30 Surgical Decision-Making in the Elderly with Serious Surgical Illness: The Role of Palliative Care

Vincent Finbarr Blood, Matthew K. McIntyre, and Christian A. Bowers

Our reluctance to honestly examine the experience of aging and dying has increased the harm we inflict on people and denies the basic comforts they most need.
Lacking a coherent view of how people might live successfully all the way to the very end, we have allowed ourselves to be controlled by the imperatives of medicine, technology and strangers.
Atul Gawande (Surgeon and Author), Being Mortal: Medicine and What Matters in the End

Surgeons constantly face new challenges as knowledge and research along with technology are continuously evolving to surgically achieve optimal patient outcomes. Historically, surgeons have led by example through translational science, implementing new technological innovations, or advancing surgical techniques. Surgeons have followed the same time-honored leadership blueprint in the application of palliative care to the geriatric surgical patient (GSP). Palliative care is unique with its humanistic battlefield that not only seeks to holistically understand our patients and their families but also our colleagues and perhaps, most importantly, ourselves. This challenge is to the very essence of our souls, values, and culture, and not to surgical technique or technology.

We must behave and think differently to change this dogma lest we lose our purpose as surgeons: to treat our older surgical patients with compassion and dignity within a comprehensive patient-based approach. We must have dynamic vision and foresight of what is important to the GSP as defined not just by their pathology but by their personal, psychosocial, clinical situation, and overall quality of life (QoL). This perspective permits Surgical Palliative Care (SPC) to demonstrate integrity to the GSP's entire situation to determine which course honors and follows the patient's values best. This unique and vulnerable patient population needs us to be a different type of hero than the traditional paintings of the famous general surgeons that line our country's oldest and most prestigious surgery departments. In this chapter, we attempt to understand the intersection of Geriatric Medicine (GM), surgery, and SPC. Barriers to SPC will be

V. F. Blood (✉)
Department of Surgery, Westchester Medical Center, Valhalla, NY, USA
e-mail: Vincent.Blood@wmchealth.org

M. K. McIntyre
School of Medicine, New York Medical College, Valhalla, NY, USA

C. A. Bowers
Department of Neurosurgery, Westchester Medical Center, New York Medical College, Valhalla, NY, USA

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acknowledged and discussed. Solutions and tools to assist the surgeon in this difficult transformation and decision-making will be postulated.

Understanding Each Other: Geriatric Medicine, Palliative Care, and Surgery – A Prerequisite for SPC Decision-Making

A crucial first step in integrating SPC into an effective interdisciplinary team caring for the older age patient with serious surgical illness is an accurate understanding of the other disciplines involved, primarily GM and palliative care (PC). Why does each entity act and think in the way that they do? Mutual understanding and exchange of ideas through effective communication is a key component to working as a team to reach the moral and ethical common goal of optimizing patient-focused care.

Cultural differences across disciplines and an unwillingness to engage in meaningful conversations contribute to isolation and limitations in interdisciplinary care. Ideally, the objective is a patient-focused, comprehensive interdisciplinary care team utilized for establishing palliative care decisions based on open discussions. A multidisciplinary team differs from an interdisciplinary team because in an interdisciplinary team different disciplines assume differing levels of control depending on the clinical and personal situation, whereas in a multidisciplinary team one discipline is in charge of all decision-making and overall care. Surgeons may interpret this as loss of control and ownership of their patient.

The number of older adults undergoing procedures for serious surgical illness is growing, as half of all US surgical procedures are in patients over 65, but their mortality rate continues to decrease [1, 2]. It is thought that over half of all procedures performed in the USA are in those over 65, and each individual in this group is likely to require at least one surgery [3]. Therefore, surgeons frequently manage older patients, but PC is under-recognized despite having demonstrated its efficacy, and the demand for SPC is constantly increasing [4].

SPC implementation has been problematic due to the various heterogenous clinical scenarios inherent to the GSP. The advanced patient care options available permits various surgical subspecialists to push the envelope for what GSP can tolerate. However, these treatment advances may come at an inconspicuous cost as GSPs are less likely to receive palliative or hospice care in their final year of life when compared to medical patients [5]. This is unfortunate since SPC patients have better pain management, higher satisfaction with care, increased QoL, and reduced healthcare costs [6, 7].

Given the remarkable advanced surgical care now available, the pertinent question is shifting to "not can we operate but, rather should we?" What will the patient's functional status be and how does that coincide with their wishes or advanced directive? Surgeons must shift to a comprehensive patient-focused, interdisciplinary care model that considers patient and family goals, values, and potential outcomes instead of what the technical surgical possibilities are. The nuances of the technical mastery of a Whipple, for example, are lost on the patient and his family if the patient becomes impaired and struggles with a protracted hospital course full of suffering that ultimately ends in their death anyways.

What Makes the Geriatric Patient Unique?

