Characterizing Care of Hospice Patients in the Hospital Setting

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Abstract

Background: One measure of quality hospice care is minimization of hospitalization. Few studies have explored reasons for hospitalization and characteristics of care received by hospice patients in the hospital.

Objectives: To characterize the experience of hospice patients in the hospital and determine factors associated with high intensiveness of care.

Design: Retrospective review of patient medical records in the Mayo Hospice Program in 2007.

Results: Of 263 hospice patients, 17% were hospitalized in 2007. Of those hospitalized, 42% percent died in the hospital. Average length of stay was 4 days. Almost half were admitted through the emergency department. Common reasons for admission included delirium, pain, and falls. Most patients (52%) received care of a moderate level of intensity, with 18% receiving the most intensive level of care. Receiving care of high intensity was associated with emergency department admission. Charges to patient accounts averaged over \$9,000 per stay. Concordance of care in the hospital to preexisting patient goals was high, but could not be determined in 39% of cases due to lack of documentation of patient goals.

Conclusions: Hospitalization of hospice patients is costly to the health care system. Most care was of low or moderate intensiveness. Quality improvements focusing on concise communication of patient goals and prevention of pain, delirium, and falls have the potential for the greatest impact on reducing hospitalizations and minimizing care that is discordant with patient goals.

Introduction

ONE GOAL OF QUALITY CARE in hospice programs is to reduce hospitalization, because it is costly, disrupts continuity of care, may result in unwanted medical treatments, and may be contrary to the patient's goals of care. Past studies have shown that hospice enrollment reduces hospitalization frequency,^{1,2} and studies have described national patterns of hospitalization in hospice patients.³ However, little is known about how hospice patients come to receive hospital care or the type of care they receive while in the hospital. It is important to understand the reasons for hospitalization and the types of care received in the hospital to prevent unwanted hospital stays and ensure delivery of care that is concordant with patient goals. This study characterizes the hospice-hospital interface for Mayo Clinic hospice program (MHP) patients in 2007, specifically, the intensiveness of care received in the hospital, the reasons for admission, and factors associated with type of care during hospitalization.

Methods

Human subjects

Subjects who granted permission for personal medical record use in research were included. All data were deidentified. The study was approved by the Mayo Clinic Institutional Review Board (IRB #08-006910, approved October 27, 2008).

Inclusion and exclusion criteria

Patients served in 2007 by MHP were included in database review for calculation of total frequency of hospitalization. For review of types of care in hospitals, participants were limited to adults enrolled in MHP who were admitted for inpatient care to Mayo Clinic Saint Mary's Hospital or Rochester Methodist Hospital in 2007. Exclusion criteria included age under 18 years or refusal to release records for study.

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Standard Care at MHP

The MHP serves a multicounty area in southeast Minnesota. Hospice patients are given instructions to call MHP nurses with symptoms rather than present to the hospital. No other formal disease-specific telephone triage program aimed at reducing hospital stays is currently in place. Use of physician's orders for life-sustaining treatment (POLST) forms are not mandated in Minnesota. All hospice patients are offered the opportunity to create advanced directives at the time of enrollment. Mayo Clinic does not have a separate dedicated inpatient hospice program and hospice patients are admitted to the general medical or oncologic services when inpatient care is needed. The MHP team remains involved in the planning of care for hospitalized hospice patients and collaborates with the primary medical hospital service, but does not write inpatient orders. Palliative care consultation service is available to all inpatients at the discretion of the primary teams. In the year studied (2007), hospice records were not assimilated into the Mayo electronic record.

Data gathering

Hospice enrollee information was gathered from MHP database. Demographic information, reasons for and services provided during hospitalization including tests, treatments, advance directives and documented patient goals were obtained through reviewing hospice and electronic medical records. Monetary charge data were obtained confidentially through the business office.

To understand the nature of care received during hospital stay, we reviewed the medical charts for record of tests, procedures and treatments to determine measures of intensity of care. These measures were divided *ad hoc* into three levels (Table 1). Similar to the framework used by Cintron et al.,³ overall intensity or aggressiveness of care for each hospital stay was determined by the most intensive single test or therapy received during hospital stay, including in the emergency department.

Concordance of care received with preexisting patient goals was determined as a binary judgment by the researchers from reviewing all available documentation of patient goals before or at the time of care, including advanced directives. If there was no clear patient preference documented, we considered those data unknown. Lack of concordance was determined only in cases of clear disagreement between stated patient wishes and care received.

