

# Handbook of Supportive and Palliative Radiation Oncology

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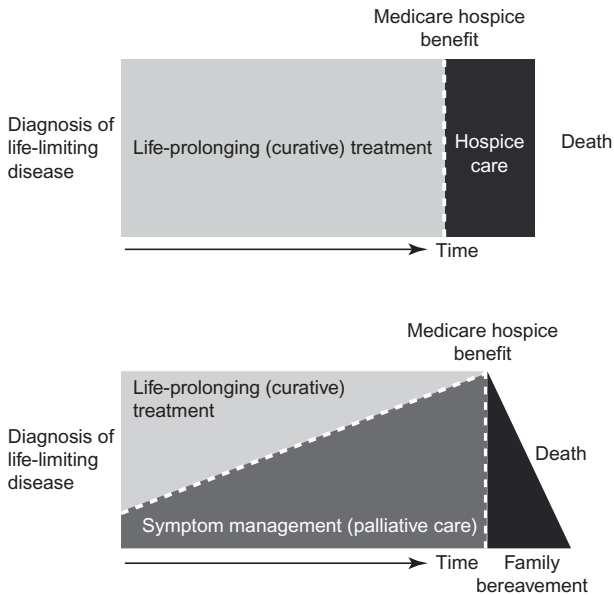
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# Preface

One common misconception about palliative care is that it is synonymous with hospice. While the palliative care field originated with hospice, it has since evolved to include care beyond the end of life and indeed the modern concept of palliative care endorsed by ASCO and other organizations is the early integration of palliative care into oncology care.



Perhaps, one reason why palliative care is so alluring is because it brings us back to the fundamentals and for many of us, our motivation for pursuing a career in medicine in the first place—to *relieve the pain and suffering of others*. We are reminded to be fully present to the “person” in front of us and to acknowledge their experience of illness as multidimensional affecting their physical, mental, emotional, and spiritual well-being.

Radiotherapy is very effective for symptom palliation and has played a key role in palliative oncology care for decades; however, palliative care education in radiation oncology training has been limited to date. As such, we hope this handbook will serve as a convenient, efficient, and valuable

resource to radiation oncology residents, fellows, and experienced practitioners. Moreover, this book can be used as a practical guide for palliative care professionals who are interested in improving their understanding of palliative radiation oncology.

We are pleased to share with you the first edition of the *Handbook of Supportive and Palliative Radiation Oncology*, which is divided into three sections. The first section of the handbook provides an overview of palliative oncology care. The second section is organized by symptoms and is designed to serve as a practical guide to manage symptoms patients initially present with, develop while “on treatment,” and/or develop following the completion of radiation therapy. The third section is organized by disease site and provides concrete recommendations for managing the most common palliative radiation clinical issues encountered by radiation oncologists, including head and neck, gastrointestinal, and gynecological malignancies among others.

We would like to acknowledge the readers for their interest in learning more about palliative care and their openness to further refine their clinical skills to improve the quality of life of patients and their families. We would like to thank the authors of each chapter for their commitment to sharing their time and expertise in palliative radiation oncology. This handbook would not have been possible without them. Finally, we would like to thank our patients and their families who allow us to travel with them on their cancer journey and whose courage and compassion continue to inspire us each day.

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## Chapter 1

# General Approach to Palliative Care and Palliative Radiation Oncology

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### INTRODUCTION

The burden of cancer continues to increase in the United States and globally, with an estimated 14.1 million cancer cases worldwide in 2012 that is projected to increase to 19.3 million cases by 2025. In 2012, there were 8.2 million cancer deaths and 32.6 million people living with cancer [1]. Thus, the need for good palliative care (PC) is also increasing globally.

Ideally, PC is a multi- and interdisciplinary effort. Emerging in the PC world is the notion that there are two fundamental categories of PC. The first is generalized PC knowledge that every person who provides health care to patients with cancer should have. The second category is a more specialized skill set that caregivers who focus their time in PC should have [2]. This is partly in recognition of the shortage of PC specialists worldwide [2–4].

The function of PC is to reduce pain and suffering, allow discussions of goals of care, facilitate death with dignity, promote quality-of-life, and support patients, their families, and their caregivers. The assessment includes pain and symptom assessment as well as an assessment of the social and spiritual context. Patients whose spirituality is supported by the medical team have experienced better outcomes and quality of life [5–7]. After a complete assessment, prognostication about the illness trajectory, the expected timelines and maximizing the goals that are important to the patient come into play.

## LIFE EXPECTANCY AND PROGNOSTICATION

Questions about life expectancy and the quality of that remaining life are extremely important to patients with metastatic cancer. Physicians and other health care providers often overestimate life expectancy, by as much as 3 months or more [8]. Accurate estimates of life expectancy are important to patients and physicians for many reasons. It helps set appropriate goals, avoid treatments that will have little or no benefit, and choose supportive care or treatments that will be effective within the remaining time.