The GSP is unique from a personal, psychosocial standpoint and a clinical perspective. Many of these patients have chronic illness, comorbidities, and decreased physiologic reserve that portend worse postoperative outcomes. Polypharmacy complicates medical care in the elderly and is frequent as 39% of patients over 65 years take more than five medications daily [8]. Furthermore, older patients frequently have baseline impaired activities of daily living (ADLs), decreased activity and independence, varying degrees of frailty, and impaired cognition [9]. The already complicated informed decision-making process is further complicated by the frequent psychological and emotional impairments

prevalent in older patients. Appropriately, family and caregivers are asked to assist, care for, and make important healthcare decisions, but then indirect decision-making and surrogacy issues can further cloud the surgical decision-making process. The surgeon must accordingly recognize that they are treating a "care unit" consisting of patient, family members, and caregivers [10]. This "care unit" must be communicated with, educated, and involved in decision-making at all phases of the patient's course. The GSP's wishes, goals of care (GOC), and social situation are key elements to the decision-making process, and families should be involved early, and frequently, to establish a relationship with the physician in the event the patient becomes incapacitated or their wishes are unknown.

Additionally, given that over 1.7 million American geriatric patients are living in nursing homes or hospice, the social aspect of the patient's life must be considered in any surgical decision [11]. For example, if the patient's baseline functional status is poor, as evidenced by hospice dwelling, then shared decision-making must be utilized *before* an intervention is planned. This can be especially challenging in new or acute surgical scenarios such as traumatic injury where the care is very protocolized and time is precious. This highlights the need for established GOC and realistic conversations months or years before an acute scenario arises, something that is not possible for a trauma or acute care surgeon to do. We must therefore rely on our primary care colleagues to routinely have and document these conversations in an easily accessible database. Patients should also be encouraged to share their goals with family members who will be entrusted to make surrogate decisions on their behalf should the situation arise.

Geriatric Patients and Barriers to Palliative Care

Firstly, PC is frequently viewed as a terminal event with end of life care, but it offers so much more to patient, family, and the surgeon. This narrow perspective deprives patients of potential benefits and impedes optimal care. Secondly, a potentially dangerous and harmful false dichotomy exists: (1) palliative and symptom-based care aimed at increasing QoL from a physical, psychological, and spiritual perspective and (2) curative- and disease-focused care. These two areas are often seen as mutually exclusive. However, these two goals can and should be carried out in parallel with a high level of coordination because a single clinician operating in a vacuum will struggle and typically fail to achieve this goal. The lead clinician should be determined by whether palliative or curative treatment is the goal.

Alarmingly, focus of care decisions are often heavily influenced by providers while excluding patient wishes, GOC, and without discussing pertinent end-of-life issues. A frequent misconception is that SPC is a primary care process rather than an adjunctive, parallel system of care. In GSPs, the SPC process can be longer, more dynamic, and subject to change depending on numerous dynamic variables such as chronic illness, worsening comorbidities, and psychosocial personal change. Over time, the weight of each factor can change also as priorities shift and different decisions become appropriate. SPC and PC focusing on shared common ground (QoL, control over one's life, care for patient and family, collaborative care etc.) will help to integrate these disciplines and deliver the best care.

What Is Palliative Care?: Definitions, Principles, and Proper Use

PC is an essential part of total care offering a wide range of treatment and support for these patients and their families and is not just a place to send patients who we believe can no longer benefit from surgery for cure or where surgery is no longer a realistic, viable treatment option (Table 30.1). Nor is it equivalent to giving up or withholding care. It is not an "on" or "off' switch, but rather a spectrum that assumes a larger and larger role of the care as a patient's demise becomes more and more certain.

Table 30.1 Principles of palliative care

Basis is a relief of pain and suffering (physical, emotional, and spiritual)	End of life care is one important part of palliative care not it's "only" role
Improving quality of life	Treatment of the "whole" patient (patient-focused model)
Multidisciplinary and integration into an interdisciplinary team	Continuous reassessment and change of objectives if necessary
Curative treatment and symptom-based palliation are not mutually exclusive	Symptom management
Early education, effective communication, and mutual understanding	Caring for the caretaker is essential
Early establishment of patient's wishes, feelings, and goals of care	Palliative care extends beyond death and includes the bereavement process

Jerant et al. acknowledged that PC must be individualized to unique patient populations, especially in assisted living situations [12]. They examined barriers to PC in the older age patient and proposed a model to overcome them. This "TLC" model consisting of timing, teamwork, longitudinal care, collaborative, and comprehensive care was shown to improve palliative care interventions. PC is caring for the critically ill patient with advanced/terminal disease and their care unit with an "interdisciplinary" team whose primary objective is to increase QoL and decrease pain and suffering.

The graphs in Fig. 30.1 represent PC implementation models to help understand the PC team's interrelationship with other disciplines. The first model is a dated and ineffective way to use PC, albeit the most common interpretation by the public and non-PC providers. The key to effective PC is early involvement with patient and family as well as early integration and formation of the interdisciplinary care team.

The above points give credence to the effective, proper use of PC models as are summarized in Fig. 30.1b, c. As discussed, early coordinated involvement is critical to effective PC and decision-making. Curative treatment and palliative treatment (both medical and surgical) should be carried out simultaneously and in parallel. The situation is dynamic. Constant reassessment, education, communication, and changing care goals to meet the situation are required within the patient's clinical course and personal choices. The balance of treatment aimed at disease (curative) versus symptoms (palliative) as well as supportive care will vary according to time, place, and individualization of the patient's situation. Services offered can be surgical, medical, and nonmedical. They are aimed at curative treatment when appropriate and always strive to decrease pain and suffering and increase QoL. With the integration of palliative care, transition to different phases of care will be smoother with early and effective implementation as shown when these models are used.

