



Primary palliative care for surgeons: a narrative review and synthesis of core competencies

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Abstract: The practice of palliative medicine has grown substantially over the last two decades and the data demonstrates that seriously ill and injured surgical patients as well as their loved one's benefit from the integration of palliative care into standard surgical management. This narrative review highlights the patient and family benefit of primary surgical palliative care (PSPC) for seriously ill or injured surgical patients and the need for primary palliative care (PPC) skill acquisition by surgeons. The review encourages surgeons to identify all aspects of suffering as a critical component of the care needs of surgical patients and families and to consider integrating mitigation strategies during surgical care. Identification of suffering has not been traditionally taught in surgical training or reinforced in surgical practice, therefore current surgical educational opportunities should incorporate such instruction to assist surgeons in training and in practice to acknowledge and treat suffering to improve and expand the quality and value of surgical care offered to seriously ill or injured surgical patients. Additionally, a patient-centered approach to surgical care necessitates engaging advanced communication skills to successfully ascertain a patient's and/or their surrogate decision maker's, substituted goals and values in the provision of surgical care to ensure that all the care delivered is aligned with each patient's preferences. A preliminary synthesis of core competencies to achieve these SPC objectives is presented.

Keywords: Primary palliative care (PPC); surgical palliative care (SPC); core competencies; communication skills; symptom management

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“Surgical palliative care is the treatment of suffering and the promotion of quality of life for seriously ill patients under surgical care.”—Geoffrey P. Dunn, MD, FACS.

Introduction

The history of surgery and the moral imperative to palliate pain and suffering are intimately intertwined (1). The practice of surgical palliative care (SPC) is defined by the treatment of suffering and the promotion of quality of

life (QOL) for seriously ill patients and those with life-threatening conditions under surgical care (2,3) regardless of the stage of their disease or parallel employment of life-prolonging therapies. The primary goal of a palliative care (PC) clinician is to recommend treatment modalities that reduce suffering and help patients and their loved ones achieve their best QOL in the context of serious illness. Existing data suggests that the provision of PC concurrent with disease-directed therapy is beneficial for patients and their loved ones (4). Palliative care should be differentiated

from hospice as care that is delivered to all patients with a serious illness regardless of life expectancy. Thusly, palliative care should function as “supportive concurrent care” for all seriously ill and injured surgical patients with palliative care needs (5). The provision of SPC involves empathic surgeon-patient partnering that embraces patient values, autonomy, and dignity, and optimizes QOL by anticipating, preventing, and treating suffering throughout the continuum of illness by addressing physical, intellectual, emotional, social, and spiritual needs (5). Ideally, this holistic approach to surgical care is provided in parallel with value-concordant disease-directed therapies (6) which include surgery, procedures, or other medical treatments.

Surgical care, as currently practiced, often fails to satisfy the palliative needs of seriously ill or injured surgical patients (7), as surgeons often erroneously view surgical intervention and palliation as mutually exclusive (8). Gaps in whole person care have been identified and can be addressed by concurrent primary and/or specialty palliative care as each patient’s needs dictate (4). In order for surgeons to integrate palliative care into their practice patterns, a greater understanding of the added benefit is required and additional training must be obtained. Surgeons should consider pivoting from an aggressive “do everything” ethos and “fix-it” mentality to a more patient-centered mindset or framework, which places patient values, goals and QOL at the center of clinical decision-making. Bateni *et al.* published that surgeons offer more aggressive therapies for patients suffering with advanced cancer as compared to their medical colleagues with more palliative care training (9). The lack of palliative care training during surgical career development often prevents optimal engagement with patients about their goals, values, and alternatives to invasive surgical intervention leading to recommendations for aggressive non-beneficial end-of-life (EOL) care.

Surgical ethos demands that surgeons never “give up”, yet this deeply-ingrained philosophy fosters an unrealistic and self-defeating attitude toward progression of disease as “failure,” as if all death was preventable (10-12). Aslakson and coauthors have emphasized that critical care clinicians often have misconceptions that palliative care consultation will lead to early patient death and is representative of “giving up.” They describe this perception as a significant barrier to both providing palliative care and producing high quality data relevant to the effectiveness of palliative care in the critical care environment (13). What, then, is primary surgical palliative care (PSPC)?

The Institute of Medicine defines primary palliative care

(PPC) as “palliative care that is delivered by health care professionals who are not palliative care specialists” (14). We define PSPC as the provision of core palliative care (PC) principles by practitioners who work with surgical patients and their families, whether as the surgeon, trainee, or any other member of the surgical treatment team. The core principles of PSPC describes the minimal skill set that all surgeons should bring to their patient encounters. These minimal skills include core practice elements such as aligning treatment with patient goals and values by engaging in discussions about suffering, prognosis, goals of care, and EOL preferences as well as management of symptoms (15).

Surgeons have a rich history of providing surgical palliation since at least the 19th century (16) when Theodore Billroth performed a partial gastrectomy for a patient with pyloric cancer who was presumably suffering from gastric outlet obstruction (15). More recently, patient opinions about the integration of PC into routine surgical management have been uniformly positive (17). Therefore, an opportunity exists to provide patient-centered evidence-based concurrent palliative care when treating seriously and injured surgical patients. This approach to surgical practice enhances patient and family satisfaction and may increase survival (18). Multiple studies have reinforced the patient-centered benefits of concurrent palliative care, which has informed the 21st-century surgeon’s focus beyond mastering anatomy, pathophysiology, and an ever-increasingly sophisticated array of techniques for procedural and operative interventions. Furthermore, many surgeons prioritize procedural success over knowing and honoring a patient’s core values. Hall *et al.* remind surgeons that the ultimate success of surgery is determined by how well surgical care fosters a patient’s flourishing (17).

We present the following article in accordance with the Narrative Review reporting checklist (available at <https://apm.amegroups.com/article/view/10.21037/apm-21-369/rc>).

An unmet need

There are significant barriers to meeting the needs of hospitalized surgical patients suffering from serious illnesses. First, there is a dearth of palliative care education available to surgeons and surgical trainees (1,19-21). Second, there is a shortage of PC specialists. Finally, palliative care consults often come as very late referrals during a surgical patient’s clinical course (22-24). In a 2012 seminal publication, Quill and Abernathy (25) noted that “*there are nowhere near enough*

palliative care specialists to provide all palliative care services for every very ill patient...(and the) increasing demand for palliative care will soon outstrip the supply of providers". As of 2019, there were 7,408 active physicians who were certified in hospice and palliative medicine; including eighty PC subspecialists also board certified in surgery (1.1% of the total) (23). With fewer than 250 fellowship-trained PC graduates each year, there is a projected PC specialist shortage of greater than 16,000 by 2030 (26). It was in this context that the National Academy of Medicine's landmark 2015 report, *"Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life"*, specifically recommended that PC principles be incorporated into health care education so that every clinician, regardless of specialty, would be skilled in providing PPC (27). With this shortage in mind, along with the known benefits of SPC, the need for PSPC education and provision cannot be overstated.

