

Integrating palliative care in oncologic emergency departments: Challenges and opportunities

Ahmed F Elsayem, Hiba E Elzubeir, Patricia A Brock, Knox H Todd

Ahmed F Elsayem, Hiba E Elzubeir, Patricia A Brock, Knox H Todd, Department of Emergency Medicine, University of Texas MD Anderson Cancer Center, Houston, TX 77030, United States

Author contributions: All authors contributed to this paper.

Conflict-of-interest statement: All authors have no conflict of interest to report.

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Correspondence to: Ahmed F Elsayem, MD, Department of Emergency Medicine, University of Texas MD Anderson Cancer Center, 1515 Holcombe Blvd., Unit 1468, Houston, TX 77030, United States. aelsayem@mdanderson.org
Telephone: +1-713-7922582
Fax: +1-713-7928743

Received: August 21, 2015
Peer-review started: August 24, 2015
First decision: October 13, 2015
Revised: December 1, 2015
Accepted: December 18, 2015
Article in press: December 21, 2015
Published online: April 10, 2016

Abstract

Although visiting the emergency departments (EDs) is considered poor quality of cancer care, there are indications these visits are increasing. Similarly, there is growing interest in providing palliative care (PC) to cancer patients in EDs. However, this integration is not with-

out major challenges. In this article, we review the literature on why cancer patients visit EDs, the rates of hospitalization and mortality for these patients, and the models for integrating PC in EDs. We discuss opportunities such integration will bring to the quality of cancer care, and resource utilization of resources. We also discuss barriers faced by this integration. We found that the most common reasons for ED visits by cancer patients are pain, fever, shortness of breath, and gastrointestinal symptoms. The majority of the patients are admitted to hospitals, about 13% of the admitted patients die during hospitalization, and some patients die in ED. Patients who receive PC at an ED have shorter hospitalization and lower resource utilization. Models based solely on increasing PC provision in EDs by PC specialists have had modest success, while very limited ED-based PC provision has had slightly higher impact. However, details of these programs are lacking, and coordination between ED based PC and hospital-wide PC is not clear. In some studies, the objectives were to improve care in the communities and reduce ED visits and hospitalizations. We conclude that as more patients receive cancer therapy late in their disease trajectory, more cancer patients will visit EDs. Integration of PC with emergency medicine will require active participation of ED physicians in providing PC to cancer patients. PC specialist should play an active role in educating ED physicians about PC, and provide timely consultations. The impact of integrating PC in EDs on quality and cost of cancer care should be studied.

Key words: Emergency department; Cancer; Palliative care; Integration; Quality; Cost

© **The Author(s) 2016.** Published by Baishideng Publishing Group Inc. All rights reserved.

Core tip: Understandably, visiting the emergency department (ED) could be a difficult experience for the many cancer patients especially in the late stages. However, these visits are increasing, and it mirrors the increased

in cancer therapies particularly in the last two decades. In this article; we discuss why cancer patients visit EDs, the outcome of these visits, models to help cancer patients avoid ED visits, the benefits of integrating palliative care in ED, and the challenges facing such integration.

Elsayem AF, Elzubeir HE, Brock PA, Todd KH. Integrating palliative care in oncologic emergency departments: Challenges and opportunities. *World J Clin Oncol* 2016; 7(2): 227-233 Available from: URL: <http://www.wjgnet.com/2218-4333/full/v7/i2/227.htm> DOI: <http://dx.doi.org/10.5306/wjco.v7.i2.227>

INTRODUCTION

Although palliative care (PC) and emergency medicine are viewed as two extremes of care, there is growing interest in providing PC to patients visiting emergency departments (EDs)^[1]. Emergency medicine represents the gateway of care and focuses on curing disease and preventing poor outcomes such as death, while PC represents the end of care and focuses on comfort and support. A visit to the ED by a cancer patient is viewed as an indicator of poor cancer care^[1-3]. However, as more patients continue to receive cancer therapy late during the cancer trajectory, many of them will end up in an ED either because of treatment-associated complications or due to the cancer itself^[4].

