



One Pennsylvania Avenue, 38th Floor
New York, NY 10119
Tel 212-279-7166 Fax 212-629-5657
www.milliman.com

The Costs of Hospice Care

An Actuarial Evaluation of the Medicare Hospice Benefit

August 1, 2001

Milliman USA, Inc.
New York, NY

Lina Cheung, FSA, MAAA
Kate Fitch, RN, MEd, MA
Bruce Pyenson, FSA, MAAA

Commissioned by the National Hospice and Palliative Care Organization



Table of Contents

I.	Executive Summary	1-2
II.	Limitations	2
III.	History and Analysis of Hospice Funding	2-4
IV.	Detailed Findings	4-9
V.	Assumptions and Methodology	9-10
VI.	Conclusion	10
VII.	Appendix A: Glossary of Terms	11
VIII.	Appendix B: Background NHPCO and Milliman	12
IX.	Appendix C: Details of Cost Components	13-15
X.	Appendix D: Comparison of Medicare 1983 Cost Components and Study Data Costs	16
XI.	Appendix E: Characteristics of Participants.....	17



Executive Summary

The National Hospice and Palliative Care Organization (NHPCO) retained Milliman USA, Inc. (Milliman) to compare the current cost and reimbursement of hospice care for Medicare patients. Hospice care seeks to enhance the quality of end of life care for terminally ill patients whose disease is not responsive to curative treatment. Hospice care involves a team-oriented approach of expert medical care, pain management, and emotional and spiritual support expressly tailored to the patient's needs and wishes. Emotional and spiritual support is extended to the family as well. Generally this care is provided in the patient's home or in a home-like setting operated by a hospice program. In most states, Medicare, Medicaid and private health insurance cover hospice care for patients who meet certain criteria. NHPCO is the largest nonprofit membership organization representing hospice and palliative care programs and professionals in the United States.

The Milliman hospice study focuses on expenses incurred and reimbursement received by hospice organizations for routine home care hospice services. Our analysis of data reported by Medicare certified hospice organizations shows that the current Medicare reimbursement for routine home care does not cover the costs incurred by hospice organizations to deliver this service. For our 1998-1999 study sample, we found that hospice costs exceed revenue by about 20% and, even assuming a much longer length of service, costs would still exceed revenue by about 10%. The dynamics of hospice care will increase financial pressure in the future. Continuing shortfalls of this size are serious for any healthcare organization (hospital, HMO, etc.) and pose significant financial threats to hospice care.

The Milliman hospice study identifies two important contributors to the losses that hospices are experiencing today:

1. The length of time patients actually receive hospice services has decreased resulting in an increase in per diem costs for each patient, while per diem income has remained flat.
2. The intensity of hospice services has increased dramatically resulting in an increase in the hospice cost per day. The rapid growth in prescription drug and outpatient costs has especially contributed to this increase.

The downward trend in average length of hospice service, the current structure of Medicare reimbursement and the increased intensity of needed care services, lead us to conclude that financial losses will probably grow for routine home care hospice services. Hospices receive a flat Medicare reimbursement for each day that a patient is in a hospice program. This per-diem rate is intended to allow for the variation in daily expenses over an average length of hospice service. As the average length of hospice service shrinks, intensive service days required at the onset of hospice enrollment and during the last phase of a terminal illness comprise a higher percentage of days, resulting in a higher per patient per day cost. Financial losses occur as the per-diem costs increase and reimbursement stays steady.

During the preparation of this study, Congress included, as an interim measure, an additional 5% increase in all levels of reimbursement for hospice care. Within this same legislative package,



Congress added statutory language that clarifies the criteria necessary for admission to hospice, which may increase lengths of stay and facilitate greater access to hospice services.

Because of the requirement to provide electronic format data for this study, hospice participation was limited to providers that have relatively sophisticated operations. The study participants may have achieved efficiencies beyond those of the average hospice organization. Therefore, the shortfalls we found may understate the actual losses experienced by hospices.

The financial pressures we identify will not affect all hospices in the same way. For example, we wish to note that the variations among hospices, as with other healthcare organizations, can cause individual financial results to vary greatly. Small hospices have less ability to deal with random fluctuations and risk than larger hospices. Because we analyzed the results of almost 10,000 patients, we were able to construct charts and curves that appear relatively smooth. In reality, costs and revenue can vary dramatically from patient to patient. Smaller and/or rural hospices are much more vulnerable to the combination of shortfalls and random fluctuations and typically have less ability to negotiate more favorable cost structures from vendors; thus, we expect that current trends will especially hurt these programs.

Limitations

These conclusions are based on the assumptions and methodology stated in the body of the report. The reader should not make decisions based on this Executive Summary alone. Although we performed our analysis on a relatively large sample of hospice data, the minimal data reporting requirements that hospices have faced has led to limited data availability. We did not audit any of the data provided to us, although we did perform reasonability checks on it. We also had to make assumptions when data were incomplete. Our conclusions depend on the accuracy of the underlying data and assumptions.

