

# Perioperative Care Strategy for Older Adults



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## KEYWORDS

• Geriatric • Frailty • Delirium • Advance directive

## KEY POINTS

- Geriatric surgical care is an evolving domain of specialized care.
- Geriatric patients require a standardized preoperative, intraoperative, and postoperative approach to achieve improved outcomes.
- Development of a multidisciplinary team to oversee the care and provide support to the providers is a necessary component of the care model.

## INTRODUCTION

Surgical care of older adults is rapidly developing as an integral segment of surgical care across all surgical specialties. Americans aged 65 years and older are the fastest growing segment of the population, and this group uses a disproportionate amount of the overall health care resources. Almost 40% of all inpatient procedures are performed on patients more than 65 years of age.<sup>1</sup> Older patients bring a complexity in physiologic, sociologic, and psychological issues that are challenging the current care models. To answer this challenge, groups, including the American Geriatrics Society and the American College of Surgeons, have developed guidelines for perioperative management of geriatric patients. This article defines this high-risk group for surgical providers and guide them through an evidence-based, efficient preoperative, intraoperative, and postoperative care encounter.

## PREOPERATIVE CARE: ESTABLISHING GOALS OF CARE

Traditional initial evaluation of surgical patients revolves around identification of the surgical problem and the surgical strategy to solve the problem. Discussions center

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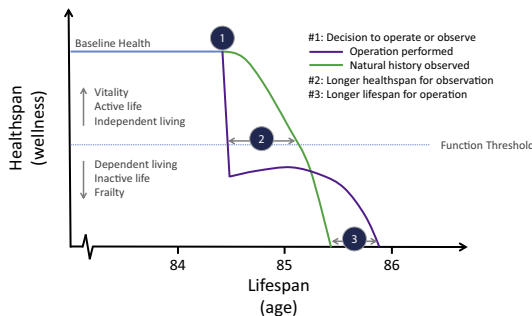
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on the technical aspects of the procedure, discussing recognized morbidity and mortality statistics and a decision about proceeding with the procedure. Personalized risk assessment based on multiple organ systems and physiologic parameters, diagnostic evaluations of critical physiologic systems to achieve optimization for identified deficits, and completing an informed consent are the usual elements of this consultation. This disease-centric, or organ-centric, evaluation process does not account for the patients' own values or wishes for their health and well-being. Defining treatment goals based strictly on disease-related and organ-related outcomes is suboptimal.

Establishing patient-centered treatment goals in surgical therapy revolves around the extension of the patient's healthspan or the quality of that healthspan.<sup>2</sup> Healthspan is defined as the length of time during which an individual retains health and well-being (often maintenance of independence of function or the ability to live independently are used as surrogates to represent health).<sup>3</sup> The concept of healthspan is in contrast with the idea of lifespan (Fig. 1). Lifespan is the chronologic time for which the patient is alive and does not take into account quality of life. Major operations can extend lifespan at the expense of decreased healthspan. This approach begs the question during the preoperative consultation for a major operation: "But at what cost?" For older patients, surgical morbidity and mortality are higher than in the general population because of a multifactorial combination of chronic disease and functional decline.<sup>4</sup> The intensity of surgical care in this group is high, with up to one-third of elderly patients undergoing surgery during the last 12 months of their lives.<sup>5</sup>

A key assessment in the initial preoperative evaluation for geriatric patients is a clear elucidation of their overall health care goals. These goals are best clarified if they are specific and personal, preferably expressed in the patient's own words. "I want to attend my grandson's high school graduation" or similar sentiments are best gathered through open-ended questions, such as "What can you tell me about yourself that will help me to take care of you?" The surgeon through this assessment, in addition to other aspects of risk stratification, can help inform patients and their families of the anticipated impact of the surgical procedure on symptoms, functional status, living situation, burden of care, and survival. This strategy helps the surgical care provider align operative treatment goals with the individual's overall health care goals.

