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The Business Case for Palliative Care: Translating Research Into Program Development in the U.S.

J. Brian Cassel, PhD, Kathleen M. Kerr, BA, Noah S. Kalman, MD, MBA, and Thomas J. Smith, MD, FACP, FASCO, FAAHPM

Massey Cancer Center (J.B.C., N.S.K.), Virginia Commonwealth University, Richmond, Virginia; Kerr Healthcare Analytics (K.M.K.), Mill Valley, California; and Johns Hopkins University (T.J.S.), Baltimore, Maryland, USA

Abstract

Specialist palliative care (PC) often embraces a “less is more” philosophy that runs counter to the revenue-centric nature of most health care financing in the U.S. A special business case is needed in which the financial benefits for organizations such as hospitals and payers are aligned with the demonstrable clinical benefits for patients. Based on published studies and our work with PC programs over the past 15 years, we identified 10 principles that together form a business model for specialist PC. These principles are relatively well established for inpatient PC but are only now emerging for community-based PC. Three developments that are key for the latter are the increasing penalties from payers for overutilization of hospital stays, the variety of alternative payment models such as accountable care organizations, which foster a population health management perspective, and payer-provider partnerships that allow for greater access to and funding of community-based PC.

Keywords

Palliative care; finance; health economics; payment reform; policy

Introduction

In his famous “Escape Fire” speech, Dr. Donald Berwick diagnosed the foundational problems with the U.S. health care system and articulated a vision for its transformation. He stated that for a comprehensive solution to succeed and be broadly adopted today, it must make sense from four distinct perspectives:

Whatever “escape fire” [revolutionary innovation] we create has to make sense in the world of science and professionalism, in the world of the patient and family, in the world of the business and finance of health care, and in the world of the good,

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Address correspondence to: J. Brian Cassel, PhD, 1101 E Marshall Street, Box 980230, Richmond, VA 23298, USA. JBCassel@VCU.edu.

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kind people who do the work of caring. I think the toughest part of this may be in terms of the business and financing of care. There is a tendency to assume that financial success—e.g., thriving organizations—and great care are mutually exclusive. However, we will not make progress unless and until these goals become aligned with each other.” [emphasis added].¹

This is certainly true of the field of palliative care (PC). The clinical-moral imperative that has driven innovators and practitioners in the field is necessary but insufficient for catalyzing and sustaining wide-spread investment in PC programs. Unless and until stakeholders—health system administrators, physicians, and payers—perceive a clear path to the financial viability of specialist PC programs, they will not support fully the development of such services.^{2,3} Clinical leaders who have struggled for years to garner support for PC services can attest to the degree to which the misalignment of clinical and financial incentives has stymied the creation and expansion of specialist PC services. This phenomenon has been explored in at least one national study: in a survey of cancer centers in the U.S., financial issues were the most-often perceived barrier to PC program implementation.⁴

The Clinical-Financial Disconnect

Why is there such misalignment between clinical and financial interests? The U.S. health care system is fundamentally rooted in a fee-for-service (FFS) model, where third parties compensate providers for each service delivered to patients. In such a system, there is a direct correlation between the quantity and intensity of health care provided and the amount of revenues collected by systems and individual providers—more activity (procedures, tests, and hospitalizations) results in more revenue. In contrast, the field of PC uses a “less is more” philosophy, where attention to patient and family needs and clarification of care goals often lead to reduced use of the most expensive health care services (such as inpatient admissions and emergency department [ED] visits) and increased use of less expensive services (such as home-based services).

With hospice, insurers cut through this obstacle by offering an entirely separate benefit that is mutually exclusive with continuation of disease-focused health care. The business case for specialist PC outside the hospice is more complex and more subtle, in part because PC needs to be provided concurrently with disease-focused therapies, rather than in the “either/ or” forced choice inherent in the current regulations of the Medicare Hospice Benefit.

From the perspective of a hospital entrenched in the FFS reimbursement model, shifting activity away from hospital care does not make much financial sense. In a description of the Advanced Illness Management Program developed by SutterHealth, a program leader noted that although the intervention was successful in increasing hospice utilization, reducing hospitalizations and lowering costs of care, the misalignment of quality and financial incentives posed a serious challenge: “The current reimbursement system does not pay for Advanced Illness Management-type services, such as care coordination and hospital-to-home transition. Reduced hospitalizations cost Sutter hospitals more in lost revenue than they gain from dollar savings.”⁵

The goal of this article is to help insurance and hospital executives, PC leaders, and policy makers to understand the extent to which the clinical/moral and financial imperatives for PC are actually aligned and the congruence between positive clinical and financial outcomes. Although numerous studies have documented the impact of PC on costs,⁶⁻⁹ no prior article has presented a comprehensive assessment of the financial or business imperative for PC and how it could be aligned with the clinical/moral imperative. Drawing on the published literature and our technical assistance work with hundreds of PC programs over the past 15 years, we articulate the 10 principles that together create the economic rationale for specialist teams to provide an additional layer of support for patients (and families) facing progressive life-limiting diseases. These principles also refer to and reflect the increasing importance of the pay-for-quality movement that is slowing supplanting the FFS model.