Referrals to PC programs continue to occur late and in many cases in the last few days of life^[5]. In view of the problem of late referral after hospital admission, PC specialists became interested in providing PC in the ED^[6,7]. In parallel, ED clinicians facing an increasing number of very sick cancer patients with multiple symptoms and end-of-life needs became interested in PC^[6,8,9]. The purpose of this article is to review the current status of PC in EDs and to highlight the challenges and opportunities faced by the integration of PC and emergency medicine.

HISTORY OF PC

PC originated in the United States in the 1970's in the form of hospice care^[10]. At that time, cancer patients accounted for the majority of hospice admissions. Over the years, the number of hospices grew progressively, and a demonstration project in 1979 showed hospice to be a cost-effective model of care for patients with terminal conditions^[10]. In 1982, the United States Congress enacted the Medicare Hospice Benefit^[11]. According to this law, to be eligible for hospice, the patient should have a life expectancy of less than 6 mo and the type of care is mainly palliative. This law has resulted in an increased number of hospices and the accreditation of hospices by multiple organizations^[12,13], including the National Hospice and Palliative Care Organization^[10].

Due to the introduction of new cancer therapies and

advances in medical oncology during the last 2 decades, many cancer patients continue to receive cancer care late in their disease trajectory^[14]. As a result, many cancer patients with distressing symptoms are admitted to hospitals instead of receiving hospice care at home. This development prompted the introduction of hospital-based PC services to support these patients and their families. Patients with advanced cancer are usually admitted through EDs.

In 2002, the World Health Organization defined PC as "an approach that improves the quality of life of patients and their families facing the problems associated with life threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychological, and spiritual"^[15].

The number of PC programs has increased significantly over the last 2 decades, and currently almost all large hospitals and comprehensive cancer centers have PC programs^[16]. Today, cancer patients account for less than half of all hospice admissions, and the length of service provided to cancer patients is decreasing, with a median hospice stay of 18 d^[1]. In view of these data, many PC programs became interested in promoting early referral. In the outpatient setting, initiation of PC soon after cancer diagnosis was associated with improved quality of life and less aggressive care^[17,18]. In parallel, emergency medicine specialists facing the growing challenges associated with increasing numbers of advanced cancer patients presenting to EDs became interested in integrating palliative into emergency medicine^[6,9,19].

REASONS FOR ED VISITS BY CANCER PATIENTS

Patients with cancer come to EDs because of symptoms related to the cancer itself, complications associated with cancer treatment, or other reasons, such as complications associated with chronic comorbidities (e.g., exacerbation of chronic obstructive pulmonary disease) or acute problems similar to those that occur in non-cancer populations. In a large population study, Mayer *et al.*^[4] identified 37760 cancer-related ED visits by 27644 patients in the state of North Carolina in the year 2008. The most common presenting symptoms were pain, respiratory distress, and gastrointestinal symptoms. The most common cancers associated with these symptoms were lung, breast, prostate, and colorectal cancers (Table 1).

In a Canadian study, Barbera *et al.*^[20] reviewed ED visits by cancer patients in the province of Ontario in the period 2002 through 2005. The researchers found that 194017 ED visits were made by 76759 patients during the last 6 mo of life, with 31076 of those patients making 36600 ED visits during the last 2 wk of life. Approximately 25%, 16%, and 10% of patients with lung cancer, gastrointestinal cancer, and leukemia or lymphoma had more than one ED visit, respectively. The

Table 1 Symptoms of cancer patients visiting emergency departments

Ref.	Country	Sample size	Study design	Most common symptoms (<i>n</i>)	Most common cancers
Mayer <i>et al</i> ^[4]	United States	27644	Retrospective	Pain (9000) Respiratory (5856) Gastrointestinal (3280)	Lung Breast Colon Prostate
Barbera <i>et al</i> ^[20]	Canada	76759	Retrospective	Abdominal pain (9224) Dyspnea (6171) Malaise (4972) Chest pain (4463)	Lung Pancreatic Breast
Yildirim <i>et al</i> ^[22]	Turkey	107	Retrospective	Dyspnea Pain	Lung
Vandyk <i>et al</i> ^[23]	Canada	18 studies with a median sample size of 143	Meta-analysis	Febrile neutropenia Infection Pain Fever Dyspnea	Multiple

Table 2 Hospital admissions and outcomes for cancer patients visiting emergency departments

Ref.	Country	Sample size	Hospital admission rate	Deaths
Vandyk <i>et al</i> ^[23]	Canada	16 studies	58%	13% (hospital)
Mayer <i>et al</i> ^[4]	United States	37760	63%	283 (ED)
Yildirim <i>et al</i> ^[22]	Turkey	107	60%	9% (ED)

ED: Emergency department.

most common reasons for ED visits by cancer patients were pain, respiratory distress, and gastrointestinal symptoms (Table 1). The most common cancers were lung, pancreatic, and breast cancers.