It is important to reemphasize the need to align older adults' most valued virtues and desires with the anticipated surgical outcomes based on the accurate geriatric risk assessment. An establishment of healthspan versus lifespan concept is intrinsic to this discussion. Included in the discussion should be a realistic outline of long-term



**Fig. 1.** Conceptualizing healthspan versus lifespan in the context of a major operation in the oldest old.

symptoms or functional limitations associated with the intervention; the time frames associated with the return to functionality; and the alteration in living situation, even temporary, that is either probable or possible. Most seriously ill patients (75%) say they would not choose life-sustaining treatment if they knew the outcome would be survival with long-term cognitive or functional impairment.<sup>6</sup>

Advance directives need to be obtained before major operative interventions in older adults. At minimum, a medical durable power of attorney's name and contact information should be documented before any planned inpatient operation. This information provides the clinical team with persons to contact postoperatively when patients do not have the capacity to make health care decisions for themselves. The named durable medical power of attorney should actively engage with the patient to understand what the patient's wishes are for life-sustaining treatments during a situation in which the patient does not have decision-making capacity. For more extensive elective surgical procedures with planned postoperative intensive care unit admission, the older adult's treatment preferences for specific life-sustaining interventions need to be documented in an advance directive document. Preferences for life-sustaining measures such as cardiopulmonary resuscitation with chest compression, intubation, feeding tube placement, blood transfusion, and hemodialysis should all be discussed, and the patient's wishes documented.<sup>7</sup>

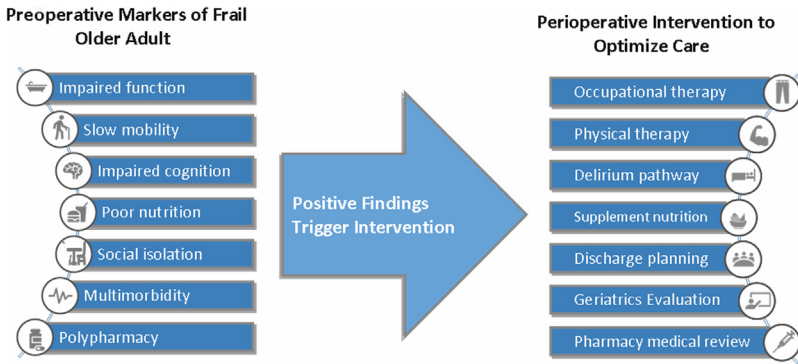
## PREOPERATIVE CARE: RISK ASSESSMENT

Historically, establishing surgical risk has relied on assessing and summing the presence of comorbidity, or chronic disease. The greater number of comorbidities present was subsequently equated to higher surgical risk. Ischemic heart disease is the most dominant comorbidity associated with poor surgical outcomes and therefore cardiac evaluation was the central focus of preoperative evaluation.<sup>8</sup> However, more recently, physiologic vulnerability in older adults has been recognized to be distinct from vulnerability in younger adults. The syndrome of frailty represents a distinct vulnerability in older adults that requires preoperative assessment.

Frailty better stratifies risk in older patients in contrast with simply summing comorbidity. Frailty is quantified by assessing a spectrum of characteristics unique to older adults.<sup>9</sup> The goal of a frailty assessment is to identify physiologic decline in older patients that forecasts poor surgical outcomes. A frailty assessment can provide management opportunities with the goal of improving surgical outcomes by directing preoperative and postoperative interventions directly at deficits discovered during the frailty evaluation (Fig. 2).

Age in itself is a factor that increases the vulnerability of the surgical population. The American College of Surgeons currently recommends using 75 years as the cutoff for high risk, because several studies have shown increased morbidity and mortality independently associated with age equal to or greater chronologic age.<sup>10</sup> Patients greater than 75 years old should be evaluated for additional risk related to frailty, including cognitive decline, impaired functional status, impaired mobility, and malnutrition.

Cognitive decline is evident in up to 24% of patients 80 years of age and older.<sup>11</sup> It is directly associated with multiple postoperative complications, including multiorgan failure and delirium.<sup>12</sup> Preoperative cognitive impairment can be quickly assessed by several screening tools, including the Mini-Cog test.<sup>13</sup> It is recommended that this assessment be performed and documented on all high-risk individuals to identify the abnormalities and to identify a baseline for comparison in the immediate postoperative period and for long-term evaluation.<sup>7</sup> Those patients who are identified with



**Fig. 2.** Translating frailty evaluation into perioperative interventions to optimize care.

impairment should be included in a high-risk group and should have a delirium prevention bundle order set launched immediately postoperatively.