The 10 Principles of the Business Case for PC

Principle 1

Persons with serious illness, especially those with progressive life-limiting diseases [and their families] are at risk for pain and suffering from multiple sources; PC helps prevent or improve those outcomes.

The business case for specialist palliative care (SPC) begins with the clinical case. Without a clinical imperative, there would be no need for a financial model; recall that the national Medicare Hospice Benefit followed (by eight years) the founding of the first hospice in the U.S. Voluminous evidence speaks to the extent to which patients with serious illness and their families suffer; there is equally strong and abundant evidence of how SPC services help to mitigate or even prevent that suffering.¹⁰⁻¹⁶

Principle 2

Persons with progressive life-limiting diseases often have heavy utilization of expensive health care services (e.g., ED visits, frequent and lengthy hospital admissions), some of which are avoidable. These use of patterns are often evident in the last months of life but may occur earlier in the disease course.

The literature on this, too, has become voluminous; three studies are worth highlighting. A recent study showed that one-half of older Americans go to a hospital ED in the last month of life; once there, three-quarters are hospitalized; and of those hospitalized, more than two-thirds die in the hospital.¹⁷ For three major diseases, Medicare patients are increasingly receiving intensive care unit (ICU) care in the last month of life, and more than one-quarter of those dying in hospice care have received hospice for less than three days.¹⁸ This utilization of hospital services at the very end of life would be acceptable if such care was aligned with patient and family preferences. Unfortunately, this is not the case: studies continue to show that the proportion of people who die in hospitals and nursing homes exceeds the proportion of those who identify these sites as their preferred location of death.¹⁹ Worldwide, more than 80% of people want to die at home.²⁰

Principle 3

Hospitalizations toward the end of life tend to be lengthy and costly; these can result in negative fiscal outcomes for hospitals and payers, in both FFS and risk-based revenue models.

Published studies have documented the duration and cost of hospitalizations near the end of life, which have clear implications for payers.^{6,7,21,22} But studies on either hospital costs or on payer expenditures do not in themselves describe whether the reimbursement from payers to hospitals results in positive or negative financial outcomes for the hospitals—are they breaking even or experiencing positive or negative margins? One needs to know both parts of the equation, but such results are not usually published. To understand the magnitude of financial risk for both payers and providers, we present below some data from the Virginia Commonwealth University (VCU) Health System, which contrasts hospital costs and reimbursements (payer expenditures) across three groups of Medicare beneficiaries: those who died in the hospital, those with very serious illness and high mortality risk, and all other admissions (Fig. 1).

Reimbursement for the cases in the first two groups (deaths and high-risk survivors) is around three times greater than that seen in the “all other” group, representing the burden on Medicare; but even more striking is that Medicare’s reimbursement falls short of the actual costs incurred by the hospital. The net loss for hospitalizations of Medicare patients at this hospital for that year was driven entirely by the 16% of cases that ended in death or had high risk of death—cases that may be PC relevant.

Another analysis of VCU data depicts the worsening net margin among cancer and congestive heart failure (CHF) admissions in the six months before death (Fig. 2). As this graph indicates, the FFS reimbursement model for inpatient care does not guarantee a positive net margin. With the inpatient prospective payment system that Medicare uses (and which is emulated by many other payers), the amount of reimbursement per case is predetermined by the clinical and utilization characteristics that are used in the diagnosis-related group (DRG) classification system. Within any given DRG, a hospital may have a positive net margin if their costs are low but a negative margin if their costs exceed the predetermined payment. Hospitals may be unaware of the extent to which end-of-life care is driving such losses; in our experience, most hospitals conduct their financial analyses by major disease *groups* (e.g., cancer, cardiology, neurological) and not in terms of disease *course*. As pay-for-performance and shared savings programs become more prevalent, financial analytics will have to adopt this population health management perspective.

Analyses such as these may reveal previously under-appreciated financial risks for hospitals regarding the unprofitability of near-end-of-life hospitalizations (i.e., those ending in death or that occur in the last few months of life). It may be that some hospitals would rather examine contribution margin (reimbursement minus direct costs) rather than net margin (reimbursement minus total costs), but the principle is the same—long resource-intensive admissions toward the end of life may not be generating the kind of positive net margin that hospitals see for the bulk of their admissions. Further research is certainly warranted on this

issue of the net margin for hospitalizations near the end of life, taking into account both hospital costs incurred and payer expenditures.

Principle 4

Hospitals are penalized by payers, notably the Centers for Medicare and Medicaid Services (CMS), for high 30-day readmission rates, 30-day mortality rates, and similar measures; a significant portion of this is driven by care at the end of life.

