





## SPECIAL ISSUE ARTICLE

# Hospitalisations of patients with cancer in the last stage of life. Reason to improve advance care planning?

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## Abstract

**Objective:** The aim of this study is to examine why patients are hospitalised in the last stage of life.

**Methods:** Our study was conducted in a large Dutch teaching hospital. We conducted a retrospective chart review of patients aged  $\geq 18$  years who died of cancer either during hospitalisation or after discharge to receive terminal care outside the hospital. We collected data about the characteristics of these hospitalisations and indicators of advance care planning.

**Results:** Of the 264 deceased patients, 56% had died in the hospital and 44% after hospital discharge. Of all patients, 80% had been admitted to the hospital because of symptom distress. Dyspnoea (39%) and pain (33%) were the most common symptoms. Most patients underwent diagnostic procedures (laboratory tests [97%] and radiology tests [91%]) and received medical treatment (analgesics [71%] and antibiotics [55%]) during their hospitalisation. A 'Do-Not-Resuscitate' code had been recorded before admission in 42% of the patients and in an additional 52% during admission.

**Conclusion:** Our study shows that patients with cancer in the last stage of life were mainly admitted to the hospital because of symptom distress. Some hospitalisations and in-hospital deaths may be avoided by more timely recognition of patients' impending death and start of advance care planning.

## KEYWORDS

advance care planning, cancer, end-of-life care, hospital care

## 1 | INTRODUCTION

Most patients with advanced cancer prefer to stay at home when their death approaches (Gomes et al., 2012; Meeussen et al., 2011). However, hospitalisations in the last stage of life are common, and a substantial number of patients eventually die in the hospital. In the Netherlands, where general practitioners (GPs) have an important role in medical care in the last stage of life and where dying at home is

more common than in many other countries, almost half (45%) of the patients are transferred from home and admitted to the hospital at least once in the last 3 months of life (de Korte-Verhoef et al., 2014).

Avoiding hospitalisation is especially important when a patient has a limited life expectancy and prefers to stay at home. It is unclear to what extent hospitalisations in the last stage of life are avoidable taking into account the complexity of the medical problems that may occur in the last stage of life (de Korte-Verhoef et al., 2014;

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Hjermstad et al., 2013). Insight in the reasons for admission and diagnostic procedures and medical interventions used during hospitalisation may help exploring whether hospital admissions are avoidable. Some studies were conducted on the reasons to visit an emergency department at the end of life. Dyspnoea and pain were found as the most common reasons (Barbera et al., 2010; Verhoef et al., 2020). However, studies on the type of interventions used during hospitalisations and the relation with indicators of advance care planning (ACP) are scarce, especially in the Netherlands where palliative care should preferably be provided in the primary care setting instead of the hospital (IKNL/Palliactief, 2017). A population-based observational study in the Netherlands indicated that specific palliative care initiatives may prevent some hospitalisations in the last phase of life (Boddaert et al., 2022). Early and explicit awareness of a patient's poor prognosis and a process of shared decision making about future medical care may be the starting point for personalised end-of-life care and prevention of avoidable undesired hospitalisations (Chen et al., 2017; Gomes et al., 2015).

We aimed to study why patients with cancer are admitted to the hospital in the last phase of life and what happens during such hospitalisations, so that we better understand to what extent they can be prevented. Furthermore, we explored how often indicators of ACP, such as a Do-Not-Resuscitate code (DNR), No-Intensive-Care code and the preferred place of death, were documented.

## 2 | MATERIALS AND METHODS

### 2.1 | Study design

We conducted a retrospective chart review in the Maasstad Hospital, a large general teaching hospital in Rotterdam, the Netherlands. We included all patients aged 18 years or older who had been admitted to the department of Oncology or Lung diseases and died of cancer (solid or haematological malignancies), either during hospitalisation or after discharge for terminal care. In the Netherlands, terminal care is defined as multidimensional care for patients with a life expectancy of 3 months or less. We used the hospital discharge handovers to identify whether patients were discharged to receive terminal care outside the hospital. We collected data, initially from paper records (1 July 2009 to 1 July 2010) and later from electronic records (1 July 2011 to 1 July 2012).

