 5 Reassess Depression severity should be reassessed at intervals, using instruments such as the PHQ-9 or GDS that were used at the time of diagnosis. Comparison of PHQ-9 or GDS scores to scores at the time of diagnosis can help determine if depression is improving. Depending on the patient’s progress, changing or adding activities may be appropriate, as might additional therapeutic measures including modifying medication regimens or using other behavioral interventions.

Who are the Best Candidates for Activity Scheduling? AS is appropriate for a variety of older adults who suffer from depression. There is particular benefit for individuals who spend long periods of time in bed, who are physically vulnerable, and who receive little or no social service support. AS can also be an adjunct to treatment of individuals whose depression has led them to feel suicidal. These individuals may see their lives as having no meaning or purpose. Giving them activities that engage them in life can help alleviate profound depression and focus their thoughts on constructive activities.

Activity Scheduling and Interprofessional Care The best late-life depression outcomes come from a collaborative, interprofessional approach to treatment. While activity scheduling is a core component of such an approach, it should not be viewed as an isolated treatment. Psychotherapy, other forms of psychological counseling, social service support when needed, and physical therapy (especially for individuals who have become home bound) are all part of what constitutes good depression care. Although not all clinical facilities have the personnel and infrastructure needed to institute a wide variety of effective interprofessional treatments for depression, individual clinicians can still include AS as one component of the treatment they provide to older adults with depression.

### Table 2. Sample Activity Scheduling Calendar

<table>
<thead>
<tr>
<th>Time</th>
<th>Mon</th>
<th>Tues</th>
<th>Weds</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8 am</td>
<td>Breakfast</td>
<td>Breakfast</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8-9 am</td>
<td>Call daughter</td>
<td>Meet Fran</td>
<td>Balance checkbook</td>
</tr>
<tr>
<td>9-10 am</td>
<td>Go for walk</td>
<td>With Fran in park</td>
<td>Go for walk</td>
</tr>
<tr>
<td>10-11 am</td>
<td>Therapy apt</td>
<td>Food shopping</td>
<td>Write letter to son</td>
</tr>
<tr>
<td>11 am - noon</td>
<td>Lunch w/Sal</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>noon-2 pm</td>
<td>Reading time</td>
<td>Reading time</td>
<td>Reading time</td>
</tr>
<tr>
<td>2-3 pm</td>
<td>Piano</td>
<td>Piano</td>
<td>Dr appointment</td>
</tr>
<tr>
<td>3-4 pm</td>
<td>Garden work</td>
<td>Computer class</td>
<td>Dr appointment</td>
</tr>
<tr>
<td>4-5 pm</td>
<td>Garden work</td>
<td>Computer class</td>
<td>Dr appointment</td>
</tr>
<tr>
<td>5-6 pm</td>
<td>Cook and eat</td>
<td>Cook and eat</td>
<td>Cook and eat</td>
</tr>
<tr>
<td>8-9 pm</td>
<td>Watch TV</td>
<td>Watch TV</td>
<td>Watch TV</td>
</tr>
</tbody>
</table>

References and Resources


ACOVE Quality Indicators

1. IF a vulnerable elder receives a diagnosis of a new depression episode, THEN the medical record should document at least three of the nine DSM-IV target symptoms for major depression within the first month of diagnosis.

2. IF a vulnerable elder is diagnosed with depression, THEN antidepressant treatment, psychotherapy, or electroconvulsive therapy should be offered within 2 weeks after diagnosis unless there is documentation within that period that the patient has improved.
Outpatient Management of Constipation in Older Adults
Darlene Moyer, MD and Amy Tierney, MD, Scottsdale Healthcare, Scottsdale, AZ

Constipation is common in older adults. Up to 28% of individuals over age 65 experience constipation, and it is the reason for more than 2.5 million office visits to physicians each year in the US.

Although constipation is common in older adults, it should not be considered normal. When evaluating patients who have constipation, clinicians should seek to identify reversible causes with the goal of improving quality of life and avoiding complications that include fecal incontinence, hemorrhoids, anal fissure, organ prolapse, fecal impaction, and bowel obstruction.

Diagnostic Criteria
Patients and clinicians often have different ideas about what is normal when it comes to bowel movements. To help define and diagnose constipation, the American Gastroenterological Association (AGA) refers to otherwise uncomplicated constipation as "functional" constipation and recommends using the Rome III criteria for diagnosis.

