JAMA Network Open

Original Investigation | Oncology

ED Visits Among Patients With Advanced Cancer Referred to Outpatient Palliative Care

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Abstract

IMPORTANCE Emergency department (ED) visits among patients with cancer reflect unmet needs and may indicate poor care quality. Outpatient palliative care interventions may help minimize unnecessary ED visits and improve care alignment with patient preferences.

OBJECTIVE To explore characteristics of ED visits among patients referred to outpatient palliative care, evaluate the potential association of earlier referrals with reduced end-of-life ED visits, and examine when and where advance care planning was completed after outpatient palliative care referral.

DESIGN, SETTING, AND PARTICIPANTS This retrospective cohort study was conducted among patients with advanced cancer referred to outpatient palliative care at a tertiary hospital in South Korea, Seoul National University Hospital, between 2018 and 2022, with survival status confirmed as of June 25, 2023.

EXPOSURE Referral to outpatient palliative care.

MAIN OUTCOMES AND MEASURES End-of-life ED visits were defined as those occurring within a month before death. Factors associated with overall and end-of-life ED visits, as well as the completion of advance care planning documentation in outpatient palliative care and ED settings, were investigated.

RESULTS Among 3560 patients with cancer (median [range] age, 68 [18-94] years; 2143 male [60.2%]), 920 patients (25.8%) visited the ED, with a total of 1395 visits. A total of 378 patients in the entire cohort (10.6%) had end-of-life ED visits, accounting for 474 visits. Most visits (958 visits [68.7%]) were related to cancer. Earlier palliative care referral was associated with more overall ED visits (odds ratio, 1.04; 95% CI, 1.02-1.06) but fewer end-of-life ED visits (odds ratio, 0.84; 95% CI, 0.80-0.89). Among 2132 patients who completed advance care planning documentation after referral to palliative care, 331 of 690 ED visitors (48.0%) and 761 of 1442 nonvisitors (52.8%) did so at the outpatient palliative care clinic, while 138 ED visitors (20.0%) completed it at the ED.

CONCLUSIONS AND RELEVANCE This study found that a substantial number of patients with advanced cancer referred to outpatient palliative care visited the ED, including during the end-of-life phase. Earlier referrals were associated with fewer end-of-life ED visits, emphasizing the need for timely palliative care integration.

JAMA Network Open. 2025;8(7):e2521101. doi:10.1001/jamanetworkopen.2025.21101

Key Points

Question What are the characteristics and outcomes of emergency department visits among patients referred to outpatient palliative care?

Findings In this cohort study of 3560 patients with advanced cancer, 25.8% of patients visited the emergency department and 10.6% visited during end of life. Earlier palliative care referral was associated with fewer end-of-life emergency department visits; patients referred to outpatient palliative care engaged in advance care planning discussions in the outpatient setting, with some completing advance care planning documentation in the emergency department.

Meaning This study found that earlier palliative care referral was associated with reduced end-of-life emergency visits and facilitation of advance care planning, emphasizing its critical role in ensuring goal-concordant care.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Introduction

Most patients with advanced cancer experience a substantial symptom burden due to the disease or its treatment.[1,2] These symptoms often lead to emergency department (ED) visits, subjecting patients to unscheduled medical care. Studies report that 25.7% to 61.8% of patients with cancer visited the ED in the last month, and 46.8% to 91% did so in the final 6 months of life.[3-7] Frequent ED visits are often considered indicators of unmet needs and suboptimal quality of care.[8] At the end of life (EOL), patients who visit the ED are more likely to receive invasive treatment, such as mechanical ventilation and cardiopulmonary resuscitation (CPR), while receiving less comfort-oriented care.[9]

Palliative care (PC) aims to enhance the quality of life by addressing physical, psychological, social, and spiritual needs of patients with serious illnesses.[10] Early PC, typically initiated in outpatient settings, has been associated with fewer ED visits and a reduction in potentially inappropriate interventions at the EOL for patients with advanced cancer.[10-19] These associations may be explained by improved symptom management, care coordination, and advance care planning (ACP), as well as facilitated goal-of-care discussions. While mechanisms remain uncertain, early PC appears to reduce aggressive EOL interventions by aligning care with patient goals.[20-22]

Given this evidence, determining which patients with advanced cancer require ED visits and which would be better supported through stable and planned care options remains crucial. Essential ED interventions should be prioritized, while outpatient-manageable issues should ideally be addressed outside the ED to avoid potentially unnecessary visits.[23,24] ED visits at EOL should be minimized whenever possible.[4] However, certain circumstances, such as acute symptom crises or conditions requiring immediate intervention, may necessitate such visits. In such cases, ensuring that ED care aligns with the goals of the patient is crucial.[25]

In this study, we conducted a descriptive analysis of ED visits among patients with advanced cancer referred to an outpatient PC clinic, evaluating visit frequency, interventions received, and patient outcomes. The aim was to gather baseline data to guide interventions that optimize the use of ED services, particularly at the EOL, after outpatient PC referrals.