In a major shift, CMS is now penalizing hospitals for excessive rates of hospitalizations associated with poor coordination of care (high readmission rates) and poor quality (high 30-day mortality rates). Medicare has two separate programs in effect. In the Readmission Reduction Program at issue is the rate of readmissions within 30 days for initial hospitalization for specific conditions or procedures.²³ When the program started in federal fiscal year (FFY) 2013, the penalties were as much as a 1% reduction in DRG payments, and penalties have increased to up to 3% for FFY 2015. It is important to note that the penalty affects all Medicare hospitalizations for a given hospital, not just the conditions used to measure performance. The Kaiser Foundation reports that 2610 hospitals are being fined in 2014 and that 39 hospitals are receiving the highest penalty of 3% of payments.²⁴ In Maryland, the last state in which Medicare pays for hospitalizations without DRGs, reimbursement is now fixed per hospital per year so that Medicare will not pay for any additional hospitalizations, thus having the same effect.²⁵

The second program is the Value-Based Purchasing Program, which increases or reduces payments to acute-care hospitals—up to 1.25% currently, increasing to a maximum of 2.0% by FFY 2017.²⁶ An overall score for a hospital is based on its performance on process measures, outcome measures (including 30-day mortality rates for three conditions), and patient experience (satisfaction); outcome measures recently increased to 40% of the total score. Like the readmission program, Value-Based Purchasing affects all acute care payments from Medicare for a given hospital, not just payments for the conditions used in the metrics.

From a hospital finance perspective, a single end-of-life hospitalization can have all three unwanted characteristics: it can produce a negative net margin, it can be a readmission from a prior hospitalization, and it can be associated with death within 30 days.²⁷

Led by CMS, the largest health care payer in the U.S., payers are slowly shifting from paying for quantity to paying for quality; CMS has announced that by the end of 2018, 50% of Medicare payments will be tied to quality or value²⁸ through alternative payment models or value-based payments. The implications for hospitals are clear: business as usual is beginning to shift, opening up greater alignment between the clinical and nonclinical outcomes for the field of PC (although some of the metrics used by CMS to date focus on sudden conditions such as acute myocardial infarction for which PC is not involved). PC has always been associated with quality and has been shown to have a mitigating effect on overutilization of some types of health services. Indeed, many measures of quality, such as those endorsed for cancer end-of-life care by the National Quality Forum,²⁹ make an explicit link between quality and overutilization of some types of health care services

(hospitalizations, ICU stays, and ED visits) and underutilization of other services (such as hospice and PC). The attention that payers are giving to measures of overutilization presents a clear opportunity to the PC field, which can demonstrate that some of these admissions and readmissions near death could be avoided through better outpatient and home-based care. This represents a different interpretation of what kind of quality the 30-day mortality measure purports to be monitoring.³⁰ A high rate of 30-day mortality for CHF admissions may not represent poor quality of *inpatient* CHF care; but it could very well represent poor quality of *ambulatory* CHF care or inadequate access to early PC.

Principle 5

Community-based PC (CBPC) improves symptoms, coordinates care, and reduces ED visits and hospitalizations in the months before death.

Hospice care is being used very close to the time of death,^{18,31} and inpatient PC can only be provided once patients are hospitalized. Thus, there is a profound need for nonhospice PC to be provided in the weeks and months before death, in settings outside the inpatient hospital—what is being termed CBPC. Rabow et al.³² summarized the evidence that CBPC reduces hospital utilization while improving patient-reported outcomes, such as distress, symptom management, and satisfaction with health care. Dramatic growth and interest in CBPC in the past few years is driven by the recognition that inpatient PC alone is insufficient and by the compelling evidence from randomized controlled trials of home-based PC³³ and of outpatient clinic-based PC.³⁴ We discuss the financial implications of CBPC in Principle 9.

Principle 6

Inpatient PC improves symptoms, coordinates care, and reduces the cost of hospital admissions that do occur.

Numerous studies provide evidence that inpatient PC consultation services and units improve symptoms^{10–13,35} and reduce hospital costs^{6–9,36} in the days after consultation, and this finding is not limited to decedents.³⁷ The key to understanding the business case for inpatient PC is to understand whose costs are saved—are hospital cost savings passed on to payers? Largely, no—because of the payer mix, payers' reimbursement structures for inpatient care, and the timing of PC involvement within a hospitalization.⁹

- *Payer mix.* According to one multisite study, the payer mix for inpatient PC is about 70% Medicare, 11% Medicaid, and less than 20% all other—commercial, health maintenance organizations, preferred provider organization, Tricare, self-pay, indigent, and so on.³⁸
- *Structure of reimbursement for the predominant payers.* Medicare and most states' Medicaid reimbursement for hospital care is paid through DRGs or similar per-case mechanisms.³⁹
- *Timing.* Extended lengths of stay are often a trigger for PC consultation,^{40,41} and several articles have described a significant proportion of PC referrals occurring only after a week or more of hospitalization has passed.^{38,42–45}

Consider a scenario in which a patient was admitted to the ICU from the ED and remained in that unit until the PC team was consulted on Hospital Day 8. The PC intervention could reduce costs in the days after consultation but could not affect the costs of procedures or ICU use that occurred during the first eight days: and it is very likely that the patient's diagnosis and the utilization that occurred in Hospital Days 1–8 would determine the DRG designation and, therefore, reimbursement—these would not be changed by a PC intervention that began on Day 8. If the PC intervention results in clarification of goals and alteration of treatment plans such that the patient is transferred out of the ICU and into a less expensive unit, the cost savings that the hospital sees are real, because the payment is already fixed (set) regardless of actual costs. Conversely, in such a scenario, cost savings would not be passed on to payers who use a DRG-based fixed payment system because their payment or expenditure was prospectively determined and is not linked to the details of the services rendered.

