



# Utilization of oncologic emergency department observation units by cancer patients presenting with pain

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## Background

Pain remains an undertreated complication of cancer and has been shown to affect patients' quality of life.<sup>1</sup> The goal of pain control in this population is to optimize patient comfort and function and avoid unnecessary side effects.<sup>2</sup>

Traditionally, patients when presenting to an emergency department (ED) with pain have two routes to management: hospitalization or discharged for outpatient care. However, with the advent of observation units, there is now an opportunity to utilize hospital resources without an inpatient stay,<sup>3</sup> for which, the ED observation units (EDOU) could be an appropriate venue for the management of uncontrolled cancer pain.

In this study, we aimed to define the role of EDOU in the management of cancer pain and define the characteristics and outcomes of cancer patients placed in an EDOU with cancer-related pain.

## Methods

We performed a retrospective observational study that included all patients aged 18 years and older who presented to The University of Texas MD Anderson Cancer Center ED and were placed in the EDOU with uncontrolled cancer pain between 1 March 2019 and 29 February 2020. Excluded were patients aged <18 years, non-cancer patients, patients placed on observation under a primary service outside of the EDOU, and patients for who pain was not the primary reason for observation. Data, including patients' demographics, clinical and cancer-related data, pharmacy data, and EDOU-related data, were collected from the institution's data warehouse and chart manual review. Pain scores were collected from the documented nursing assessments based on the verbal rating scale between 0 and 10, where 0 represents an absence of pain and 10 represents the worst pain a patient can imagine.

Patient characteristics were summarized using descriptive statistics and predictors of the disposition from the EDOU were identified with univariate and multivariate analyses.

## Results

During the study period, there were 28,358 patient visits to our ED. Of the 10,458 patients who had pain as a presenting symptom, 1420 (13.6%) were eventually placed in the EDOU. After applying further exclusion criteria (including pain not being the primary reason for observation), 668 (47.0%) out of the 1420 visits were identified as eligible for analysis (Figure 1).

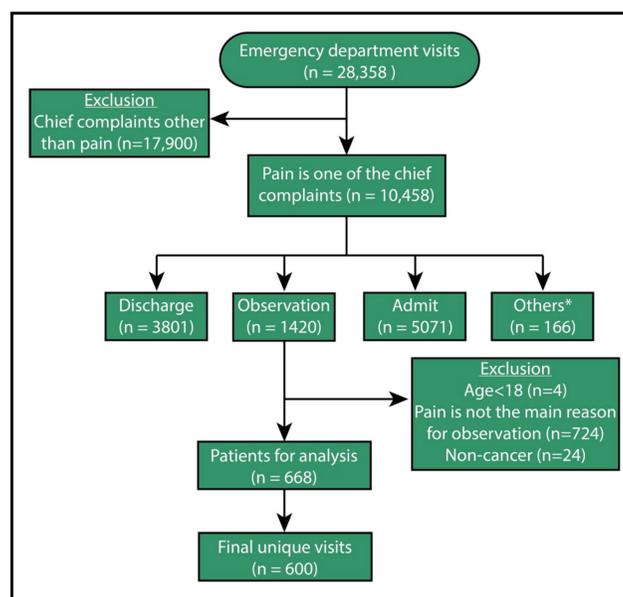


Figure 1. Flow diagram showing the patient selection steps

The median age of the cohort was 59 years (interquartile range: IQR 48–68 years). Breast, lung, and colorectal cancer were the most common cancer types (Table 1). The abdomen (29.0%), back (17.3%), and extremities (15.8%) were the most common locations of identified pain. Associated nausea and/or vomiting was reported in 23.3% of the cases.

Characteristics	No. (%)
Total	600
Age, median (IQR), years	59 (48–68)
Sex	
Female	365 (60.8)
Male	235 (39.2)
Race/ethnicity	
White	351 (58.5)
Black	120 (20.0)
Hispanic/Latino	79 (13.2)
Others	50 (8.3)
Primary cancer type	
Breast	78 (13.0)
Colorectal	56 (9.3)
Lung	48 (8.0)
Sarcoma	43 (7.2)
Endometrial and cervical	40 (6.7)
Lymphoma	38 (6.3)
Pancreas	36 (6.0)
Gastroesophageal	32 (5.3)
Kidney	30 (5.0)
Others	199 (33.2)
Cancer treatment prior to ED visit	
Chemotherapy within 30 days	
No	420 (70.0)
Yes	180 (30.0)
Radiotherapy within 30 days	
No	419 (69.8)
Yes	181 (30.2)
Immunotherapy within 1 year	
No	521 (86.8)
Yes	79 (13.2)
Comorbidities	
Hypertension	281 (46.8)
Diabetes	144 (24.0)
Renal failure	126 (21.0)
Opioid prescription within 45 days prior to presentation	
No	261 (43.5)
Yes	339 (56.5)

Table 1. Characteristics of cancer patients placed in an emergency department observation unit with pain.

