



One Step at a Time: Implementing Pathways to Optimize the Care of Geriatric Surgical Patients

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Across the world, many countries are facing a significant increase in the number of older adults in the population. By 2050, the estimated population over 65 will be 12.5% in South Africa, 18% in Mexico, 22% in the United States, 23.6% in the United Kingdom, and 40.1% in Japan.¹ As the number of older adults rises, surgeons will face increasing numbers of geriatric adults who have surgical needs but who also have significant risks associated with operative intervention related to physiologic changes that come with aging, increased number of comorbidities, cognitive impairment, and frailty. For older adults with cancer, these age-related risks may be compounded by the disease process itself or by pre- or postoperative chemotherapy regimens. As such, it is vital that surgeons understand the risk profile of their older patients, provide tailored counseling based upon operative and postoperative risk, utilize shared decision making to ensure care that is patient-centered, and optimize care pathways to improve outcomes in older adults. In order to accomplish these goals, institutions should implement a structured and standardized approach to the care of the geriatric surgical patient, and should track geriatric-focused outcomes to measure success.

In a recent *Journal of Clinical Oncology* review, Montroni et al. discuss the implementation of six patient-centered initiatives to improve cancer care for geriatric adults, focusing not only on oncologic outcome, but also on the functional recovery of older adults (Table 1).² In the preoperative phase, introduction of frailty screening and

pre-habilitation identifies patients at higher risk for adverse outcomes and aims to intervene on modifiable risk factors prior to surgery. In the operative phase, the authors advocate for the use of minimally invasive techniques and enhanced recovery pathways to decrease surgical stress. In the postoperative phase, introduction of geriatric co-management processes and assessment of social frailty interventions are key to both the immediate and long-term recovery process. An important theme throughout this article is that the infrastructure required to implement such programs is variable and may be adapted depending on institutional needs and resources. The strength of existing evidence also varies, and the authors summarize the current literature throughout their work.

The first two steps discussed in this work are those focused on the operative phase, as they are more readily integrated into current practices and have structured evidence to aid with adoption. As the authors indicate, the use of minimally invasive techniques in older patients has been promoted by the American College of Surgeons (ACS) and the American Geriatrics Society (AGS) given the current available evidence. Instituting Enhanced Recovery Protocols (ERPs) for geriatric patients is supported by evidence demonstrating shorter length of stay and lower morbidity without the consequences of increased readmission. Furthermore, many of the central tenets of ERPs, such as minimizing narcotics and early removal of tethering devices, could provide additional benefits to older adults in minimizing the risk of delirium, a condition that is associated with poor outcomes and significant healthcare costs.

Delirium prevention and management is essential in geriatric patients postoperatively, and its importance cannot be overstated. Patients who develop postoperative delirium have worse outcomes including longer length of stay, higher readmission rates, and persistent deficits in functional recovery.^{3,4} More recent work from the

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TABLE 1 Six steps to optimize surgical care for older adults with cancer

Step	Theme	Phase of care
1	Minimally invasive surgery	Operative
2	Enhanced recovery protocols	Operative
3	Frailty screening	Preoperative
4	Geriatric Co-management/Rehab	Postoperative
5	Pre-habilitation	Preoperative
6	Social support/frailty	Postoperative

Adapted from Montroni et al. Their organization of the six steps is based upon ease of implementation.

Successful Aging After Elective Surgery (SAGES) study demonstrated delirium incurred healthcare costs of \$44,921 per patient per year, due to index cost, rehospitalizations, and rehab requirements in this older adult population.⁵ Chemotherapy can contribute to delirium risk through both cognitive side effects as well as through electrolyte abnormalities and changes in renal function. Patients seen by a surgeon before and after neoadjuvant chemotherapy should have screening repeated after therapy as they may have developed new risk factors or experienced delirium during therapy, which would inform postoperative risk and care pathways. Any program focused on the improvement of outcomes for older adults postoperatively should include discrete measures to prevent and screen for delirium. Specific programs to return and encourage use of assistive devices, provide systematic reorientation and engagement of older patients, and integrate clinical pathways to avoid deliriogenic medications should be implemented. Furthermore, the potential cost savings to both patient and institution can provide a compelling case to hospital administration as to why such programs are important.