We alert the reader that our data – a mixture of 12 consecutive months of patient-level data plus cost allocations to patients – necessarily produces a shorter length of service than is indicative of hospice as a whole. Future refinements of this study would benefit from looking at multi-fiscal year data sets and complete cost allocation data. Given that a small portion of hospice costs are fixed, and a small portion of patients exceed a two month length of stay, we believe that analysis of data sets with longer durations would produce the same conclusions and show the same dynamics that we report in this study, but such a study would show a longer average length of service.

In performing this study, Milliman USA, Inc. does not intend to take a position on any particular legislation. **If this report is copied, it must be distributed in its entirety.** The conclusions of this report are based on the authors' analysis and should not be interpreted as representing the position of Milliman USA, Inc. We hope the analysis presented here will be useful to all concerned parties.



A Brief History and Analysis of Hospice Funding

The Medicare program established the original Medicare reimbursement rate in 1983 after analyzing two years of data from 3,889 hospice patients who participated in a Medicare demonstration project.¹ Reimbursement for four separate levels of care was established including routine home care, continuous home care, inpatient respite care and general inpatient care (see Appendix A for definitions).

Routine home care accounts for 95% of hospice care days [according to the 1998 Medicare 5% sample].² Routine home care includes visits by registered nurses, home health aides, social workers and spiritual caregivers plus a wide range of other services including durable medical equipment, physician home visits, diagnostic tests and prescription drugs. Medicare paid a hospice a national rate of about \$97.11 per day in 1999 for each routine home care day. This rate is decreased or increased regionally by a wage index intended to account for local labor costs. A hospice patient will require varying amounts of care services on any particular day.

The Center for Medicare and Medicaid Services (CMS), formerly HCFA, estimated the original cost of delivering routine home care by analyzing the main service components of routine home care from data collected during the 1980-1982 Medicare Demonstration Project. The components included:

- Care visits (RN, home health aide, social work)
- Home respite care
- Interdisciplinary group
- Drugs
- Medical supplies
- Durable medical equipment (DME)
- Outpatient hospital services (i.e., palliative chemotherapy/radiation)

CMS based the original rate on estimates of incurred costs available in 1980-1982, which considered the type of hospice care delivered at that time. In the ensuing two decades, CMS has made no explicit adjustments for technological, pharmaceutical and medical delivery advances. Many hospice organizations report these advances have increased expenses significantly, well beyond the market basket adjustments used by CMS.

Congress increased the routine home care rate in 1984, and all hospice rates in 1986, 1989 and 2001. Since 1989, CMS has adjusted the hospice payment annually, based on a hospital market basket index rate. This annual adjustment has been subject to federal deficit reduction legislation, resulting in a reduction to the index rate for each of the past several years.

¹ Federal Register Part VII, Department of Health and Human Services, Health Care Financing Administration, Medicare Program; Hospice Care; Final Ruling, December, 1983.

² The 1998 5% Medicare sample is produced annually by CMS and provides claims experience on a random sample of Medicare beneficiaries.



As recently as last year, in the Benefits Improvement & Protection Act (BIPA), Congress increased all levels of hospice reimbursement. In addition to a 5% across the board rate increase, Congress also included statutory language aimed at increasing access to hospice care and removing perceived barriers to care. Further, Congress required the Medicare Payment Advisory Commission (MedPAC) to undertake an 18-month review of factors impacting access to hospice care. Also, the Secretary of Health and Human Services is required, within two years, to analyze the application and interpretation of current eligibility criteria and its impact on access to hospice care.

As described below, CMS's methodology does not account for several major forces since the early 1980s:

- The explosion in new technology and treatments, and
- The fact that patients are receiving hospice care much later in their terminal illness and spending less time in hospice care.

CMS's original per patient per day (PPPD) reimbursement assumed a 70-day average length of hospice service (ALOS) in the original demonstration project. The PPPD rate spread total costs over a 70-day ALOS. The ALOS in a 1999 survey conducted by the NHPCO was reported at 48 days. Costs have not decreased proportionately.

Hospices incur certain costs that do not vary by length of service. Significant costs are incurred at the beginning and end of hospice service. Within the context of the admissions process, initial patient assessments and planning by multiple disciplines as well as the need for initial ordering of supplies, equipment, and pharmaceuticals result in an increase in expenses at the front end of hospice service. The end of hospice service generally requires an increased intensity of services as the patient's condition declines and he or she approaches death. Pharmaceutical needs generally increase during the end stage of a terminal illness as pain and symptom management needs intensify. The middle phase of hospice service generally involves a stabilizing period. Service needs and costs are lower during this stabilizing period than during the front and back end of hospice service.

The reduced ALOS in hospice care has resulted in a shrinking middle or stabilizing period when costs are lowest. There are significantly fewer days during the middle stabilizing period, over which a hospice can spread the high front and back end costs. Consequently, PPPD costs have increased much faster than inflation.

Detailed Findings

1. Decreased Length of Service

With a significant drop in ALOS combined with the acuity and intensity of service needs of the patient and their families, hospices have a shorter period of patient stability over which to spread the unavoidable high front and back end costs. Shorter ALOS translates into a higher PPPD cost (which is compounded by technological developments that have increased the unit cost of providing particular



medical services -- e.g., pain management modalities, palliative radiation therapy). For reference, we show ALOS from various sources. While the sources are not strictly comparable, they indicate the trend to shorter ALOS.