### 2.2 | Data collection

Data were collected from the patients' medical records about demographics, disease characteristics and reasons for admission (maximum of three, categorised as symptom distress [complication of the disease or complication of treatment], newly diagnosed malignancy, social problems or planned treatment), whether they received anticancer treatment at the time of hospital admission and which diagnostic procedures and medical interventions they received during their admission. We looked at evidence concerning indicators of ACP, such as a DNR code and a 'No-Intensive-Care code', which could have been

discussed before or at the time of admission, whether patients' preferred place of death was known and where patients ultimately died. Furthermore, we studied whether a bad news conversation was documented in the medical record. A 'bad news conversation' is defined as a conversation during the last hospital stay where the doctor informs the patient that all anticancer treatment options have been exhausted and that he/she was expected to die soon.

### 2.3 | Data analysis

All statistical analyses were performed with SPSS version 22. Standard descriptive statistics were used.

## 3 | RESULTS

### 3.1 | Patient characteristics

In total, 264 patients were included (55% were male). Patients' mean age was 68.1 years. The median length of stay in the hospital was 8 days (range 0–57 days), and the median time between admission and death was 21 days (range 0–341 days). For patients who were discharged from the hospital, the median time of survival after discharge was 24 days (range 0–341 days). About one-third had lung cancer, whereas a smaller proportion had gastrointestinal cancer (21%), urogenital cancer (14%) or hematologic cancer (11%). One-third of the patients (36%) were being treated with anticancer drugs at the time of their admission to the hospital and/or had a new cycle of treatment planned in the near future. Most patients (80%) were admitted because of symptom distress. Dyspnoea (39%) and pain (33%) were the most common symptoms. Patients could have multiple reasons for admission; 48% (126/264) had two symptoms, and 5% (13/264) had three symptoms; 2% (5/264) of the patients had both social problems and symptom distress (Table 1). Of the 264 patients, 56% died in the hospital and 44% after hospital discharge.

### 3.2 | Received care

Most patients underwent multiple procedures and medical interventions (Table 2). Laboratory (blood) tests were performed in 97% of the patients and radiologic procedures in 91%. The three most frequently used medical interventions included the provision of analgesics (71%), antibiotics (55%) and blood transfusions (19%). Eight percent of the patients were treated with anticancer drugs during their stay in the hospital. Three patients (1%) were admitted to the intensive care unit (ICU).

### 3.3 | Advance care planning (ACP)

A DNR code was found in 94% of patients' files; in 42%, this code had already been recorded before the last admission to the hospital, and

**TABLE 1** Patients characteristics

	Total N = 264	
	n	(%)
Sex, male	145	(54.9)
Age, years (mean ± SD)	68.1 ± 12.5	
Cancer type		
Lung	95	(36.0)
Gastrointestinal	54	(20.5)
Urogenital	38	(14.4)
Hematologic	29	(11.0)
Breast	21	(8.0)
Other	27	(10.2)
Treatment with anticancer drugs at the time of admission	95	(36.0)
Reasons for admission <sup>a</sup>		
Symptom distress (complication of the disease or complication of treatment) <sup>a</sup>	211	(80.0)
Dyspnoea	102	(38.6)
Pain	88	(33.3)
Nausea/vomiting/diarrhoea	60	(22.7)
Fever	32	(12.1)
Other symptoms	68	(25.8)
Newly diagnosed malignancy	37	(14.0)
Social problems (untenable situation at home)	17	(6.4)
Planned treatment	4	(1.5)

<sup>a</sup>Patients could have multiple reasons for admission; 48% (126/264) had two symptoms and 5% (13/264) had three symptoms; 2% (5/264) of the patients had both social problems and symptom distress.

in 52%, it was recorded during this admission. A 'No-Intensive-Care code' was recorded in 89% of the patients' records, in 38% of the cases before and in 50% during admission. Patients' preferred place of death was known for 56% of patients (Table 2). The preferred place was unknown for 115/148 patients (72%) who died in the hospital, while it was documented for 107/116 (92%) of the patients who were discharged for terminal care. Of the 149 patients whose preference was known, 93(62%) died at their preferred place of death: all seven patients who preferred to die in the hospital, 50 out of 71 patients who preferred to die in a hospice (70%), 29 out of 55 patients who preferred to die at home (53%) and seven out of 16 patients who preferred to die at another place. Of the 115 patients for whom their preferred place of death was not known, 8% died outside the hospital (Table 3). A bad news conversation was recorded in the file for 84% of the patients.