Functional status interruption is an expected occurrence before any major surgical procedure. Function is quantified by assessing the 6 activities of daily living: bathing, grooming, transferring, toileting, feeding, and continence.<sup>2</sup> Function is subsequently documented as independent if the patient is able to perform all 6 activities of daily living, partially dependent if the patient requires assistance in 1 to 5 of the activities of daily living, and completely dependent if the patient requires assistance in all 6 activities of daily living. Dependence in 1 or more activity of daily living is closely associated with poor surgical outcomes, including an increase in major complications, need for institutionalization, and mortality. The expectation of returning to the preoperative level of function may be unrealistic for some patients, a fact that needs to be discussed during the preoperative decision-making consultation. Although the most common tool to assess function is quantifying activities of daily living, assessment of instrumental activities of daily living (eg, ability to prepare meals, shop for food, and manage personal finances) is also a reasonable strategy for documenting function. The aspect of a true functional decline where the older adult never returns to the same level of function as the baseline exists. The trajectory of functional recovery for older adults is protracted compared with younger, healthy individuals and a return to baseline may never be achieved.

Impaired mobility is also a characteristic of frail older adults. Frail older adults' walking speed (termed gait speed) is slower than that of nonfrail adults. Multiple measurement tools exist to quantify impaired mobility. For surgical patients, the Timed Up and Go evaluation is an established and widely used strategy.<sup>14</sup> To measure a Timed Up and Go, the patient is timed rising from a chair, walking 3 m (10 feet), turning around, walking back to the chair, and then sitting in the chair. A time of 15 seconds or greater is closely associated with increased major surgical complications and greater 1-year mortality. Measurement strategies used as surrogates for walking speed in the surgical literature are the presence of 1 or more falls in the 6 months before the operation and the need for use of a mobility aid preoperatively.<sup>15,16</sup> Improvement in preoperative physical activity is associated with high likelihood to recover baseline walking capacity.<sup>17</sup> Multimodal preoperative strategies, termed prehabilitation, have been developed to initiate walking programs and nutrition assessment before surgery, and have shown decrease postoperative complications and reduced hospital costs.<sup>18</sup>

Nutrition assessment is critical because malnutrition is a common and under-recognized condition in the older adult population. Anorexia associated with weight loss and shrinking is a core characteristic of frail older adults. The reasons for poor nutrition can be related to factors beyond frailty-related anorexia; impaired ability to swallow and poor dentition are both recognized contributors to under nutrition in older adults. Nutritional status is important to surgical outcomes, because markers of preoperative malnutrition are associated with increased postoperative morbidity.<sup>19</sup> However, up to two-thirds of older patients are at nutritional risk or malnourished at baseline, therefore initiation of nutrition in the postoperative setting should be as expeditious as possible.<sup>20</sup> For surgeons to recognize affected patients, it is recommended that a simple screening scheme looking for a body mass index less than 19 kg/m<sup>2</sup>, weight loss greater than 10% to 15% in the previous 6 months, and a serum albumin level less than 3.4 g/dL as triggers for suspecting malnutrition.<sup>7</sup> Any 1 of these factors eliciting a positive response should generate a nutritional evaluation with institution of a preoperative and postoperative nutritional support.

It is important to reemphasize that the presence of 1 or more characteristics of frailty (impaired cognition, partially dependent or dependent function, poor mobility, and malnutrition) does not preclude an operation. These characteristics forecast poor surgical outcomes and that fact needs to be accounted for in surgical decision making. Early identification of the presence of frailty deficits aids in recognizing the need for early discharge planning. In addition, mitigation through management strategies designed to reverse the clinical deficit (eg, prehabilitation for functional impairment or nutritional supplementation for malnutrition) may be prescribed, although recent randomized controlled trials did not show a significant health benefit from aggressive intervention.<sup>21</sup>