Table A: The Length of Hospice Services Has Dropped Dramatically

Study Sample	Mean Length of Hospice Service
Medicare demonstration 1983³	70 days
NHPCO member survey 1992⁴	64 days
NHPCO member survey 1995	61 days
NHPCO member survey 1998	51 days
NHPCO member survey 1999	48 days
Medicare 5% sample 1998⁵	40 days
Milliman study sample -primarily 1999⁶	36 days

³ 1983 Medicare demonstration mean length of service includes non-routine home care days.

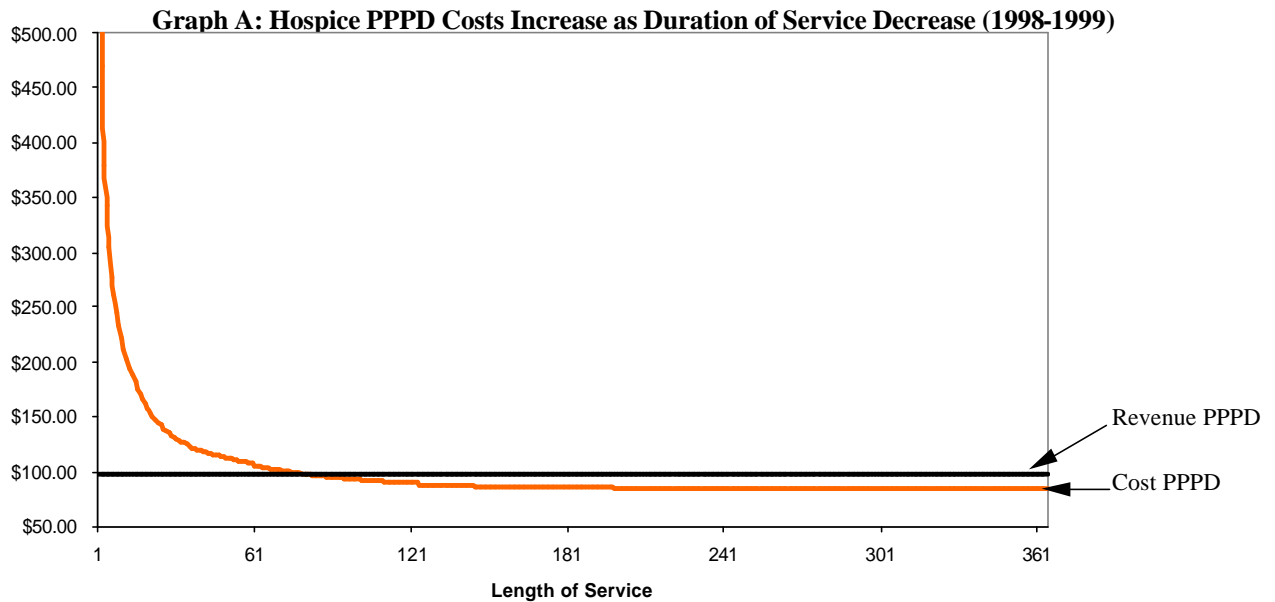
⁴ Each NHPCO survey year's reported mean length of service includes non-routine home care days and all payer data.

⁵ We refer to the 1998 5% Medicare sample average length of service, as it is an industry recognized representation of the Medicare population. 1998 Medicare 5% sample mean length of service includes routine home care days only.

⁶ 1999 Milliman study mean length of service includes routine home care days and Medicare enrollees only