Ncer-associated pain was reported to be the most common presenting symptom for ED visits in over 27% of cancer patients in Taiwan^[21]. Interestingly, 8.2% of the patients in that study returned to the ED within 72 h for the same symptom.

Yildirim *et al*^[22] conducted study on cancer patients who visited an ED in Turkey. They found pain and dyspnea to be the most common reasons for visits, 60% of patients were admitted to the hospital, and 9% died during hospitalization.

In 2012, Vandyk *et al*^[23] published a systematic review of 18 studies (6 prospective and 12 retrospective; median sample size, 143) on symptoms associated with ED visits by cancer patients. Ten of the studies focused on a specific symptom (such as dyspnea) or medical complication (*e.g.*, febrile neutropenia or pulmonary embolism). The authors concluded that the most common presenting symptoms were febrile neutropenia, infection, fever, pain, and dyspnea (however, five of the studies focused specifically on febrile neutropenia) (Table 1).

OUTCOMES OF ED VISITS BY CANCER PATIENTS

The majority of cancer patients who visit EDs are admitted to the hospital^[4,20,24]. Table 2 shows the frequencies of hospital admissions reported in two studies and a

systematic review. In the North Carolina study^[4], about 23800 (63%) of the 37760 patients were admitted to the hospital. A total of 283 of patients died in the ED; 104 of those patients had lung cancer, and the most common presenting symptom was dyspnea^[25]. In the Canadian study^[3], 72% of the cancer patients who presented to the ED in the last 2 wk of life were admitted to hospitals. Of those patients, 77% died in the hospital, 5% died in the ED, and 8% died in a chronic care facility.

Sixteen of the 18 studies in the systematic review^[19] provided data on hospital admissions. In the nine studies focused on a specific symptom or condition, all cancer patients presenting at an ED were admitted to the hospital. Seven studies examining multiple symptoms reported a 58% rate of hospital admissions for cancer patients presenting at an ED. Mortality rates were reported in 10 of the studies. The mean mortality rate for five studies focused on multiple symptoms was 13%, and the mean mortality rate for five studies focused on a specific symptom was 20%^[23].

Two conditions known to be associated with increased mortality in patients with advanced cancer are dyspnea and delirium^[26,27]. In our own ED, dyspnea, particularly in lung cancer patients, was found to be associated with increased overall and 2-wk mortality^[24,28]. Delirium is also known to be associated with increased mortality in advanced cancer and elderly patients^[29,30]. However, this condition is underdiagnosed and frequently missed. Studies are under way to predict the frequency of delirium and altered mental status in advanced cancer patients presenting to our own ED.

Table 3 Benefits and challenges associated with integration of palliative care into emergency medicine

Benefits	Challenges
Control pain and other symptoms early	ED culture of fast pace, timely intervention, and save life
Address emotional distress in patients and families early	Time constraints
Address goals of care and resuscitation preferences	Overcrowding
Prevent unnecessary hospitalization	Limited resources
Reduce admissions to ICUs	Delays in palliative care consultations
Reduce length of hospital stay	Patient's and family's expectations
Reduce costs	

ICUs: Intensive care units; ED: Emergency department.

BENEFITS OF AND BARRIERS TO PC IN EDs

Although the majority of advanced cancer patients are admitted to hospitals through EDs, referrals to PC often occur late after hospital admission and in many cases close to the patient's death^[5]. This lateness of referral deprives patients and their family members from the full benefit of PC. Moreover, since many important decision processes, such as those involving cardiopulmonary resuscitation and admission to an intensive care unit, are frequently initiated in EDs, integration of PC with emergency medicine would likely result in improved quality of life for these patients and prevent heroic interventions, most likely reducing the cost of cancer care. Table 3 highlights some of the benefits of and barriers to integration of PC into emergency medicine. One of the major barriers is the time required for an effective PC consultation. PC specialists are more likely to allocate sufficient time for such consultations than ED physicians, who are generally pressed for time.