Methods

Study Design and Cohort Selection

This retrospective cohort study was conducted at Seoul National University Hospital, a tertiary hospital in Seoul, Korea. It included adults (aged ≥18 years) with advanced cancer (*International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* [*ICD-10*] codes C00-C96 and D46-D47) referred to outpatient PC between 2018 and 2022 who died by June 25, 2023, the final date for confirming survival. Those who died before consultation or who did not attend PC were excluded. The study was approved by the Seoul National University Hospital Institutional Review Board, which waived informed consent due to the study's retrospective design. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

Overview of PC Consultation Services and Outpatient Operations

This hospital, without inpatient hospice wards, has provided consultation-based PC since the enactment of the Life-Sustaining Treatment (LST) Decision Act in 2018.[19] The outpatient PC team, consisting of a physician (S.H.Y.), nurses, and social workers, offers outpatient consultations 5 days per week, with a mean of 763 referrals annually (2018-2022). Referrals are made by attending physicians based on the disease progression of patients. Consultations assess physical, psychosocial, and spiritual needs; facilitate ACP; and set care goals. In addition to in-person visits, a weekday (9 AM to 5 PM) phone service ensures timely support for urgent issues.

Research Questions and Measurements

This study examined ED visits after outpatient PC referral, focusing on 4 key research questions concerning ED visits and ACP. First, we analyzed patient demographics, cancer treatment details, and referral-to-death intervals to identify patients who visited the ED, particularly in the EOL phase. ED visits occurring within the last 30 days of life were classified as EOL visits.

Second, we assessed ED visit characteristics, including timing, place prior to arrival, chief complaints, and acuity, using the Korean Triage and Acuity Scale, with triage levels categorized as critical (levels 1-2) or less urgent (levels 3-5).[26] Visit outcomes, such as ED stay duration, discharge diagnosis, and disposition, were also analyzed. If cancer or cancer-related symptoms (eg, pain, appetite loss, and fatigue)[27] were identified as the main diagnosis, patients were categorized as having cancer. Other diagnoses were grouped into infections, catheter-related problems, trauma, bleeding, and other conditions.

Third, we evaluated treatments and interventions, comparing diagnostic procedures (imaging and blood cultures), therapies (antibiotics, transfusions, and vasopressors), and resuscitative measures (mechanical ventilation and CPR) between total and EOL ED visits. Intervention frequency and type were compared between total and EOL ED visits.

Fourth, ACP completion was analyzed based on timing, initiators (patients or family members), and settings (outpatient PC clinic, ED, or other hospital or department). Under Korea's LST Decision Act,[28] patients can refuse LST if capable, while family members may decide for patients who are incapacitated. Without legal documentation, withholding or withdrawing LST is not legally protected, posing challenges for physicians.

Statistical Analysis

We compared demographics between ED and non-ED patients using *t*, Mann-Whitney, and χ^2 tests. Multivariable logistic regression was conducted to identify factors associated with ED and EOL ED visits, with model fit assessed via the likelihood ratio χ^2 test. For logistic regression analyses, the unit of analysis was the patient. The dependent variable was defined as a binary indicator of whether the patient had at least 1 ED visit or 1 EOL ED visit during the study period. Patients who experienced multiple visits were coded as having had the event. This approach was chosen to evaluate patient-level factors associated with the occurrence of any ED or EOL ED visit. In multivariable logistic regression analysis, the referral-to-death interval was treated as a continuous variable and effect estimates were interpreted per 1-month increase. Odds ratios (ORs) with 95% CIs are reported. In addition, to account for the frequency of visits and evaluate the robustness of our findings, we conducted a sensitivity analysis using negative binomial regression models with the number of ED and EOL ED visits as outcome variables. These models included the same covariates as primary logistic regression analyses. The association between PC referral timing and EOL ED visits was analyzed based on visit frequency across different referral-to-death intervals. Effect estimates were interpreted per 1-month increase in the referral-to-death interval. Statistical analyses were performed using Stata statistical software version 18.0 (StataCorp). All *P* values were 2-sided, and $P < .05$ was considered statistically significant.

Results

Study Cohort

The study included 3648 patients with cancer between January 2018 and December 2022. Of these, 88 were excluded, including 46 who died before counseling and 42 who did not attend the outpatient visit. Ultimately, 3560 patients were included (median [range] age, 68 [18-94] years; 2143 male [60.2%]); 920 patients visited the ED (25.8%), and 2640 patients did not (74.2%) (**Table 1**). Among all patients, 378 patients had an EOL ED visit (10.6%). See eFigure 1 in Supplement 1 for the cohort flowchart.