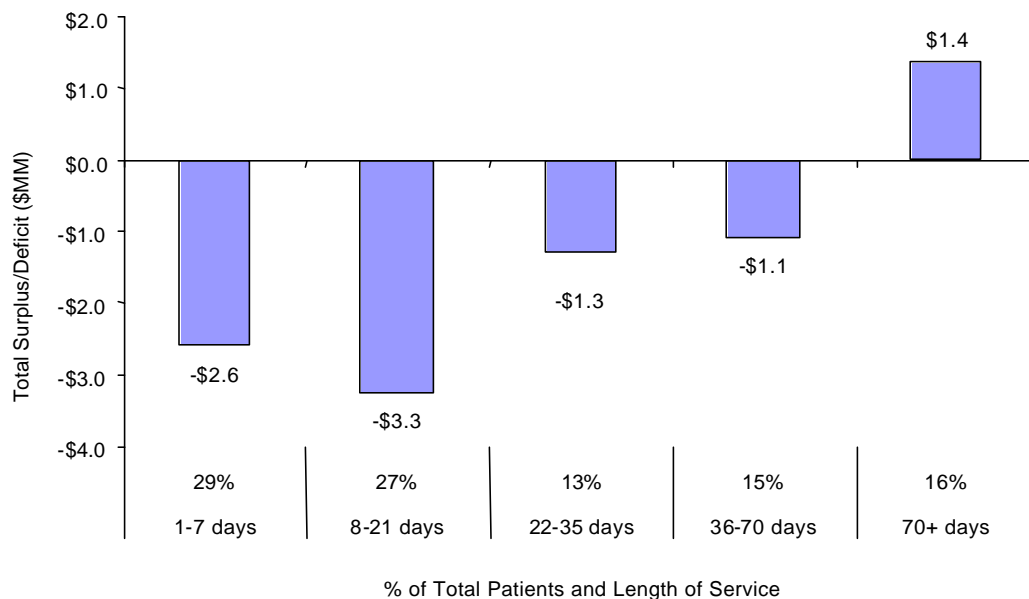


Based on the patient level cost data submitted by participants, Graph A presents a distribution of costs by length of service, supporting a rising per-diem cost as the length of time receiving hospice care decreases. We found that patients receiving 82 or fewer days of routine home care incur expenses that exceed the Medicare reimbursement rate for routine home care. In this study, 88% of patients had 82 or fewer days of routine home care.



Net revenue generated by the 12% of patients receiving more than 82 days of routine home care did not compensate for the losses from patients receiving 82 or fewer days of routine home care services. Graph B presents this finding.

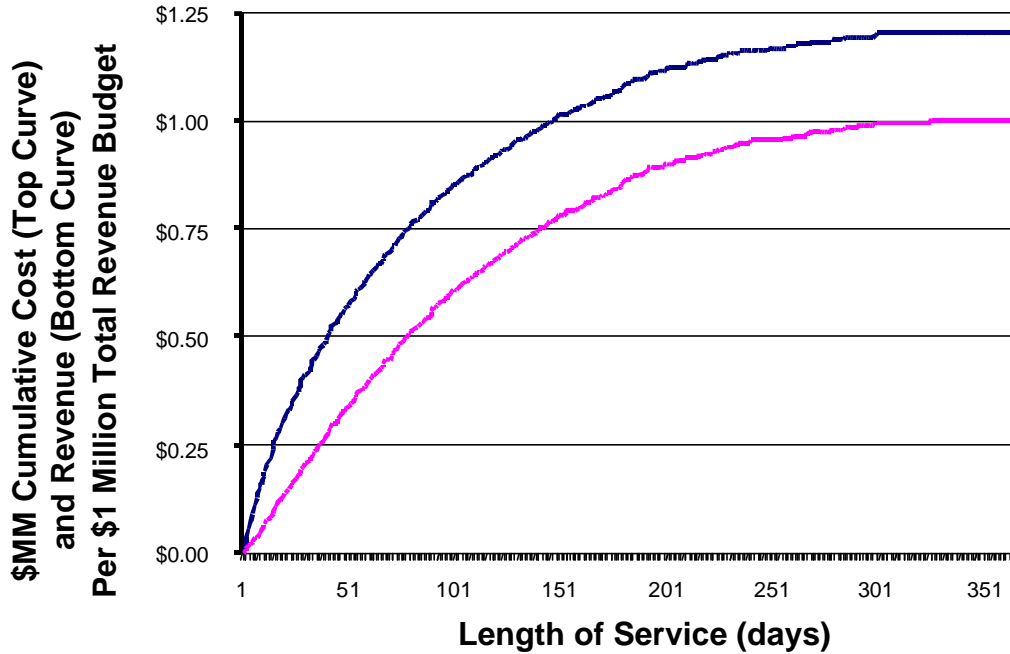
Graph B: Hospices are Operating at a Deficit (1998-1999)





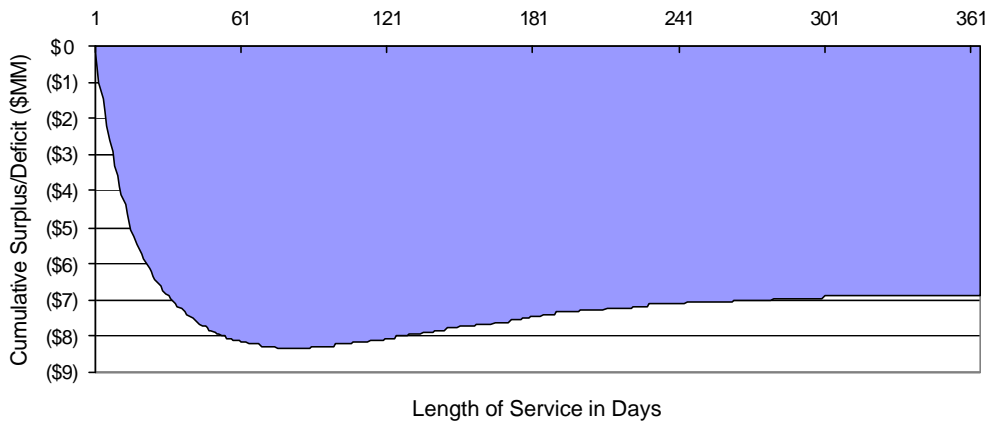
On a cumulative basis, Medicare revenue does not meet the costs of delivering routine home care to Medicare recipients. Graph C presents data on cumulative hospice costs and revenue.

Graph C: Cumulative Hospice Costs Exceed Cumulative Revenue (1998-1999)



Cumulative losses decrease with longer time receiving care but do not achieve a surplus. Graph D presents these findings.