The Rome-III criteria specify that the first symptoms of constipation should have begun at least 6 months previously and that two of the following must be present for at least 3 months: (a) fewer than three defecations per week or any of the following during at least 25% of defecations: (b) lumpy or hard stools, (c) a sensation of incomplete evacuation, (d) a sensation of anorectal obstruction/ blockage, or (e) the need for manual maneuvers, like digital stimulation. In addition, loose stools should rarely be present and the patient should not meet criteria for irritable bowel syndrome (IBS). A key difference between constipation and IBS is that IBS involves pain relieved by defecation, while constipation by itself is not painful.

History and Physical
Constipation in older adults almost always involves multiple contributing causes (Table 1), all of which should be considered during the evaluation. The history should include questions about medical conditions, medications, prior surgeries, and pelvic floor trauma. Questions should also specifically ask about "red flags," such as acute onset, weight loss, rectal bleeding, and a personal or family history of colorectal cancer, any of which might indicate malignancy as the cause of constipation.

Table 1. Factors That Can Cause or Contribute to Constipation

<table>
<thead>
<tr>
<th>Medical Conditions</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorectal pathology</td>
<td>Antacids</td>
</tr>
<tr>
<td>(fissures, strictures, hemorrhoids, prolapse)</td>
<td>Anticholinergics</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>Antidepressants</td>
</tr>
<tr>
<td>Colon Masses/ strictures</td>
<td>Antihistamines</td>
</tr>
<tr>
<td>Dementia</td>
<td>Calcium Channel Blockers</td>
</tr>
<tr>
<td>Depression</td>
<td>Calcium supplements</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Diuretics causing dehydration</td>
</tr>
<tr>
<td>Hypercalcemia</td>
<td>Iron supplements</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>Opiates</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Lifestyle</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>Immobility</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>Lack of privacy</td>
</tr>
<tr>
<td>Parkinson disease</td>
<td>Low-fiber diet</td>
</tr>
<tr>
<td>Spinal cord injury/ tumors</td>
<td>Not responding to urge to defecate</td>
</tr>
</tbody>
</table>

Additional Testing
The AGA recommends performing a complete blood count, thyroid function tests, and a basic metabolic panel. Colonoscopy should be performed if there is concern about cancer or if the patient is due for routine colon cancer screening. Other tests, such as colonic transit testing, anorectal manometry, and balloon expulsion testing, should only be done when patients fail a therapeutic trial of laxatives and increased dietary fiber.
Continued from front page

Non-Pharmacological Treatment

Medical conditions that may be contributing to constipation should be treated and controlled. Constipated medications should be discontinued whenever possible or changed to agents with similar action but less potential for constipation.

Counsel patients to respond to the urge to defecate when it occurs and to develop a schedule for bowel movements. The bowels are most active in the morning and 30-60 minutes after meals, so patients should be taught to take advantage of these times to use the bathroom. Institutionalized patients should be given enough time and privacy to have bowel movements. Valsalva should be avoided in cardiac patients as it can result in bradycardia and death.

Although increasing mobility is effective for preventing constipation, there is no evidence that it is effective once constipation develops. Similarly, there is no evidence to support fluid status as a factor contributing to constipation. Increasing fluid intake in older adults, many of whom have a delicate fluid balance at baseline, should be avoided.

Dietary fiber, however, is effective and intake should be increased. The increase should occur slowly (over the course of a few weeks) to the goal intake of 25-35 grams daily. Increasing too quickly can result in bloating and flatulence.


Although increased fluid intake is recommended, it should only be considered for severe cases. Patients with bowel obstruction or severe constipation or with severe recalcitrant cases, should only be used to treat acute constipation. Patients taking laxatives should ensure good fluid intake to avoid dehydration. Those requiring opioids should receive prophylactic bowel regimens to prevent constipation. Lubiprostone, promoted for treating constipation in the general population, has not been studied in older adults.

New evidence supports the use of probiotics to prevent constipation in hospitalized patients, but more research is needed before this can be considered standard care. Biofeedback is only effective when treating constipation caused by anorectal dysfunction and is not appropriate for patients with cognitive impairment. Surgery, such as subtotal or total colectomy for treatment of colonic inertia, should only be considered for severe recalcitrant cases.