From the literature on clinical prediction and prognostication, several themes emerge. Clinical prediction tends to overestimate survival, but those clinical estimates improve over time with repeated encounters. The strongest prognostic indicators are the patient's performance status, the presence of the symptom cluster known as the terminal syndrome (dyspnea, dysphagia, dry mouth, anorexia, and weight loss) and the presence of cognitive failure or confusion [9].

Many of the existing prognostic indicators are best near the EOL. A simple, easy to use and validated tool to predict life expectancy is very much needed. Several tools exist (Table 1.1) and have been studied in patients with advanced or terminal cancer. Each of these tools has limitations. Some are easier to perform and are more generalizable than others. The best use of these tools may be in deciding which patients may not live long enough to see the benefit of a particular treatment. This is particularly true for radiation therapy (RT) as symptom relief typically takes several days to a few weeks for effect. The exception to this is hemostasis, which can often be seen 24–48 hours after the first dose of radiation. Some have advocated chemotherapy delivery within the last month of life as a metric of overutilization of health care [24,25]. Similar metrics may follow for RT [26].

## RELIGION AND SPIRITUALITY

Multiple studies have surveyed patients in various settings about their desire to have their health care team inquire about their spiritual or religious beliefs or pray with them. As the severity of illness increases, the proportion of patients who want their spiritual beliefs considered increases. Ninety-four percent of outpatients favor discussion of spirituality in the setting of grave illness [27]. Yet, in another series, 68% of inpatients said that no physician

**TABLE 1.1** Tools to Help Assess Life Expectancy in Patients With Cancer

Tool	Factors	Comment
National Hospice Study (NHPCO) [10]	Karnofsky Performance Status (KPS)	Based on hospice patients
	Anorexia	If KPS $\geq$ 50 and none of 5 factors, median survival 6 months, with all 5, 6 weeks
	Weight Loss	
	Dyspnea	
	Dry mouth	
	Dysphagia	
Palliative Performance Scale (PPS) [11]	Ambulatory status	Correlated with survival
	Activity level	Applicable to cancer populations
	Disease status	
	Self-care	
	Intake	
	Consciousness	
Palliative Prognostic Index (PPI) [12,13]	KPS	Short-term survival of terminally ill cancer patients
	Dyspnea at rest	
	Oral intake	
	Edema	
	Delirium	
Palliative Prognostic Score (PaP) [14]	KPS	Valid for terminally ill or advanced cancer patients
	Anorexia, dyspnea	
	High total WBC	
	Low lymphocyte percent	
	Clinicians prediction of survival (weeks)	
Survival Prediction Score (SPS) [15]	Tumor details	Developed in a palliative radiation oncology setting
	KPS	
	Fatigue	
	Anorexia	
	Shortness of breath	

(Continued)

**TABLE 1.1 (Continued)**

Tool	Factors	Comment
Number of Risk Factors (NRF) [16]	KPS	Developed in a palliative radiation oncology setting
	Primary site	
	Metastasis	
Prognosis in Palliative Care Study [17,18] (PiPs)	KPS	Predicts 2 week and 2 month survival
	Mental test score	Prognostic with or without lab values
	Selected laboratory values	
	Selected symptoms	
	Primary site	
	Site of metastasis	
TEACHH [19]	Type of cancer	Developed in a palliative radiation oncology setting
	ECOGPS	
	Age	
	Chemotherapy (prior palliative)	
	Hospitalizations	
	Hepatic metastasis	
Recursive Partitioning Analysis [20]	KPS	Applies to brain metastasis patients only
	Extent of metastatic disease	
	Age	
Graded Prognostic Assessment [21]	KPS	Applies to brain metastasis patients only
	Extent of metastatic disease	Assessment criteria varies by primary site
	Age	
	Number of brain metastasis	
	Tumor subtype	

(Continued)

**TABLE 1.1 (Continued)**

Tool	Factors	Comment
Metastatic Spinal Cord Compression Index [22]	Age	Applies to patients with spinal cord compression only
	Gender	
	Primary site	
	Number of involved vertebrae	
	Other bone metastasis	
	Visceral metastasis	
	Interval to cord compression	
	Ambulatory status	
	Time to motor deficits	
Dutch Bone Metastasis Study Group [23]	KPS	Applies to bone metastasis patients only
	Primary tumor type	
	Visceral metastasis	

had ever assessed their spiritual or religious needs [28]. Many patients with advanced and life-threatening malignancies do not feel that their spiritual needs are met [29].