To study some of the barriers to provision of PC in EDs as perceived by ED physicians, Lamba *et al.*^[31] conducted a survey in a large urban hospital and ranked physician responses on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The barriers with the highest scores were lack of 24-h PC service (score, 4.4), lack of access to medical records (score, 4.2), communication-related issues such as availability of time and emotional distress associated with the goal-of-care discussion (score, 3.3), and the ED environment (score, 2.8).

Grudzen *et al.*^[32] studied delays in PC consultations from the time of an ED visit in two periods 4 years apart (2005 and 2009) and the impact of educating ED physicians on PC after the first period. Only 3% of PC consultations were initiated in the ED in 2005, and the rate increased to 6% in 2009. However, the mean time from the ED visit to a PC consultation increased from 6 to 9 d.

Delgado-Guay *et al.*^[33] studied ED visits in a random sample of 200 patients already receiving outpatient PC at our cancer center, to determine whether any of the ED visits were avoidable. The authors determined that for 154 (77%) patients the ED visit was unavoidable. Uncontrolled pain was the major reason for both avoidable

and unavoidable ED visits. Other symptoms associated with unavoidable ED visits included delirium, dyspnea, fever, and bleeding. The findings of that study highlight the need to improve PC services in the ED for cancer patients^[33].

OTHER MODELS OF EMERGENCY CARE FOR CANCER PATIENTS

A few initiatives have been developed outside of the United States and Canada to improve emergency care for cancer patients^[34]. Some of these initiatives are provided in the community to reduce the need for ED visits.

In Seoul, South Korea, Asan Medical Center has established an ED cancer unit to manage oncologic emergencies^[34]. In 2010, this unit provided care to 5502 patients, 55% of whom had disease progression. Gastrointestinal, lung, and hepatobiliary cancers were the most common. Of all patients; 2902 (53%) were discharged with planned outpatient follow-up, 2310 were admitted to the hospital, and 248 (4.5%) were discharged to hospice. The authors reported reductions in the cost of care in both the ED and inpatient units as compared to the year 2008. Integrating PC into this model will likely improve the quality of care for patients with disease progression.

In a multicenter cross-sectional survey, Le Conte *et al.*^[35] analyzed withholding and withdrawal of life support in patients who died in 174 EDs in France and Belgium. Of a total of 1970 decedents, 81% had chronic diseases including cancer. The main presenting conditions were cardiovascular, neurological, and respiratory problems. Life support was initiated in 74% of the patients, and PC was provided to 57% of the patients. The option to withhold or withdraw life support was provided mainly to elderly patients with metastatic cancer. The authors recommended training of ED physicians on the principles of PC to improve communication and care provided to dying patients.

A few out-of-hospital initiatives; mainly in Europe; have been established to improve care for patients with advanced cancer in the community to reduce the need for ED visits and hospitalizations^[36-41]. Table 4 shows examples of these programs. Interventions such as palliative emergency care at home, early discharge

Table 4 Programs to reduce Emergency visits and hospitalization for patients receiving palliative care

Ref./country	Study	Objective	Intervention/observation	Outcome
Prudy <i>et al</i> ^[36] United Kingdom	Marie curie cancer care DCP	Help PC patients die at home and avoid emergency department visits	(1) Expedited hospital discharges for terminal patients; (2) After hour specialist PC nurses to respond to patients, families, and clinicians	Patients who used DCP are 30% less likely to die in hospital
Wiese <i>et al</i> ^[40] Germany	Quality of out-of-hospital emergency medical team. Prospective Multicenter Analysis	To evaluate the impact of physician's expertise in PC and emergency care on the outcome of emergency call for PC patients in the community	Number of ICU admissions, PC unit admission, general ward admission, and discharge after ambulatory care	Physicians with expertise in PC provided a better quality end of life care with less ICU admissions and more PC unit admission
Mercadante <i>et al</i> ^[39] Italy	Emergencies in patients with advanced cancer followed at home	Assess the frequency and reasons of emergency calls by patients receiving palliative care at home	Characteristic and outcome of consecutive emergency calls	Of 689 patients; 17% made emergency calls. Main reasons were dyspnea, pain, and delirium. Family initiated most calls
Porzio <i>et al</i> ^[37] Italy	Integrating oncology and palliative home care in Italy	Evaluate efficacy of home care program integrated with a medical oncology unit	Compare outcome of patients from the integrated oncology program to other patients coming from other hospitals	Patients in the integrated program had longer length of stay at home, less emergency calls, less hospitalization, and more death at home
Alonso-Babarro <i>et al</i> ^[38] Spain	Association between inpatient death, utilization of hospital resources and availability of PC	Evaluate the impact of community PC service on use of hospital resources in 2 areas with and without PC	(1) Use of emergency calls; (2) Hospital death; (3) Emergency visit and hospitalization	Community with PC service had less emergency calls, less hospitalization and inpatient death