Table 2. Selecting Laxatives for Constipation in Older Adults

<table>
<thead>
<tr>
<th>Type of Laxative</th>
<th>Examples</th>
<th>Key Side Effects</th>
<th>What to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Laxatives</td>
<td>Psyllium</td>
<td>Bloating, flatulence, impaction above strictures</td>
<td>Can decrease absorption of some medications, including warfarin, aspirin, digoxin</td>
</tr>
<tr>
<td></td>
<td>Methylcellulose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emollient Laxatives (Stool softeners)</td>
<td>Docusate Sodium</td>
<td>Fecal soiling</td>
<td>Not recommended for chronic treatment</td>
</tr>
<tr>
<td></td>
<td>Docusate Calcium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osmotic Laxatives</td>
<td>Polyethylene Glycol</td>
<td>Bloating, flatulence, pulmonary edema</td>
<td>Avoid in patients at risk for aspiration</td>
</tr>
<tr>
<td></td>
<td>Lactulose, Sorbitol</td>
<td>Bloating, flatulence</td>
<td>Recommend for patients in nursing homes</td>
</tr>
<tr>
<td></td>
<td>Magnesium Sulfate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magnesium Citrate</td>
<td>W atery stools, urgency, magnesium toxicity, hyperkalemia</td>
<td>Avoid in patients with renal insufficiency</td>
</tr>
<tr>
<td>Stimulant Laxatives</td>
<td>Bisacodyl, Senna</td>
<td>Cramping, gastric and rectal irritation, melena, colitis</td>
<td>Recommended only for short-term use; Avoid in patients with bowel obstruction</td>
</tr>
</tbody>
</table>

References and Resources


ACOVE Quality Indicators

If a vulnerable elder with chronic pain is treated with opioids, THEN he or she should be offered a bowel regimen, the medical record should document the potential for constipation or explain why bowel treatment is not needed.

Interprofessional care improves the outcomes of older adults with complex health problems

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Fitness to Fly: Older Adults and Air Travel
Jeffrey D. Schlaudecker, MD, Ravi Grandhi, MBA, and Jon Weber, BS, College of Medicine, University of Cincinnati

As more and more older adults travel on commercial airliners, it is important to recognize and, when possible, prevent, medical complications related to airline travel. While the vast majority of older adults travel without incident, this issue of Elder Care addresses key issues to consider when providing care for jet-setting older patients (Table). Patients with recent hospitalization, injury, or surgery should seek medical clearance at least 10 days before flying. For those with complicated cardiopulmonary problems or planning foreign travel, referral to a travel medicine specialist may be helpful.

Immunizations and Medications
Clinicians should be prepared to provide advice on recommended immunizations for patients planning foreign travel. The Centers for Disease Control and Prevention provides recommendations about immunizations on its travel website at wwwnc.cdc.gov/travel/page/vaccinations.htm.

For foreign travel, patients generally should bring enough medication to last at least 2 weeks longer than they plan to be away. Medications should be in carry-on luggage and injectable meds should be in original labeled containers. Airlines cannot refrigerate medications; those requiring refrigeration should be in a cool bag or vacuum flask.

Oxygen Pressures During Air Travel
Stressors associated with air travel include the low oxygen levels in the airplane cabin that can aggravate cardiopulmonary conditions, venous stasis that can lead to venous thromboembolic disease (VTE), as well as the physical stresses associated with getting around airports.

The low oxygen pressures in aircraft cabins are a particular concern. With cabin pressures the equivalent of an elevation of 5000-8000 ft above sea level, low oxygen levels can affect the respiratory and cardiovascular systems of older adults. Instead of the 21% oxygen found at sea level, there may be only 15% oxygen in a airplane cabin. These low oxygen levels may cause significant arterial oxygen desaturation resulting in worsening of pulmonary or cardiac conditions. They can also cause changes in cognitive status.

Air Travel with Chronic Obstructive Lung Disease
Patients with chronic obstructive pulmonary disease are at risk for hypoxemia due to decreased oxygen in the aircraft cabin. Patients who are already on supplemental oxygen should increase in-flight oxygen flow by 1-2 liters/minute.

Evaluating Fitness to Fly: Key Issues to Consider
- Immunizations for foreign travel
- Sufficient supply of medications
- Pulmonary status - need for oxygen
- Cardiopulmonary contraindications to air travel
- Risk for venous thromboembolism
- Travel insurance for medical care and evacuation
- Airport accommodations (wheelchairs, etc.)

There is some debate, however, about determining the need for in-flight oxygen supplementation for patients not already using oxygen, and many current models may be insufficiently accurate. A widely used approach, however, is to perform a pre-flight evaluation that includes pulse oximetry to assess oxygen saturation. Patients with an oxygen saturation >95% at sea level may fly without any further assessment. Patients with a oxygen saturation between 92-95% at sea level should have supplemental in-flight oxygen if they have additional risk factors including hypercapnia, lung cancer, cardiac disease, or an FEV1 <50% of predicted. Patients with an oxygen saturation at sea level <92% should always have in-flight oxygen regardless of the presence or absence of complicating conditions.