There is some evidence that inpatient PC indirectly helps to influence postdischarge utilization to the extent that it increases access to CBPC or hospice,^{42,46} and such changes would reduce payer costs. Similarly, it is possible that PC involvement early in a hospitalization could affect what procedures are done, thus affecting the DRG assignment and payer expenditures. But overall, there is a strong incentive for hospitals, but no incentive or only a weak one for payers, to invest in *inpatient* PC.

Principle 7

In the *usual FFS model*, third-party revenue for PC services covers only a portion of the full cost of a multidisciplinary PC team, so subsidies or new contractual approaches are needed.

Services that are provided to patients with progressive diseases often generate substantial clinical revenues (e.g., chemotherapy for cancer; surgery and implanted devices for cardiac care), whereas revenues for PC are quite modest. CMS and most commercial plans do not offer any supplemental payments or special benefit packages to health systems for providing PC. Specialists who can bill for their services are reimbursed at the modest rates for evaluation and management visits, but such billings are typically insufficient to cover the entirety of salary and benefit costs of the multidisciplinary team.⁴⁷ This is the case for both inpatient and community-based services. Moreover, some core PC team members—registered nurses, many hospital-based social workers, and chaplains—cannot bill third parties despite their central role in providing interdisciplinary PC. The inadequacy of clinical revenue may be exacerbated by poor billing practices⁴⁸ and/or the increasingly competitive salaries required for recruiting and retaining PC specialists. Therefore, specialist PC programs often need a funding source other than (traditionally structured and priced) clinical revenue to support the full costs of their interdisciplinary teams.⁴⁷

It is important that PC programs be able to describe or project the cost of delivering care, as well as the direct cost savings and indirect financial contributions the program will make.⁴³ Understanding the full cost of the PC intervention and the full spectrum of expected (or actual) benefits is a prerequisite to securing program support from a health system or a service contract from a payer. Tools are available to help institutions estimate their costs and benefit.^{49,50}

Principle 8

For hospitals, the combined value of lower costs and operational impacts from *inpatient* PC almost always exceed the cost of staffing the service (positive return on investment); this would be applicable in both FFS and risk-based revenue models.

Because inpatient PC reduces costs in the context of case-rate payments (see Principles 3 and 6), and the relative ease with which the cost reduction can be measured and attributed to SPC involvement,⁷ it is fairly easy for inpatient PC programs to demonstrate that they produce cost savings greater than the subsidies needed for the multidisciplinary team. An example in a published article was provided by Morrison et al.,⁴³ in which financial impact was estimated at greater than four times more than the investment for program personnel. Similar estimates at VCU have resulted in a return on investment of greater than five times the investment. All that is required is a quantification of two things—cost savings caused by SPC involvement, and the annual amount of PC program funding that is not covered directly by third-party reimbursement.

Principle 9

The return on investment for CBPC depends on the degree to which fiscal and quality incentives are aligned; in general, entities that are at risk for high cost care at the end of life have the greatest incentive to invest in CBPC.

Although the return-on-investment analyses for inpatient PC are relatively straightforward, the issue is a bit more complex for CBPC. As shown in Principle 5, early engagement of PC may help to prevent hospitalizations by making them unnecessary—through better symptom management and care coordination, for example. From a payer perspective, the cost savings may be real and significant, a circumstance that has fueled a number of payer-provider partnerships to deliver CBPC.^{51–54}

Why would a health system or hospital invest in such a CBPC? One scenario is that the hospital realizes that the status quo for end-of-life care is resulting in negative net margins and that it is being penalized for readmissions and 30-day mortality admissions; even in a traditional FFS context, that hospital may recognize that the clinical and financial incentives for CBPC are already aligned (see Principles 3 and 5). Alignment is much more likely in hospitals that are part of alternative payment methodologies, such as health maintenance organizations, shared savings programs, and accountable care organizations (ACOs), in which there is a stronger and more explicit reward for minimizing overutilization of the costliest health care services.⁵⁵ Indeed the push to overcome barriers can come from health plans, which have a strong interest in controlling their expenditures, and providers.^{56–58}

Although the primary purpose of CBPC is to proactively manage symptoms, prevent and alleviate distress, and coordinate care more effectively, there is a strong need to align these patient-centered outcomes to an entity's financial interests to get programmatic support—budgetary, political, and operational. This must include quantification of the costs and revenues associated with reducing some forms of health care, such as hospitalizations; increased costs and revenues associated with increasing other forms of health care (e.g., CBPC, home health, hospice); reductions in unwanted penalties from overutilization (e.g.,

30-day morality admissions); and, where relevant, the financial rewards of more efficient care, for example, when entities have risk-bearing contracts, or are part of an ACO.

Health care reimbursement is a moving target. As payers and providers continue to coevolve in the context of their changing symbiotic relationships, we will continue to see new structures for sharing savings and sharing risk, which create incentives for bending the cost curve while maintaining quality and patient-centered outcomes. Understanding the role of CBPC in this, and quantifying projected and actual impacts, is not a one-time event; it is a process that must be done continually.

Principle 10

All types of health care organizations can evaluate opportunities for and impact of PC.