## 4 | DISCUSSION

In this retrospective chart study, we found that most patients with cancer who died in the hospital or were discharged for terminal care

**TABLE 2** Characteristics of hospitalisations

	Total N = 264	
	n	(%)
Received care		
Diagnostic procedures		
Laboratory tests	255	(96.6)
Radiology	240	(90.9)
Medical interventions		
Analgesics	188	(71.2)
Antibiotics	145	(54.9)
Blood transfusion	49	(18.6)
Paracentesis for ascites	26	(9.8)
Thoracocentesis	26	(9.8)
Anticancer drugs	22	(8.3)
Tube feeding	20	(7.6)
Stenting (bile duct, oesophagus)	6	(2.3)
Radiotherapy	4	(1.5)
Total parenteral feeding	3	(1.1)
Admission ICU	3	(1.1)
Mechanical ventilation	2	(0.01)
Other (pericardiocentesis, surgery, other invasive treatment)	7	(2.7)
Advance care planning - communication		
Do-Not-Resuscitate code		
Before admission	112	(42.4)
During hospitalisation	137	(51.9)
No-Intensive-Care code		
Before admission	101	(38.4)
During hospitalisation	133	(50.4)
Preferred place of death	149	(56.4)
Bad news conversation documentation	221	(83.7)

Abbreviation: ICU, intensive care unit.

had been admitted because of symptom distress (80%). Diagnostic procedures and medical interventions were used in almost all patients. Furthermore, DNR codes and 'No-Intensive-Care codes' were found for 94% and 89%, respectively, while the preferred place of death was rather often documented for patients who were discharged.

### 4.1 | Reasons for hospital admission and care received

Most patients in our study were admitted to the hospital because of symptom distress (80%). Dyspnoea was the most common symptom (39%). Other studies also showed that symptom distress is the main reason for hospitalisation in the last stage of life (Blaney et al., 2011; Verhoef et al., 2020). Most patients underwent diagnostic procedures and received medical treatment to understand and relieve patients'

Actual preferred	Hospital	Hospice	Home	Other	Unknown	Total
Hospital	7	0	0	0	0	7
Hospice	17	50	1	1	2	71
Home	14	8	29	0	4	55
Other	4	5	0	7	0	16
Unknown	106	1	3	3	2	115
Total	148	64	33	11	8	264

**TABLE 3** Actual versus preferred place of death (N = 264)

symptoms during hospitalisation. This was also found in a Norwegian study on a consecutive sample of 44 patients in the palliative phase of cancer who were admitted to the hospital through emergency departments (Hjermstad et al., 2013). Further, a small percentage of patients (8%) were treated with anticancer drugs during their last admission, which is comparable with a group of 665 veterans patients diagnosed with lung, colorectal or pancreatic cancer who were admitted to a hospital in the last month of life in the United States. Only 1% of our patients were admitted to the ICU. Admission to the ICU is seen as an intensive intervention in the last stage of life that should be avoided when possible (Ahluwalia et al., 2015). In a retrospective cohort study in five countries, 3.5% to 27.2% of patients were admitted to the ICU in the last 30 days of life (Bekelman et al., 2016). The low percentage in our study may be the result of the general awareness in our hospital that ICU admissions do not provide benefit for patients at the end life.

## 4.2 | Acknowledgement and communication of impending death (ACP)

When healthcare professionals (HCPs) are aware of patients' limited life expectancy, they should in principle inform patients and discuss their goals, preferences and options for medical treatment (Rietjens et al., 2017). Such acknowledgement and ACP is associated with less ER visits, less interventions and less hospitalisations in the last stage of life (Barbera et al., 2010; Boddaert et al., 2022; de Korte-Verhoef et al., 2014; Verhoef et al., 2020). We used some indicators of HCPs' acknowledgement of a patient's impending death: the documentation of patients' preferred place of death, DNR codes, 'No-Intensive-Care' codes and bad news conversations. A DNR code was registered before the admission to the hospital for 42% of the patients and a 'No-Intensive-Care' code for 38%. DNR codes are frequently only discussed in the last weeks of life (Liang et al., 2017). In their retrospective cohort study, Temel et al. mainly focused on documentation of a code status (including preferences for DNR) in the outpatient electronic record of patients with a metastatic cancer. The percentage of patients in our study for whom a DNR code was discussed prior to their last hospital admission is higher than the percentage that was found in the study by Temel et al., where 13%(328/2498) of outpatients had a DNR code registered in their medical record (Temel et al., 2010). Preferred place of death is another main topic in ACP (Gomes et al., 2012). Preferred place of death was known for 56% of

patients; 62% of these patients died at their preferred place of death, which is comparable with an Italian follow back survey of 2000 cancer deaths, (67%) (Beccaro et al., 2006). In our study, the preferred place was more often discussed with patients who were discharged for terminal care compared with patients dying in the hospital. It may be better to discuss a patient's preference for place of dying and record it in the medical file in an earlier stage, before hospitalisation.