Graph D: Hospice Operates at a Deficit (1998-1999)



We estimate a daily cost of \$117.10 for routine home hospice care compared to a Medicare reimbursement rate of \$97.11 per day.



Patients are enrolling in hospice closer to the time of death. The percentage of patients with a 7-day or fewer length of service (LOS) has increased significantly from the original Medicare demonstration findings and is presented in Table B. The PPPD costs increase as the length of service decreases, driven by an increase in the number of home care visits needed and a shorter service period in which to spread the costs of supplies, DME and drugs. A greater percentage of patients have shorter stays than was originally factored into the Medicare hospice reimbursement rate. This results in higher average PPPD costs than those calculated for the original reimbursement rate.

Table B: More Patients Initiate Hospice Care Closer to Time of Death

Study Sample	Percentage of patients = 7 day hospice LOS	Percentage of patients = 21 day hospice LOS
Medicare demonstration 1983	20%	41%
Medicare 5% sample 1998	31%	56%
Milliman study sample, primarily 1999	29%	56%

2. *Increased Intensity*

Home Care Visits

We have identified an increase in the intensity and frequency of services needed to care for hospice patients. The PPPD home care visits in the Milliman hospice study were 20% higher than the PPPD home care visits identified by Medicare in the 1983 demonstration project. These results are presented in Table C. Furthermore, the lower cost home health aide (HHA) visits decreased while the higher cost RN and social worker visits increased. We believe the reason for this shift is that shorter service patients require more professional assessment and care (RN and social worker) as their clinical status is often in a declining phase.

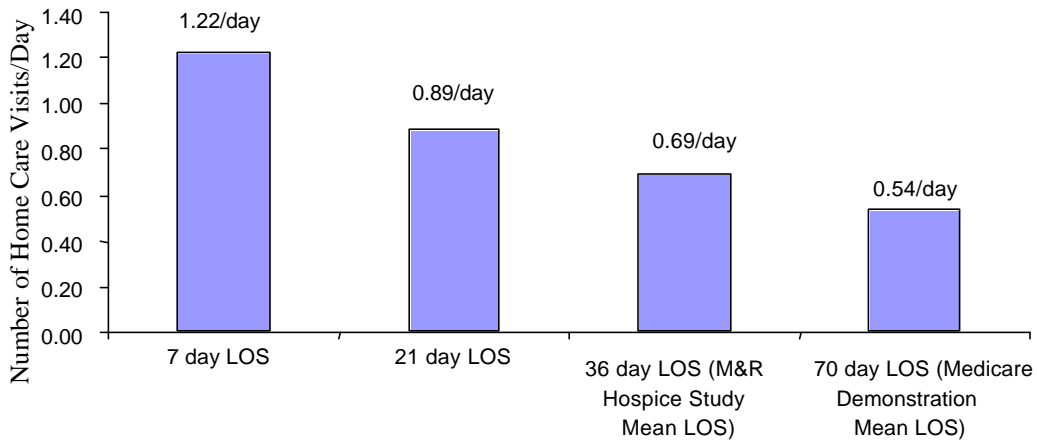
Table C: The Intensity of Services Has Increased

Study Sample	RN visits PPPD	HHA visits PPPD	Social worker visits PPPD	Other visits	Total visits
Medicare demonstration 1983	.22	.27	.05	Not reported	.54
Milliman sample 1998-1999	.28	.20	.09	.07	.64

Based on the patient level data, Graph E presents the number of home care visits PPPD by length of service. As the stays have shortened, the PPPD number of home care visits to service a hospice patient has increased. This in turn results in greater PPPD costs for home care visits.



Graph E: The number of Home Care Visits Per Day Goes Up as Stays Go Down (1998-1999)



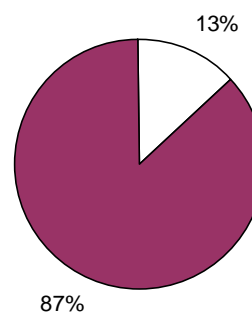
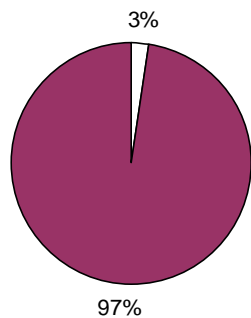
Pharmaceutical Costs

A significant finding from the Milliman hospice study is the large rise in the PPPD pharmaceutical costs. Graph F compares the Medicare and Milliman Study figures for pharmaceutical's portion of the total hospice cost. The 1983 Medicare demonstration project yielded a PPPD cost of pharmaceuticals of \$1.06. This accounted for 2% of the total PPPD costs to care for a hospice patient. The Milliman hospice study results estimates the 1999 PPPD cost of pharmaceuticals at \$15.72, which is 13% of the total PPPD cost for routine home care. As with the nation's recent overall experience with pharmaceuticals, the hospices have faced increased costs for pharmaceuticals and advances in pharmacotherapy for symptom control and pain management in end of life care. Hospices have experienced a profound increase in PPPD pharmaceutical costs.