Although much of the evidence cited here has come from studies and systematic reviews conducted at academic centers, we believe that the essential pieces of data could be analyzed by any community hospital, integrated health system, or insurer. Many of the analyses regarding inpatient PC are well established and have been translated to inpatient SPC programs of all sizes nationwide through the “Palliative Care Leadership Center” technical assistance program, operated by the Center to Advance Palliative Care since 2004.⁵⁹ Emerging data-based approaches to planning and evaluating CBPC programs have been made available as well.^{49,50}

Use of These Principles

There are several ways that these principles can be put to use. First, we would encourage researchers to note that there are some principles for which the published empirical evidence is rather thin. Three areas stand out: the impact of CBPC in noncancer populations; how much of a PC program’s budget is covered by clinical revenue (in the context of third-party reimbursement); and the worsening financial margin for hospitalizations closer to the date of death (in the context of third-party reimbursement). An obstacle to research on the latter two is that health systems treat their revenue data, and their net margin, with greater secrecy than their cost data alone. But in the FFS environment, knowing the costs of care *relative to revenue* is a key issue in understanding the sustainability of the status quo or of innovations.

Second, these principles can provide the framework for program-specific business plans. Each component of this model can draw on institutional data—describing the clinical need for new or expanded SPC services; the potential or actual impact of inpatient and/or community-based SPC; the anticipated or existing gap between third-party revenues and the program budget; the intensity and cost of various kinds of inpatient hospitalizations and the use of hospital care in the months leading up to death for various disease groups. These components can then be pulled together into a cohesive plan that makes a compelling argument for administrators to consider. It is important for SPC leaders to understand these principles to make their case in a clear and internally coherent way and equally important to know where their institution stands in the shifting health care reimbursement landscape. Is it entrenched in the FFS model or transitioning to the population health management and pay-for-quality model? The answer will have significant implications for how much traction one

can expect for various pieces of the business case. It may be most difficult to get traction for CBPC in an institution that is firmly entrenched in the FFS model—for example, not participating in ACOs or other payer initiatives that would welcome more efficient patient-centered health care.

Third, we have found repeatedly that neither researchers nor hospital administrators necessarily believe that research findings produced at another institution are valid and relevant at one's own. Local data are almost always needed to make the business case for such programs, and then published data are used to validate and support the local findings. However, any health system that uses this or a similar framework should recognize that producing local evidence for some of these principles (e.g., ED visits and hospitalizations increase in frequency and cost toward the end of life) will demand some sophisticated financial analyses. Technical assistance materials are now available from a variety of sources including the Center to Advance Palliative care (<https://www.capc.org>), the California State University Institute for Palliative Care (csupalliativecare.org), and the California Coalition for Compassionate Care (<http://coalitionccc.org/tools-resources/palliative-care/>).

Limitations

Beyond the paucity of evidence of some principles as described earlier, the major limitation of this synthetic review is that the findings cited are largely from nonexperimental studies and thus subject to the weaknesses inherent in observational research, such as the potential for selection bias.⁶⁰ Researchers using nonexperimental methods have used several techniques including the use of an instrument variable and using propensity scores to control or select matched comparison cases.^{61–64} A recent article that used a large number of clinical and demographic characteristics in its propensity-based matching found a significant effect of PC involvement on cost reduction among hospitalized cancer patients.⁴¹

Conclusions

In the U.S., health care is often performed as a set of business transactions, and the health system is both revenue centric and hospital centric. In that context, the easiest innovations for providers (physicians and hospitals) to implement are those that generate more revenue from payers than the costs the providers incur. A special business case for PC is necessary because the specialist teams cost more than they produce directly in revenue, and in fact PC involvement may reduce hospitalizations, which are the primary source of revenue for hospitals.

The U.S. health care system may be unique in the extent to which it applies capitalistic principles to health care, but the development of PC is a global phenomenon. Some of the principles are universal—such as the clinical imperative—whereas others may be uniquely relevant in the FFS context that underlies so much of the U.S. health care system.

The business case for inpatient SPC is well established and is reflected in the rapid growth of SPC programs in more than 60% of U.S. hospitals.⁶⁵ The business case for community-

based SPC is emerging and is most relevant where health systems are partnering with payers to deliver more efficient patient-centered high-quality care.