## 4.3 | Reason to improve advance care planning?

The majority of the patients in our study died in the hospital (56%). In our study in-hospital death is higher, because we only included patients who were hospitalised before death. The percentage of patients dying in the hospital in the entire oncology population in the Netherlands is 29% in 2010 (Bekelman et al., 2016). Hospitalisation in the last stage of life may in many cases contribute to the relief of symptoms and could, in case of a severe symptom burden, offer a good place to die. Some patients feel safer in the hospital, and in others, the relief of symptoms requires complex interventions or they deteriorate so quickly that discharge from the hospital is not in the interest of the patient. Delgado et al. studied clinical characteristics of avoidable and unavoidable visits to an ED for end-stage cancer patients. The investigators found that especially dyspnoea, the presenting symptom in 39%(102/264) of patients in our study, was associated with unavoidable ED visits (Delgado-Guay et al., 2015). In a study among Dutch GPs, they thought that 24% of 319 hospitalisations could have been avoided by ACP (de Korte-Verhoef et al., 2014). However, because of the retrospective design, we were not able to evaluate which last hospitalisations could have been avoided at the individual level.

Although hospitalisation of patients in the last phase of life can be appropriate and beneficial, careful consideration of the need to do so is required. If possible, patients' preferences regarding place of care and place of death, as well as other care preferences, should be timely discussed (Verhoef et al., 2020). This early integration of palliative care in oncology care is recommended to improve the quality of end-of-life care (Kaasa et al., 2018). In our study, indicators of ACP (such as preferred place of death) were mostly documented during patients' last admission. More anticipatory discussions at the outpatient clinic, when patients' health condition is still relatively good, may be preferable (Rietjens et al., 2017). However, timely ACP has been shown to be

difficult to implement in daily practice (Van der Padt-Pruijsten et al., 2021). To stimulate ACP in the outpatient setting, support strategies are needed, for example, by including digital alerts and a dynamic digital ACP plan in patients' medical record. Education is necessary to create awareness that it is important to identify that patients are in the palliative or terminal phase of their illness and that ACP conversations are preferably started in the outpatient clinic early in patients' disease trajectory (Van der Padt-Pruijsten et al., 2021). Multi-disciplinary team meetings, where a treatment plan for all oncology patients is discussed, could facilitate such awareness. Moreover, timely recognition of the last stage of life, for example, based on the surprise question, could support adequate care in the last phase of life by the GP (Downar et al., 2017).

#### 4.4 | Strengths and limitations

A strength of this study is that we included a large consecutive group of patients with cancer who were hospitalised at the end of life and collected solid data on indicators of medical care and ACP. The study also had some limitations. We only used information from patient records; no systematic monitoring of symptoms was applied at admission to the hospital, and information from patients' and/or bereaved relatives' perspectives or HCPs outside the hospital, for example, GPs, are lacking. However, although comprehensive information on symptoms is missing, reasons of admission are mostly clearly documented in medical records. Because of the retrospective study design, we were not able to study underlying considerations for the chosen interventions.

## 5 | CONCLUSIONS

Our study shows that patients with cancer in the last stage of life were admitted to the hospital mainly because of symptom distress, for which various diagnostic and therapeutic strategies were used. Timely identification of patients' impending death is difficult, and instruments for early identification of patients who might benefit of palliative care are needed. This may diminish the frequency of hospitalisations in the last stage of life and thereby enable more patients to die at their preferred place of care.

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#### CONFLICT OF INTEREST

C. van der Rijt received consulting fees from Kyowa Kirin. The other authors declared no conflicts of interest.

#### ETHICS STATEMENT

The Maasstad hospital Institutional Review Board reviewed and approved the study protocol. According to Dutch legislation; written

informed consent of the patients was not required because data were gathered after the patients' death by health care professionals of the hospital and anonymously processed.

#### AUTHORS CONTRIBUTIONS

AP is the principal investigator and conceived the study with TO and ML. AP, TO, RL, CR and AH analysed the data and interpreted the results together. Finally, AP drafted the manuscript, and all authors read and approved the final manuscript.

#### DATA AVAILABILITY STATEMENT

The data of this study are kept by AP and are available upon request.

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