Graph F: Pharmaceutical Costs Have Risen Dramatically

1982 CMS Provision

Milliman Hospice Study (1998-1999)



□ Drugs/IV
■ Others



Outpatient Services

The data show an increase in intensity of outpatient services. Outpatient services include radiation therapy, chemotherapy, diagnostic testing, outpatient treatments, emergency room visits and transportation including ambulance. The original Medicare rate for outpatient services was based on figures that showed these costs accounting for 6% of the total routine home care costs. The Milliman study estimates the cost of outpatient services at \$17.20 PPPD, which is 15% of the PPPD cost for routine home care.

Demand and costs of palliative radiation and chemotherapy as part of hospice care have significantly increased over the past few years. Chemotherapy and radiation therapy, formerly associated only with curative care, are now used in particular clinical situations for pain and symptom relief. As with other kinds of medical care, complex palliative treatments that were previously performed on an inpatient basis can now be performed on an outpatient basis. In addition, technological developments in delivery methods, particularly for chemotherapy, have increased the ability to deliver treatments in the home setting. These changes have contributed to an increase in the outpatient service costs.

Along with the increase in palliative radiation therapy and chemotherapy, there has been an increase in the use of diagnostic procedures required to monitor the response to and side effects of these treatments. Prevailing physician practice patterns are often characterized by a tendency to respond to new or worsening symptoms with diagnostic testing and work up. A related and growing cost is for transportation service required to move the hospice patient to outpatient treatment and diagnostic testing sites.

Additional Factors

Other pressures on the hospice industry are, at this time, harder to quantify but seem reasonable. These include:

- **Technological advances**: In addition to the advances mentioned above, other improvements in technology and medical practices for palliative end of life care have added to the increased intensity and frequency of services needed to service the hospice patient. Examples of these include more aggressive pain management requiring more frequent clinical supervision.
- **Cost shifting**: We believe that recent pressures on hospitals to reduce inpatient costs and lengths of stay from both Medicare and managed care have increased the intensity of services needed to service hospice patients. These pressures have resulted in shorter acute care inpatient hospital stays and earlier discharge from hospital to home hospice care. A patient, who enrolls in a hospice program immediately after an acute inpatient stay, will require more intense and frequent services.

Details of the additional cost components in Milliman's study can be found in Appendix C.

Assumptions and Methodology

Milliman collected patient level cost data for 9,628 hospice patients who received Medicare-covered services during 1998 and 1999 from several NHPCO member hospice organizations. A description of



the hospice organizations and patient sample can be found in Appendix E. These patients were admitted to and discharged from hospice care within a one-year study period.

Home care visits and expenses were compiled separately for cost components used in the original Medicare reimbursement rate and for additional components. Our data collection process excluded certain costs from both the direct patient costs and from indirect costs. We made what we consider reasonable staffing and salary assumptions in developing estimates for these costs.

We collected detailed financial statements from participating hospices. Each expense line item in the financial statement was assigned to various direct and indirect patient cost categories. To account for geographic differences, we normalized results using the hospice wage index. Inpatient and fundraising expenses were excluded. We developed the percentage of total expense spent on indirect cost items (such as administrative costs). The total PPPD patient cost was grossed up by the indirect cost percentage.

As a reasonability reference, we also extracted hospice data from the 1998 Medicare 5% sample files and compared key characteristics of that data to the Milliman study sample including mean length of service in hospice. The Medicare 5% sample reports total days for each beneficiary, independent of the number of admissions to hospice during a benefit period. However, for the Milliman study, we treated each admission to hospice as a separate length of service. This was necessary as several of the hospices reported each admission for the same patient separately and gave new patient identifiers for each admission. This difference may account for some of the difference between the ALOS of the two datasets. As shown in Table A, Table B and Appendix E, many of the characteristics of the two datasets are rather similar.

Conclusion

Our analysis shows that, for the data we reviewed, the current Medicare reimbursement for routine home care, which accounts for 95% of hospice days utilized by Medicare beneficiaries, does not cover the costs incurred by hospice organizations to deliver this service. The authors believe that the significant decrease in average length of hospice service and the dramatic increase in the intensity of services required to care for the hospice patient, have not been captured by Medicare in setting reimbursement. In particular, there has been an increase in the number of home care visits needed to service patients with a shorter length of hospice service and a striking increase in the cost of pharmaceuticals and outpatient services.

Our analysis may understate the shortfalls in reimbursement. Current hospice cost reporting methods do not capture costs comprehensively. Our report used data from larger hospices that can realize economies of scale. Smaller and/or rural hospice organizations that account for over half of the hospice patient population cannot readily capture such economies.

Most hospices have, historically, depended on charitable contributions to meet their budgets. The dynamics of the industry suggest that hospices will face increasing pressures to cut costs and increase reliance on fund raising and donations.



We strongly recommend continued analysis of hospice costs along with the implementation of minimum cost reporting requirements for all hospice organizations. We believe that inadequate reimbursement for hospice services will threaten to limit the availability and quality of hospice care.



Appendix A

Glossary of Terms

Routine home care: A routine home care day is a day during which an individual who has elected to receive hospice care is at home and is not receiving *continuous home care*. The hospice organization is responsible for providing all care visits, equipment, supplies and pharmaceuticals necessary for managing the terminal illness.