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References

- Berwick, DM. Escape fire: Lessons for the future of health care. 1999. Available at: http://www.commonwealthfund.org/usr_doc/berwick_escapefire_563.pdf. Accessed November 25, 2014
- Meier DE. Increased access to palliative care and hospice services: opportunities to improve value in health care. *Milbank Q*. 2011; 89:343–380. [PubMed: 21933272]
- Meier DE, Cassel JB. Palliative care's positive outcomes. *Trustee*. 2011; 64:10–14. 1. [PubMed: 21491832]
- Hui D, Elsayem A, De la Cruz M, et al. Availability and integration of palliative care at US cancer centers. *JAMA*. 2010; 303:1054–1061. [PubMed: 20233823]
- Meyer H. Changing the conversation in California about care near the end of life. *Health Aff (Millwood)*. 2011; 30:390–393. [PubMed: 21383348]
- Smith S, Brick A, O'Hara S, Normand C. Evidence on the cost and cost-effectiveness of palliative care: a literature review. *Palliat Med*. 2014; 28:130–150. [PubMed: 23838378]
- May P, Normand C, Morrison RS. Economic impact of hospital inpatient palliative care consultation: review of current evidence and directions for future research. *J Palliat Med*. 2014; 17:1054–1063. [PubMed: 24984168]
- Smith TJ, Cassel JB. Cost and non-clinical outcomes of palliative care. *J Pain Symptom Manage*. 2009; 38:32–44. [PubMed: 19615625]
- Cassel, JB. Palliative care's impact on utilization and costs: implications for health services research and policy. In: Kelley, AS.; Meier, DE., editors. *Meeting the Needs of Older Adults With Serious Illness: Challenges and Opportunities in the Age of Health Care Reform*. Springer; New York: 2014. p. 109-127.
- Hanks, G.; Cherny, NI.; Christakis, NA., et al. *Oxford textbook of palliative medicine*. 4th. Oxford University Press; New York: 2009.
- Bruera, E.; Higginson, IJ.; Ripamonti, C.; von Gunten, C. *Textbook of Palliative Medicine*. Oxford University Press; New York: 2009.
- Ferrell, BR.; Coyle, N. *Oxford textbook of palliative nursing*. Oxford University Press; New York: 2010.
- Luckett T, Phillips J, Agar M, et al. Elements of effective palliative care models: a rapid review. *BMC Health Serv Res*. 2014; 14:136. [PubMed: 24670065]
- Meier, DE.; Isaacs, SL.; Hughes, RG., editors. *Palliative Care: Transforming the Care of Serious Illness*. Jossey-Bass; San Francisco, CA: 2010.
- Kelley, AS.; Meier, DE., editors. *Meeting the Needs of Older Adults With Serious Illness: Challenges and Opportunities in the Age of Health Care Reform*. Springer/Humana Press; New York: 2014.
- Parikh RB, Kirch RA, Smith TJ, Temel JS. Early specialty palliative care—translating data in oncology into practice. *N Engl J Med*. 2013; 369:2347–2351. [PubMed: 24328469]
- Smith AK, McCarthy E, Weber E, et al. Half of older Americans seen in emergency department in last month of life; most admitted to hospital, and many die there. *Health Aff (Millwood)*. 2012; 31:1277–1285. [PubMed: 22665840]

18. Teno JM, Gozalo PL, Bynum JP, et al. Change in end-of-life care for Medicare beneficiaries: site of death, place of care, and health care transitions in 2000, 2005, and 2009. *JAMA*. 2013; 309:470–477. [PubMed: 23385273]
19. Teno JM, Clarridge BR, Casey V, et al. Family perspectives on end-of-life care at the last place of care. *JAMA*. 2004; 291:88–93. [PubMed: 14709580]
20. Higginson IJ, Sarmiento VP, Calanzani N, Benalia H, Gomes B. Dying at home—is it better: a narrative appraisal of the state of the science. *Palliat Med*. 2013; 27:918–924. [PubMed: 23698451]
21. Yabroff KR, Lamont EB, Mariotto A, et al. Cost of care for elderly cancer patients in the United States. *J Natl Cancer Inst*. 2008; 100:630–641. [PubMed: 18445825]
22. Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. Projections of the cost of cancer care in the United States: 2010–2020. *J Natl Cancer Inst*. 2011; 103:117–128. [PubMed: 21228314]
23. Centers for Medicare & Medicaid Services. , editor. Readmissions reduction program. 2014. Available at: <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>. Accessed November 25, 2014
24. Rau, J. Medicare fines 2,610 hospitals in third round of readmission penalties. 2015. Kaiser Health News Available at: <http://kaiserhealthnews.org/news/medicare-readmissions-penalties-2015/>. Accessed November 25, 2014
25. Bazinsky KR, Herrera L, Sharfstein JM. Toward innovative models of health care and financing: matchmaking in Maryland. *JAMA*. 2012; 307:1261–1262. [PubMed: 22453566]
26. Centers for Medicare & Medicaid Services (CMS). Hospital value-based purchasing. 2014. Available at: <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/hospital-value-based-purchasing/index.html>. Accessed November 25, 2014
27. Cassel, JB.; Shickle, LM.; Skoro, N., et al. The business case for integrated palliative care. Poster presentation, Center to Advance Palliative Care National Seminar; Miami, FL. November 2012;
28. U.S. Department of Health & Human Services. Better, smarter, healthier: In historic announcement, HHS sets clear goals and timeline for shifting Medicare reimbursements from volume to value. 2015. Available at: <http://www.hhs.gov/news/press/2015pres/01/20150126a.html>. Accessed June 10, 2015
29. National Quality Forum. NQF quality positioning system. Available at: <https://www.qualityforum.org/QPS/QPSTool.aspx>. Accessed March 13, 2015
30. Cassel JB, Jones AB, Meier DE, et al. Hospital mortality rates: how is palliative care taken into account? *J Pain Symptom Manage*. 2010; 40:914–925. discussion 930–931. [PubMed: 21035300]
31. National Hospice and Palliative Care Organization. NHPCO's facts and figures: Hospice care in America. 2014. Available at: http://www.nhpco.org/sites/default/files/public/Statistics_Research/2014_Facts_Figures.pdf. Accessed March 10, 2015
32. Rabow M, Kvale E, Barbour L, et al. Moving upstream: a review of the evidence of the impact of outpatient palliative care. *J Palliat Med*. 2013; 16:1540–1549. [PubMed: 24225013]
33. Brumley R, Enguidanos S, Jamison P. Increased satisfaction with care and lower costs: results of a randomized trial of in-home palliative care. *J Am Geriatr Soc*. 2007; 55:993–1000. [PubMed: 17608870]
34. Temel JS, Greer JA, Muzikansky A, et al. Early palliative care for patients with metastatic non small-cell lung cancer. *N Engl J Med*. 2010; 363:733–742. [PubMed: 20818875]
35. Khatcheressian J, Cassel JB, Lyckholm L, et al. Improving palliative and supportive care in cancer patients. *Oncology (Williston Park)*. 2005; 19:1365–1376. discussion 1377–1378, 1381–1382, 1384 passim. [PubMed: 16285228]
36. Nathaniel JD, Garrido MM, Chai EJ, Goldberg G, Goldstein NE. Cost savings associated with an inpatient palliative care unit: results from the first two years. *J Pain Symptom Manage*. 2015; 50:147–154. [PubMed: 25847851]
37. May P, Garrido MM, Cassel JB, et al. Prospective cohort study of hospital palliative care teams for inpatients with advanced cancer: earlier consultation is associated with larger cost-saving effect. *J Clin Oncol*. 2015; 33:2745–2752. [PubMed: 26056178]
38. Twaddle ML, Maxwell TL, Cassel JB, et al. Palliative care benchmarks from academic medical centers. *J Palliat Med*. 2007; 10:86–98. [PubMed: 17298257]