A 2017 survey of physicians who treat advanced cancer patients found that surgeons received a median of ten hours of PC training compared with medical oncologists who had a median of 30 hours, and medical intensivists who had a median of 50 hours. Astonishingly, 25% of cancer surgeon respondents reported no PC training at all (9). A national survey of surgical oncology fellows found that more than one-half of them directly avoided telling patients that they were dying (19). In another survey, the percentages of neurosurgery residents who reported no explicit teaching on the risks and benefits of invasive mechanical ventilation and formulating prognoses in neurocritical care were 69% and 60% respectively; one half reported that they "would benefit from more communication training" (28).

Surgical PC experts have touted collaboration with non-surgical PC experts for decades, both from outside and inside the ICU (8,29,30). Most surgeons, however, fail to consult PC experts, such that PC collaboration on surgical patients remains underutilized (31-33) despite the proven benefits of PC for many surgical patient populations (34,35). The most studied surgical patients with unmet PC needs have advanced malignancies, need emergency general surgery, or suffer from traumatic injuries. Gani *et al.* found that inpatient PC services were used 8.5% of the time during an initial admission for cancer. They found that patients admitted with gastrointestinal or thoracic malignancies undergoing surgery were 79% less likely to receive PC consultation than patients who did not undergo surgery during their inpatient admission (36). Likewise, Evans and coauthors found that PC consultation was requested in only 37% of cases where critically ill general surgery

patients died during hospital admission (37). Aslakson *et al.* reviewed 37 publications that addressed the evidence base of thirty PC interventions in the ICU. These investigators concluded that *"proactive palliative care in the ICU... decrease hospital and ICU LOS, do not affect (patient/family) satisfaction, and either decrease or do not affect mortality"* (13). Maerz *et al.* analyzed the American Association for the Surgery of Trauma (AAST) Futility Survey, and reported that 84% of respondents answered "no" when asked if PC teams round with the trauma ICU team; the most common reasons for PC consultation were family request, anticipation of care goal disagreement, and if the patient was considered to have a significant chance of dying (38). Liu and colleagues found that PC utilization in patients suffering from ruptured abdominal aortic aneurysms was associated with a shorter hospital length of stay (4.6 *vs.* 9.7 days), lower charges (\$96k *vs.* \$178k), and a decreased rate of prolonged invasive mechanical ventilation (13% *vs.* 17%), even though PC integration was only utilized in 14% of cases (39). Lilley *et al.* systematically reviewed the literature on PC interventions in surgical patients through 2014. Preoperative decision-making interventions were associated with decreased mortality in 4 studies; 3 reported improved communication; 4 improved symptom management; and 7 decreased healthcare resource utilization and cost (40).

The economic and clinical value of PC is increasingly becoming recognized within the healthcare industry, as emerging data and societal benefits are understood, yet significant barriers remain. The reasons for these barriers are complex and have been extensively documented in the literature (41). Dr. Cocanour expressed the need to incorporate PC principles into trauma care in her 2015 Presidential Address to the Western Trauma Association (42). In her address, she exhorted making a change to an outdated mindset toward surgical priorities by saying: *"We (wrongly) measure success not by QOL but by morbidity and mortality. Death is considered a failure, and we associate palliative care with giving up, (but) palliative care is not only for those at the end of life."* (42).

As the US population progressively ages, patients' impending PC needs will continue to exceed the number of PC specialists available, thus mandating more surgeon-specific application of PPC skills. The prevalence of PC needs for a given surgical patient varies according to comorbidities, prognosis, acuity, physical and cognitive frailty, and the risks of any proposed procedures (43-52). In a study of the surgical patient population being treated for advanced pancreatic cancer (where survival is measured

in months), one third of the inpatients had no documented discussions about their goals of care or preferred code status (53). Older adults who present with emergency abdominal surgical conditions account for over a million inpatient admissions in the United States per year (54). Multiple research studies in this patient population have demonstrated that baseline preoperative comorbidities and frailty dramatically increase the likelihood of both in-hospital and 1-year mortality, as well as increased rates of function-limiting morbidity and discharges to post-acute care facilities (7,54-56).

Surgical palliative care is value-centered surgical care (57,58). Most patients place value on good pain and symptom management, functional independence, meaningful interactions with family, their spirituality, avoiding burdening their loved ones, minimizing nursing facility stays, and preventing unnecessary prolongation of the dying process (59-63). In 2015, Scheunemann and colleagues found that deliberations on patient values and preferences were recorded in the minority of the 249 surrogate decision-making conferences studied, and within this minority, patient values were only discussed superficially (64). Less than 10% of the family conferences contained robust discussion elements of prolonged physical, cognitive, or emotional impairment; and less than 5% documented the patient's spirituality, despite spirituality being a highly prevalent concern in seriously ill patients (65,66). Less than 10% of conferences culminated in clinicians offering value-centered treatment recommendations, despite this being a critical component of shared decision-making (SDM) (67). Beyond facilitating the patient's autonomy, clearly relaying substituted judgement principles (68,69) in family meetings has the potential to relieve family members of guilt, anxiety, depression, and post-traumatic stress symptoms (70,71), as well as mitigate complex grief in survivors (72,73). Unfortunately, this was proffered in only 13.5% of the family meetings that Scheunemann and her collaborators analyzed (64). These studies reveal the need for PPC interventions and documentation in the perioperative critical care setting.

Every healthcare provider should be able to perform spiritual screening (14,74) given how important spirituality, hope and meaning-making is to patients with serious illness (65,66). Spirituality is a topic that routinely makes surgeons uncomfortable (75-77), and this area is an unmet need from surgical patients' perspectives. Spiritual screening provides an opportunity for surgeons to take a first step toward deeper inquiry into the beliefs, practices, and deep sources

of meaning of their patients (66,77). Studies have found that single-question screens for religious/spiritual distress are inadequate, and that combining two questions—one of meaning/joy and a second of self-described spiritual struggle or suffering (such as feeling disconnected from God or other deep sources of meaning/purpose)—is superior (78).