Shared decision-making is a vitally important PC principle as it centers on the patient, promotes interaction, and offers a degree of control over life to the patient and family. The PC team assists in decision-making and should be involved in end of life or de-escalation of care scenarios, fitting with the second PC implementation model. These situations are dynamic and patients and families frequently do change their minds, and early PC involvement will help everyone get a better end result of increasing the patient's QoL and decreasing pain and suffering and to clarify goals of care and expectations for treatment and prognosis. SPC necessitates the formation of an interdisciplinary care team in order to provide the highest level of care. Formation, acceptance, and integration of an interdisciplinary team will require major changes in work flow from the current practice for many.

Surgical Palliative Care (SPC): The Concept of SPC as a Paradox Is a Potentially Harmful Misconception

> Before undertaking surgery, the surgeon should consider the whole man, his life, history, habits, constitutional idiosyncrasies, previous ailments, interactions of his mind, embed and body.
> John Hunter (Father of Modern Surgery)

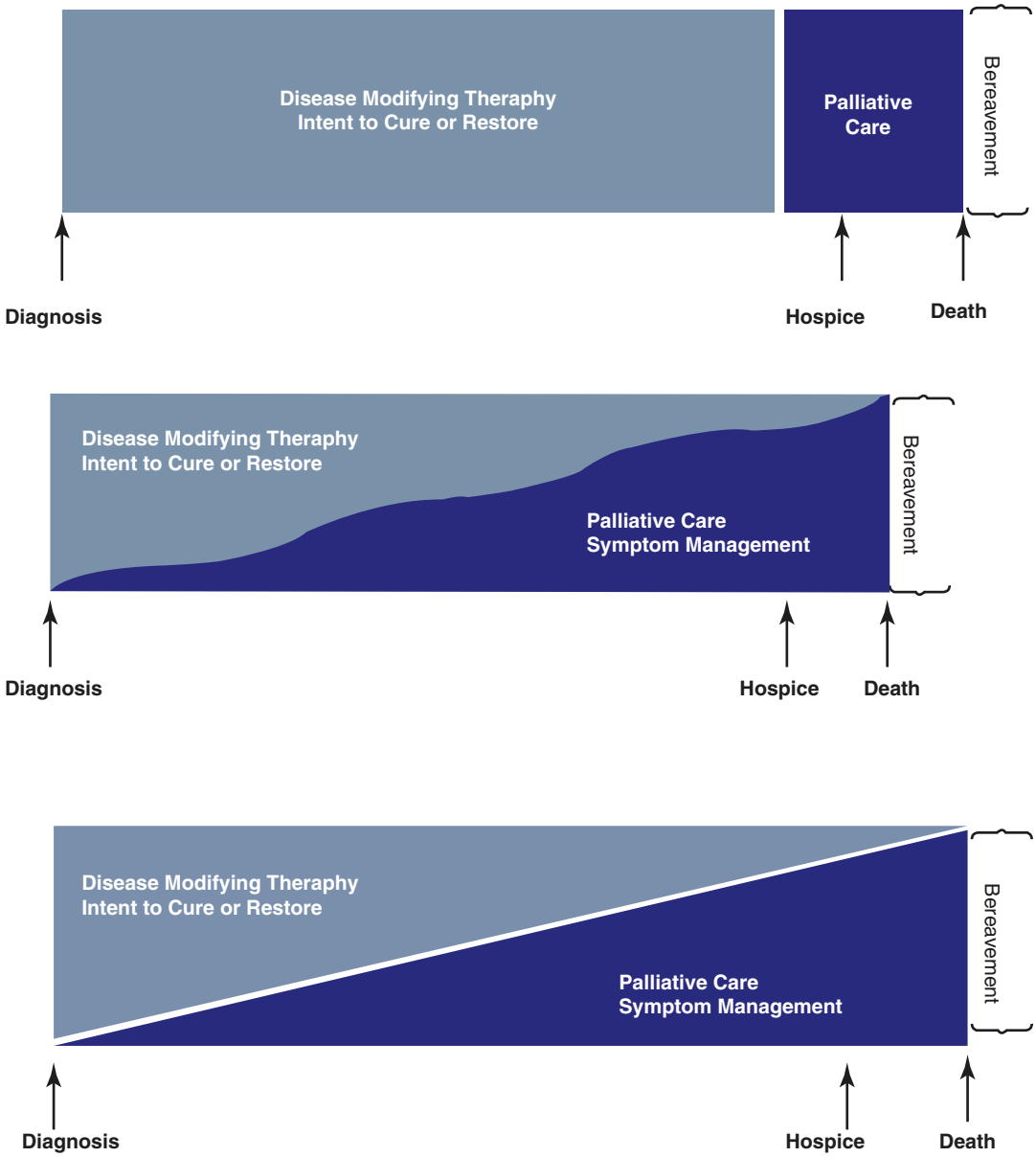

Fig. 30.1 (**a**–**c**) Diagrams of models of palliative care – demonstrating correct and improper use

Surgical Palliative Care

SPC is PC applied to the advanced, seriously ill, or terminal surgical patient, while palliative surgery is surgery performed to ameliorate symptoms without hope for curing pathology and is part of SPC. SPC has not been adopted widely or easily due to many current barriers impeding a surgeon's acceptance and implementation of SPC into their arsenal of overall patient care.