Clinical Characteristics and Factors Associated With ED and EOL ED Visits

Lung and intrathoracic cancers were the most common cancers (996 patients [28.0%]), and the median chemotherapy line at referral was second line. More than 90% of patients had no ACP documentation at the time of referral (3224 patients [90.6%]). The median (range) time from referral to death was 2.2 (0-59.7) months.

In the multivariate analysis (**Table 2**), younger age (<65 years; OR, 1.25; 95% CI, 1.05-1.47), residence in the capital area (OR, 2.92; 95% CI, 2.32-3.67), and planned cancer treatment at referral (OR, 2.60; 95% CI, 2.15-3.15) were associated with a higher likelihood of ED visits. Patients with gastrointestinal, hepatobiliary, pancreatic, or hematologic cancers were more likely to visit the ED than patients with lung cancer. Similarly, factors associated with EOL ED visits included living in the

Table 1. Baseline Demographic and Clinical Characteristics

Characteristic	Patients, No. (%)			*P* value	Patients, No. (%)		*P* value
	Total (N = 3560)	ED visit (n = 920)	Non-ED visit (n = 2640)		EOL ED visit (n = 378)	Non-EOL ED visit (n = 3182)	
Age, y							
Median (range)	68 (18-94)	66 (22-90)	68 (18-94)	<.001	66 (23-90)	68 (18-94)	.01
≥65	2133 (59.9)	508 (55.2)	1625 (61.6)	.001	209 (55.3)	1924 (60.5)	.05
<65	1427 (40.1)	412 (44.8)	1015 (38.5)		169 (44.7)	1258 (39.5)	
Sex							
Male	2143 (60.2)	541 (58.8)	1602 (60.7)	.32	224 (59.3)	1919 (60.3)	.69
Female	1417 (39.8)	379 (41.2)	1038 (39.3)		154 (40.7)	1263 (39.7)	
Insurance							
National health insurance	3351 (94.1)	870 (94.6)	2481 (94.0)	.51	361 (95.5)	2990 (94.0)	.23
Medical aid or others	209 (5.9)	50 (5.4)	159 (6.0)		17 (4.5)	192 (6.0)	
Residence							
Capital area	2800 (78.7)	816 (88.7)	1984 (75.2)	<.001	345 (91.3)	2455 (77.2)	<.001
Noncapital area	760 (21.4)	104 (11.3)	656 (24.9)		33 (8.7)	727 (22.9)	
Primary cancer diagnosis							
Lung and intrathoracic	996 (28.0)	224 (24.4)	772 (29.2)	<.001	89 (23.5)	907 (28.5)	<.001
Gastrointestinal	734 (20.6)	189 (20.5)	545 (20.6)		68 (18.0)	666 (20.9)	
Hepatobiliary-pancreas	639 (18.0)	166 (18.0)	473 (17.9)		68 (18.0)	571 (17.9)	
Hematologic	105 (3.0)	46 (5.0)	59 (2.2)		26 (6.9)	79 (2.5)	
Other	1086 (30.5)	295 (32.1)	791 (30.0)		127 (33.6)	959 (30.1)	
Lines of palliative chemotherapy received							
Median (range)	2 (0-13)	2 (0-11)	2 (0-13)	.006	2 (0-11)	2 (0-13)	.01
0-1	1254 (35.2)	301 (32.7)	953 (36.1)	.06	123 (32.5)	1131 (35.5)	.25
≥2	2306 (64.8)	619 (67.3)	1687 (63.9)		255 (67.5)	2051 (64.5)	
Type of the last chemotherapy							
Conventional cytotoxic chemotherapy	2038 (57.3)	550 (59.8)	1488 (56.4)	.07	219 (57.9)	1819 (57.2)	.77
Targeted therapy	725 (20.4)	181 (19.7)	544 (20.6)	.55	80 (21.2)	645 (20.3)	.68
Immunotherapy	446 (12.5)	128 (13.9)	318 (12.1)	.14	58 (15.3)	388 (12.2)	.08
Hormone therapy	95 (2.7)	24 (2.6)	71 (2.7)	.90	11 (2.9)	84 (2.6)	.76
Other	36 (1.0)	9 (1.0)	27 (1.0)	.91	6 (1.6)	30 (0.9)	.24
Further cancer treatment plan at consultation							
Yes	626 (17.6)	264 (28.7)	362 (13.7)	<.001	109 (28.8)	517 (16.3)	<.001
No	2934 (82.4)	656 (71.3)	2278 (86.3)		269 (71.2)	2665 (83.8)	
ACP documentation							
None	3224 (90.6)	846 (92.0)	2378 (90.1)	.09	348 (92.1)	498 (91.9)	.92
Yes	336 (9.4)	74 (8.0)	262 (9.9)		30 (7.9)	44 (8.1)	
Patient initiator	320 (95.2)	71 (95.9)	249 (95.0)	.75	29 (96.7)	42 (95.5)	.80
Family initiator	16 (4.8)	3 (4.1)	13 (5.0)		1 (3.3)	2 (4.5)	
Time from referral to death, median (range), mo	2.2 (0-59.7)	2.7 (0-43.8)	2.1 (0.1-59.7)	<.001	1.4 (0-18.8)	2.3 (0.1-59.7)	<.001

Abbreviations: ACP, advance care planning; ED, emergency department; EOL, end of life.

capital area (OR, 3.29; 95% CI, 2.26-4.77), having a hematologic malignancy (OR, 2.79; 95% CI, 1.66-4.69), and planned cancer treatment at referral (OR, 2.60; 95% CI, 2.00-3.37).