Data analysis

Planned caregiver respite stays were not included in analyses, except those specifically noted in results section. All statistical data were performed using JMP version 7.0.1 (SAS Institute, Cary, NC). The researchers performed statistical analyses with assistance provided by the Mayo Center for Translational Science Activities (please see Acknowledgments).

Ad hoc determined grouping variables included age, race, gender, place of residency, underlying diagnosis, reason for admission, and route of admission. Outcomes included charge to patient account, length of stay, intensiveness of care, and concordance of care received with patient wishes. Route of admission was studied as an outcome in *post hoc* fashion.

Data were described as mean $\pm$ standard deviation (minimum, median, maximum) or percentage as appropriate. Univariate logistic regression was used to compare continuous variables and the dichotomous nominal variable of emergency department admission or other route of admission. For comparison of continuous variables, we used univariate linear regression and analysis of variance (ANOVA), when appropriate. Because of nonparametric distribution of outcome parameters for some continuous variables, tests of association between these and categorical variables included Wilcoxon rank-sum and Kruskal-Wallis tests. Due to small sample size, associations between categorical variables included Fisher's exact test for categorical data summarized in crosstabs. Some patients were admitted to the hospital more than once. Duplicate stays for individuals were excluded from demographic analyses, but no adjustment for lack of independence in analyses was made. Statistical significance was determined *ad hoc* to pertain to *p* values ≤ 0.05 .

Results

Of 263 patients enrolled in the MHP in 2007, 46 (17%) were admitted to any regional hospital, with 33 of those to Mayo Clinic hospitals. Three individuals' records were not reviewed

TABLE 1. *Ad Hoc* DETERMINED CRITERIA FOR STRATIFICATION OF CARE LEVELS

Level of intensiveness	Tests, procedures, and treatments
Minimal	Pain medication Other symptom management medication IV fluids Wound care
Moderate	Phlebotomy for venous or arterial laboratory diagnostic studies X-rays Urinalysis Blood transfusion Electrocardiogram IV antibiotic administration
Maximal	Continuous cardiac monitor unit care Cardiac resuscitation Intubation Computerized tomography or Magnetic resonance imaging scans Biopsy Surgery Paracentesis Thoracentesis Chest tube placement Percutaneous enteral feeding tube placement Endoscopy Central catheter placement Lumbar puncture Cardiac catheterization Noninvasive positive pressure ventilation Cardioversion Dialysis

Each hospitalization was stratified according to the single test, procedure, or treatment of the highest intensity.
IV, intravenous.

due to age under 18 years or prior refusal to allow access to records. The remaining 30 individuals were admitted for 40 total hospital visits. Of those hospitalizations, 7 were prearranged for caregiver respite stays. Two patients had separate respite and nonrespite stays. Twenty-eight individuals with records available for review were admitted a total of 33 times for unplanned (nonrespite) stays.

Of the unplanned, nonrespite stays, mean age at hospitalization was 70.8 years (standard deviation [SD] 15.2). Eighteen were men and 10 were women. Most hospitalized patients were white (27/28), and lived at home (23/28) as opposed to inpatient care facilities. Cancer was the most common underlying diagnosis (23/28), followed by congestive heart failure, (2/28), dementia (2/28) and chronic obstructive pulmonary disease (COPD; 1/28). Average length of nonrespite stay was 4.1 days (SD 3.8). The patient expired in the hospital in 42% (12/28) of cases.

Route of hospital admission

Forty-five percent (15/33) of nonrespite stays were admitted through the emergency department. The remainder were direct admissions to the hospital (52%; 17/33), or hospital to hospital transfers (3%; 1/33). All 7 caregiver respite stays were direct admissions. Patients were more likely to be admitted through the emergency department compared to other means of admission if they were admitted for evaluation of a fall ($p = 0.0015$), if they were of older age ($p = 0.04$), or if they had been enrolled in hospice for a longer time ($p = 0.03$). Admission through the emergency department was not significantly associated with other reasons for admission, gender, or place of residence (Table 2).

Reason for hospital admission

The most common reasons for nonrespite stay admission (more than one was often documented) included delirium (36%; 12/33), pain (31%; 10/33), evaluation of falls (21%;

7/33), and placement to other care settings (18%; 6/33). Less common reasons for hospitalization included anticipated death (6%; 2/33) and treatment of less common symptoms.