The other four steps discussed by Montroni et al. are preoperative screening and pre-habilitation, as well as postoperative geriatric co-management and social frailty assessment. These can be more difficult to implement due to the need to institute new care pathways for screening and intervention, the need to integrate geriatric service expertise into care pathways, and the need to evaluate and address the social needs of patients. Introducing such steps into the surgical process can require fundamental institutional changes, along with shifts in the mindset and approach of surgeons. As such, the success of these efforts requires surgeons, nurses, administrators and staff to understand why this work is important and how it will change the current workflow. As the processes are implemented, providing short-term updates on the successes of

the program are important to reinforce the work until it becomes more routine. Utilizing guidelines and structured programs with evidence-based practices can help significantly in trying to introduce new practices at individual institutions.

In 2019, the American College of Surgeons launched the Geriatric Surgery Verification (GSV) Quality Improvement Program, aiming to improve the surgical care of older adults through implementation of 30 required and 2 optional surgical standards (Table 2).⁶ This structured approach provides a clear framework to create program leadership and institute a Geriatric Surgery Quality Committee. It provides specific steps for documentation of preoperative discussions and screening programs, vulnerabilities at the time of discharge, and discharge communication. It provides clear guidelines for pre- and post-operative care pathways and references pertinent literature throughout the standards document. Furthermore, educational modules on implementation are available to provide further insight to programs that aim to become a verified center.⁷ Oncology-specific guidelines are also available to inform the creation of institutional protocols. The National Comprehensive Cancer Network (NCCN) recently published updated guidelines on “Older Adult Oncology” which provide a detailed discussion of topics such as decision making, pre-treatment evaluation, communication strategies and assessment tools for geriatric patients.⁸ Screening for age-related vulnerabilities could substantially influence treatment options, and may provide insights into how patients will tolerate operative intervention. While patient-centered decision making is vital for all oncology patients, framing options within the context of a patient’s baseline vulnerability profile and functional status is particularly important in an older adult with cancer.

The creation of structured perioperative programs for older adults has also improved the ability to track and study geriatric-specific outcome measures. The ACS National Surgical Quality Improvement Program (ACS NSQIP) introduced a Geriatric Surgery Pilot Project in 2014 in order to track four geriatric-specific domains (cognition, decision-making, function, and mobility) through collection of both pre- and postoperative data elements. Analysis of preliminary data from this program has already demonstrated value in identifying both the incidence of geriatric-specific outcomes and the risk factors associated with such events. Furthermore, it has led to changes in the ACS NSQIP Surgical Risk Calculator that can inform discussions with geriatric patients regarding anticipated outcomes.^{9–11} Utilization of this assessment can further inform operative discussions between surgeons and

TABLE 2. American college of surgeons geriatric surgery verification program standards

Section	Number of standards	Section content
1. Institutional administrative commitment	1	Administrative letter of support
2. Scope and governance	3	Structure of program leadership: director; coordinator; quality committee
3. Facilities and equipment resources	1	Guidelines on geriatric-friendly patient rooms
4. Personnel and services resources	1	Designation of a nurse champion
5. Patient care: expectations and protocols	18	1–5: Goals/Decision making 6–9: Preoperative workup 10–16: Postoperative management 17–18: Transitions of care
6. Data surveillance and systems	2	Data collection/review; data feedback
7. Quality improvement	2	Quality improvement/process improvement NSQIP participation (optional)
8. Professional and community outreach	3	Community outreach Education of surgeons/advanced providers Education of nurses
9. Basic and clinical trials (optional)	1	Scholarly research (optional)

Adapted from the ACS GSV Program Standards available at https://www.facs.org/-/media/files/quality-programs/geriatric/geriatricsv_standard_s.ashx

patients, as it incorporates anticipated effects of surgery on delirium risk, functional decline, new use of mobility aids, and pressure ulcers. When combined with cancer-specific prognosis data, this may affect operative planning based upon both the surgeon's assessment of risk/benefit profile as well as the patient's stated goals regarding intervention goals and acceptable quality of life. Programs instituting geriatric-specific care pathways should integrate data collection and review into their Quality Improvement processes in order to track program success and identify areas for further improvement.

With the increasing age of our patients, surgeons must adapt practices in order to provide optimal care for older adults. In this review, Montroni et al. have outlined six central steps to the implementation of geriatric-focused care in cancer patients. While implementation can require significant individual and institutional investment, there are expert guidelines and verification programs that provide a clear framework on how to institute and track success of geriatric-focused pathways. As we continue to advance the care of older adults, it is essential that institutions share their experiences in order to inform others aiming to institute successful programs.

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