The timing of outpatient PC referrals showed contrasting trends for ED and EOL ED visits. Patients referred earlier were more likely to visit the ED (OR per 1-month increase in referral-to-death interval, 1.04; 95% CI, 1.02-1.06), whereas those referred later had a higher likelihood of experiencing an EOL ED visit (OR, 0.84; 95% CI, 0.80-0.89).

The frequency distribution of ED and EOL ED visits per patient is presented in eTable 1 in Supplement 1. Among patients who visited the ED, 638 patients (69.3%) had 1 visit, 182 patients (19.8%) had 2 visits, and 100 patients (10.9%) had 3 or more visits. Similarly, among patients with EOL ED visits, 317 patients (83.9%) had a single visit, while 61 patients (16.1%) experienced multiple visits. In the sensitivity analysis using negative binomial regression (eTable 2 in Supplement 1), earlier PC referral was associated with a lower number of EOL ED visits per patient, consistent with the primary findings.

Association Between Referral Timing and Number of EOL ED Visits

In total, 1395 ED visits occurred, including 474 classified as EOL visits (eTable 3 in Supplement 1). Among these, 655 ED visits (47.0%) occurred within 1 month of the PC consultation and 386 EOL ED visits (81.4%) took place within 3 months. ED and EOL ED visits gradually decreased as the time from consultation to death extended. The proportion of patients who experienced at least 1 EOL ED visit among those who survived to each referral-to-death interval was 198 patients (21.5%) for less than 1 month, 118 of 783 patients (15.1%) for 1 to 3 months, 44 of 416 patients (10.6%) for 3 to 6 months, 17 of 187 patients (9.1%) for 6 to 9 months, 7 of 102 patients (6.9%) for 9 to 12 months, and 7 of 62 patients (11.3%) for greater than 12 months (eTable 3 in Supplement 1). These findings illustrate a general trend of decreasing EOL ED visit probability with earlier referral timing, except for a slight increase in the greater than 12 months group.

Figure 1 illustrates the number of EOL ED visits per patient based on the time from PC referral to death. Patients referred within 1 month of death had the highest number of EOL ED visits, with a mean (SD) of 1.17 (0.41) visits per person. In contrast, patients referred 12 months or more before

Table 2. Multivariate Logistic Regression Analysis of Association of Factors With ED and EOL ED Visits

	ED visits		EOL ED visits	
Characteristic	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Age group at referral, y				
<65	1.25 (1.05-1.47)	.01	1.12 (0.89-1.42)	.33
≥65	1 [Reference]	NA	1 [Reference]	NA
Capital area				
Capital area	2.92 (2.32-3.67)	<.001	3.29 (2.26-4.77)	<.001
Noncapital area	1 [Reference]	NA	1 [Reference]	NA
Primary cancer diagnosis				
Lung and intrathoracic	1 [Reference]	NA	1 [Reference]	NA
Gastrointestinal	1.34 (1.06-1.70)	.01	1.09 (0.77-1.53)	.63
Hepatobiliary-pancreas	1.37 (1.07-1.75)	.01	1.26 (0.89-1.78)	.19
Hematologic	2.46 (1.59-3.80)	<.001	2.79 (1.66-4.69)	<.001
Last chemotherapy type				
Conventional cytotoxic agents	1.10 (0.94-1.30)	.25	0.92 (0.73-1.16)	.50
Noncytotoxic agents	1 [Reference]	NA	1 [Reference]	NA
Lines of palliative chemotherapy received	1.04 (1.00-1.09)	.06	1.06 (1.00-1.12)	.07
Planned cancer treatment at the time of referral				
Yes	2.60 (2.15-3.15)	<.001	2.60 (2.00-3.37)	<.001
No	1 [Reference]	NA	1 [Reference]	NA
Time from referral to death, per 1-mo increase	1.04 (1.02-1.06)	<.001	0.84 (0.80-0.89)	<.001
χ^2	247.20	<.001	174.61	<.001

Abbreviations: ED, emergency department; EOL, end of life; NA, not applicable; OR, odds ratio.

death had a significantly lower mean (SD) of 0.13 (0.34) EOL ED visits per person. Patients referred within 1 month of death experienced a mean (SD) of 0.17 (0.41) revisits per person, whereas those referred 12 months or more before death had no revisits.