Time to first admission

The median time from enrollment in hospice to first hospitalization was 48 days (mean 154, SD 231). Younger age was associated with shorter time to admission ($p < 0.0001$).

Intensiveness of care

During most nonrespite stays (52%; 17/33) the level of care was of moderate intensiveness. In 31% (10/33) of stays, intensiveness of care was minimal, and in 18% (6/33) stays, the patients received the most intensive level of care, including computed tomography (CT) or magnetic resonance imaging (MRI; 4), paracentesis (1), suprapubic bladder catheter placement (1), and percutaneous endoscopic gastrostomy (PEG) tube placement (1). All patients admitted for respite stay received minimally intensive care.

Admission through the emergency department was significantly associated with more intensive care ($p = 0.013$). Expiration during hospitalization was associated with less intensive care ($p = 0.012$). Underlying diagnosis, gender and place of residence did not correlate with care level (Table 3).

Charges to patients

Average hospital costs charged to the hospice program per stay (including respite stays) were \$9,186 (SD \$6,333). Charges correlated with length of stay ($p < 0.0001$), but were not associated with diagnosis, route of admission, reason for admission, intensiveness of care, age, or gender.

Planned respite stays

Respite stay patients tended to get less intensive care than nonrespite stay patients ($p = 0.0001$), tended to be older (range 89 to 101 years, average 93 years, SD 5.7, $p = 0.0007$), and were not admitted through the emergency department. Respite stay status was not associated with lower charges, length of stay, diagnosis, or days to first admission, place of residence, gender or diagnosis.

Concordance of care received to patient goals

When documented in the patient record, care was concordant to documented goals in 15 of 20 (75%) admissions. The care received by patients did not match previously documented patient goals in 5 (25%) admissions. All of those 5 patients had documented desire for tests and treatments with solely palliation as the goal. As tests and/or treatments were performed without clear palliative intent, and without noting patient goals in documentation, these were considered non-concordant. Of those 5 patients, 2 received the most intensive level of care, and the other 3 received intermediately intensive care. Of the patients who received the most intensive level of care, acceptability of the procedure or test to the patient was documented in only one case (venting PEG tube placement for palliative intent.)

Overall, there was a lack of documentation regarding patient wishes; in 13 of 33 (39%) nonrespite admissions, no comment on patient goals was found. Thus, no judgment of

TABLE 2. FREQUENCY OF REASONS FOR UNPLANNED ADMISSIONS TO HOSPITAL

Reason for admission	n	Frequency	Percentage emergency department
Delirium	12	36%	17%
Pain	10	30%	40%
Fall	7	21%	100% ^a
Placement to care facility	6	18%	33%
Seizure	3	9%	67%
Dyspnea	3	9%	0%
Anticipated death	2	6%	0%
Weakness	2	6%	0%
Nausea	2	6%	50%
Hematuria	1	3%	100%
Pruritis	1	3%	0%
Leg edema	1	3%	100%
Total hospital stays	33		

More than one reason per admission was possible, and all relevant documented reasons were included. "Percentage emergency department" column demonstrates frequency of emergency department admissions out of total admissions for that particular reason.

^adenotes statistical significance ($p = 0.0015$).

TABLE 3. FREQUENCY OF LEVELS OF INTENSIVENESS OF CARE PER HOSPITAL STAY BY DEMOGRAPHIC DATA

		n	Intensiveness of care			p
			Min.	Mod.	Max.	
Admission Route	Emergency department admission	15	7%	67%	26%	0.013 ^a
	Non-emergency department admission	18	50%	39%	11%	
Diagnosis	Cancer	25	40%	40%	20%	0.71
	CHF	5	0%	80%	20%	
	Dementia	2	0%	100%	0%	
	COPD	1	0%	100%	0%	
Age	Over 70	17	17%	59%	24%	0.13
	70 and younger	16	44%	44%	12%	
Gender	Male	22	36%	46%	18%	0.49
	Female	11	18%	64%	18%	
Residence	Home	27	33%	45%	22%	0.93
	Care Facility	6	17%	83%	0%	
Expiration	During hospital stay	12	66%	17%	17%	0.012 ^a
	Not during hospital stay	21	9%	71%	20%	
Total hospital stays		33	31%	51%	18%	

See Table 1 for definition of intensiveness.