Barriers to SPC

SPC is not paradoxical, but is a valuable treatment option and potential supportive tool for

Table 30.2 Barriers to surgical palliative care

Surgical culture
Surgical personality and training
Definitions of success and failure
Working with an interdisciplinary care team
Understanding of surgical ethics
Psychology of the surgeon – patient relationship
Miscommunication
Misunderstanding of palliative care
Paucity of research and corresponding high-level evidence
Uncertainty of prognosis, clinical and personal situation
Disease-based approach often given bigger role than patient-based factors and model

the surgeon (Table 30.2). The second PC implementation model demands that surgeons play a major role on the interdisciplinary team and permit the potential benefits of PC into their practice. These GSP clinical situations are complicated and fluid, so attempting to manage everything alone as a solo surgeon can lead to the consequences of acting as a "misguided hero". This may be grave and harmful to patient and surgeon.

The Historical Perspective of SPC: Return to a Surgical Tradition

Historically, palliative surgery was ubiquitous across surgical disciplines since surgery's modern foundation and their early teachings reveal incredible PC foresight and compassion for the patient's overall well-being as they recognized the importance of a patient's QoL [13]. PS examples include Billroth performing a gastrectomy to relieve a patient of a horrible QoL with intractable vomiting, decreased nutrition, and an inability to eat [14]. Cardiothoracic surgery's simple incision through stenotic heart valves to relieve severe congestive heart failure symptoms is another [15]. Neurosurgical PS interventions include cordotomy for providing pain relief in a terminal patient [16].

It is important to reflect that Balfour Mount, a urologist, is credited with establishing the term palliative care in the early 1970s. His early writings described the principles of PC as we know them today [17]. Mount was extremely concerned and disheartened with surgery's narrow-minded focus on surgical procedures and disease. He rejected this purely patho-centric model of care and stressed the need for one that combined disease-based factors with patient factors especially QoL and patient well-being. He believed that surgical and disease-based variables alone disregarded the most important element of total surgical care, the patient. He challenged the notion of outcome measures of survival and short-term morbidity as the only goals of surgical care. The reassessment of more important outcomes such as QoL and leading a good life devoid of, or with minimal, pain and suffering are prescient and on the mark. Mount's challenge to his colleagues and higher level of thinking is where we must take surgical decision-making.

We must be compelled to stress the wonders of surgery in the larger context of patient well-being, function, comfort, and QoL. The surgeon must be engaged in all phases of care and administer effective communication to all involved in the surgical decision-making process. The surgeon's role is to guide treatment recommendations and support the patient and family. This is "true" courage and a surgeon's purest, most noble destiny. Why SPC has not been more fully accepted into our culture as surgeons and in practice is concerning. The time is long overdue. We must be honest, accept the need for improvement, and take measures to do so.

Surgical Palliative Care "Areas for Improvement"

Surgical Culture: The Surgical Personality

What is a surgical personality and does it affect one's ability to incorporate PC into surgery and a surgical decision-making framework? The "surgical personality" is a hardworking, self-critical, strong minded, independent, decisive, action oriented, hands on individual with an

absolute obsession on achieving positive results. This personality is stereotypical because these traits that attract people to become surgeons are the required characteristics in order to successfully endure the rigorous training and become competent surgeons [18]. However, these same necessary "survival" traits are not conducive to fitting in and working in a PC setting. Uncertainty runs rampant in surgical decision-making in relation to SPC in older adults with serious surgical illness. Uncertainty of prognosis, intricate personal and family dynamics, highly charged emotional situations, decreased function, frailty, dependence on others, and complex psychological issues are just some of the many challenges in SPC. For surgeons, perceived loss of control of "our patient," unwillingness or reluctance to accept other colleagues' opinions, and intense feelings also make it difficult to reconcile, but surgeons must undergo introspection and change if they want the best outcome for their patients.

Surgical Training and Defining Success and Failure

Surgical training reinforces and even selects for the surgical personality. There is very little praise in training, but plenty of criticism and failure is defined by death, and complications are questioned and taken personally. What went wrong? What did you do? These frequent questions after failure may illicit many strong emotions including guilt, self-blame, self-loathing, shame, and sadness. Surgeons are deeply affected by what surgical culture defines as success and failure, so it is critical to make a reassessment of outcomes and what our perception of success and failure are. In SPC, success can be a death, as long as the patient's goals and wishes were achieved and followed, respectively. Palliation can be a success by supporting your patient, so they may live the best life they can as defined by them until the end. A patient centric model of living life with quality until the end is as much of a success as curative treatment. The reality of incurable disease, unrealistic expectations, and death often bring to light our limitations and are seen as failure.