Characteristics of ED Visits

Respiratory and gastrointestinal symptoms were the most common chief complaints for total and EOL ED visits, accounting for 391 visits (28.1%) and 343 visits (24.6%) among total ED visits and 177 visits (37.3%) and 102 visits (21.5%) for EOL ED visits (**Table 3**). A higher proportion of patients with EOL ED visits arrived via other hospitals (97 visits [20.5%]) compared with those with non–EOL ED visits (100 visits [10.9%]). EOL ED visits were more severe, with those for 214 visits (45.2%) classified as Korean Triage and Acuity Scale 1 to 2. The median (range) length of stay in the ED was longer for EOL ED visits (11.6 [0.7-119.9] hours) than for non-EOL ED visits (8.5 [0.4-259.3] hours).

Cancer was the most common discharge diagnosis, followed by respiratory infections for EOL ED visits (Table 3). Approximately 50% of total ED visits resulted in a discharge to home (685 visits [49.1%]), while 412 visits (29.5%) led to transfer, of which 370 (89.6%) were to other acute care hospitals. Among EOL ED visits, approximately 60% resulted in either hospital admission or transfer (283 visits [59.7%]), while 45 visits (9.5%) ended in death.

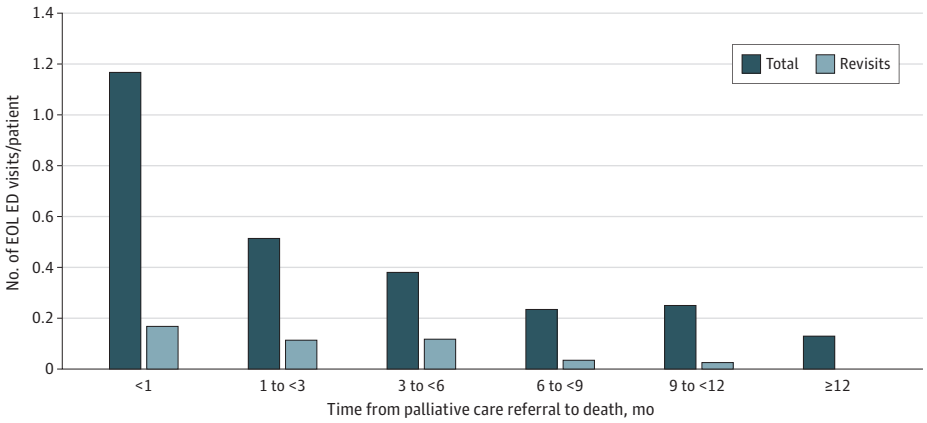
Types of Evaluation, Procedures, and Medications During ED Visits

Tests, medications, and critical care interventions performed during ED visits are presented in eFigure 2 in Supplement 1. All interventions, except high-flow nasal cannula, were more frequently used during EOL ED visits compared with total ED visits. CPR was performed more often during EOL ED visits (15 visits [3.2%]) than in total ED visits (16 visits [1.2%]). Similarly, mechanical ventilation and vasopressors were administered nearly twice as often during EOL ED visits (13 visits [2.7%] and 76 visits [16.0%], respectively) compared with total ED visits (18 visits [1.3%] and 122 visits [8.8%], respectively). Antibiotics and blood cultures were commonly used, with slightly higher rates observed during EOL ED visits. Imaging studies were performed in approximately half of all visits in both groups.

Timing and Contexts of Advance Care Planning Completion After PC Referral

Among all patients, 262 of 2640 patients who did not visit the ED (9.9%) had completed an ACP documentation before PC referral (**Figure 2**A). Of the remaining 2378 patients without prior documentation, 936 patients (39.4%) never completed any ACP documentation, while 1216 patients (51.1%) completed it themselves and 226 patients (9.5%) had it completed by family members.

Figure 1. End-of-Life Emergency Department (ED) Visits Per Patient



Among all ED visitors, 74 patients (8.0%) had ACP documentation before referral (Figure 2B). Of 846 patients without prior documentation, 156 patients (18.4%) remained undocumented, 547 patients (64.7%) completed documentation themselves, and 143 patients (16.9%) had it completed by family members. Of 690 patients who completed documentation after referral, 270 patients