Min., minimal intensiveness; Mod., moderately intensive care; Max., maximally intensive care; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease.

^adenotes statistical significance.

concordance could be made in those cases. No significant relationship between concordance and any other factor could be determined, including route of admission, diagnosis, reason for admission, cost to patient, or demographic variables.

Conclusion

In our hospice population, hospitalization was uncommon but not rare. The MHP does not have a separate inpatient hospice facility other than in-hospital contracted hospice beds, and thus, patients who might normally be directly admitted to a dedicated inpatient hospice facility were admitted to the general hospital in our study. It is noteworthy that almost half of all admissions were triaged through the emergency department, and these could probably not have been admitted to an inpatient hospice from the ED even if available. Nonetheless, due to these factors our population may demonstrate higher hospitalization rates than expected.

Hospital fees were charged to the MHP and paid by MHP at agreed upon contracted rates, not the patients themselves. It is in the interest of patients, hospices, and the health care system to reduce unwanted or unnecessary hospitalizations to reduce cost.

More than one third of patients admitted died in the hospital setting, similar to that found previously.³ Compared to national data, a smaller percentage than expected received maximally intensive care, although this trend may reflect the small sample size rather than systematic differences.

Since these data were gathered, the MHP has implemented a number of practice changes based on the observations in this study and general MHP-initiated quality improvement measures. MHP nurses accompany patients to the emergency department to partner in decision-making. Direct rather than emergency department admissions are attempted, when possible. Chart audits regarding advanced directives are ongoing. The MHP progress notes are now incorporated into the

electronic medical record to facilitate communication. Upcoming staffing models include preemptive evening phone calls to patients to prevent symptom-related hospitalizations. Further studies are needed to assess the outcome of these measures, and further areas for improvement are clearly still needed. As almost half of hospice patients were admitted through the emergency department, and emergency department admission was associated with more intensive care, the emergency department–hospice interface is an important area on which to continue focused efforts for continuity of care. The difference in type of care given in the emergency department could reflect the fact that patients presenting to the emergency department had more acute or severe symptoms, compared to their directly admitted counterparts. However, it also likely reflects that by necessity, emergency care often must be algorithmic and provided without time to review patient goals of care thoroughly. Collaboration with emergency department groups in end-of-life care education is needed.

There was a notable lack of ready access to patients' hospice status or goals of care in the medical record, posing an even greater challenge to emergency department caregivers. If made readily accessible on the electronic medical record, further use of POLST forms, advanced directives, or other communication tools would help alert emergency department and hospital physicians to the patient's goals. Knowledge of patients' hospice enrollment and overall goals of care would likely improve concordance of care to goals, and may reduce the intensiveness of care in the emergent setting.

As the presenting complaints of the majority of our hospice patients included delirium, pain, and falls, emergency department and hospice groups could focus special attention on contingency plans for addressing these issues. Preparing families of patients to anticipate these specific problems may reduce presentation to the emergency department. Incorporating hospice-specific issues into emergency depart-

ment care algorithms could also enhance care cost effectiveness and concordance to patient goals.

Due to paucity of documentation, concordance to patient goals could not be confidently determined in many cases, and thus intensiveness of care and cost served as outcomes. These are not ideal substitutes, as there are times in which aggressive, costly or intensive care is appropriate for palliation of hospice patients. Hospice enrollment does not necessarily imply that one should not have tests, medication or surgery under certain circumstances. However, these tests and procedures must be done with careful weighing of the palliative value, and desired outcome of the patient. In our small sample, imaging accounted for the majority of maximally intensive care, and in retrospect, many of these test results did not impact the overall course of treatment. One can only postulate that if the caregivers had been aware of the patients' goals and hospice enrollment, they may have taken a different approach.

Respite for caregivers is an important component of total hospice care of patients and their families. In our small sample, respite stay patients were significantly older, which may reflect that their caregivers were more likely to be also advanced in age. Inpatient respite stays, though reimbursed by Medicare, and involving minimally intensive care, proved costly. Investing in non-hospital facilities for respite stays may prove cost effective.

Relatively few published studies have examined the hospice-hospital interface. This study provides some of the first quantitative data characterizing the care hospice patients receive in the hospital, which we hope will lead to development of quality improvement measures in our hospital system and on a larger scale.

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Author Disclosure Statement

No competing financial interests exist.

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