ICU: Intensive care unit; PC: Palliative care; DCP: Delivering choice program.

planning of patients with terminal cancer, and hotline phone calls to support patients and their families in the community were examples of these models. The details of these programs are beyond the scope of this review.

OPPORTUNITIES AND FUTURE DIRECTIONS

A few programs have been developed to integrate PC and emergency medicine^[42,43]. These programs were developed to educate ED physicians on basic PC, including symptom management and end-of-life discussion. At Wayne State University, a division of PC was developed within the department of emergency medicine.

Mark Rosenberg initiated an ED-based PC program in a large hospital in New Jersey, and he was able to build a PC team^[6]. The majority of patients seen by this team had goals-of-care discussions, and 56% of 131 total consults in the period between March 2010 and July 2011 resulted in a do-not-resuscitate order initiated in the ED. The authors reported that the program resulted in improved symptom control, reduced hospital stay, improved satisfaction, and reduced cost. However, the details of how these outcomes were measured were not provided^[8]. The above findings suggest that PC in the emergency setting should be initiated by ED physicians prior to a PC consultation. However, many ED physicians will need training in providing PC, breaking bad news,

and discussing goals of care.

Quill *et al*^[44] suggested categorizing provision of PC into the primary and specialist roles. In that framework, providing end-of-life discussion and simple management of symptoms for cancer patients should be part of the primary PC provided by ED physicians. Moreover, PC is usually provided by a team consisting of social workers, psychology counselors, chaplains, and case managers, and these providers should be readily available to help with PC in the ED. These ED-based services should be coordinated with existing hospital-based PC services for continuity of care. Some hospitals have started developing PC divisions within EDs, and this is a promising direction for integration of PC and emergency medicine.

CONCLUSION

As the number of cancer patients receiving various cancer therapies continues to increase, so will the number of cancer patients presenting with multiple distressing symptoms at EDs. The majority of these patients will be admitted to hospitals, and many of them will die in hospitals. Integrating PC in EDs will require coordination between ED physicians, PC specialists, and hospital administrators to improve the quality of cancer care and reduce costs. More research is needed to study the impact of this integration on quality of cancer care, satisfaction of patients and their families, and resource utilization.