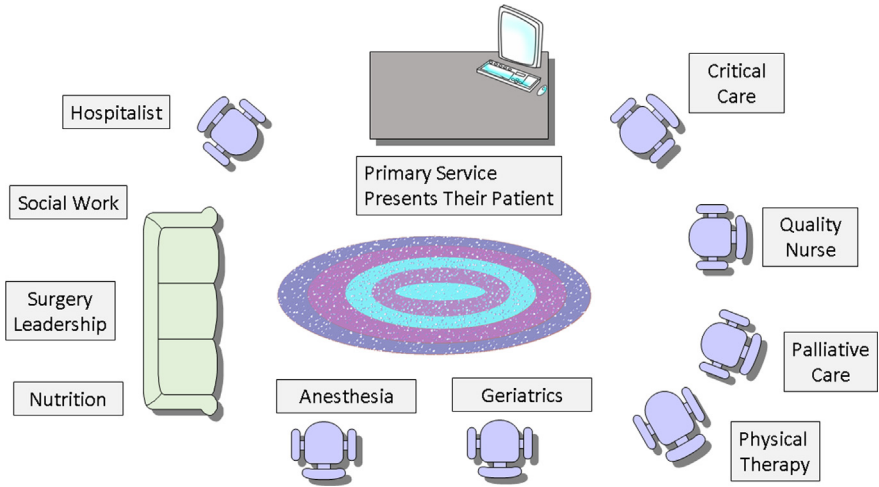
### **PREOPERATIVE CARE: MULTIDISCIPLINARY TEAM DECISION MAKING**

To aid in preoperative decision making for older adults considering a major operation, presentation of all patient 75 years of age and older planning to undergo an inpatient elective operation is recommended. Establishing a multidisciplinary team allows the diverse input of specialists in the final decision to perform an operation. This strategy represents a significant departure from the traditional surgical decision-making pathway, in which an individual surgeon decides with the patient whether or not to proceed with an operation. This care team is analogous to other such boards that are commonly found in most institutions, such as tumor boards or preoperative transplantation committees.

The multidisciplinary team meets on a regular schedule to evaluate preoperative and postoperative care of patients 75 years of age and older with the goal of implementing evidence-based best practices for the perioperative care of geriatric patients. The membership of the multidisciplinary geriatric surgical team varies from institution to institution but generally includes geriatric surgical leadership, primary surgical team, palliative care, geriatrics, anesthesia, hospital medicine, critical care, nutrition, pharmacy, and social work (Fig. 3).<sup>7</sup> Documentation of the recommendations should be placed in the patient chart with communication to caregivers and families.<sup>22</sup> Before presentation of an older adult preparing for surgery at the multidisciplinary meeting, baseline assessment of frailty, patient goals of care, and comorbidity need to be documented and available for the team to review. The primary surgical team commonly present their own patients being considered for a major operation.

### **PREOPERATIVE CARE: GERIATRIC-SPECIFIC SURGICAL RISK CALCULATORS**

Surgical risk calculators are common tools used for preoperative decision making for any patient undergoing a high-risk operation. The most common risk calculator in use is the



**Fig. 3.** Multidisciplinary geriatric surgical decisional-making committee participants.

American College of Surgeons risk calculator.<sup>23</sup> This tool is Web based, free, and easily accessible for clinical use. Preoperative baseline patient characteristics (eg, age, presence of specific chronic disease, function) and the proposed surgical procedure are uploaded into the calculator. In addition to the discrete input categories, providers can select a status button for low or high risk based on their own assessment, which may not be captured by the discrete input variables present on the calculator input page. After input of the preoperative variables, the risk calculator outputs forecasted outcomes for the individual patient compared with the accepted national averages for postoperative outcomes. Outcomes reported by the calculator include risk of 1 or more major postoperative complication, pneumonia, cardiac event, infection, and 30-day death.

Recently, the American College of Surgeons added geriatric-specific baseline variables and outcome variables to their widely used surgical risk calculator. Six additional baseline variables need to be input for risk adjustment: use of mobility aid, origin status from home, history of fall, impaired cognition, hospice care on admission, and competency to sign consent. The benefit of providing this additional baseline information is the subsequent outcome variables of postoperative delirium, decline in function, new use of a mobility aid, and progression of a pressure ulcer. This surgical calculator represents the first widely disseminated surgical risk assessment tool that accounts for the characteristics of the frail older adults and subsequently provides outcomes specifically relevant to the frail older adults.

### INTRAOPERATIVE CARE OF OLDER ADULTS

The recommended intraoperative care of older adults does not significantly differ from the care of other adults. Specific management strategies important for older adults include:

1. Extra care in padding during patient positioning to prevent skin breakdown and nerve atrophy. Older patients are particularly susceptible to these injuries because of decreased skin integrity.<sup>24</sup>
2. Use of preemptive nonnarcotic multimodal preventive pain management strategies (eg, regional blocks, acetaminophen, gabapentin) before the incision to decrease anesthesia medications during the operation. General anesthesia in orthopedic

patients is associated with increased postoperative complications, including in-hospital mortality, length of stay, and readmission; however, the evidence is equivocal as to whether regional anesthesia is associated with improved outcomes.<sup>25,26</sup>

- Avoid prescribing high-risk medications in the immediate preoperative phase of care (eg, routine use of high-risk antiemetic medications) and intraoperative phase of care. For a list of commonly prescribed high-risk medications in the perioperative setting, see [Table 1](#).