39. Quinn K. New directions in Medicaid payment for hospital care. *Health Aff (Millwood)*. 2008; 27:269–280. [PubMed: 18180503]
40. Weissman DE, Meier DE. Identifying patients in need of a palliative care assessment in the hospital setting: a consensus report from the Center to Advance Palliative Care. *J Palliat Med*. 2011; 14:17–23. [PubMed: 21133809]
41. Norton SA, Hogan LA, Holloway RG, et al. Proactive palliative care in the medical intensive care unit: effects on length of stay for selected high-risk patients. *Crit Care Med*. 2007; 35:1530–1535. [PubMed: 17452930]
42. Morrison RS, Dietrich J, Ladwig S, et al. Palliative care consultation teams cut hospital costs for Medicaid beneficiaries. *Health Aff (Millwood)*. 2011; 30:454–463. [PubMed: 21383364]
43. Morrison RS, Penrod J, Cassel JB, et al. Cost savings associated with US hospital palliative care consultation programs. *Arch Intern Med*. 2008; 168:1783–1790. [PubMed: 18779466]
44. Penrod JD, Deb P, Luhrs C, et al. Cost and utilization outcomes of patients receiving hospital-based palliative care consultation. *J Palliat Med*. 2006; 9:855–860. [PubMed: 16910799]
45. Fromme EK, Bascom PB, Smith MD, et al. Survival, mortality, and location of death for patients seen by a hospital-based palliative care team. *J Palliat Med*. 2006; 9:903–911. [PubMed: 16910805]
46. Gade G, Venohr I, Conner D, et al. Impact of an inpatient palliative care team: a randomized control trial. *J Palliat Med*. 2008; 11:180–190. [PubMed: 18333732]
47. Rabow MW, Smith AK, Braun JL, Weissman DE. Outpatient palliative care practices. *Arch Intern Med*. 2010; 170:654–655. [PubMed: 20386012]
48. von Gunten CF, Ferris FD, Kirschner C, Emanuel LL. Coding and reimbursement mechanisms for physician services in hospice and palliative care. *J Palliat Med*. 2000; 3:157–164. [PubMed: 15859742]
49. Meyers, K.; Kerr, KM.; Cassel, JB. Up close: a field guide to community-based palliative care in California. 2014. California Healthcare Foundation Available at: <http://www.chcf.org/publications/2014/09/up-close-field-guide-palliative>. Accessed December 2, 2014
50. Cassel, JB.; Kerr, KM. Tools for planning and evaluating programs. 2014. Coalition for compassionate care of California Available at: <http://coalitionccc.org/wp-content/uploads/2014/03/Supportive-Care-Calculator-Clinic.xls>. Accessed December 2, 2014
51. Kerr CW, Donohue KA, Tangeman JC, et al. Cost savings and enhanced hospice enrollment with a home-based palliative care program implemented as a hospice-private payer partnership. *J Palliat Med*. 2014; 17:1328–1335. [PubMed: 25375799]
52. Kerr CW, Tangeman JC, Rudra CB, et al. Clinical impact of a home-based palliative care program: a hospice-private payer partnership. *J Pain Symptom Manage*. 2014; 48:883–892. e1. [PubMed: 24747224]
53. Center to Advance Palliative Care. Improving the care of serious illness through innovative payer-provider partnerships: a palliative care toolkit and resource guide. Available at: <https://www.capc.org/payors/palliative-care-payer-provider-toolkit/>. Accessed March 10, 2015
54. California Health Care Foundation. A better benefit: health plans try new approaches to end-of-life care. 2014. Available at: <http://www.chcf.org/publications/2013/04/better-benefit-health-plans>. March 10, 2015
55. Kerr, KM.; Cassel, JB. Finding common ground: quality and fiscal incentive alignment for community-based palliative care. 2014. Available at: <http://coalitionccc.org/wp-content/uploads/2014/01/CBPC-business-case-Aug-2013.pdf>. Accessed March 10, 2015
56. Krakauer R, Spettell CM, Reisman L, Wade MJ. Opportunities to improve the quality of care for advanced illness. *Health Aff (Millwood)*. 2009; 28:1357–1359. [PubMed: 19738252]
57. Highmark Blue Shield. Introducing the advanced illness services program. 2010. Available at: <https://www.bcnepa.com/providers/freedomblue/AdvIllSrvs.pdf>. Accessed June 10, 2015
58. Regence Blue Shield. Personalized care support: palliative care benefit. Available at: <https://www.regence.com/documents/10192/34853/Personalized+Care+Support/cc7fa61f-26b4-436c-a905-1fdade27aec8>. Accessed June 10, 2015
59. Center to Advance Palliative Care. Palliative care leadership center initiative. 2014. Available at: <https://www.capc.org/palliative-care-leadership-centers/>. Accessed March 10, 2015