There are spiritual coping and methods that health care providers can use to deliver more holistic care to patients with cancer [30]. PC providers can also be taught how to incorporate a discussion of religion and spirituality into the care that they deliver and support those needs of the patients they care for. One commonly cited barrier noted by medical practitioners is the lack of training about how to provide such care [31].

Though many use the terms religion and spirituality interchangeably, there is a distinction between them. Spirituality takes into account one's view of transcendent and existential questions. Religion is a subset of spirituality surrounding a set of texts, practices, and beliefs shared by a particular community [32].

Though many physicians think religious figures and spiritual care experts should be the ones to discuss spirituality and religion, a national consensus conference determined that all members of the health care team are

responsible for addressing patient’s spiritual issues in the context of the biopsychosocial framework. This consensus panel recommended that all patients be screened with a spiritual history and that any spiritual distress should be diagnosed and attended to using validated assessment tools [33].

One such validated tool is the FICA spiritual history tool [34]. This relatively simple tool uses the acronym FICA as follows: F represents faith, belief, or meaning; I stands for importance and influence; C for community; and A represents address or action in care. The key principles of this tool are to assess if a particular person has a set of beliefs or a particular faith that gives meaning to their lives. The next step is to assess how this faith or spirituality helps them cope with stress or how it affects their health care decisions. If they belong to a community of like-minded individuals, how does this community affect their lives? The last step is for the health care team to address these issues as part of the patient’s care (Table 1.2).

### RELIEF OF PAIN AND SUFFERING

Alleviating pain and suffering is a comprehensive multidisciplinary effort that uses a combination of counseling and educating, medications, and therapeutic interventions. This text aims to provide a comprehensive approach to symptom control in patients with advanced cancer [35,36].

### PALLIATIVE RADIATION THERAPY

External beam RT is a key component of palliative cancer care. It is useful to treat pain due to osseous metastasis or local tumor invasion, bleeding, obstruction, dyspnea, or cough, and functional impairment due to brain metastasis or impingement of nerve roots or the spinal cord.

Key in the utilization of RT is the selection of the shortest fractionation regimen that is effective to maximize patient and caregiver convenience and minimize toxicity and cost [37–40].

Though many believe that longer courses of RT have a more durable effect, there is no data to support this belief. In the Radiation Therapy Oncology Group (RTOG), patient selection was designed to enroll only those with a long expected survival. There was no difference in efficacy between

F	Faith, belief, or meaning	Do you have faith? What gives your life meaning?
I	Importance	Do these beliefs help you cope or make decisions?
C	Community	Do you belong to a community?
A	Address or action	Health care team incorporates this knowledge

8 Gy in a single fraction and 30 Gy in 10 fractions [37]. Similarly, in an analysis of those patients who survived more than 52 weeks in the Dutch Bone Metastasis Study, there was no difference in response rate, time to response, duration of response, and time to progression of pain (Table 1.3) [41]. Randomized trials have confirmed the equivalence of short courses of RT in lung cancer [42–44] and bladder cancer [45] and hypofractionated radiation regimens have been successfully used to treat gynecologic, gastrointestinal, and head and neck malignancies [39].

One reason commonly cited in favor of multifraction regimens for the treatment of bone metastasis over those with higher dose per fraction regimens is the potential for pathologic fracture. In the analysis of the RTOG 97-14, there was no difference in the long-term risk of pathologic fracture with the single fraction regimen of 8 Gy when compared to multifraction regimen of 30 Gy in 10 fractions [46]. The initial report of the Dutch Bone Metastasis Study did show higher rates of pathologic fracture in the single fraction arm, but a subsequent analysis that corrected for the percent of cortical destruction did not demonstrate a difference in fracture rates between treatment arms [47,48]. This was confirmed in a large meta-analysis [49]. For patients with >30% cortical destruction, prophylactic change there may be cases where higher doses of RT are appropriate, including bone metastases with a large soft tissue component, osteolytic lesions with impending pathologic fracture, or patients with a symptomatic pathologic fracture [50]. Longer courses in these settings may help promote remineralization and tumor control, which is important for those patients with a longer life expectancy. After pathologic fracture and surgical intervention, it may be difficult to assess efficacy of single-fraction treatment. Optimal fractionation remains controversial; a single trial of patients with neuropathic pain from bone

**TABLE 1.3** Results From the Dutch Bone Metastasis Trial in Patients Surviving >1 Year

Metric	Single Fraction of 8 Gy	Multiple Fraction 24 Gy in 6 Fractions
Response rate	87%	85%
Complete response rate	62%	48%
Time to response	4 weeks	4 weeks
Duration of response (mean/median)	29 weeks/35 weeks	30/42 weeks
Progression of pain	55%	53%
Time to progression	17 weeks	18 weeks