Patient preferences to maintain functional independence, preserve meaningful interactions with loved ones, and avoid a prolonged dying process are also critical to patient-centered surgical care. Rubin *et al.* recently reported that 87% of patients who were 60 years and older suffering from serious oncologic, cardiac, and pulmonary illnesses said that they would trade a full year of life to avoid a 3-week intensive care unit (ICU) stay that led to death on life support (79). The implications for ICU care are enormous, as postoperative and trauma critical care environments frequently offer patients the antithesis of value-congruent "care". Rapid advances in technology have impacted surgeons, patients, and families alike who all struggle with clinical ambiguity and uncertainty (80,81). Clinical ethicist Elizabeth Sonntag writes that this leaves clinicians who recommend high-tech life support technologies "unprepared to face the ethical and emotional dimensions of caring for patients" (81). Indeed, many surgeons continue to offer evermore complex "supportive" technical treatment options to families in the ICU, which can promote a seemingly-unstoppable locomotive of escalating value-incongruent non-beneficial treatments (82). When family members express a desire to transition care goals toward comfort, surgeons may express reluctance to withdraw life-sustaining medical treatments (LSMT) (41,83), particularly if they feel responsible for committing an error (84-87).

Most of the literature regarding systematic triggers to increase the utilization of expert PC consultation for surgical patients has come from studies in the ICU (88,89). In a 2006 report, Mosenthal and Murphy found that when a structured interdisciplinary model for PC was integrated into standard ICU care, the rates of mortality, do not resuscitate (DNR) orders, and withdrawal of LSMT were unchanged; however, placement of DNR orders and withdrawal of LSMT occurred earlier in the clinical course, therefore decreasing the ICU length of stay for those who died (90). In a separate study, Finkelstein *et al.* reported hospital death plus hospice discharge rates to be 81% for patients requiring repeat surgical ICU admission, 75% in patients with metastatic or advanced cancer, 55% for patients with two or more major organ system failures, and 51% for patients who had surgical ICU stays longer than

10 days (91). Wilson *et al.* described 81 vascular surgery patients who transitioned care goals from disease-directed therapies to comfort-focused care (92). In this study, conversion to comfort focused care was greater than four times as likely for patients with a surgical ICU admission greater than 5 days, was greater than nine times as likely for patients who had spent more than 5 days on mechanical ventilation, was greater than fourteen times as likely for new renal failure requiring renal replacement therapy (RRT) and was nearly 24 times as likely for patients with new respiratory failure requiring a tracheostomy. Thirty-one of the 81 patients studied chose comfort-focused care despite being offered medical and/or surgical treatment; the median time from PC consultation to death was only 10 hours. Finally, Nabozny *et al.* compared the trajectories and prognosis of 4,944 older Medicare beneficiaries who had more than 96 hours of mechanical ventilation after high-risk surgery with 112,973 patients who did not (93). Thirty-day mortality for patients receiving prolonged mechanical ventilation was 32% as compared to 4.8% for no prolonged mechanical ventilation and only 10% of prolonged ventilation patients who were still alive on postoperative day 30 were discharged home, compared to 71% of the comparison patients. Taken together, these studies demonstrate the potential for perioperative complications to significantly affect both mortality and QOL for patients undergoing surgical intervention. Furthermore, they illuminate barriers to PC consults for the sickest surgical patients, which may be due to surgeons' intervention-orientation (94,95) and their focus on outcomes rather than patient values (96). Multiple studies have correlated the lack of palliative care training on the provision of more aggressive non-beneficial operative and perioperative interventions (9,56).

Bradley *et al.*, in a 2010 study, showed that initiation of a trigger-based consultation system (relying on ten clinical triggers to suggest but not mandate a PC consultation) had no effect on increasing PC consultations given that triggers were rare both pre-intervention and post-intervention; PC consultation was infrequent in both groups (97). The authors conclude: *"Our data confirm that the triggers successfully identify those patients who are at a relatively high risk for a poor outcome (>50% mortality), but the greater majority of patients in the SICU, who may also have physical, emotional, or spiritual palliative needs, will not benefit from...the use of these triggers alone."* (97). This research team laid out an alternative strategy for PC consultation, including a daily assessment of pain and symptom control, prognostication, psychosocial

and spiritual support, and advanced care planning needs (97).

Studies are underway to evaluate routine inclusion of specialist PC for cancer patients undergoing non-palliative oncologic surgery (98). Prior research within the Veterans Affairs (VA) medical system has shown that the survivors of high-risk surgical procedures who died and received an inpatient PC consultation were more likely to rate their loved ones' overall care, EOL communication and support as excellent when compared to families of decedents who did not receive PC (99). A corollary study within the VA system demonstrated that surgical patients were less likely to receive a PC consult than medical patients, despite the fact that 22% of the patients had at least one major surgical procedure in their final year of life (100). A study of the fee-for-service Medicare patient population demonstrated that over 31% of patients undergo an inpatient surgical procedure during the year before death, 18% in the last month of life, and 8% in the last week of life (101). These studies suggest that at a minimum, surgical providers need to hone their frailty-identification and prognostication skills, as well as discern the need for expert palliative care consultation.

Professional guidelines

The National Academy of Science Engineering and Medicine 2020 Building the Workforce We Need to Care for People with Serious Illness Workshop emphasized preparing all health professionals to care for people with serious illness (24). A systematic literature review revealed broad medical research support for the National Consensus Project Clinical Practice Guidelines for Quality Palliative Care (14) in the following domains of care, all of which pertain to SPC: physical, psychological, social, spiritual and ethical care of patients nearing the EOL (74). There are several surgical society statements on the practical and educational inclusion of PC principles for surgical providers. The American College of Surgeons (ACS) has two complementary statements on the principles of PC for surgical providers. The first was released in 2005 after development by the Task Force on Surgical Palliative Care and the Committee on Ethics. This Statement of Principles of Palliative Care describes practical steps to extend PC principles to patients receiving surgical care. These include but are not limited to respecting the dignity of patients and their caregivers, identifying the primary goals of care from the patient's perspective, addressing how the surgeon's care can achieve the patient's objectives, communicating effectively and empathically, alleviating distressing

symptoms, assessing and offering access to services for psychological, social and spiritual issues, recognizing the physician's responsibility to discourage treatments that are unlikely to achieve the patient's goals, and encouraging patients and families to consider hospice care when the prognosis for survival is less than 6 months (102).

In 2017, the ACS Committee on Trauma released its Palliative Care Best Practices Guidelines (103). This 52-page document holds that *"optimal care requires trauma physicians...to have basic competencies in PPC, pain and symptom management, and end-of-life care."* (103). Best practice PC should be delivered in parallel with life-sustaining trauma care and core palliative care in trauma should be provided by trauma teams. This trauma document outlines essential components of PC, including skills for breaking bad news and conducting goals of care conversations, performing a PC screening assessment and deploying a "trauma palliative care bundle" within the first 72 hours of trauma admission, as well as practical guidance for the withdrawal of LSMTs when appropriate.