60. Starks H, Diehr P, Curtis JR. The challenge of selection bias and confounding in palliative care research. *J Palliat Med.* 2009; 12:181–187. [PubMed: 19207063]
61. Penrod JD, Goldstein NE, Deb P. When and how to use instrumental variables in palliative care research. *J Palliat Med.* 2009; 12:471–474. [PubMed: 19416044]
62. Garrido MM. Propensity scores: a practical method for assessing treatment effects in pain and symptom management research. *J Pain Symptom Manage.* 2014; 48:711–718. [PubMed: 24937162]
63. Garrido MM, Kelley AS, Paris J, et al. Methods for constructing and assessing propensity scores. *Health Serv Res.* 2014; 49:1701–1720. [PubMed: 24779867]
64. Garrido MM. Propensity scores and palliative care. *J Palliat Med.* 2014; 17:261. [PubMed: 24517275]
65. Center to Advance Palliative Care. Palliative care growth trend continues, according to latest CAPC analysis. 2014. Available at: <https://www.capc.org/about/press-media/press-releases/2014-9-2/palliative-care-growth-trend-continues-according-latest-center-advance-palliative-care-analysis/>. Accessed March 10, 2015

	Medicare Deaths	Medicare High-Risk Survivors ^a	All Other Medicare Admits	Total Medicare
Medicare Cases	396	1,030	7,469	8,895
% All Medicare cases	4 %	12 %	84 %	100 %
Total costs / case	\$ 52,948	\$ 49,109	\$ 15,413	\$ 20,986
Reimbursed / case	\$ 48,347	\$ 44,256	\$ 15,440	\$ 20,242
Net Margin ^b (sum)	\$ -1,822,204	\$ -4,998,219	\$ 197,960	\$ -6,622,463

Fig. 1.

Inpatient admissions of Medicare patients at Virginia Commonwealth University hospital in Fiscal Year 2011, stratified by their disposition at discharge: deaths, survivors with high risk of mortality, and all others. ^aHigh-risk survivors defined as discharged to hospice or those with all patient refined—diagnosis-related group risk of mortality score of 4 combined with severity of illness score of 3 or 4. ^bNet margin represents revenues less total costs.

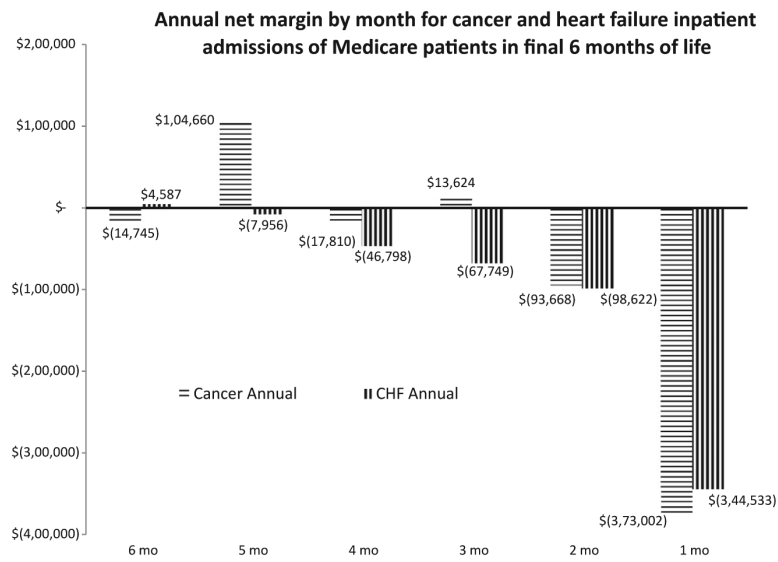


Fig. 2. Virginia Commonwealth University hospital data Fiscal Year 2010 to Fiscal Year 2012. X-axis is the month before death, ascertained from inpatient deaths and by querying data from the Social Security Death Master File to identify patients who died in other settings. The Y-axis is the net margin for this hospital (reimbursement minus total costs). CHF = congestive heart failure.