## POSTOPERATIVE INPATIENT CARE OF OLDER ADULTS

### *Multidisciplinary Inpatient Care Team*

The foundation of high-quality postoperative inpatient care of older adults depends on multidisciplinary team daily rounds focused on geriatric specialty care issues. Although the surgical and medical teams caring for elderly patients focus their efforts on the primary disease process leading to the current hospitalization, a multidisciplinary geriatric team is able to focus their efforts on issues central to optimal recovery of the older adults: functional preservation, delirium prevention, nutritional support, and discharge transition planning. The benefits of multidisciplinary team rounding for geriatric patients have been shown in multiple subspecialties, particularly orthopedic surgery, where there has been significant decrease in morbidity after surgery for geriatric patients as well as 30-day mortality and readmission rate.<sup>27,28</sup> Clinical pathways have now been developed that activate geriatric protocols beginning in the emergency department at the time of admission.

<b>Table 1</b>	
<b>Common perioperative medications with high risk of adverse events in older adults</b>	
<b>Pain Medications</b>	
Meperidine (Demerol)	Related to postoperative delirium
Indomethacin (Indocin)	NSAID with most CNS side effects
Pentazocine (Talwin)	Associated with hallucinations and confusion
Ketorolac (Toradol)	Increased risk of GI bleeding and peptic ulcer disease
<b>GI Stress Ulcer Prophylaxis</b>	
Cimetidine (Tagamet)	Anticholinergic properties predispose to delirium
Famotidine (Pepcid)	Anticholinergic properties predispose to delirium
Ranitidine (Zantac)	Anticholinergic properties predispose to delirium
<b>Nausea Medications</b>	
Scopolamine	Anticholinergic properties predispose to delirium
Promethazine (Phenergan)	Anticholinergic properties predispose to delirium
<b>Insomnia Medications</b>	
Benzodiazepines	Central nervous system toxicity, increase fall risk and fractures
Zolpidem (Ambien)	Increase risk of delirium and falls
<b>Other Medications</b>	
Diphenhydramine (Benadryl)	Anticholinergic properties predispose to delirium
Cyclobenzaprine (Flexeril)	Drowsiness, confusion
Metoclopramide (Reglan)	Extrapyramidal effects

*Abbreviations:* CNS, central nervous system; GI, gastrointestinal; NSAID, nonsteroidal antiinflammatory drug.



Although rounding may be simultaneous or separate, the care provided by the multidisciplinary team requires direction and coordination. The composition of the multidisciplinary team may include surgery, geriatrics, hospital medicine, social work, physical therapy, occupational therapy, nutrition, pharmacy, and discharge planners/use management. Existing hospital care models that exemplify this geriatric-centric strategy include the Hospital Elder Life Program (HELP) and the Acute Care Elderly (ACE) program.<sup>29,30</sup> Daily rounds by this team focus on the geriatric vulnerabilities unique to the elderly and compliment the primary surgical team, which focuses on surgery-specific recovery pathways and avoidance of major morbidity.<sup>31</sup> Advanced care planning is also significantly improved with geriatric consultation, a finding that improved both resource use and bereavement outcomes for families.<sup>32–35</sup>

### ***Function Preservation***

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Hospitalization is associated with a decline in functional status for older patients, with the odds increasing significantly as patients grow older.<sup>36</sup> For surgical patients, up to 50% of patients do not regain their baseline functional status even at 6 months after discharge.<sup>37</sup> Limited ambulation during the hospital stay has been associated with loss of independent ambulation in older patients.<sup>38</sup> To avoid this decline, early ambulation by nurse-driven or physical therapy protocols has been shown to improve functional status at the time of discharge, and to decrease the likelihood of discharge to a skilled nursing facility.<sup>39–41</sup> Early mobilization is also a key component of enhanced recovery protocols for abdominal surgery, reducing length of stay and cost.<sup>42</sup> Even more important, improving mobility avoids other preventable complications, such as inpatient falls and pressure ulcers, that prolong hospitalization with significant morbidity.<sup>43</sup>