The Eastern Association for the Surgery of Trauma (EAST) recently published an evidence-based review of trauma center care and palliative care processes for geriatric trauma patients. This review concluded that early PC consultation was associated with improved secondary outcomes and that more research continues to be needed (104).

The National Comprehensive Cancer Network (NCCN) also offers guidelines for surgical and medical oncology providers to integrate PC into routine anti-cancer care for all patients with malignancies throughout the care continuum to anticipate, prevent and reduce suffering and to improve QOL (105). The American Society of Clinical Oncology (ASCO) 2017 guidelines recommend dedicated palliative care integration concurrent with "active treatment" early in the course when a patient is diagnosed with advanced cancer (106).

For surgical trainees in the United States, the Accreditation Council for Graduate Medical Education (ACGME) has outlined Surgical Milestones as a framework for the assessment and tracking of surgeon-in-training competency. The 2019 revision of these milestone guidelines includes documentation and assessment of trainee ability to understand and apply ethical principles, coordinate multidisciplinary care, incorporate family and patient-centered communication strategies in family meetings, utilize SDM, develop plans to manage complex postoperative conditions, discuss EOL care, deliver complex and difficult information, manage conflict, facilitate crucial

conversations with patients and other healthcare providers, develop self-awareness habits, build a reflective practice and a commitment to personal growth (107).

The Surgical Council on Resident Education SCORE® Curriculum Outline for General Surgery comprehensively lists all the topics to be covered in a 5-year U.S. general surgery residency training program (108,109). In addition to reviewing anatomy, pathophysiology, and operations/procedures within the context of 27 organ system-based categories, there are sections addressing geriatric surgery and EOL care, clinical ethical issues in surgery, and interpersonal communication. Palliative care is listed as a subcategory of EOL issues; this categorization warrants revision to clarify the application of palliative care for all seriously ill patients, not just those at the EOL, and to make the distinction that palliative care—though beneficial at the EOL—is not synonymous with hospice.

The ACS published "Surgical Palliative Care: A Resident's Guide" in 2009. It provides an interactive format, teaches (or reviews) pain and symptom management, artificial nutrition and hydration, palliative surgery, cross-cultural encounters, communication skills such as delivering bad news, eliciting goals of care, conducting family conferences, discussing code status, spiritual issues, and hope maintenance, as well as self-care, burnout recognition and the prevention and mitigation thereof (110).

PSPC core competencies

In a presentation at the 2003 ACS Clinical Congress, one of the founders of surgical palliative care, Dr. Bob Milch, encouraged PSPC providers to gain proficiency in what he called the "soft underbelly" of PC, which encompasses "subjects that surgeons are not always comfortable with: issues of spirituality, cross-cultural issues, and self-awareness" (75). Dr. Geoffrey P. Dunn published core competencies of surgical palliative care in 2009 (111) and applied six broad categories to these proficiencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. His proposed core competencies included pain and symptom management, ethical and empathic care that is patient-focused, competent and compassionate communication that includes the delivery of bad news and poor prognoses, advance directives, discovery of spirituality, reframing hope, QOL and prognostication, appropriate delivery of palliative procedures, EOL care, including transitioning from curative

to palliative care goals and withdrawal or withholding of LSMTs as well as introspection and self-monitoring for practice improvement (111).

A 2017 systematic literature review outlined the role of surgeons in the United States in the provision of PPC. The review found that surgeons understand the benefits of PC, but are limited by experience and knowledge preventing their integration of PC into surgical decision-making and the care of their surgical patients (112). The number of training programs with formal education in PSPC skills remains limited. Prior to instituting a pilot curriculum in SPC, 94% of residents in one program claimed they had “discussed palliative care with a patient or patient’s family” in the past, even though 43% of them felt uncomfortable “speaking to patients and patient’s families about end-of-life issues” (113). Bradley and Brasel identified four areas of surgical practice where interpersonal communication skills are important: during preoperative decision-making, when presenting a dismal prognosis, when discussing surgical errors, and when discussing death (114). Effective this academic year (2020 to 2021), Dr. Brasel has incorporated a one-month rotation for all surgical interns at Oregon Health Sciences University (OHSU) to rotate with Dr. Timothy Siegel—a dually board-certified general surgeon and hospice and palliative medicine specialist.

Lee *et al.* identified 24 indicators that measure palliative processes of care across surgical episodes, which were agreed upon by an interdisciplinary expert advisory panel that included 5 surgeons, 3 hospice and palliative medicine physicians, 1 geriatrician, 1 anesthesiologist, 1 patient advocate and 1 geriatric nurse (115). The process quality indicators were developed to cover areas that were unique to surgery and are not presently addressed by PC indicators for other specialties. The process competency bar was set to identify the minimum level of PPC that all patients should receive in the absence of high-quality evidence. Most of these authors’ indicators covered communication, and included documentation of prognosis, goals of surgery, patient values, likely discharge locations, functional disability, psychosocial symptom assessments, the preexistence or completion of Advance Directives and POLST forms, code status orders, surgical palliation plans, sentinel critical care events, postoperative pain and other symptom assessment and management plans, and EOL care (115).

Many publications have outlined implementation strategies for teaching surgeons and surgical trainees basic palliative care principles and skill sets. Despite these efforts and professional organization guidelines, no comprehensive

set of PSPC competencies have been established. Education in Palliative and End of Life Care (EPEC) Surgery is an adaptation of the EPEC core curriculum modules adapted for surgeons and surgical trainees. There are four modules that will be available: The Surgeon-Patient Relationship, The Informed Consent Process, Breaking Bad News, and The Goals of Care Discussion (116). Using the need declarations, professional guidelines, and expert SPC panel suggestions and principles, the authors of this review have synthesized and propose a preliminary set of primary SPC competencies, which we have separated into six broad categories: (I) pain and symptom management, (II) ethics and practice of SDM, (III) communication skills, (IV) prognostication and surgical planning, (V) end-of-life care, and (VI) personal and professional growth and integration. Each competency category encompasses multiple proficiencies, which are listed using educational goal or learning objective language in *Table 1*. The Education Committee of the newly formed Surgical Palliative Care Society (www.SPCSociety.org) plans to examine and further refine this list of core PSPC competencies in the near future.