Table 3. Characteristics of ED Visits

Characteristic	ED visits, No. (%)			*P* value
	Total ED visits (n = 920)	EOL ED visits (n = 378)	Non-EOL ED visits (n = 542)	
No. of ED visits (%)	1395 (100.0)	474 (34.0)	921 (66.0)	NA
Chief complaint				
Neurological	169 (12.1)	62 (13.1)	107 (11.6)	<.001
Head and neck	26 (1.9)	6 (1.3)	20 (2.2)	
Gastrointestinal	343 (24.6)	102 (21.5)	241 (26.2)	
Respiratory	391 (28.1)	177 (37.3)	214 (23.3)	
Cardiovascular	35 (2.5)	16 (3.4)	19 (2.1)	
Urinary system	68 (4.9)	10 (2.1)	58 (6.3)	
Gynecological	2 (0.1)	1 (0.2)	1 (0.1)	
Musculoskeletal	65 (4.7)	10 (2.1)	55 (6.0)	
Psychological	6 (0.4)	1 (0.2)	5 (0.5)	
Cutaneous	12 (0.9)	1 (0.2)	11 (1.2)	
Fever and chill	114 (8.2)	36 (7.6)	78 (8.5)	
Catheter-related problem	77 (5.5)	20 (4.2)	57 (6.2)	
Other	86 (6.2)	32 (6.8)	54 (5.9)	
Place prior to ED visit				
Home	1045 (74.9)	338 (71.3)	707 (76.8)	<.001
Outpatient clinic	153 (11.0)	39 (8.2)	114 (12.4)	
Other hospitals	197 (14.1)	97 (20.5)	100 (10.9)	
ED visiting time				
During standard business hours	821 (58.9)	268 (56.5)	553 (60.0)	.21
During nonbusiness hours	574 (41.2)	206 (43.5)	368 (40.0)	
ED visiting day				
Weekend	334 (23.9)	122 (25.7)	212 (23.0)	.26
Nonweekend	1061 (76.1)	352 (74.3)	709 (77.0)	
KTAS level				
1-2	398 (28.5)	214 (45.2)	184 (20.0)	<.001
3	762 (54.6)	216 (45.6)	546 (59.3)	
4-5	235 (16.9)	44 (9.3)	191 (20.7)	
Length of ED stay, median (range), h	9.6 (0.4-259.3)	11.6 (0.7-119.9)	8.5 (0.4-259.3)	<.001
Discharge diagnosis				
Cancer	958 (68.7)	314 (66.2)	644 (69.9)	<.001
Respiratory tract infection	109 (7.8)	64 (13.5)	45 (4.9)	
Gastrointestinal infection	81 (5.8)	20 (4.2)	61 (6.6)	
Other infection	66 (4.7)	27 (5.7)	39 (4.2)	
Catheter-related problem	55 (3.9)	14 (3.0)	41 (4.5)	
Trauma	26 (1.9)	4 (0.8)	22 (2.4)	
Bleeding	13 (0.9)	6 (1.3)	7 (0.8)	
Others	87 (6.2)	25 (5.3)	62 (6.7)	
ED disposition				
Death	45 (3.2)	45 (9.5)	0 (0.0)	<.001
Admission	253 (18.1)	101 (21.3)	152 (16.5)	
Discharge	685 (49.1)	146 (30.8)	539 (58.5)	
Transfer	412 (29.5)	182 (38.4)	230 (25.0)	
Nursing hospital	37 (9.0)	18 (9.9)	19 (8.2)	<.001
Hospice facility	6 (1.5)	3 (1.7)	3 (1.3)	
Other	370 (89.6)	161 (88.5)	209 (90.5)	

Abbreviations: ED, emergency department; EOL, end of life; KTAS, Korean Triage and Acuity Scale; NA, not applicable.

(39.1%) did so before their first ED visit, 83 patients (12.0%) during their first visit, and 337 patients (48.8%) afterward.

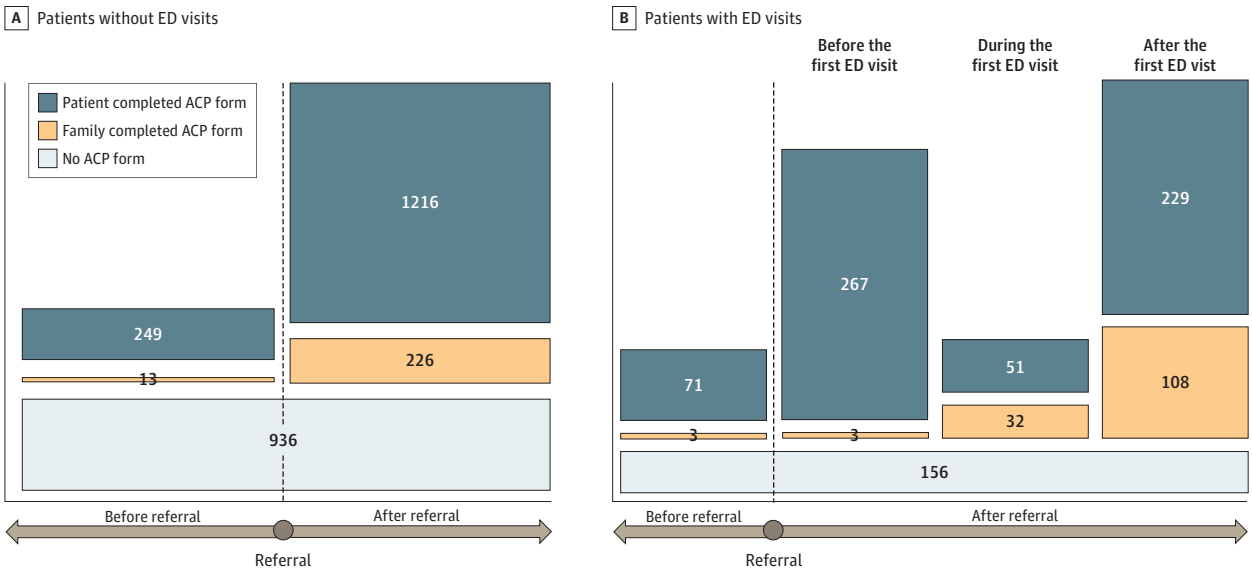
ACP completion among 2132 patients who lacked documentation at referral but ultimately completed documentation is shown in eFigure 3 in Supplement 1. Among 1442 patients who did not visit the ED, 761 patients (52.8%) completed ACP documentation at the outpatient PC clinic, 455 patients (31.6%) completed it at other departments or hospitals, and 226 patients (15.7%) had it completed by family members. Of 690 ED visitors, 331 patients (48.0%) completed documentation at the outpatient PC clinic, 221 patients (32.0%) completed it at other departments or hospitals, and 138 patients (20.0%) completed it in the ED. Of these, 547 patients (79.3%) completed the documentation themselves, while 143 patients (20.7%) had it completed by family members.