TIPS FOR ADVISING OLDER ADULTS ABOUT AIR TRAVEL
- For foreign travel, check the CDC website for immunization recommendations and bring enough medication on the trip to last at least two weeks longer than the planned absence.
- For patients with chronic lung disease who are planning air travel, check pulse oximetry and recommend in-flight oxygen to any patient with an oxygen saturation less than 92%, and also to patients with an oxygen saturation between 92-95 percent if they have hypercapnia, lung cancer, cardiac disease, or an FEV1 below 50% of predicted.
- Recommend against air travel for patients with active cardiac conditions, like recent myocardial infarction, unstable angina, uncontrolled hypertension or arrhythmias, severe symptomatic valve disease, or recent bypass surgery.
- Consider compression stockings during long flights for patient with a history of or risk for venous thrombosis.
Airline passengers who require oxygen are not permitted to bring their own oxygen on board the plane. They need to contact the airline at least 7 days before departure to make arrangements for oxygen to be available for them. There may be an additional charge associated with providing the oxygen, ranging from $75-$800 depending on the airline and flight duration.

Patients with bullous emphysema are at increased risk for pneumothorax during air travel. While not a specific contraindication to air travel, patients with bullous emphysema should be made aware of the risk and be able to recognize the symptoms of pneumothorax should they occur.

**Air Travel with Other Respiratory Tract Disorders**

For patients with a known pneumothorax, air travel is considered unsafe and should be avoided. Air travel is also considered unsafe for patients with severe asthma or asthma that recently required hospitalization. Patients with severe middle ear infections also should not fly.

**Air Travel with Cardiovascular Disease**

Altitude increases the need of the myocardium for oxygen, but evidence exists that patients without active cardiac disease can safely handle altitudes of up to 11,000 ft. Since commercial flights are pressurized to 5000-8000 ft, older adults with stable cardiovascular disease should be able to fly without risk. However, air travel is considered unsafe for, and should be avoided by, patients with a variety of active cardiac conditions. These include:

- unstable angina
- uncomplicated myocardial infarction (MI) within the past 2-3 weeks or complicated MI within the past 6 weeks
- uncontrolled hypertension
- coronary artery bypass surgery within the past 10-14 days
- severe decompensated heart failure
- severe symptomatic valvular heart disease
- uncontrolled supraventricular or ventricular tachycardia

**References and Resources**


Sleep in Older Adults - Pharmacotherapy

Jeannie Lee, PharmD, BCPS, CGP, College of Pharmacy, University of Arizona
Karen D'Huyvetter, ND, MS, College of Medicine, University of Arizona

Older adults frequently report sleep-related complaints and have questions about appropriate sleep therapies. A July 2011 edition of Elder Care discussed the use of non-pharmacologic, preventive, and behavioral treatments for treatment of sleep disorders in older adults.

The Role of Drug Therapy

Because many sleep agents are not appropriate for older adults as specified in the Beers Criteria, it is vital to remember that non-drug therapy and preventive/behavioral measures should be the first-line approach in this population. One of the preventive measures related to drug therapy is to identify medications or substances used that might be contributing to sleep problems, and avoiding them or adjusting dosing times to avoid interference with sleep (Table 1). Drug therapy should be reserved for when non-pharmacological and preventive measures fail.

Risk versus Benefit of Pharmacotherapy

An older adult may receive modest sleep benefit from a sleep agent but also experience adverse effects such as cognitive impairment, confusion, sleep walking, falls, etc. Therefore, benefit-to-risk ratio should be carefully considered and explained to older patients and caregivers before starting pharmacotherapy. Current evidence supports combining behavioral therapy with pharmacotherapy for acute treatment and discontinuing the drug after 3-4 weeks. Thus, a short-course of pharmacotherapy should be combined with continued cognitive behavioral therapy to sustain sleep improvement after pharmacotherapy is discontinued.

Pharmacotherapy Recommendations

The choice of a sleep medication should be directed by several factors including: (a) insomnia pattern, (b) goals of therapy, (c) past treatment responses, (d) comorbidities, (e) contraindications, (f) side effects, (g) drug interactions, (h) cost, and (i) patient preference. The lowest effective dose of the chosen agent should be used with regular follow up to assess effectiveness, adverse effects, and need for continued use. Intermittent dosing (2-4 times/week) may be used. Again, short-course treatment (3-4 weeks) should be used unless chronic insomnia is present due to a chronic illness. After chronic use, the medication should be tapered to prevent rebound insomnia.