Pain and symptom management

The management of physical pain and other sources of suffering, such as nausea, constipation, dyspnea, agitation associated with delirium, psychological, social, and spiritual pain (66,77), are key to the surgeon’s initial evaluation and management of any patient facing serious illness (115,117). Surgeons are more likely to engage expert PC services for assistance with EOL care than they are for symptom management (58), and yet, perhaps due to the influence of the opioid epidemic (118), medical students’ witnessing patients’ experience suggests that surgical patients’ perioperative pain is poorly controlled, with “disturbingly graphic” descriptions that “expose suffering ranging from generalized discomfort to anguish and excruciating pain” (119). Consideration should be given to level of care (outpatient versus inpatient), route of potential medication administration (oral, intravenous, subcutaneous), the time after major surgery or trauma (since pain and opioid requirements are significantly higher in the first 2–3 postoperative days) (120), as well as other factors affecting one’s ability to effectively assess and treat pain in this patient population. PC principles can also help surgeons use multimodal treatment options for the relief of suffering from other physical, psychosocial, and spiritual symptoms, as mentioned above.

Table 1 Primary surgical palliative care core competencies

Pain and symptom management

- Recognize and define the need for expert palliative care or acute pain management consultation
- Explain the role of co-prescribing acetaminophen, NSAIDs and other non-opioid adjuvants in surgical pain
- Choose the best opioid and administration routes amongst morphine, oxycodone, hydromorphone, and fentanyl, by contextualizing the cause of the patient's pain, the patient's likely duration of pain, and renal or liver insufficiency
- Apply appropriate and safe intravenous (IV) opioid dosing for acute postoperative and posttraumatic pain
- Effectively manage inpatients' IV opioid patient-controlled analgesia (PCA) titrations
- Routinely implement safe and effective strategies to prevent and manage opioid-induced respiratory depression/sedation
- Demonstrate effective conversions of IV opioids to short, renewable courses of PO opioids prior to hospital discharge
- Prescribe effective opioid-induced constipation prevention
- Effectively manage both episodic and persistent nausea
- Delineate the pros and cons of medical (non-operative), procedural, and surgical palliative treatment of terminal malignant bowel obstruction and malignant ascites
- Describe prevention and management principles of postoperative delirium

Ethics and practice of shared decision-making

- Compare shared decision making with directive/paternalistic, facilitative, and informative communication approaches:
 - Where is the power locus in each?
 - Illustrate the practice of each
- Explain the necessary requirements for patient autonomy and how autonomy relates to patient choice
- Illustrate the necessary steps in undertaking shared decision-making
- Justify the minimally-acceptable scope and necessary participants in preoperative surrogate decision maker/HCP/POA dialogues
- Describe and implement effective communication to both empower surrogate decision makers and prevent decisional regret and guilt burdens
- Establish appropriate, value-congruent Code/SOTO (scope of treatment order) statuses preoperatively and postoperatively; discuss important details of Code status in the operating room
- Apply patient value-centered shared decision-making ethics to "Perilous Pivot Points" in Perioperative care:
 - Preop in high-risk surgery, particularly in frailty and/or patients with life-threatening conditions
 - Postop either following complications or with poor outcomes, particularly in the ICU, prior to instituting "rescue" plans
 - Any significant disease progression or development of comorbidities, which warrant a re-goaling discussion

Communication skills

- Describe and employ strategies to equalize the power gap between surgeon and patient/family, demonstrating dignity and intellectual and cultural humility for all others
- Employ unbiased curiosity by asking patients and families for their feelings and perspectives, prior to delivering any medical-surgical reports
- Regularly elicit values and explore fears, feasible goals, and unacceptable levels of patient suffering, including unacceptable levels of functional disability and potential discharge locations
- Perform adequate spiritual screening and use further exploration as necessary to assess for sources of meaning and significant spiritual suffering

Table 1 (continued)

Table 1 (continued)

Communication skills

- Explain the importance of brevity, clarity, reiteration, and sticking to 1–3 messages, and not “thinking out loud” when delivering medical-surgical information
- Demonstrate empathic attendance to emotion using silence and all five letters of the NURSE mnemonic; naming and normalizing ambivalence
- Explain the impact of the words “want” and “treatable” on patient/family conferences
- Contrast the meanings of “hope” and “wish”; demonstrating care when saying each
- Explain the importance of avoiding jargon, numbers, percentages, and misleading double negatives
- Demonstrate asking permission and firing a “warning shot” before delivering poor prognoses
- Demonstrate the honest and compassionate delivery of grave vs. poor prognoses
- Demonstrate effective use of Best Case/Worst Case scenario planning
- Make and explain patient-centered and value-concordant recommendations
- Delineate the necessary elements of time limited trials and when to best apply them
- Recognize when an expert palliative care consultation is needed

Prognostication and surgical planning

- Explain the role of patient/surrogate prognostic awareness in Advance Care Planning
- Assess patients’ baseline preoperative physical and cognitive function for frailty; explain the impact of frailty on operative risk calculations
- Outline examples of when Health Care Power of Attorney documents are most needed in surgical patients
- Objectively assess surgical indications: “Is the proposed plan sensible and congruent with the patients’ values, fears, and unacceptable treatment burdens?”
- Illustrate the need for preoperative contingency planning with both patients and surrogates, particularly before undertaking high-risk surgery in frail patients; formulating and clearly explaining ethical, value-congruent contingency or “exit strategy” plans preoperatively
- Identify and employ palliative procedures and operations to surgical planning appropriately
- And benefits: comfort care focus, interdisciplinary and bereavement support

End-of-life care

- Recognize when surgical patients’ life expectancy is likely short; implementing timely transitions to comfort focused care
- Compare and contrast DNR/Full, DNR/Limited, and DNR/Comfort scope of treatment orders; completing value-congruent POLST forms in appropriate scenarios
- Explain the process of compassionate withdrawal of life-sustaining medical treatments clearly and compassionately
- Evaluate and manage dyspnea, oropharyngeal secretions, and terminal delirium/agitation

Personal and professional growth and integration

- Understand one’s personal response to complications and one’s preferred preventative and therapeutic management strategies to manage second victimhood and mitigate burnout
- Build emotional and moral resilience by outlining a personal coping plan and identifying personal support people for dealing with vicarious grief from patient loss/complications, and moral injury, meaning/purpose suffering, and relational/professional pain
- Apply effective self-care techniques to increase introspection, self-reflection, self-awareness, and therefore other-focused awareness, humility, and self-compassion

Based primarily on Ref. (14,74,75,102,103,105,107–110,115).

