Inpatient Palliative Care Consults and the Probability of Hospital Readmission

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Abstract

Context: Many patients and their families have difficulty making decisions when confronted with complex medical problems. Often their expectations and hopes are beyond what medical science can deliver, and at times their desires seem to conflict with their treatment plans. Additionally, costly tests and treatments with little or no benefit are often explored. Inpatient palliative care consultation services for end-of-life-care planning can help patients navigate this complexity, arrive at a care plan consistent with their personal values, and be good stewards of precious medical resources.

Objective: We conducted a study to assess the effect that one function of our organization’s Inpatient Palliative Care Service—consultation regarding end-of-life-care planning—has on readmission rates. We believed that our study would show that interdisciplinary end-of-life-care planning improves resource use by reducing the probability and rate of hospital readmission.

Methods: We retrospectively reviewed electronic records for Kaiser Permanente HealthConnect at Kaiser Permanente South Bay Medical Center in Harbor City, CA, for 200 consecutive patients referred to our Inpatient Palliative Care Service between November 2006 and February 2010, comparing hospital readmissions between two groups of patients. Members of both groups (100 patients in each) all had an Inpatient Palliative Care consult ordered for end-of-life-care planning; members of group A were seen solely by an inpatient palliative care registered nurse (RN), whereas members of group B were seen by an interdisciplinary team consisting of a physician, a bioethicist, a social worker, an RN, and a hospital chaplain.

Results: We found that with the post-team consultation, readmissions to the hospital per patient per six months after consultation decreased from 1.15 to 0.7 admissions per patient.

Introduction

End-of-life-care planning offers important opportunities for improving patient care and the overall care experience at Kaiser Permanente (KP). These consults provide the opportunity to discuss the patient’s underlying treatment values and any nonmedical concerns. They also provide an interdisciplinary environment for discussing detailed information about the patient’s illness and prognosis.

Patients were deemed appropriate candidates for consultation when their attending physician indicated that there was a need for exploration, discussion, and clarification of goals of treatment, including interpretation of advance directives and Physician Orders for Life-Sustaining Treatment. These were patients and families who faced values conflicts when dealing with complex medical problems. We postulated that our Inpatient Palliative Care end-of-life-care planning team consultations would reduce hospital readmissions. Team participants included a palliative care physician, an inpatient palliative care register nurse (RN) specializing in both end-of-life conversations and in care planning after hospital discharge, a social worker, a bioethicist, and a hospital chaplain. To provide meaningful consults, the team would prepare for the meeting by discussing the case before the consult. Once the meeting commenced, all participants were introduced and explained their roles. The palliative care physician presented medical information clearly and discussed
Inpatient Palliative Care Consults and the Probability of Hospital Readmission

The big picture, reviewing the patient's current medical condition. The inpatient palliative care RN helped explain the patient's medical picture within her scope of practice and assisted the patient and family in discovering their goals and plans for continued care beyond the hospital setting. The social worker reviewed the general plan and goals for the meeting with the patient, family, and team members. The social worker also assessed psychosocial issues, intervening as appropriate. The bioethicist facilitated resolution of values conflicts and provided guidance if the family experienced a conflict when discussing treatment choice. The chaplain addressed any spiritual concerns that the patient and family presented. All team participants provided assistance with interpreting advance health care directives and Physician Orders for Life-Sustaining Treatment when necessary.

The interdisciplinary consult team focused on strengthening patient autonomy by providing in-depth information from multiple professional perspectives. An important goal was better-informed decisions for the patient and family. They were better equipped to consent to beneficial treatment because shared decision making was emphasized and the discussion environment remained patient centered.

Viewed more closely, the interdisciplinary consult addressed many additional issues, including discussing untreated pain and related symptoms of distress; discussing patient and family needs; reviewing prior communication; providing ample time to resolve conflict among clinicians, patients, and families; addressing the divergence of treatment goals from patient and family preferences; reviewing concerns about implied or real delays in implementation of appropriate care plans; and identifying treatments that offer benefits that outweigh burden. Our study, approved by our institutional review board, addressed the question of whether an interdisciplinary end-of-life-care planning team plays an important role in reducing hospital readmission.

Methods

All consults were conducted while patients were hospitalized and included family members and power-of-attorney decision makers. The intervention followed the format outlined in the introduction of this article. Data collection included retrospectively reviewing 200 continuous inpatient cases in which an Inpatient Palliative Care consult for end-of-life-care planning was ordered by an attending physician. All patients were hospitalized at the KP South Bay Medical Center in Harbor City, California, between November 2006 and February 2010. Our data included a 6-month follow-up assessment for all 200 patients to determine the hospital readmission rate for the 6 months after consultation.

The 200 patients represented two distinct groups. For the first 100 cases, comprising group A, a palliative care RN conducted the consult before the advent of a consulting team. For the second 100 cases, comprising group B, consults were conducted by an interdisciplinary team consisting of a continuing care physician, a bioethicist, a social worker, a palliative care RN, and a chaplain. The same nurse (coauthor GR) served in both groups. The rest of the team had and have full-time responsibilities apart from the consult team and took on the extra task without adding any part-time staff or FTEs. About the same amount of time was spent with patients and families in both groups. The RN coordinator made sure all of the same relevant material (ie, the domains) was covered in both settings. The costs associated with each model were roughly equivalent.