Continuous home care: Continuous home care is provided during a period of crisis in which a patient requires continuous care to achieve palliation or management of acute medical symptoms. A minimum of 8 hours of care during a 24-hour period is required. Nursing care must be provided for more than half of the period of care and must be provided by either a registered or practical nurse. Homemaker or home health aide services may be provided to supplement the nursing care.

Inpatient respite care: An inpatient respite day is a day during which the individual who has elected hospice care receives care in an approved facility on a short-term basis for respite. No more than 5 inpatient respite care days at a time will be reimbursed by Medicare.

General inpatient care: A general inpatient care day is a day during which an individual who has elected hospice care receives general inpatient care in an approved facility for pain control or acute or chronic symptom management that cannot be managed in other settings. The aggregate number of inpatient days may not exceed 20 percent of the aggregate total number of days of hospice care provided to all Medicare beneficiaries over a given year for each hospice organization.



Appendix B

Background NHPCO and Milliman

The National Hospice and Palliative Care Organization

The National Hospice and Palliative Care Organization (NHPCO) is the largest nonprofit membership organization representing hospice and palliative care programs and professionals in the United States. Founded in 1978, the organization is committed to improving end of life care and expanding access to hospice care with the goal of profoundly enhancing quality of life for people dying in America and their loved ones.

As of 2000, there were approximately 3,300 operational or planned hospice programs located in the 50 states, the District of Columbia, Puerto Rico and Guam. NHPCO's membership includes over 2,000 hospice programs. NHPCO estimates that 700,000 patients were served by hospices in the U.S. in 1999. Medicare is the source of payment for 65% of hospice patients. Members of NHPCO have been reporting that the Medicare hospice benefit payment rates are inadequate to cover the costs of delivering hospice care to Medicare members and assure full and appropriate access to high quality hospice care.⁷

Milliman USA, Inc.

Milliman is an international firm of consultants and actuaries. With over 2,000 employees, Milliman uses actuarial and clinical expertise to provide consulting services to a full range of financial and health care organizations, providers, governments and employers. The authors of this report are located in Milliman's New York City office.

The authors of this study are Lina Cheung, FSA, MAAA, Kate Fitch, RN, MEd, MA, and Bruce Pyenson, FSA, MAAA. The authors' backgrounds are described below.

Lina Cheung is a Consulting Actuary in Milliman's New York City office. Lina's background includes HMO and insurance company financial management and extensive experience with various kinds of reinsurance related to health organizations.

Kate Fitch is a Healthcare Management Consultant in Milliman's New York City office. Kate's background includes catastrophic disease management operations, utilization management training for hospitals and HMOs and nursing research.

Bruce Pyenson is a Principal and Consulting Actuary in Milliman's New York City office. Bruce has led projects relating to healthcare reform, such as Mental Health Parity, and has consulted to healthcare providers, HMOs and pharmaceutical companies on various risk management issues.

⁷ National Hospice Organization, *Committee on the Medicare Hospice Benefit and End of Life Care: Final Report to the Board of Directors*, 1999.



Appendix C

Details of Cost Components

Our analysis considered the costs of several hospice services beyond those described in the body of our report, and these are described below. Several of these were included in the original Medicare reimbursement calculation but others were not.

Supplies

The PPPD cost of supplies, including such items as disposable gloves, dressings, mouth swabs, and bed pads, have actually gone down as a portion of total costs. The original Medicare reimbursement rate was based on an analysis that allotted 9% of the routine home care costs to supplies. The cost for supplies for this study sample is \$2.11 PPPD, which accounts for 2% of the total costs. We believe that the decrease in hospice cost for this item today is likely a result of discounts that are commonly negotiated with supply vendors as well as an inflation-adjusted decrease in per-unit costs.

DME

The PPPD cost of DME, including such items as hospital bed, walker, and wheelchair, has increased slightly as a portion of total costs. The original Medicare reimbursement rate allotted 2% of the routine home care costs to DME. The Milliman study sample shows a \$4.80 cost PPPD for DME, which accounts for 4% of the total PPPD costs.

Interdisciplinary group

This item refers to multi-disciplinary meetings of clinical professionals to plan for comprehensive care of a hospice patient. We were not able to capture cost data for this item at a patient or aggregate level by hospice organizations. We add this factor to the total costs without any adjustment beyond the trend assumed by Medicare.

The Medicare PPPD amount for this component was based on the type of hospice care delivered in the early 1980s. Today's case management model for hospice care probably requires more interdisciplinary planning time than in the past and more supervisory involvement of a physician. Some in the hospice community suggest that the original rate calculation for this cost component is insufficient to cover the actual cost of providing this service.

Further analysis of this component might discover a PPPD cost significantly higher than that budgeted for in the original routine home care Medicare reimbursement rate -- and higher than we assumed in our analysis.

Home Respite care

Home respite care is provided when a family caregiver requires temporary relief from providing care to the hospice patient. Providing care to a hospice patient over an extended period of time can at times become overwhelming to the family caregiver, who is often a spouse or other relative of the patient. Home respite care involves a combination of paid staff, (supplementing the usual care visits) and volunteers who relieve the caregiver for short periods of time.