Table 1. Common Medications/Substances that Cause or Aggravate Sleep Disorders in Older Adults

<table>
<thead>
<tr>
<th>Agents</th>
<th>Effects and Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>Sleep induction, subsequent disruption</td>
</tr>
<tr>
<td>Antidepressants (e.g., SSRIs, SNRIs, bupropion)</td>
<td>Insomnia, may cause nightmares</td>
</tr>
<tr>
<td>ß-blockers, α-agonist (e.g., atenolol, clonidine)</td>
<td>Insomnia, may cause nightmares</td>
</tr>
<tr>
<td>Caffeine, Decongestants (e.g., pseudoephedrine)</td>
<td>Stimulating, Avoid evening use</td>
</tr>
<tr>
<td>Corticosteroids (e.g., prednisone)</td>
<td>Stimulating, may cause agitation</td>
</tr>
<tr>
<td>Diuretics (e.g., furosemide)</td>
<td>Awakening due to nocturia</td>
</tr>
<tr>
<td>Levodopa</td>
<td>Insomnia, may cause nightmares</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Stimulation</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Insomnia</td>
</tr>
<tr>
<td>Thyroid supplements</td>
<td>Insomnia, Check thyroid function test</td>
</tr>
</tbody>
</table>

SSRI = Selective Serotonin Reuptake Inhibitor, SNRI = Serotonin Norepinephrine Reuptake Inhibitor

TIPS FOR USING SLEEP PHARMACOTHERAPY IN OLDER ADULTS

- Save drug therapy for when nondrug therapy and preventive measures fail.
- Combine acute pharmacotherapy (3-4 weeks) with continued behavioral therapy for sustained improvement in sleep.
- Weigh risk versus benefit of sleep agents with older patients and caregivers when choosing pharmacotherapy.
- Use lowest effective dose of the chosen agent with regular follow up to assess effectiveness, adverse effects, and need for continued pharmacotherapy.
- To improve sleep latency, use a shorter-acting agent (e.g., ramelteon, zaleplon, zolpidem).
- To improve sleep maintenance, use a longer-acting agent (e.g., eszopiclone, zolpidem ER, trazodone).
Table 2 describes sleep pharmacotherapy options and also notes medications to avoid in older adults.

### Table 2. Medications to Use and Not Use for Sleep

<table>
<thead>
<tr>
<th><strong>Melatonin Receptor Agonist</strong></th>
<th>- no abuse potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ramelteon (Rozerem®) 8mg within 30 mins of bedtime (avoid high-fat meal)</td>
<td></td>
</tr>
<tr>
<td><strong>Benzodiazepine Receptor Agonists</strong></td>
<td>- severe allergic reactions and sleep-related behavioral disturbance possible; Beers Criteria recommends to avoid chronic use (&gt;90 days)</td>
</tr>
<tr>
<td>• Eszopiclone (Lunesta®) 1-2mg (avoid high-fat meal)</td>
<td></td>
</tr>
<tr>
<td>• Zaleplon (Sonata®) 5mg (avoid alcohol or food)</td>
<td></td>
</tr>
<tr>
<td>• Zolpidem, Zolpidem ER (Ambien®, Ambien CR®) 5mg (avoid alcohol or food)</td>
<td></td>
</tr>
<tr>
<td><strong>Antidepressants</strong></td>
<td>- comorbid depression; orthostatic effect</td>
</tr>
<tr>
<td>• Trazodone (Desyrel®) 25-100mg</td>
<td></td>
</tr>
<tr>
<td>• Mirtazapine (Remeron®) 7.5-15mg (Beers Criteria recommends use with caution for potential SIAHD)</td>
<td></td>
</tr>
<tr>
<td>• Doxepin (Silenor®) 3-6mg (Beers Criteria limits dose to &lt;6mg/day; many potential drug interactions)</td>
<td></td>
</tr>
<tr>
<td><strong>Anticonvulsants</strong></td>
<td>- severe allergic reaction possible; renal dosing</td>
</tr>
<tr>
<td>• Gabapentin (Neurontin®) 100mg to start</td>
<td></td>
</tr>
<tr>
<td><strong>Atypical Antipsychotics</strong></td>
<td>- increased risk of stroke and mortality among dementia patients</td>
</tr>
<tr>
<td>• Quetiapine (Seroquel®) 12.5-25mg to start</td>
<td></td>
</tr>
<tr>
<td><strong>Short-Intermediate Acting Benzodiazepines</strong></td>
<td>- comorbid anxiety; abuse potential; anticholinergic effects; Beers Criteria recommends avoid using all type for treatment of insomnia (few examples provided here)</td>
</tr>
<tr>
<td>• Alprazolam (Xanax®) 0.5-1mg (avoid alcohol)</td>
<td></td>
</tr>
<tr>
<td>• Estazolam (ProSom®) 0.5-1mg (avoid alcohol)</td>
<td></td>
</tr>
<tr>
<td>• Lorazepam (Ativan®) 0.25-2mg (avoid alcohol)</td>
<td></td>
</tr>
<tr>
<td>• Temazepam (Restoril®) 7.5-15mg (avoid alcohol)</td>
<td></td>
</tr>
<tr>
<td><strong>Medications to Avoid</strong></td>
<td></td>
</tr>
<tr>
<td>• O-ver-the-counter Antihista mines (e.g., diphenhydramine)</td>
<td></td>
</tr>
<tr>
<td>• Long-acting Benzodiazepines (e.g., clonazepam, diazepam)</td>
<td></td>
</tr>
<tr>
<td>• Barbiturates (e.g., phenobarbital)</td>
<td></td>
</tr>
<tr>
<td>• Chloral Hydrate</td>
<td></td>
</tr>
<tr>
<td>• Tricyclic Antidepressants (TCAs; e.g., amitriptyline)</td>
<td></td>
</tr>
</tbody>
</table>