Most patients were discharged home (61.8%), and discharged patients had low 72-hour revisit (2.2%). Importantly, patients discharged from the EDOU after pain management had low 14-day and 30-day mortality rates; only 0.3% of discharged patients died within 14 days of discharge (vs. 3.1% of admitted patients,  $P = 0.006$ ), and 1.6% of discharged patients died within 30 days of discharge (vs. 7.9% of admitted patients,  $P < 0.001$ ). Significant predictors of hospitalization were initial EDOU pain score (odds ratio (OR) = 1.12; 95% CI 1.06–1.19;  $P < 0.001$ ) and supportive care (OR = 2.04; 95% CI 1.37–3.04;  $P < 0.001$ ) or pain service (OR = 2.67; 95% CI 1.63–4.40;  $P < 0.001$ ) consultations (Table 2).

Variable	Univariate		Multivariable	
	OR (95% CI)	P	OR (95% CI)	P
Age	1.00 (0.99–1.01)	0.977	1.00 (0.99–1.02)	0.500
Sex				
Female		Reference		
Male	1.07 (0.76–1.50)	0.691	-	-
Race/ethnicity				
Non-white		Reference		
White	0.89 (0.53–1.53)	0.669	-	-
Cancer type				
Hematologic		Reference		
Solid	0.89 (0.53–1.53)	0.669	0.97 (0.54–1.77)	0.924
Established with pain/chronic pain services	1.46 (0.94–2.27)	0.093		
Established with palliative/supportive care services	1.17 (0.75–1.81)	0.497		
Opioid prescription within 45 days prior to presentation	1.77 (1.27–2.50)	<0.001	1.52 (1.06–2.19)	0.024
Chemotherapy	0.74 (0.51–1.07)	0.111	-	-
Radiotherapy	0.68 (0.47–0.98)	0.043	0.68 (0.45–1.00)	0.054
Immunotherapy	0.99 (0.60–1.60)	0.970	-	-
Pain/chronic pain consultation	2.77 (1.77–4.38)	<0.001	2.67 (1.63–4.40)	<0.001
Palliative/supportive care consultation	1.66 (1.16–2.37)	0.005	2.04 (1.37–3.04)	<0.001
Location/type of pain				
Abdominal pain	0.77 (0.53–1.11)	0.170	-	-
Back pain	1.02 (0.65–1.56)	0.946	-	-
Extremities pain	0.99 (0.62–1.54)	0.953	-	-
Chest pain	0.64 (0.34–1.15)	0.149	-	-
Urinary and genital pain	0.74 (0.30–1.66)	0.477	-	-
Initial ED triage pain score	1.07 (1.01–1.14)	0.015	-	-
Initial EDOU pain score	1.16 (1.09–1.22)	<0.001	1.12 (1.06–1.19)	<0.001
Pain difference between initial ED triage and initial EDOU pain score	1.06 (1.02–1.11)	0.009	-	-
Nausea and/or vomiting	0.74 (0.49–1.10)	0.140	0.89 (0.58–1.35)	0.577

Table 2. Univariate and multivariable logistic regression analyses of the association of clinical variables with hospital admission after emergency department observation unit placement.

## Conclusions

Our data suggest that EDOU appears to be an appropriate venue to care for a subsegment of patients presenting to an emergency department with cancer pain with low 72-hour ED revisits and 30-day mortality rates. Placing eligible cancer patients with pain in EDOU creates an optimal care environment than immediate admission or discharge for patients who require significant cancer pain management but may not require inpatient hospitalization for their therapy.

## References

- Rodriguez C, Ji M, Wang HL, Padhya T, McMillan SC. Cancer Pain and Quality of Life. *J Hosp Palliat Nurs*. 2019;21(2):116–123. doi:10.1097/NJH.0000000000000507
- Nersesyan, H.; Konstantin, V.S. Current approach to cancer pain management: Availability and implications of different treatment options. *Ther. Clin. Risk Manag*. 2007, 3, 381
- Chaftari P, Lipe DN, Wattana MK, et al. Outcomes of Patients Placed in an Emergency Department Observation Unit of a Comprehensive Cancer Center. *JCO Oncol Pract*. 2022;18(4):e574–e585. doi:10.1200/OP.21.00478