The Psychology of the Surgeon: Patient Relationship

The geriatric patient confronting serious surgical illness often views the surgeon as a hero and savior, and a rescue is expected, even when impossible. We can give our all to care for our patients even when there is no cure or surgical treatment but must not permit the hero/savior physician expectation to cause the surgeon to feel a sense of failure or frustration at not being able to cure or fix the patient because providing PC is frequently the best possible outcome [19]. When the surgeon feels like they have nothing to offer, this may be the time they actually have the most to offer their patient at his or her most difficult phase of life. Be there, show interest, listen, talk, support, be compassionate, and show presence. This may be the most valuable gift we have. We have ourselves. To offer ourselves is the ultimate gift to our patient even if there are no associated RVUs or CPT codes. We must learn to laugh and cry with our patients. Each patient and family will react differently. There is no right answer other than patient individualization.

The psychological phenomenon of transference may be experienced by the patient after clinical deterioration or bad news. A recent systematic review by Srinivasa et al. showed that patient complications effect surgeon personal and professional well-being and identified four main themes to these occupational hazards. (1) surgeons have feelings of anxiety, guilt, shame, and others that interfere with their personal and professional lives, (2) surgeons lack coping strategies and can turn to substance abuse, (3) talking with trusted colleges is seen as weakness, and (4) these complications affect future practice [20].

A Distinct Surgical Ethics

Ethics are foundational and play a daily major role in every SPC interaction. Patient autonomy and capacity are particularly emphasized given the prevalence and significance of control and dependence issues. Issues of surrogacy including advance directives add additional complexity, but

indirect surrogate decision-making should reflect what the patient would want given the totality of the circumstances. Strained patient family dynamics may also be a confounder due to complex relationships and differing opinions. Finally, human bias, including the surgeon's, may factor into the situation, but surgeons must educate and communicate effectively with surrogates so as to do what the patient would likely want. The interdisciplinary team must support and help navigate this complex dynamic.

Dr. Miles Little proposed a distinctly surgical ethics that overlaps with the goals of SPC and combines within the broader medical ethics [21]. He describes five distinct ethical principles of surgery within the surgeon patient relationship: First, rescue, the surgeon attempts to cure and save the patient and, if successful, is comfortable. Second, proximity requires self-awareness and is critical to understand how intimate and sacred the patient-surgeon bond is, and SPC must account for this. The ethical principles of ordeal and aftermath are the third and fourth principles where the surgeon must be present and guide the patient after the realization of the enormous physical and mental toll surgery has taken on them. Finally, presence is the fifth and final ethical principle. It is the only principle experienced solely by the surgeon and consists of being there for the patient in mind, body, and soul regardless of the clinical or personal course. Surgeons must never abandon their patient, and distancing behavior must be avoided [22]. Surgeons must always be present to support and demonstrate compassion, and the effect on family members, caregivers, and caretakers alike cannot be overstated. The serious consequences this experience may have on caregivers need further inquiry [23].

Surgical Palliative Care Summary

Traditional surgical culture focuses on disease-specific or surgical outcomes, and their communication to patients is easy. Although challenging, we must explore our own personalities, training, psychology, ethics, and overall surgical culture. Our self-awareness will guide us through the SPC decision process which is complex, dynamic, and high-stakes emotionally and physically. We must help the patient care unit make the best decision possible within the context of the individual patient situation and using all the information we have available.

Surgical Palliative Care Decision-Making: A Paradigm and Framework to Improve Care

Introduction: SPC Decision-Making

Figure 30.2 depicts the framework of SPC surgical decision-making that can be used as an adjunct to assist the entire interdisciplinary team, not to solve the complicated clinical scenarios by following an algorithm, but should be included in the assessment of all patients to foster a cognizance of the possibility of SPC for all geriatric surgical patients. Methods to foster and improve integration of PC into surgical and trauma ICUs must be thought of at each decision point with the individual well-being as the shared objective of all and the center [24]. Within this context for decision-making, the timing and physical location of the patient are critical factors. The patient's physical location (nursing home, skilled nursing facility, etc.) and the acuity of the surgical decision-making are critical as well with regard to an emergent situation or an outpatient elective procedure being considered.

The Surgical Palliative Care Decision Points

The first and most important decision point is (Decision 1 – Fig. 30.2) whether or not to initially involve a SPC team with older ill patients. Uncertainty of prognosis, complex family dynamics, lack of understanding, complex decision-making, decreased capacity, and many other factors often make SPC involvement a necessity to best care, even when many surgeons may feel initially that formal SPC interdisciplinary care teams may be unwarranted because they