### ***Delirium Prevention***

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Delirium is an acute change in cognitive status that represents the most common postoperative complication in hospitalized older adults, presenting in up to 60% of older patients.<sup>44</sup> Some risk factors for delirium are inherent to the perioperative process, including sensory and sleep deprivation, polypharmacy, and use of psychoactive drugs. Developing delirium during hospitalization is associated with increased morbidity, mortality, and need for posthospital institutionalization.<sup>45,46</sup>

The cause and thus prevention of delirium is multifactorial (**Table 2**). Interventions to prevent delirium include bedside supportive protocols to maintain orientation, mobilization, sleep hygiene, and sensory deficit support. A common threshold to order the delirium prevention order set is for all patients 75 years of age and older undergoing an inpatient operation, because increasing age is associated with development of delirium.<sup>44</sup> Targeting this population to start a delirium prevention program allows the nursing staff to focus their efforts on a limited truly high-risk population of inpatients. Of note, the evidence currently does not support the belief that prophylactic use of antipsychotics prevents delirium.<sup>47</sup>

Identification and treatment may help decrease the duration of delirium. Screening should be initiated on high-risk patients by a validated tool.<sup>48</sup> As recommended by the American Geriatric Society, first-line therapy for delirious old patients is a multicomponent, nonpharmacologic intervention including (1) frequent orientation, (2) calm environment, (3) eliminated restraint use, (4) familiar objects, and (5) ensuring the use of assistive devices. When patients are at risk to themselves or others, antipsychotics may be used at the lowest effective dose.



<b>Table 2 Modifiable causes of postoperative delirium</b>	
<b>Delirium</b>	
<b>Promotor</b>	<b>Management Strategy</b>
Disorientation	Orient to person, place, time 3 times daily minimum Encourage family presence at bedside
Disrupted sleep	Sleep hygiene: awake during daytime, uninterrupted sleep overnight Windows allowing natural light in room
Immobility	Early ambulation: walk in hallway minimum 3 times daily Avoid tethers: minimize catheters, tubes, lines that discourage walking
Sensory deficits	Vision: wear glasses Hearing: hearing aids/pocket talker
Uncontrolled pain	Nonpharmacologic pain adjuvants (eg, ice, massage) Opioid-sparing multimodal pharmacologic pain management
Medications	Avoid anticholinergic medications and Beers list medications Avoid starting multiple new medications simultaneously
Infection	Avoid iatrogenic infections Diagnose source and actively treat infections
<b>Other Important but Less Common Drivers of Delirium</b>	
<ul style="list-style-type: none"> <li>• Hypotension</li> <li>• Acute blood loss anemia</li> <li>• Myocardial infarction</li> <li>• Postictal state</li> <li>• Abnormal sodium level</li> </ul>	<ul style="list-style-type: none"> <li>• Hypoxia</li> <li>• Hypercarbia</li> <li>• Pulmonary embolus</li> <li>• Underhydration</li> <li>• Metabolic acidosis</li> </ul>
	<ul style="list-style-type: none"> <li>• Urinary retention</li> <li>• Constipation</li> <li>• Stroke</li> <li>• Malnutrition</li> </ul>

**Appropriate Medication Usage**

Medications are another major source of adverse events in hospitalized older adults. Older patients are more sensitive to the effects of benzodiazepines and opioids, in particular, because of a decrease in the number of receptors or affinity of receptors for neurotransmitters.<sup>49</sup> Aging causes a decrease in cardiac output, hepatic and renal outflow, as well as overall decrease in lean body mass with increase in fat that causes redistribution of all drugs and interferes with overall metabolism and clearance.<sup>50</sup> Multiple medications, a phenomenon termed polypharmacy, is both common and deleterious because of drug-drug interactions. For example, starting 5 new medications puts older adults at a 5-fold delirium risk. The Beers list is a medication list considered the gold standard reference for pointing out which medications to avoid in older adults.<sup>51</sup> **Table 1** reviews a subset of medications from the Beers list that are relevant to the perioperative setting.

Postoperative pain control should include multimodal opioid-sparing pain regimens.<sup>7</sup> These pain regimens should include ice packs, massage, standing acetaminophen (1000 mg 3 times a day), gabapentin (300 mg daily), liberal use of regional blocks, and opioids. Appropriate assessment of pain should be made, including using modified pain scales for patients with underlying dementia.<sup>52</sup> Uncontrolled pain has an equal if not greater risk of causing delirium compared with the use of opioids; therefore, opioid use is superior to leaving an older adult with uncontrolled pain.