To improve sleep latency, use a shorter-acting agent (e.g., ramelteon, zaleplon, zolpidem). To improve sleep maintenance, use a longer-acting agent (e.g., eszopiclone, zolpidem ER, trazodone). Most pharmacotherapies have potential drug/herbal/food interactions and adverse effects that need close monitoring. Thorough patient education is key: (a) expectation and treatment goals, (b) safety concerns, (c) potential adverse effects, (d) potential drug interactions, (e) dose escalation plan, (f) rebound insomnia, and (g) other treatments (cognitive behavioral therapy).

### Supplements for Sleep

Complementary and alternative medicine (CAM) use increases with age. A 2005 report found that 30% of people over 65 report using CAM, and 70% of those are 85 and older. Several supplements are used for sleep.

**Melatonin**

Synthesized endogenously in the pineal gland, evidence suggests that older adults may have melatonin deficiency when compared to younger adults, and melatonin supplementation may be beneficial for insomnia. It is generally well tolerated, but may exacerbate delirium in depressed patients, and have an additive effect with sedatives. Melatonin can also increase the effectiveness of anticoagulants, may reduce glucose tolerance and insulin sensitivity, and may cause orthostatic hypotension.

**Valerian**

Thought to have sedative-hypnotic, anxiolytic, antidepressant, anticonvulsant and antispasmodic effects, valerian modestly reduces sleep latency and improves subjective sleep quality. It is generally well tolerated, but cases of headache, gastrointestinal upset, excitability, and cardiac problems have been reported. It may have hypertensive effects, and has an additive effect with sedatives.

**Passionflower**

The FDA has given passionflower a “generally recognized as safe” status for use in foods. Preliminary research indicates that drinking one cup of passionflower tea an hour before going to bed improves sleep quality. It has no effect on sleep latency or nighttime awakenings, however. It can cause dizziness, confusion, sedation, and ataxia in some patients. One case of cardiac side effects has been reported. Passionflower may have an additive effect with sedatives.

### References and Resources


Natural Medicines Comprehensive Database [http://naturaldatabase.therapeuticresearch.com](http://naturaldatabase.therapeuticresearch.com)


### ACOVE Quality Indicators

1. If a vulnerable elder has sleep problems, THEN he or she should not be treated with over-the-counter sleep aids containing antihistamine because the drugs are associated with anticholinergic side effects and are likely to lose their effectiveness to improve sleep within 1 week.

2. If a vulnerable elder is new to a primary care practice and is chronically (>3 months) taking a benzodiazepine for sleep problem, THEN advice to taper off and discontinuation of the medication should be documented within 6 months because benzodiazepines are approved only for short-term treatment of insomnia, withdrawal symptoms after discontinuation may worsen after 3 months of use, and these medications may be associated with health risks, including falls, altered mental status, and mortality in older people.

### Interprofessional Care Improves the Outcomes of Older Adults with Complex Health Problems

Editors: Rosemary Browne, MD; Mindy Fain, MD; and Barry D. Weiss, MD

Interprofessional Associate Editors: Tracy Carroll, PT, CHT, MPH; Karen D’Huyvetter, ND, MS; Colleen Keller, PhD, FNP; Teri Kennedy, PhD, LCSW, MSW; Jeannie Lee, PharmD, BCPS; Jane Mohler, NP, MPH, PhD; Lisa O’Neill, MPH

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Supported by: Donald W. Reynolds Foundation, Arizona Geriatric Education Center and Arizona Center on Aging
Discussing CPR with Patients and Families
Joshua D. Uy, MD, Division of Geriatric Medicine, University of Pennsylvania

Cardiopulmonary resuscitation (CPR) is a medical procedure performed on people who have died, in an attempt to bring them back to life. The goal of CPR is to return patients to their previous state of health, but there are four possible outcomes for those who undergo CPR: (1) failure of CPR, (2) success followed by subsequent death in the hospital, (3) survival to hospital discharge with good neurological function, and (4) survival to hospital discharge with poor neurological function.