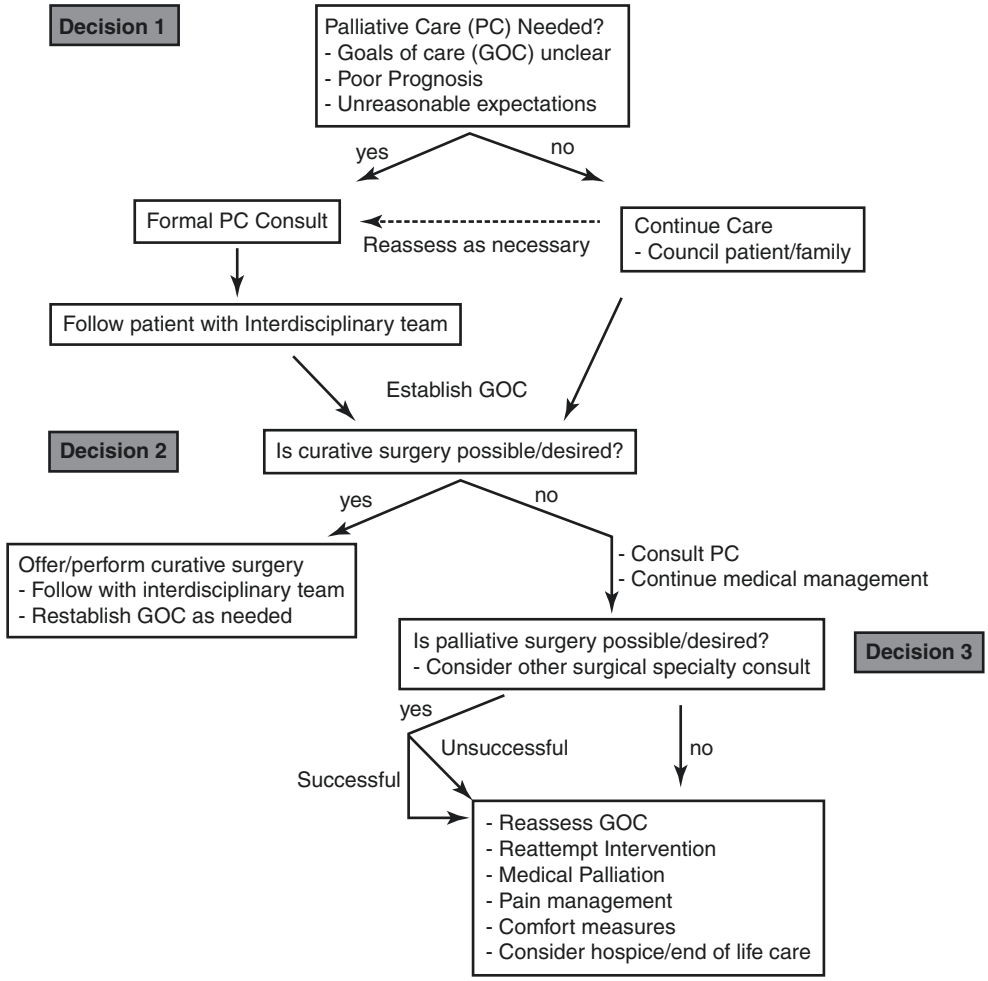

Fig. 30.2 SPC decision-making

can handle it themselves. SPC initiation does not have any requisite criteria for initiation although SPC guidelines for triggers to SPC involvement, as a means of increasing utilization and improving care, have been proposed [25]. Others have proposed protocols to accomplish essential SPC goals at reasonable time intervals [26, 27]. However, earlier is better so as to avoid the older implementation model of only engaging SPC after a decision has been made to not pursue further aggressive measures.

Decision 2 of Fig. 30.2 is whether curative surgery is the correct option for the individual patient. Traditionally, SPC is initiated when the decision "no" has been selected, but this is too late for optimal SPC utilization. Even if curative surgery is pursued, palliative treatments and support can also continue in parallel. Palliative surgery (decision 3) must account for not only the risk benefit discussion but also must factor preoperative optimization for what are typically very sick patients. The interdisciplinary care team is critical at all of the points in Fig. 30.2, and establishing the GOC is crucial, and GOC are readjusted to focus on QoL and relief of pain and suffering. Decisions concerning disposition and social factors are critical and must be discussed thoroughly as a change in settings can be disruptive and patients must feel in control and not abandoned.

Following Decision 3 of the SPC model is the critical decision to transition to end of life (EOL)

care. The physician must effectively communicate the reasons for the transition and the process of EOL care while respecting the patient and family wishes. It should be a shared decision giving the care unit a role and sense of control of the situation. EOL goals of care must be established, support provided, and symptom management made a priority [28]. After death, the bereavement phase must be acknowledged and all affected cared for.

In summary, palliation has historically been part of a surgeon's job description and has been a major American College of Surgeons (ACS) educational goal for residency programs. Many educational initiatives have addressed this area from, "The Workforce on Palliative Care in Surgery," the creation of a Resident's Handbook in Surgical Palliative Care to ongoing educational and research conferences and workshops. The ACS has established PC guidelines [25]. Surgeons must lead by building on this strong foundation to restore the surgical tradition of palliation and SPC [19]. The educational component for SPC must be a priority, and it must focus on teaching that which can prove elusive to many brilliant technical physicians but is vital in SPC: the art of communication. There are models and aids to assist in cultivating this skill. "Breaking of Bad News" and EOL discussions are true tests of the ability of a surgeon to communicate an understanding of SPC and decision-making. Aids like the SPIKES Model give us guidance and structure to such difficult conversations [29], but it must be formally studied for trainees to learn it [30].

Models and Quantitative Tools to Aid in Decision-Making

As outlined elsewhere in this book, there is an emerging area of research across surgery into the effect of frailty, i.e., a reduced physiologic reserve, on surgical outcomes. Intuitively, we all know that the more comorbidities a patient has, the worse they are likely to do the more invasive and longer a procedure is. However, measures of frailty actually quantify this effect, and, as one might expect, frailty has the potential to better predict outcomes and augment more traditional scoring systems for the prediction of morbidity and mortality.