Discussion

This cohort study examined ED visits among patients with advanced cancer referred to outpatient PC, with several findings to highlight. Approximately one-quarter of patients visited the ED, with one-tenth doing so during the EOL phase. Younger age, urban residence, active cancer treatment, and specific cancer types were associated with ED visits. Earlier PC referrals were associated with more overall ED visits but fewer EOL ED visits. Although most ED visits were cancer related, EOL ED visits involved higher severity, a greater proportion of respiratory infections, and more frequent nonhome discharges, including deaths. Resuscitative interventions were rare; however, diagnostic and therapeutic measures were prevalent, especially during EOL ED visits. Many patients completed ACP in outpatient PC settings; however, the ED also served as an important setting for ACP completion.

Our results, with one-quarter of patients having ED visits and one-tenth having EOL ED visits, were lower than those reported in a systematic review,[6] where 75% of patients with cancer visited the ED in the last 6 months of life and 45% in the final month. However, our findings are consistent with studies of patients with cancer receiving PC, which report similar rates of ED visits.[29,30] This consistency suggests that PC involvement may contribute to reduced ED use, consistent with prior studies indicating that patients who engage in PC planning are less likely to visit the ED.[17,18,31]

Figure 2. Timing of Advance Care Planning (ACP) Completion



A) ACP completion before and after palliative care referral is shown in patients without emergency department (ED) visits. B) ACP completion before and after palliative care referral is shown in patients with ED visits.

Factors associated with ED and EOL ED visits in our study partially align with previous studies. Younger patients may visit the ED frequently owing to a more aggressive disease course or greater preference for life-prolonging interventions.[30,32] Although evidence regarding urban vs rural ED visit rates remains unclear,[30] patients in the capital area may have easier access to the ED of the study institution in Seoul, which could be associated with higher ED use, even at the EOL.[33] Active cancer treatment plans were also associated with higher ED use, and our findings suggest that these plans may be associated with an increased risk of aggressive EOL care, highlighting the need for timely discussions about care goals and transitions.[9] Lung cancer, often associated with high ED visit rates,[34] showed relatively fewer ED visits after outpatient PC referral than gastrointestinal, hepato-biliary-pancreatic, and hematologic cancers. Hepato-biliary-pancreatic cancers commonly involve complications like biliary obstruction, and hematologic cancers frequently lead to severe issues, such as febrile neutropenia or coagulopathies, both contributing to frequent ED visits.[35-37] Hematologic cancers were strongly associated with EOL ED visits, highlighting the need for proactive management even after outpatient PC referral.[38]

The contrasting associations between the timing of PC referral and ED vs EOL ED visits in this study are noteworthy. Earlier referrals were associated with a longer follow-up, which was associated with an increase in overall ED visits but a reduction in EOL ED visits. This aligns with previous studies showing that earlier referrals were associated with improved ACP and illness understanding,[17,21,39] and therefore reduced EOL ED use. The timing for early PC referrals has been variably defined, with landmark trials suggesting initiation 8 weeks after a diagnosis of incurable advanced cancer,[40,41] while clinical studies often use 1 to 3 months before death as a reference.[42-44] In our study, the median time from referral to death was 2.2 months, indicating that referrals were relatively late compared with earlier studies. However, the observed association of earlier referrals with a decrease in EOL ED visit likelihood, frequency, and recurrence highlights the critical role of timely PC integration. This pattern remained consistent even when accounting for visit frequency, supporting the interpretation that earlier PC referral may be associated not only with reduced likelihood but also with reduced burden of EOL ED use.