Some surgical procedures are performed with the primary intention of offering relief of pain and/or suffering. These procedures include but are not limited to intestinal bypass, venting gastrostomy tube placements, diverting ostomies, tumor debulking, PleurXTM catheter placement (121-123), tracheostomies and feeding tube placements (124-126). An estimated 12.5% of all surgeries at one comprehensive cancer center were classified as palliative surgeries (127). Cohen and Miner recently reported that palliative procedures performed near the EOL in patients with cancer resulted in an 80% rate of symptom resolution (57). In their patient subset with gastric outlet obstruction, gastrojejunostomy was associated with a resumption of oral intake in 96% of patients. Mortality and morbidity rates are significant in patients undergoing palliative procedures and reported mortality rates ranged from 6% to 11% and morbidity was in the 30% range (57).

Ethics and the practice of SDM

SDM (128-132) and honoring patient autonomy and values are critical concepts for surgeons seeking to provide patient-centered care (60,133). A lack of education or misunderstanding about these ethical concepts frequently contributes to unnecessary patient, family, and surgeon suffering (67). Surgeons may inquire about patient desires, rather than exploring patient values in an actionable way. For example, when physicians ask patients what they “want” in the context of clinical decision-making, this frequently evokes unrealistic “wishes” rather than the values that undergird preferences (134). This style of engagement puts the burden of decision-making on the patient in an “unshared” fashion prior to informed consent as it circumvents the required robust and collaborative acts of SDM. Asking what a patient “wants” inadvertently prompts patients or surrogates to make an immediate choice without the required critical reflection and deliberation that captures patient values and thus ironically thwarts patient-centered autonomy and care (134).

Although SDM is considered the pinnacle of patient-centered care (128), its practical implementation can be challenging (*Figure 1*). Articulating realistic perioperative prognostic information, particularly in the critical care environment, is an ethical obligation (135) and helps families reframe their expectations about care benefits and burdens. Understanding a patient’s values is a key element of SDM (129,136) given that values heavily inform treatment preferences (137). Well-executed autonomy

requires reflective—rather than reactive—thinking in the context of SDM (137). Bioengineer, physician, and healthcare analyst Dr. David Eddy was the first to apply a Markov mathematical model to medical decision-making. In his seminal 1990 paper entitled “The Anatomy of a Decision”, he claims that medical decisions have two fundamental components: (I) a thoughtful analysis of the evidence; and (II) value judgments regarding the risks and benefits of embarking on various medical/surgical pathways (138,139). Non-directive approaches, such as an informed choice communication style that merely asks a patient what they want, as above, deflects decisions *away* from patient values (137). SDM processes (*Figure 1*) ideally conclude with the surgeon offering a value-concordant treatment recommendation (140), which explains how the patient’s goals and values are represented and why alternatives to the recommended pathway are value-discordant. This skill is rarely taught in surgical training, but one that is vital in order to aid surgical patients and surrogates through difficult care pathway and treatment decisions.

Communication skills

Empathetic communication is covered in an accompanying article in this special issue (Lambert); therefore, a comprehensive review will not be undertaken here. PSPC core communication skills include: (I) proffering dignity to all participants and minimizing the surgeon-patient power gap; (II) eliciting patient values and exploring fears, feasible goals, and unacceptable levels of suffering; (III) performing spiritual inquiries; (IV) demonstrating empathic attendance to emotion; (V) taking care with language and focusing on delivering one or two central messages; (VI) the compassionate delivery of an honest prognosis; (VII) making and defending value-concordant treatment recommendations while being familiar with Best Case/Worst Case scenario planning (*Figure 2*; <https://www.youtube.com/watch?v=FnS3K44sbu0>) (141,142), as well as constructing and implementing concretely-defined Time Limited Trials as appropriate (143). Best Case/Worst Case scenario planning was primarily designed for surgeons and high-risk surgical decision-making and this tool is powerfully applied in the setting of clinical uncertainty (144); a setting in which surgeons may “err on the side of operating” even when they predict that the operation is non-beneficial (80).

Language matters. Just as surgeons are advised to avoid euphemisms and the word “want”, it is advisable to take

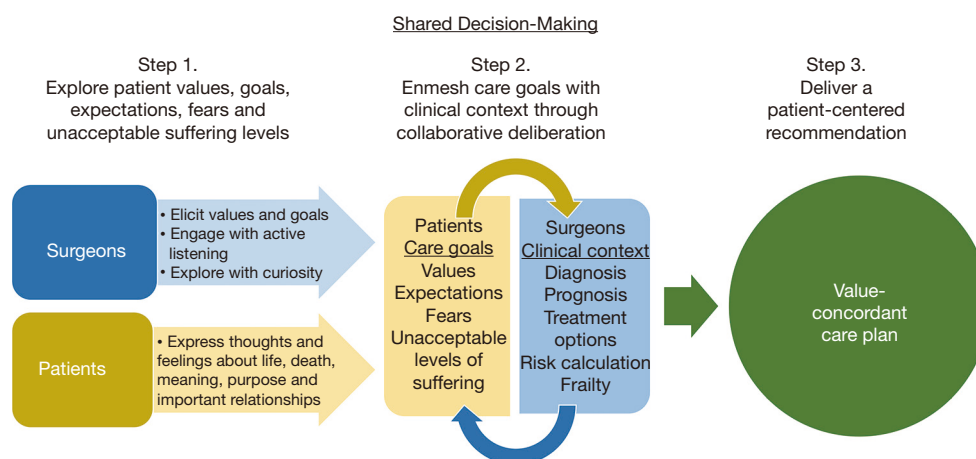


Figure 1 Steps in shared decision-making (SDM).

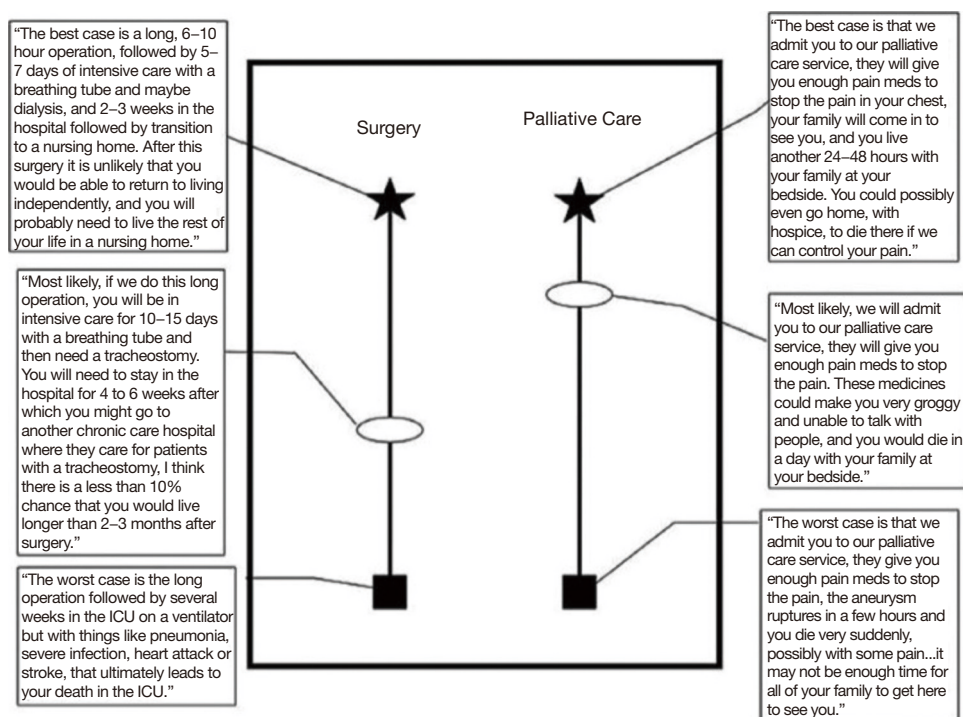


Figure 2 Best case/worst case scenario planning [(from Ref. (141)].