Based on large datasets, over 150 different measures of frailty have been developed; however the most commonly used is the modified frailty index (mFI) [31]. The mFI is a set of 11 comorbidities that are each assigned 1 point if present and include history of functional dependence, impaired sensorium, diabetes, hypertension on medication, chronic or acute lung disease, myocardial infarction, congestive heart failure, angina/prior cardiac surgery/percutaneous cardiac intervention, transient ischemic attacks, cardiovascular accidents or stroke with neurologic deficits, and peripheral vascular disease/rest pain. Across several surgical disciplines, a high mFI has been associated with increased risk for death, complications, and other morbidities [32, 33]. However, given that this is a relatively new field of study, it is still unclear which index best applies to a given situation. For example, Ondeck et al. showed that age and American society of anesthesiologists (ASA) scale better predicted adverse outcomes following hip arthroplasty compared to the mFI and Charlson comorbidity index (CCI) [34], while conversely this same group found that the CCI best predicted outcomes following spinal tumor surgery [35]. Conversely, Bateni et al. showed that the ASA, mFI, and CCI have limited predictive value for stage 4 cancer patients with bowel obstruction [36]. Therefore, while measures of frailty have promise to be used in predictive models of outcomes, several obstacles remain: (1) each disease state (with its given intrinsic mortality) may be best predicted by a different frailty index; (2) there are a dearth of prospective studies in this field; (3) for a given disease, outcomes may be best predicted by some other non-frailty variable; however, more disease-specific study is needed; and (4) frailty indices have been validated for standardized endpoints such as mortality and postoperative complications; however, it is unclear whether they predict other endpoints such as long-term outcomes, discharge home, or other QoL measures.

As alluded to above, the study of surgical outcomes frequently focuses on in-hospital compli-

cations and mortality; however it fails to identify other areas that matter to patient well-being. Traditional scoring systems such as the SOFA, APACHE, and intracranial hemorrhage score have all been developed to predict in-hospital outcomes especially mortality. The ethical issue with improving in-hospital survival at whatever cost is that it leaves the possibility that we will be discharging patients to a fate that is worse than death. One example of this is the decompressive craniectomy (DC) trials for malignant MCA infarction in elderly patients which showed that DC saved lives, but at the cost of creating significantly more extremely disabled elderly patients [37]. As a result, patients deserve the information to provide informed consent to our interventions including the quantitative risk of never being able to function in society again or the inability to participate in the activities they care about most, particularly relevant in the geriatric population, who have fewer years of life left and tend to be less interested in permanent significant disability than younger patients. Additionally, clinicians have a poor ability to predict short-term mortality and are frequently overly optimistic about prognosis [38]. The scoring systems discussed above are an attempt to account for a patient's physiologic reserve to better estimate outcomes. Future studies must include long-term outcomes below in order for our patients to truly provide informed consent.

These somewhat overlooked areas of surgical research include patient pain, depression, discharge location (home, nursing home, rehab), and long-term measures of QoL. For example, a recent systematic review found no randomized trials investigating QoL following cardiac surgery among the elderly but did show, in lower-quality studies, that QoL decreases among 8–19% of patients following cardiac surgery [39]. While this is only one example, it highlights the need for more study on endpoints that matter to patients such as the ability to return to work, pain, reintegration with society, and feeling like a burden on their families. One of the reasons these endpoints are underresearched is that it is logistically difficult to objectively measure them. Pain, for example, is fluid and changes by the day, thus making it difficult to reliably quantify. Another reason these endpoints are understudied is that we are not evaluated on them. Hospitals and physicians are heavily scrutinized for their mortality and complication rate; however long-term QoL measures are often overlooked as a quality measure.

While a somewhat abstract concept, measuring QoL is an important endpoint that should be used more frequently in surgical research. Common measures of health-related QoL is the Short Form 12 (SF-12) and Short Form 36 (SF-36) which ask questions regarding pain and whether health (including emotional health) interfered with working, socializing, accomplishments, etc. The major drawback to this type of scoring system is that the patient must be cognitively present and able to complete the survey in order for it to be useful, and thus it may be less accurate among nursing home residents [40]. Another common approximation of patient QoL is the mini-mental status exam (MMSE), which can be useful to predict postoperative complications. For example, the MMSE have been shown to predict postoperative delirium and long-term cognition following cardiac surgery [41]. Other scoring systems designed for the PC practitioner have also been developed to predict short-term mortality among terminal patients. One of the most common, the Palliative Prognostic Index (PPI) includes variables such as oral intake, edema, dyspnea at rest, delirium, and the palliative performance scale. A PPI >4 is associated with a predicted lifespan shorter than 6 weeks [42, 43]. While these tools help to predict short-term survival, they are limited in their long-term predictive value, thus making their use as predictors of long-term patient-centric outcomes limited.

In summary, while several systems for approximating frailty and predicting outcomes exist, their widespread implementation into preoperative decision algorithms is dependent on validation for each disease state and determination of their predictive value for non-traditional endpoints such as QoL, return to work, and pain. These endpoints are what patients care most about and should be included in future studies

examining long-term outcomes of our interventions. However, as noted, prospective collection of these endpoints is difficult to obtain and difficult to use in research. Consequently, they have been largely ignored in favor of measuring mortality. As a result, mortality is the most frequently studied endpoint in SPC [7, 44]. The goal of future research should be to determine an objective measure of long-term outcomes that could be used to establish goals of care including the decision to operate. Therefore, as a means of providing information for informed consent, we have an ethical obligation to study these endpoints and develop objective tools to predict them.