### ***Nutrition and Hydration***

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Initiation of nutrition in the postoperative setting should be as expeditious as possible. Swallowing should be evaluated to prevent aspiration, and older patients should be maintained on aspiration precautions while eating.<sup>7</sup> Similar to visual and hearing aids, dentures should be returned as soon as possible. Inclusion of a nutritional supplementation beverage with meals is a common strategy to increase postoperative caloric intake. Ongoing evaluation of adequate food intake should occur throughout the hospital stay.

### **POSTDISCHARGE CARE OF OLDER ADULTS**

Older adults' physiosocial vulnerability makes them uniquely vulnerable to hospital readmission and other adverse outcomes postdischarge. One-third of Medicare patients who had been discharged from the hospital were readmitted within 90 days and more than 50% of patients discharged after surgical procedures were rehospitalized or died within the first year of discharge.<sup>53</sup> Core issues include a poor understanding of what happened during the hospital stay, noncompliance with discharge medical regimen, and a lack of communication with outpatient primary care providers.<sup>29</sup> Optimizing safe discharge practices requires:

**Clear discharge instructions:** clear review of discharge medical instructions with particular attention paid to newly prescribed medications.

**Written instructions:** written documents reviewing hospital course and potential postdischarge adverse events such as the occurrence of potential geriatric syndromes, including delirium and falls.

**Communication:** written communication sent to the older adult's outpatient primary care providers including operation performed and postoperative course, as well as laboratory and diagnostic test results.

**Follow-up:** prearranged follow-up with surgical team, primary care provider, and any new consultants relevant to inpatient stay.

### **SUMMARY**

Older adults require perioperative care that recognizes and supports their unique physiologic and social needs. There are multiple ongoing national initiatives designed specifically to improve the health care of older adults. The American College of Surgeons Geriatric Surgery Verification Program is the most directly related program to the concepts covered in this article.<sup>22</sup> This verification program outlines 33 evidence-based standards of care directly intended to optimize and improve the surgical care of older adults. Such programs provide financial value through delirium prevention and avoidance of unnecessary operations as well as societal value by maintaining functional independence. With the demographics of an aging population, surgical care that incorporates geriatric specialty care will be increasingly important to achieving the highest quality of surgical care for the population of the United States.

### **CLINIC CARE POINTS**

- Establishing patient-centered treatment goals in surgical therapy revolving around the extension of the patient's healthspan rather than just the consideration of the patient's lifespan is recommended.<sup>2</sup>
- Older patients experience an enhanced morbidity and mortality caused by a multifactorial combination of chronic disease and functional decline.<sup>4</sup>

- The syndrome of frailty represents a distinct vulnerability in older patients. Frailty stratifies risk better than summing comorbidities.<sup>9</sup>
- Age is an independent predictor of risk. The American College of Surgeons recommends using 75 years as the cutoff for high risk because several studies have shown increased morbidity and mortality independently associated with age.<sup>10</sup>
- Prehabilitation has shown decreased postoperative complications and reduced hospital cost.<sup>10</sup>
- Establishment of a multidisciplinary care team composed of all the stakeholders invested in the care of older adults meeting on a regular basis with the goal for implementing evidence-based best practices is strongly recommended.<sup>7</sup>
- The American College of Surgeons has recently modified its widely used surgical risk calculator to more accurately predict morbidities uniquely associated with geriatric patients.<sup>23</sup>
- Intraoperative care of older adults does not differ substantially from usual care models. However, institution of safeguards to avoid pressure injuries, use of regional anesthetic strategies, and avoidance of high-risk medications are recommended.<sup>24–26</sup>
- Existing hospital care models, such as the HELP and the ACE programs, are readily available for implementation.<sup>29,30</sup>
- Use of the Beers list of high-risk medications to avoid has been shown to have significant benefits.<sup>51</sup>
- Multimodal pain control strategies show benefit through reduction in opioid-first pain management strategies.<sup>7</sup>
- Fifty percent of Medicare patients after a surgical procedure are either rehospitalized or die within the first year after discharge. Strategies to mitigate these dynamics include clear written discharge instructions; 360° communication to all stakeholders, particularly primary care providers; and establishment of concrete follow-up.<sup>29,53</sup>

## DISCLOSURE

The authors have nothing to disclose.

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