Our data suggest that EOL ED visits were associated with aggressive interventions, reflecting the focus of the ED on stabilizing critical conditions.[45] As patients near death, their deteriorating state is often categorized as high severity, leading to default resuscitative measures that may not align with comfort-focused EOL care.[9] To address this, structured discussions on goals of care within the ED are essential, particularly to avoid unnecessary interventions.[25] Studies have shown that initiating PC in the ED for admitted patients can help align care with patient preferences.[46] For imminently dying patients, implementing comfort measure orders in the ED could further ensure dignity and symptom management over invasive treatments.[47]

The process of ACP as a serial progression after outpatient PC referral is essential for aligning care with patient goals.[48,49] Our data show that most patients lacked ACP documentation at the time of referral; however, outpatient PC clinics served as key settings for initiating these discussions, with a substantial proportion of patients completing documentation themselves. In addition, approximately 20% of ACP completions among ED visitors occurred in the ED, suggesting its role in initiating or completing ACP during crises.[50,51] Prior studies indicate that patient-driven decisions are associated with reduced EOL aggressive care compared with family decisions, emphasizing the importance of facilitating ACP discussions in outpatient PC settings.[52,53] Initiating ACP in outpatient PC and continuing it through ED visits, when necessary, may help ensure that care remains aligned with patient preferences, even in acute situations.[25,47]

A major strength of this study is its focus on patients referred to outpatient PC, providing clinical insights into patterns of ED use after such engagement. Timely PC referral and continued ACP, including in the ED, may be associated with reductions in potentially avoidable EOL interventions. These results are relevant for clinicians and health system leaders planning integrated care models. For policymakers, the findings support the development of care pathways that integrate PC and ED

services, such as PC consultation availability in the ED, standardized ACP documentation, and early identification of patients who are likely to benefit from supportive services.

Limitations

This study has some limitations. First, it was a single-center investigation conducted at 1 hospital, which may limit the generalizability of its findings to other settings. Furthermore, data from other EDs where patients may have sought care during the study period were not captured, potentially leading to incomplete information. Larger studies with more diverse populations and settings are needed to validate these findings. In addition, this study did not account for the multifactorial decision-making processes influencing ED visits, highlighting the need for further qualitative research. Additionally, while the limited use of invasive treatments during EOL ED visits may suggest clinical appropriateness, our data could not determine whether these visits aligned with patient preferences or goals. The absence of information on patient symptom burden or home circumstances limited our ability to evaluate the necessity or desirability of these visits, especially during the EOL phase. As with all retrospective analyses, the data were limited to information available in electronic health records. Specifically, detailed content of goals-of-care discussions conducted in outpatient or ED settings was unavailable, potentially limiting the understanding of their association with the observed outcomes. This lack of granular data restricts insights into the quality and potential association of these conversations with outcomes.

Conclusions

This cohort study provides insight into the patterns of ED visits among patients with advanced cancer referred to outpatient PC, revealing that a substantial proportion of these patients visited the ED, including during the EOL phase. Earlier PC referrals were associated with fewer EOL ED visits, emphasizing the importance of timely integration of PC to reduce unnecessary interventions and ensure goal-concordant care. Outpatient PC clinics emerged as pivotal settings for initiating ACP, while the ED served as a valuable site for completing ACP during crises. These findings underscore the need for structured ACP discussions across care settings to enhance the quality of EOL care. Future studies should focus on refining strategies for optimizing PC referral timing and ACP processes in diverse clinical environments.

ARTICLE INFORMATION

Accepted for Publication: May 13, 2025.

Published: July 15, 2025. doi:10.1001/jamanetworkopen.2025.21101

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Author Contributions: Drs Jeung and Yoo had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Drs Jeung and Bae, the first 2 authors, contributed equally to this work.

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Acquisition, analysis, or interpretation of data: All authors.

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Obtained funding: Yoo.

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Conflict of Interest Disclosures: None reported.

Funding/Support: This research was supported by grant RS-2023-KH137917 from the Patient-Centered Clinical Research Coordinating Center (PACEN) funded by the Ministry of Health and Welfare, Republic of Korea.

Role of the Funder/Sponsor: The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Data Sharing Statement: See Supplement 2.

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SUPPLEMENT 1.

eTable 1. Frequency Distribution of ED Visits and EOL ED Visits per Patient
eTable 2. Factors Associated With the Number of ED and EOL ED Visits
eTable 3. Analysis of ED and EOL ED Visits Based on Time Since Palliative Care Consultation
eFigure 1. Flowchart of Study Participants
eFigure 2. Types of Procedures, Evaluations, and Medications at ED Visit
eFigure 3. Settings and Initiators of ACP Completion After PC Referral

SUPPLEMENT 2.

Data Sharing Statement