Surgical Palliative Care Research and Ways to Improve the Evidence: Where Things Stand Today

The American College of Surgeons in 2003 identified seven key areas for the research and implementation of palliative care in surgery (Table 30.3). An excellent systematic review by Lilley et al. examined the state of the research in achieving these goals in surgical palliative care. They found only 25 suitable articles in the field of surgical palliative care have been published and only 9 of which are randomized clinical trials [7]. For purposes of brevity, we will only focus on surgical decision-making; however we encourage the reader to examine the Lilley article for more information.

Of the three studies that have investigated SPC and surgical decision-making, two by Miner et al. examined the role for palliative surgery among advanced cancer patients. First, in 2004, they showed that palliative procedures (including for obstruction, neurologic symptoms, pain, dyspnea, and jaundice) provided symptom improvement or resolution in 80% in 30 days. The median survival was 194 days from surgery; however the procedures were associated with 29% morbidity and 11% mortality within 30 days [45]. In 2011, they went on to describe how the palliative triangle of patient symptoms, values, and GOC can be used to carefully select patients for palliative surgery. Using this triangle they showed a 91% symptom improvement or resolution, lower postoperative morbidity (20%) and mortality (4%), and prolonged survival to 212 days, on average [46]. Similarly, Tan et al. showed that among patients undergoing colorectal surgery, those managed by a dedicated geriatric surgical team focusing on preoperative evaluation/rehabilitation and functional recovery had a high rate of return to functional status postoperatively [47].

Table 30.3 7 Domains of surgical palliative care

Surgical decision-making (disease/procedure focused)
Patient decision-making (patient focused)
End-of-life decision-making (recognition and the process)
Symptom management
Communication
Process of care
Surgical education

Research on surgical decision-making among elderly patients is lacking. This is true for both palliative and curative surgery. At a minimum, surgeons should incorporate GOC discussions into all conversations with patients and their families pre- and postoperatively. The research outlined above is a start; however there is a tremendous paucity of work in this field. Specifically, there is a need for surgical decision algorithms that incorporate palliative care concepts and predict mortality, QoL, and patient factors.

Gaps in knowledge must focus on patient function and QoL measures as well as effects on caregivers. Recent studies have emphasized that caregivers are subject to long-term effects of a loved one being hospitalized including post-traumatic stress disorder and lower QoL that can extend for over a year after hospitalization [48, 49]. Physicians have a role in preventing some of these adverse effects through counseling and providing family-centered counseling, which may even reduce ICU length of stay [50]. In summary, we must ask the right questions that will help us and our patients arrive at the best decision for the patient in the broad context of the entirety of their situation. Of major relevance,

the effects on the caregiver's well-being are often overlooked, and future research is needed to establish ways of better caring for the caregiver and incorporating their opinions into the decision-making process.

Our approach to methodology along with studying the pertinent outcome measures and questions is key. The longitudinal nature of older patient's care can cross many care settings and physicians and can include the opinions and biases of multiple caretakers. Collecting data is difficult due to the patient's inability to participate in feedback secondary to decreased cognitive or overall function, frailty, loss to follow-up, distorted, missing data, and even death. Alternate means of gaining data may be needed including behavioral observation or data obtained by proxies given that randomized control trials are difficult in this setting [51, 52].

SPC decisions are of great complexity. Decision science examines all techniques and issues of such a decision-making process. Collaboration with PC as evidence grows may help ensure the decisions are made in the context of patient and family desires [53]. Best evidence and a structured decision process which requires study is needed to ensure that all relevant, critical SPC issues are addressed and help enable patients and families to be informed so as to make the best decision in accordance with the patient's wishes and values.

Conclusion

> Cure some, Treat often, Comfort all.
> Hippocrates

Through the lens of the surgical geriatric patient with serious illness, we examined barriers, proposed aids, and solutions, demonstrated a basis for these tools and where future inquiry can optimize SPC. SPC deserves its place in the field of surgery. In the end, it is about us and our patients. It is both that simple and complex. Peace for our seriously ill geriatric surgical patients can be achieved with dignity and humanity. A focus on the patient, their QoL, wishes, and "entirety" as people is necessary and of great importance to this "success." Achieving acceptable QoL, patient well-being, and dying devoid of pain and suffering is the means to this peace for patient, family, and surgeon. We must acknowledge we are human with all that entails: weakness, strength, fear, courage, and hope. It is our job to do the best we can with the objective data available and, most importantly, incorporate it into a patient-centric, interdisciplinary, and comprehensive model of care. We must give our geriatric surgical patients with serious and advanced disease the best life possible and an acceptable QoL as defined by the patient to the very end. A prolonged death filled with angst, pain, and suffering of the physical, emotional, and spiritual type must be accepted as wrong, harmful, and, ultimately, eradicated. While daunting, this will truly make us the heroes our patients often see us as. This chapter is meant to inspire and support surgeons in the pursuit of this most humanistic and pure form of care. The time for this paradigm shift in surgical culture is now. Good luck to all.

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