REFERENCES

- Shreves A, Marcolini E. End of life/palliative care/ethics. *Emerg Med Clin North Am* 2014; **32**: 955-974 [PMID: 25441045 DOI: 10.1016/j.emc.2014.07.010]
- Barbera L, Seow H, Sutradhar R, Chu A, Burge F, Fassbender K, McGrail K, Lawson B, Liu Y, Pataky R, Potapov A. Quality Indicators of End-of-Life Care in Patients With Cancer: What Rate Is Right? *J Oncol Pract* 2015; **11**: e279-e287 [PMID: 25922219 DOI: 10.1200/jop.2015.004416]
- O'Leary B. Recalibrating emergency care in the UK: pulling our weight. *Lancet Oncol* 2015; **16**: e195 [PMID: 25943056 DOI: 10.1016/s1470-2045(15)70080-x]
- Mayer DK, Travers D, Wyss A, Leak A, Waller A. Why do patients with cancer visit emergency departments? Results of a 2008 population study in North Carolina. *J Clin Oncol* 2011; **29**: 2683-2688 [PMID: 21606431 DOI: 10.1200/jco.2010.34.2816]
- Hui D, Elsayem A, De la Cruz M, Berger A, Zhukovsky DS, Palla S, Evans A, Fadul N, Palmer JL, Bruera E. Availability and integration of palliative care at US cancer centers. *JAMA* 2010; **303**: 1054-1061 [PMID: 20233823 DOI: 10.1001/jama.2010.258]
- Lamba S, DeSandre PL, Todd KH, Bryant EN, Chan GK, Grudzen CR, Weissman DE, Quest TE. Integration of palliative care into emergency medicine: the Improving Palliative Care in Emergency Medicine (IPAL-EM) collaboration. *J Emerg Med* 2014; **46**: 264-270 [PMID: 24286714 DOI: 10.1016/j.jemermed.2013.08.087]
- Tang ST, Wu SC, Hung YN, Huang EW, Chen JS, Liu TW. Trends in quality of end-of-life care for Taiwanese cancer patients who died in 2000-2006. *Ann Oncol* 2009; **20**: 343-348 [PMID: 18765460 DOI: 10.1093/annonc/mdn602]
- Rosenberg M, Rosenberg L. Integrated model of palliative care in the emergency department. *West J Emerg Med* 2013; **14**: 633-636 [PMID: 24381685 DOI: 10.5811/westjem.2013.5.14674]
- Todd KH. Practically speaking: emergency medicine and the palliative care movement. *Emerg Med Australas* 2012; **24**: 4-6 [PMID: 22313553 DOI: 10.1111/j.1742-6723.2011.01531.x]
- Organization NHaPC. Hospice Care in America: Facts and Figures. Washington DC, 2014
- Perspectives: hospice benefit set to begin. *Wash Rep Med Health* 1983; **37**: suppl 4p [PMID: 10299238]
- Centers for Medicare & Medicaid Services (CMS), HHS. Medicare and Medicaid programs; approval of the Joint Commission for continued deeming authority for hospices. Final notice. *Fed Regist* 2009; **74**: 13439-13441 [PMID: 19418640]
- Snow V, Beck D, Budnitz T, Miller DC, Potter J, Wears RL, Weiss KB, Williams MV. Transitions of Care Consensus policy statement: American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College Of Emergency Physicians, and Society for Academic Emergency Medicine. *J Hosp Med* 2009; **4**: 364-370 [PMID: 19479781 DOI: 10.1002/jhm.510]
- Earle CC, Landrum MB, Souza JM, Neville BA, Weeks JC, Ayanian JZ. Aggressiveness of cancer care near the end of life: is it a quality-of-care issue? *J Clin Oncol* 2008; **26**: 3860-3866 [PMID: 18688053 DOI: 10.1200/JCO.2007.15.8253]
- Sepúlveda C, Marlin A, Yoshida T, Ullrich A. Palliative Care: the World Health Organization's global perspective. *J Pain Symptom Manage* 2002; **24**: 91-96 [PMID: 12231124]
- Davis MP, Strasser F, Cherny N. How well is palliative care integrated into cancer care? A MASCC, ESMO, and EAPC Project. *Support Care Cancer* 2015; **23**: 2677-2685 [PMID: 25676486 DOI: 10.1007/s00520-015-2630-z]
- Temel JS, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, Dahlin CM, Blinderman CD, Jacobsen J, Pirl WF, Billings JA, Lynch TJ. Early palliative care for patients with metastatic non-small-cell lung cancer. *N Engl J Med* 2010; **363**: 733-742 [PMID: 20818875 DOI: 10.1056/NEJMoa1000678]
- Mack JW, Cronin A, Keating NL, Taback N, Huskamp HA, Malin JL, Earle CC, Weeks JC. Associations between end-of-life discussion characteristics and care received near death: a prospective cohort study. *J Clin Oncol* 2012; **30**: 4387-4395 [PMID: 23150700 DOI: 10.1200/jco.2012.43.6055]