great care when saying “hope”, which is a word that can unintentionally perpetuate false, unrealistic “wishes” on the part of patients, surrogates, and surgeons alike (145). Similarly, “*physician use of the word ‘treatable’ may lead patients or surrogates to derive unwarranted good news and false (hope) to pursue treatment, even when physicians have explicitly stated information to the contrary.*” (146). Surgeons may also

unintentionally lead patients and families toward their own personal goals, without discovering the patient’s values that should undergird care decisions (89).

It is imperative to determine what matters most to patients from them directly, their loved ones, or a combination of the two (136,147). Merely applying patient decision aids to surgical risk calculations are inadequate (148).

Abstract patient values must be elicited (59,60,149-152) and concatenated with evidence-based clinical knowledge, such as prognosis and risk calculations, for surgical decisions to be truly shared (67,148). Responding to patient/family emotion should occur throughout all conversations. The NURSE mnemonic is particularly helpful in this regard. Surgeons can Name, Understand, Respect, Support, and Explore expressed emotion, normalizing and affirming the heart-wrenching nature of these decisions. Barriers to good communication and recommendations for how to overcome them have been published in the surgical literature (153,154). Many pitfalls lay in wait for surgeons who courageously embark on conversations that include the possibility of the end of their patient's life. The use of medical jargon with most nonmedical patients widens the power and communication gap and is to be avoided (155). Perhaps surprisingly, well-intentioned patient education, which delivers knowledge to patients and surrogates up front, particularly when technical medical terms and/or population percentages are voiced prior to discerning patient values, can be counterproductive and is an ineffective method to develop rapport (156). In contrast, what most patients and families are desperate for is for their surgeon to empathically partner with them (157).

Prognostication and surgical planning

A prognosis is a prediction of possible future outcomes of a treatment or a disease course based on medical knowledge and experience. Prognosis influences goals of care and the medical decision-making process that transpires as clinical courses change over time. Prognosis includes not only estimates of time remaining but also functional and cognitive abilities and/or decline (158). Strategies for assessing and conveying prognosis depend on the place of care and acuity of the clinical case. An EOL discussion in the ICU with a surrogate decision maker after an unanticipated traumatic event will be conducted differently than a similar discussion in the outpatient clinic setting, with a patient who has an advanced cancer diagnosis (159). In either scenario, Paladino *et al.* write, "Sharing prognosis with patients is about more than expected survival. The experience of serious illness includes multiple dimensions, encompassing anticipated changes to QOL, functional abilities and activities, the possibility of unpredictable events, and patients' (and families') own hopes, fears, and expectations about the future" (160). Honest prognostication allows families time for preparedness planning that supports the need for profoundly meaningful

communication (161); including expressing love, gratitude, forgiveness, and saying "goodbye" (162); an opportunity that is missed when prognosis is not discussed with realism (163). When this opportunity is missed, family members experience more survivor guilt, anxiety, depression, and post-traumatic stress symptoms (70,71,158), as well as complicated grief (72,73). Glare and Sinclair pen "*Optimism of prognostication as perceived by patients may lead to the requesting of medical treatment that would not be chosen if a more accurate and realistic prognosis was formulated and clearly communicated.*" (164).

Whether a patient's future is hours or months, it is helpful to have a framework for assessing and communicating a patient's prognosis and surgeons are advised to do their prognostication "homework" prior to initiating these discussions. First, the patient/family's current understanding of the situation must be assessed. Taking a few minutes to understand where they're at helps the surgeon gain important information about perceptions as well as any unrealistic expectations. By seeking first to understand what the patient or their surrogate knows, surgeons can direct the conversation appropriately. For instance, does the patient/family already know most of the information you have to share, or do you have a significant amount of ground to cover in order to ensure that you are starting on the same page? British neurosurgeon Henry Marsh, in "*Do No Harm: Stories of Life, Death, and Brain Surgery*", explains how important a surgeons' approach at such perilous junctures is in the context of a representative patient's question: "*Is it cancer?*" Marsh says, "*This is always a critical point of such conversations. I have to decide whether to commit myself to a long and painful exchange, or talk in ambiguities, euphemisms and obscure technical language and leave quickly, untouched and uncontaminated by the patient's suffering and illness.*" (165).

The authors of this review have identified three "Perilous Pivot-Points" in surgical patients' clinical trajectories, all of which dramatically impact surgical planning and warrant accurate prognosis delivery and value clarification as well as good communication skills in order to support patients and families with a framework in the SDM process: (I) preoperatively when entertaining high-risk surgery and/or in the context of life-threatening disease, frailty or geriatrics; (II) postoperatively following complications, other sentinel events (such as return to the ICU), poor outcomes, and prior to instituting any rescue plans, including tracheostomy, gastrostomy tube placement, renal replacement therapy, or return to the operating room; (III) with disease progression, such as in cancer or medical comorbidities, which warrant a

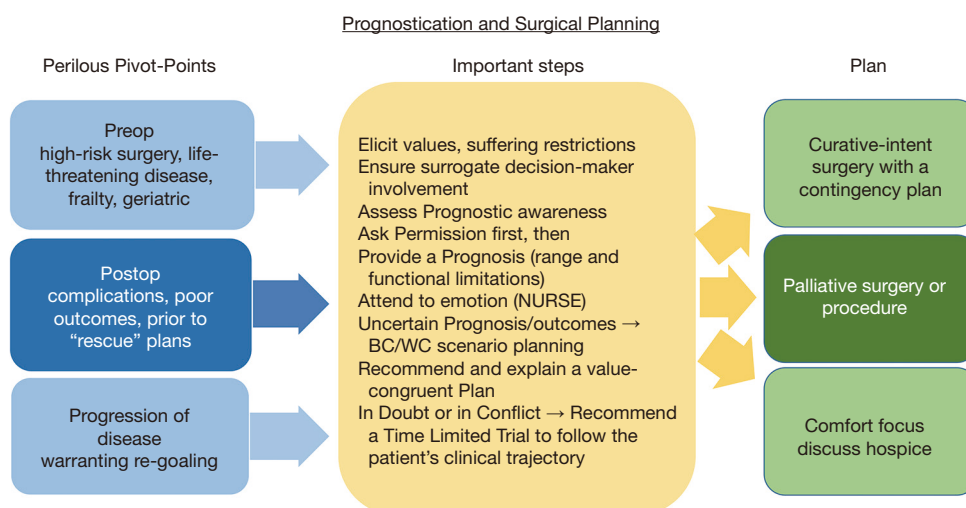


Figure 3 Perilous Pivot-Points in prognostication and surgical planning.

re-goaling conversation (*Figure 3*).