All cases were reviewed retrospectively, and data were examined from the patients’ electronic charts. We measured readmission rates collected for both arms of the study and compared group A with group B statistically for both probability and frequency of readmission. We were looking for a decrease in readmission probability of at least 30% per patient consulted for group B and likelihood of a 20% drop in hospital readmission for group B of at least 95%. Sample size was determined by the total number of patients consulted by the palliative care RN for end-of-life-care planning.

Results

Figures 1 and 2 show our findings. The patients in the two groups were matched by virtue of having a consultation with Inpatient Palliative Care for end-of-life-care planning formally ordered by their attending physician. Group A was the control group. The patients in group A did not have a consultation with an interdisciplinary team for end-of-life-care planning; instead a palliative care RN conducted the consult. Group B was the test group. The patients in group B did have a consultation with an interdisciplinary team for end-of-life-care planning.

Some of our patients died during the six-month period, yet for our study, we focused on readmission. When our patients died
after consultation and during the six-month review period, it was only important for this study to note whether they were readmitted before they died in the hospital during that readmission. None of our patients were counted twice if their admissions were eight months apart and received two consultations or had a consultation in both group A and group B. Readmissions per patient per six months were recorded, and the probability for readmission was calculated. Probability analysis, using Bayes’ theorem, gave us an estimate for hospital readmission for each patient who had a consultation, six months after that consultation. Probability analysis also estimated the probability of a hypothesis, in our case “readmission,” using a formula for calculating odds and likelihood ratios.5,6

Group A yielded 1.15 readmissions per patient per six months after consult, generating a Bayesian probability of readmission for each patient consulted of 73%. Group B consultations yielded 0.70 readmissions per patient per six months after consult, generating a Bayesian probability of readmission for each patient consulted of 33% (Figures 1 and 2).

Group B results were statistically evaluated using a one-sample, one-tailed t-test. Using an interdisciplinary consult team, we calculated the mean decrease in hospital readmissions, with \( t = 2.056 \) (critical value for \( t_{0.05, 100} \) was 1.984). Thus, we estimated a >95% likelihood (\( p = 0.025 \)) that the mean reduction of hospital readmissions is 20%, and the likelihood of this occurring by chance alone is <5%. No confounders were identified for this study.7-10

Discussion

Creating moral space for discussion within the health care delivery system is progressively becoming an integral part of the medical enterprise.11 As Gawande wrote, the conversations that occur within the moral space of modern medicine present “… a clear understanding of the limits and possibilities of medicine and realize this understanding to be more of a process and not an epiphany.”12 The patients for whom this process works best are those who need to clarify treatment goals and often need to focus on end-of-life issues. Interdisciplinary consultations help the patient and family understand the possibilities of medicine, discuss treatment values, discuss nonmedical concerns, repair conflicts in the decision-making process, and decide about intensity of treatment, in addition to providing guidance in those contexts when treatments provide little quantitative benefit to the dying patient.13 Interdisciplinary-team consultation can help define a patient-centered goal that helps the patient understand the benefit of an intervention and diminishes the possibility that medical interventions become isolated from the larger clinical picture.14

Our study compared two consultation methods. Data for group B showed that the consultation we offered provided the depth and thoroughness of interdisciplinary consultation and also played an important role in reducing number of days of hospital use by reducing hospital readmission.15

Greatly significant in our study was when an interdisciplinary consultation team was used, readmissions to the hospital per patient per 6 months after consultation decreased from 1.15 to 0.7 admissions per patient; the probability of readmission for each patient consulted decreased from 73% to 33% for each patient consulted. In addition to the probability of readmission, our \( t \)-test results indicated that the mean reduction of hospital readmissions is 20% and that the likelihood of this occurring by chance alone is <5% (\( p = 0.025 \)). Therefore, on the basis of Zhang et al,16 we concluded that the consultations drove the difference.
The cost savings produced by reduced hospital readmission, calculated by using the average hospital adjusted expense per inpatient day for California patients, comes to $49,226 per 100 patients consulted. A retrospective analysis of 155,474 hospitalizations between 2002 and 2005 at 17 Northern California KP hospitals yielded a median length of stay for all hospitalizations of 2.8 days, with an interquartile range of 1.3 to 5.1 days. Applying this KP data to the average hospital adjusted expense per inpatient day for California patients a potential savings is possible between $63,994 and $251,053 per 100 patients who had a consultation with an interdisciplinary team.

Future investigations might include a prospective trial in which the study design could rely on a logistic-regression model examining wider categories of data. Patient characteristics such as age, sex, diagnoses, palliative care, and hospice care could potentially allow a refinement of where the benefit of end-of-life-care planning would yield the greatest benefit. It would also be helpful for future studies to directly correlate the effect of early consultation intervention on patient survival and the connection between early introduction of end-of-life-care planning and the mitigation of unnecessary and burdensome personal and societal costs.

In addition, much work is still needed to find ways of using objective metrics to measure worth and value for qualitative services provided by inpatient palliative care end-of-life-care planning consultation services. Care must be exercised, though, as quantitative metrics can never completely characterize the essence of a positive health care experience. We must continue to look for practical opportunities that help us provide the benefit that comes from interdisciplinary consultation. Interdisciplinary end-of-life-care planning consultation is an important way for KP to enhance the care experience, help with patients’ decision making, and to improve relationships between clinicians and patients.

Disclosure Statement
The author(s) have no conflicts of interest to disclose.

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References