- Quest TE, Chan GK, Derse A, Stone S, Todd KH, Zalenski R. Palliative care in emergency medicine: past, present, and future. *J Palliat Med* 2012; **15**: 1076-1081 [PMID: 22913363 DOI: 10.1089/jpm.2012.9553]
- Barbera L, Taylor C, Dudgeon D. Why do patients with cancer visit the emergency department near the end of life? *CMAJ* 2010; **182**: 563-568 [PMID: 20231340 DOI: 10.1503/cmaj.091187]
- Tang N, Stein J, Hsia RY, Maselli JH, Gonzales R. Trends and characteristics of US emergency department visits, 1997-2007. *JAMA* 2010; **304**: 664-670 [PMID: 20699458 DOI: 10.1001/jama.2010.1112]
- Yildirim B, Tanriverdi O. Evaluation of cancer patients admitted to the emergency department within one month before death in Turkey: what are the problems needing attention? *Asian Pac J Cancer Prev* 2014; **15**: 349-353 [PMID: 24528055]
- Vandyk AD, Harrison MB, Macartney G, Ross-White A, Stacey D. Emergency department visits for symptoms experienced by oncology patients: a systematic review. *Support Care Cancer* 2012; **20**: 1589-1599 [PMID: 22526151 DOI: 10.1007/s00520-012-1459-y]
- Escalante CP, Martin CG, Elting LS, Cantor SB, Harle TS, Price KJ, Kish SK, Manzullo EF, Rubenstein EB. Dyspnea in cancer patients. Etiology, resource utilization, and survival-implications in a managed care world. *Cancer* 1996; **78**: 1314-1319 [PMID: 8826956 DOI: 10.1002/(SICI)1097-0142(19960915)78:6<1314::AID-CNCR21>3.0.CO;2-2]
- Leak A, Mayer DK, Wyss A, Travers D, Waller A. Why do cancer patients die in the emergency department?: an analysis of 283 deaths in NC EDs. *Am J Hosp Palliat Care* 2013; **30**: 178-182 [PMID: 22556288 DOI: 10.1177/1049909112445306]
- Hamano J, Maeno T, Kizawa Y, Shima Y, Maeno T. Usefulness of Palliative Prognostic Index for patient with advanced cancer in home care setting. *Am J Hosp Palliat Care* 2013; **30**: 264-267 [PMID: 22669931 DOI: 10.1177/1049909112448923]
- Hamano J, Kizawa Y, Maeno T, Nagaoka H, Shima Y, Maeno T. Prospective clarification of the utility of the palliative prognostic index for patients with advanced cancer in the home care setting. *Am J Hosp Palliat Care* 2014; **31**: 820-824 [PMID: 24043883]
- Escalante CP, Martin CG, Elting LS, Price KJ, Manzullo EF, Weiser MA, Harle TS, Cantor SB, Rubenstein EB. Identifying risk factors for imminent death in cancer patients with acute dyspnea. *J Pain Symptom Manage* 2000; **20**: 318-325 [PMID: 11068153]
- Caraceni A, Nanni O, Maltoni M, Piva L, Indelli M, Arnoldi E, Monti M, Montanari L, Amadori D, De Conno F. Impact of delirium on the short term prognosis of advanced cancer patients. Italian Multicenter Study Group on Palliative Care. *Cancer* 2000; **89**: 1145-1149 [PMID: 10964345 DOI: 10.1002/1097-0142(200001)89:5<1145::AID-CNCR24>3.0.CO;2-X]
- Leslie DL, Zhang Y, Holford TR, Bogardus ST, Leo-Summers LS, Inouye SK. Premature death associated with delirium at 1-year follow-up. *Arch Intern Med* 2005; **165**: 1657-1662 [PMID: 16043686]
- Lamba S, Nagurka R, Zielinski A, Scott SR. Palliative care provision in the emergency department: barriers reported by emergency physicians. *J Palliat Med* 2013; **16**: 143-147 [PMID: 23305188 DOI: 10.1089/jpm.2012.0402]
- Grudzen CR, Hwang U, Cohen JA, Fischman M, Morrison RS. Characteristics of emergency department patients who receive a palliative care consultation. *J Palliat Med* 2012; **15**: 396-399 [PMID: 22468771 DOI: 10.1089/jpm.2011.0376]
- Delgado-Guay MO, Kim YJ, Shin SH, Chisholm G, Williams J, Allo J, Bruera E. Avoidable and unavoidable visits to the emergency department among patients with advanced cancer receiving outpatient palliative care. *J Pain Symptom Manage* 2015; **49**: 497-504 [PMID: 25131891 DOI: 10.1016/j.jpainsymman.2014.07.007]
- Ahn S, Lee YS, Lim KS, Lee JL. Emergency department cancer unit and management of oncologic emergencies: experience in Asan Medical Center. *Support Care Cancer* 2012; **20**: 2205-2210 [PMID: 22555446 DOI: 10.1007/s00520-012-1478-8]