Surgeons may begin an operation with curative intent, only to find that is unattainable. Palliative surgical principles are commonly employed in these “Plan B” scenarios, and necessitate prior knowledge of the patient’s values and unacceptable degrees of suffering, as mentioned above. Such preoperative contingency plans are best discussed explicitly with both patients and their surrogate decision-maker before the patient is anesthetized and intubated if there is any suspicion that conversion to a palliative procedure is likely.

End-of-life care

Surgeons are commonly faced with the care of dying patients. For patients with life-threatening surgical illness, important discussions are needed that face the issue of how death is likely to occur, rather than if death will occur (166). Surgeons often recognize when operations may be futile (80) and report maintaining LSMTs and a cascade of non-beneficial and/or value-incongruent treatment modalities (167). Thus, the application of PSPC principles in the ICU is of paramount importance (30,158). Competency for many aspects of EOL care, including the clinical steps and ethical principles of withdrawing LSMTs, the use of sedatives, analgesics, anxiolytics, antisecretory agents and nonpharmacologic approaches to ease suffering during the dying process (158). Additionally, the ethical concepts important in guiding EOL care, including the distinctions between withholding or withdrawing treatments and between primarily intended beneficent goals versus harm that is merely foreseen (the

principle of double effect) (168). When discussions about withholding, non-escalation, or withdrawal of LSMTs are undertaken, surgeons should reiterate that no one is giving up on the patient and that most importantly care is ongoing. Allowing a patient to die naturally with comfort focused care is not meant to degrade the value of the patient’s life or their worthiness, but rather emphasize their dignity to the fullest extent possible (161,169). In these most demanding of times, surgeons must remind families that everyone is returning to what matters most. By revering the patient’s most dearly held values and honoring their dignity and legacy it is these aspects of care that have the ability to transcend concerns about “giving up”.

Caring for the dying, being present, and facilitating new meaning-making during another’s suffering is emotionally trying and spiritually challenging. And yet, this work offers opportunities for spiritual and professional growth (170-172), as well as deep personal rewards (173). The gratitude expressed by patients and families is profound and priceless. As Susan Block says: “*The intimacy of the experience offers deeper understanding about the nature of life, an appreciation of the gift of being alive, and constantly renewed inspiration and hopefulness about human resilience.*” (174).

Personal and professional growth and integration

Surgeons’ inclinations to be introspective has been questioned (175). This perceived reluctance may exacerbate the severity of moral distress, second victim syndrome (176), disenfranchised grief from patient loss (177), emotionally

haunting experiences (178), and burnout (179-182). A recent review concluded that “surgeons’ emphasis on technical aspects, individuality, and performance seems to impede a modern patient-centered approach to care and to act as a barrier to well-being” (183). This technique-orientation over people-orientation problem (94) is a manifestation of traditions, surgical culture, and the training process, which will require significant reform on the part of surgical leadership to overcome (184).

The ability of surgeons to listen and effectively communicate suffers when they experience moral distress (185). Moral distress is distinct from ethical quandaries; it typically manifests as debilitating feelings of disgust, frustration, sadness, anger, helplessness, threatening one’s self-identity, value, integrity and/or beliefs (186), and usually stems from powerlessness to affect a situation that one deems to be unethical (187,188). Most (87% of) surveyed neurosurgery residents reported moral distress, saying that they “participated in operations and worried whether surgery aligned with patient goals” (28). Untended moral distress is a leading cause of burnout (189); some physician trainees who feel obligated to perform futile treatments near the EOL develop detached, dehumanizing attitudes that characterize burned-out moral distress (190). Second victim syndrome can occur when a surgeon holds themselves responsible for complications (typically intraoperative) and deaths (191).

The management of second victim syndrome and mitigation of burnout (177,192) includes promotion of emotional management (193), ethics education, creating safe spaces for honest interchange (194,195) with peers and mentors (196), and coaching (197,198). Mindfulness-based interventions have proven to help healthcare professionals build moral resilience and gain a greater comfort being present with dying. The application of mindfulness-based interventions can increase introspection, reflection, self-awareness, empathy (188,199-204), metacognition, and meaning reconstruction (205,206). Physical self-care, such as exercise, balance and relaxation, nourishment, and sleep maintenance, as well as recreational self-care, such as spending time outdoors, engaging in hobbies and having fun, as well as spiritual, creative, and social practices that increase meaning-making and bonding have all been shown to mitigate stress and elevate well-being in medical students (207,208). All these efforts can foster surgeons’ personal and professional growth and integration. Perhaps surprisingly, empathy protects against burnout (209), a phenomenon that supports the empathic partnering competencies for

practicing PSPC. A surgeons’ attendance to their own emotions (210) may be the best first step toward self-care (193,211,212), which promotes personal and professional growth and the integration thereof.

Conclusions

As demonstrated above, integrating palliative care practices into routine surgical care for seriously ill surgical patients is both possible and beneficial. The need for improved pain and symptom management as well as SDM amongst surgical ICU patients and those undergoing surgical intervention for high-risk emergency operations, particularly in frail patients, advanced cancer and traumatic injuries cannot be overstated. Professional societies, including the American College of Surgeons and the Eastern Association for the Surgery of Trauma, have endorsed that surgeons should be proficient at providing PSPC for seriously ill and injured surgical patients, and surgical trainees are now expected to demonstrate competencies in most if not all of the fundamental skills that delineate PPC. Our six proposed PSPC proficiencies include: (I) pain and symptom management, (II) the ethics and practice of SDM, (III) communication skills, (IV) prognostication and surgical planning, (V) end-of-life care, and (VI) personal and professional growth and integration as competence in each of these core areas is central to skillfully providing PSPC.

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