Using in-hospital CPR as an example, out of 30 patients who undergo CPR, 15 will never regain a pulse, 10 will regain a pulse only to die in the hospital, and 5 will survive to hospital discharge. Four (80%) of those surviving to hospital discharge will be about the same neurologically as before the CPR event. One (20%) will be significantly worse.

Is CPR Effective in Older Adults?
There is some decline in the rate of successful resuscitation with advancing age. For example, for inpatient CPR, the success rate is 19% for those 40-59, 17% for those 60-79, and 11% in those older than 80. Much of that decline is attributed to comorbidities, not age alone. Other factors more important than age in predicting the likelihood of success include: where the cardiac arrest occurs; if it is witnessed; the initial heart rhythm; the time until advanced life support efforts begin; and the baseline functional status of the person. For example, resuscitating a patient with ventricular fibrillation is still very effective in older adults, whereas resuscitating asystole is largely ineffective in adults of any age.

What are the potential adverse effects of CPR?
When discussing CPR with older patients and their families, it is important to point out that cardiac arrest, usually due to an arrhythmia, results in no suffering. For those who survive the initial resuscitation, however, most will subsequently die in the hospital and during time between the initial resuscitation and death, they may experience and suffer from a variety of complications.

Besides medical complications like respiratory failure or heart failure, survivors of the initial resuscitation experience numerous potentially painful traumatic injuries.

Table 1. Outcomes Per 100 Individuals Who Undergo Resuscitative Efforts Following Cardiac Arrest

<table>
<thead>
<tr>
<th>Site of CPR</th>
<th>Do not survive initial resuscitation</th>
<th>Die in hospital</th>
<th>Survive to hospital discharge</th>
<th>Survival to hospital discharge with good neurological outcomes</th>
<th>Alive 1 year later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient (Data for older adults)</td>
<td>50%</td>
<td>32%</td>
<td>18% (for patients living independently at home prior to hospitalization)</td>
<td>8-14%</td>
<td>5-8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9% (for dependent patients living in long-term care facilities prior to hospitalization)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient (Data for all adults)</td>
<td>77%</td>
<td>15%</td>
<td>8%</td>
<td>3%</td>
<td>No good data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing home</td>
<td>80-100%</td>
<td>10-20%</td>
<td>0-7%</td>
<td>No good data</td>
<td>No good data</td>
</tr>
</tbody>
</table>

**TIPS FOR DISCUSSING CPR WITH PATIENTS AND THEIR FAMILIES**

- A decision regarding CPR is a separate issue from the aggressiveness of care an individual would want while they are still alive, e.g., someone may want aggressive care treatment of pneumonia. However, if they were found dead, that individual might want to be left in peace.
- CPR is a bad choice for someone who cares about dying peacefully OR who cares mainly about comfort OR who has a low pain tolerance OR would not want to expose themselves to the risk of surviving with an impaired neurological status.
- CPR is a good choice for someone who cares more about longevity than dying peacefully AND is willing to accept the trauma of resuscitation AND accepts the possibility of surviving with an impaired neurological status.
Continued from front page

For example, about 31% of those who survive the initial resuscitation will have rib fractures and 30% will have visceral complications including gastric distention and hepatic or splenic injury. Nearly a quarter will have sternal fractures, 20% will have damage to their upper airway, and 18% will have mediastinal hemorrhage.

Neurological outcomes, perhaps the most important issue when considering survival after CPR, are reported to vary widely in older adults and indeed, in adults of all ages. For witnessed cardiac arrests that occur in the hospital, as many as 80% of survivors will have a neurological status similar to their baseline status. But, the remainder will have a significant, and sometimes severe, decline in their neurological status.

For outpatient cardiac arrests, good neurological outcomes occur only in about 3-7% of resuscitations overall. For outpatient cardiac arrests that are witnessed with immediate institution of bystander CPR and ventricular fibrillation present when advanced life support becomes available, about 20% will survive with good neurological outcomes.

Goals of Care

Given the risks of suffering and impaired neurological outcomes, and the low overall survival rates after CPR, the key issues when counseling patients and their families are the goals of care. Even if initial resuscitation is successful, CPR can leave a person significantly worse off than they were before the event. Depending on the goals, therefore, CPR may be appropriate or inappropriate (Table 2).