- 35 **Le Conte P**, Riochet D, Batard E, Volteau C, Giraudeau B, Arnaudet I, Labastire L, Levraut J, Thys F, Lauque D, Piva C, Schmidt J, Treweek D, Potel G. Death in emergency departments: a multicenter cross-sectional survey with analysis of withholding and withdrawing life support. *Intensive Care Med* 2010; **36**: 765-772 [PMID: 20229044 DOI: 10.1007/s00134-010-1800-1]
- 36 **Purdy S**, Lasseter G, Griffin T, Wye L. Impact of the Marie Curie Cancer Care Delivering Choice Programme in Somerset and North Somerset on place of death and hospital usage: a retrospective cohort study. *BMJ Support Palliat Care* 2015; **5**: 34-39 [PMID: 24838731 DOI: 10.1136/bmjspcare-2013-000645]
- 37 **Porzio G**, Aielli F, Verna L, Martella F, Aloisi P, Ficorella C. Integrating oncology and palliative home care in Italy: the experience of the "L'Aquila per la Vita" Home Care Unit. *Tumori* 2013; **99**: 225-228 [PMID: 23748818 DOI: 10.1700/1283.14196]
- 38 **Alonso-Babarro A**, Astray-Mochales J, Domínguez-Berjón F, Génova-Maleras R, Bruera E, Díaz-Mayordomo A, Cortes CC. The association between in-patient death, utilization of hospital resources and availability of palliative home care for cancer patients. *Palliat Med* 2013; **27**: 68-75 [PMID: 22492481 DOI: 10.1177/0269216312442973]
- 39 **Mercadante S**, Porzio G, Valle A, Aielli F, Costanzo V, Adile C, Spedale V, Casuccio A. Emergencies in patients with advanced cancer followed at home. *J Pain Symptom Manage* 2012; **44**: 295-300 [PMID: 22871510 DOI: 10.1016/j.jpainsymman.2011.07.016]
- 40 **Wiese CH**, Bartels UE, Marczyńska K, Ruppert D, Graf BM, Hanekop GG. Quality of out-of-hospital palliative emergency care depends on the expertise of the emergency medical team--a prospective multi-centre analysis. *Support Care Cancer* 2009; **17**: 1499-1506 [PMID: 19319576 DOI: 10.1007/s00520-009-0616-4]
- 41 **Wiese CH**, Bartels UE, Ruppert DB, Graf BM, Hanekop GG. Prehospital emergency physicians' experiences with advance directives in Germany: a questionnaire-based multicenter study. *Minerva Anesthesiol* 2011; **77**: 172-179 [PMID: 21150851]
- 42 **Quest T**, Herr S, Lamba S, Weissman D. Demonstrations of clinical initiatives to improve palliative care in the emergency department: a report from the IPAL-EM Initiative. *Ann Emerg Med* 2013; **61**: 661-667 [PMID: 23548402 DOI: 10.1016/j.annemergmed.2013.01.019]
- 43 **Lamba S**, Schmidt TA, Chan GK, Todd KH, Grudzen CR, Weissman DE, Quest TE. Integrating palliative care in the out-of-hospital setting: four things to jump-start an EMS-palliative care initiative. *Prehosp Emerg Care* 2013; **17**: 511-520 [PMID: 23968313 DOI: 10.3109/10903127.2013.811566]
- 44 **Quill TE**, Abernethy AP. Generalist plus specialist palliative care--creating a more sustainable model. *N Engl J Med* 2013; **368**: 1173-1175 [PMID: 23465068 DOI: 10.1056/NEJMp1215620]

P- Reviewer: Schoenhagen P, Soreide JA

S- Editor: Ji FF **L- Editor:** A **E- Editor:** Li D





Published by **Baishideng Publishing Group Inc**

8226 Regency Drive, Pleasanton, CA 94588, USA

Telephone: +1-925-223-8242

Fax: +1-925-223-8243

E-mail: bpgoffice@wjgnet.com

Help Desk: <http://www.wjgnet.com/esps/helpdesk.aspx>

<http://www.wjgnet.com>