CPR is a good choice for those who care more about longevity than about dying peacefully or being comfortable, and who are willing to accept (a) the traumatic injuries that occur with CPR, (b) the possibility of a prolonged death after the initial CPR with complications such as heart failure or respiratory failure, and (c) the possibility that even if they survive the initial resuscitation, they may have an impaired neurological status.

CPR is a bad choice for someone who cares mainly about comfort or dying peacefully. It may also be a bad choice for individuals who have a low tolerance for pain, and would not want to expose themselves to the risk of a prolonged death or having an impaired neurological status.

Table 2. Using Patient Goals to Decide if CPR is Appropriate

<table>
<thead>
<tr>
<th>Goal</th>
<th>CPR Appropriate</th>
<th>CPR Not Appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longevity</td>
<td>Longevity is still a goal, regardless of medical condition</td>
<td>Longevity is no longer a goal</td>
</tr>
<tr>
<td></td>
<td>Dying peacefully is not a primary goal</td>
<td>Dying peacefully or naturally is a goal</td>
</tr>
<tr>
<td></td>
<td>Avoiding a prolonged death is not a primary goal</td>
<td>Avoiding a prolonged death is a goal</td>
</tr>
<tr>
<td>Comfort</td>
<td>Comfort is not a primary goal</td>
<td>Comfort is a primary goal</td>
</tr>
<tr>
<td>Function</td>
<td>Willing to tolerate or risk a decline in neurological status</td>
<td>Not willing to risk or tolerate neurological impairment</td>
</tr>
<tr>
<td>Pain Tolerance</td>
<td>High tolerance for trauma and pain</td>
<td>Low tolerance for trauma and pain</td>
</tr>
<tr>
<td>Risk Tolerance</td>
<td>A bad outcome would be acceptable because at least an attempt was made for longevity</td>
<td>A bad outcome means that performing CPR was not worth it</td>
</tr>
</tbody>
</table>

References and Resources


ACOVE Quality Indicators

If a vulnerable elder with decision-making capacity has orders written in the hospital or the nursing home to withhold or withdraw a particular treatment (for example, a do-not-resuscitate order or an order not to initiate dialysis), THEN the medical record should document 1) patient participation in the decision or 2) why the patient did not participate in the decision.

Interprofessional care improves the outcomes of older adults with complex health problems

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Supported by: Donald W. Reynolds Foundation, Arizona Geriatric Education Center and Arizona Center on Aging
Arizona Geriatric Education Center

The Health Resources and Services Administration (HRSA), an agency of the US Department of Health and Human Services, funds Geriatric Education Centers (GEC) across the nation to provide interdisciplinary training of health professions faculty, students and practitioners in the diagnosis, treatment and prevention of disease, disability and other health problems of older adults. Due to our innovative programs, renowned interprofessional faculty and statewide partnerships we have successfully competed for a GEC in Arizona 4 times!!

The primary goal of our Arizona Geriatric Education Center (AzGEC) is to help build an expanded, diverse, and prepared interprofessional geriatric workforce in Arizona to meet the special healthcare needs of older adults, especially the frail. There is a great need for this project, as Arizona is rapidly growing, with growth especially pronounced among older adults in ethnic minority groups and those living in rural and underserved areas. Many of these elders have multiple complex health problems, and poor function and quality of life, and will use a disproportionate share of health care resources with high associated costs.

Our AzGEC is a statewide consortium, including the University of Arizona Health Sciences Center, Arizona State University, and the Southern Arizona VA Healthcare Center. Through these partnerships we provide interprofessional education and training for health science students, nurses, NPs, PAs, physicians, pharmacists, public health and social workers to ensure seniors in Arizona receive quality care across the continuum. We are integrally involved in geriatric education and training, clinical demonstration and care, community engagement, and aging policy. We are linked to the Administration on Aging, National Institute on Aging, Department of Veterans Affairs, and other Health Resources and Services Administration programs.

In 2012, our GEC was awarded Supplemental Funding to provide updated and evidence-based Alzheimer’s disease (AD) and related dementia content to educate and train healthcare providers. The goal of the supplemental grant was to improve detection and early intervention of AD; manage the disease in the context of comorbid conditions; refer patients to appropriate clinical trials; access community services; and ultimately improve care for patients living with dementia, and their families and caregivers. This included addressing the unique needs of underserved and special populations. We are ideally positioned to build, expand and disseminate effective Alzheimer’s educational materials and curricular programs. We are excited to use our infrastructure and long-term relationship with the Portal of On-line Geriatric Education (POGOe) to help prepare an interprofessional workforce. We urge you to view our website at http://www.aging.arizona.edu to learn more!
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