Medicare estimated the original PPPD cost for respite care by dividing the home respite cost per patient by the average number of routine home care days in a typical hospice stay. As the average number of routine home care days has decreased, we believe that a current recalculation would result in a higher PPPD cost for this component.

The data we received did not separate respite care visits from other kinds of care visits. Therefore, we do not add a separate amount for respite home care, as it is included in our PPPD home care visit costs.

Other visits not captured in the original Medicare reimbursement rate

Medicare requires that hospice organizations provide counseling and “other” visits including physical therapy, occupational therapy, speech therapy, respiratory therapy, dietary counseling, homemaker services and bereavement counseling. These services were not identified in the original Medicare cost analysis. Using patient level data provided by study participants, we calculated PPPD costs for each of these visits.

- *Counseling visits* were generally provided by a chaplain, pastoral counselor or social worker. We calculated a PPPD cost of \$3.00 for counseling visits.
- *Other visits* including physical therapy, occupational therapy, speech therapy, respiratory therapy, dietary counseling and homemaker services were minimal. We calculated a PPPD cost of \$.15 for these visits.
- *Bereavement/counseling visits*: CMS requires that hospice provide bereavement counseling for all Medicare hospice beneficiaries for up to one year after death occurs. Because bereavement visits can be provided to someone other than the hospice patient (the survivors), Medicare is not obligated to reimburse these visits, but hospice organizations must provide them. The cost of this service was not factored into the original Medicare reimbursement rate although the new Medicare reporting data set requires this data. We add this expense to the total expenses incurred by hospice organizations to reflect the actual cost of providing hospice services. Our estimated PPPD cost of bereavement counseling, based on an estimated 1.5 visits per patient, is \$5.46.

Other essential support staff

Our data collection omitted certain other functions and costs, as described below.

- *Volunteer Coordinator*: Medicare requires that volunteers provide 5% of a hospice’s care. Although volunteer staff is unpaid, supervision and training of volunteers requires a salaried volunteer coordinator. We assumed that this volunteer coordinator handles the volunteer staff for, on average, 500 admissions per year. With this caseload, and assuming an average salary for this level of worker, we calculate a \$3.07 PPPD cost.
- *In-take/Referral Staff*: In addition to performing care visits to hospice patients, hospice staff spend significant time handling referrals from physicians, facilities and families for potential new



patients and performing intake for those patients who actually enroll in hospice. Referrals involve telephonic contact with providers, facility discharge planning personnel and families. Referrals can involve an on-site visit to evaluate the appropriateness of the patient for hospice and the patient's care needs and wishes. The intake referral process is time intensive, even for those referrals that do not enroll in hospice. Assuming that a FTE worker can net, on average, 300 patient admissions per year, we estimate a \$6.20 PPPD cost.

- *Patient visit mileage reimbursement:* The PPPD cost of care visits and the administrative load did not account for the transportation costs associated with patient visits. We estimate a PPPD cost of mileage reimbursement at \$4.01 based on the .64 patient visits per day, an average round trip of 15 miles per visit and a mileage reimbursement rate of \$0.31. (Rural round trip miles are likely to be significantly higher).



Appendix D

The table below summarizes the Milliman study findings compared with the original Medicare demonstration project cost components used in calculating the original reimbursement rate for routine home care. Additional service components that are not captured in the original Medicare rate are added as separate cost components. Administrative costs calculated from financial statement data have been factored into each of the cost components.

Summary Comparison of 1983 Medicare Cost Components to Current Costs

	Medicare's Original			Medicare 1999 adjusted PPPD costs	Milliman's Study		
	Average cost per visit	Average visits per day	Average PPPD costs		Average cost per visit	Average visits per days	Average PPPD costs
Service component							
Registered Nurse	\$65.30	0.22	\$14.56	\$34.11	\$96.60	0.28	\$26.87
Licensed Practical Nurse					\$55.20	0.05	\$2.49
Home Health Aide	\$42.78	0.27	\$11.42	\$26.76	\$41.73	0.20	\$8.52
Social Service	\$64.14	0.05	\$2.89	\$6.77	\$130.41	0.09	\$11.66
Home respite			\$1.31	\$3.07			\$0.00
Interdisciplinary group			\$2.49	\$5.83			\$5.83
Drugs/Intravenous			\$1.06	\$2.48			\$15.72
Supplies			\$4.02	\$9.42			\$2.11
Equipment (DME)			\$1.01	\$2.37			\$4.80
Outpatient hospital therapies			\$2.68	\$6.28			\$17.20
Homemaker Visits					\$27.82	0.00	\$0.01
Counseling visits					\$130.41	0.02	\$3.00
Bereavement counseling visits							\$5.46
Other visits (PT, OT, ST, RT)					\$96.60	0.00	\$0.15
Volunteer coordinator							\$3.07
Intake/referral staff							\$6.20
Patient visit mileage reimbursement							\$4.01
Subtotal			\$41.44	\$97.11			\$117.10
Home health market basket adjustment (1982 to 1983)			x 1.12	n/a			n/a
Total Routine home care rate		0.54	\$46.25	\$97.11		0.64	\$117.10



Appendix E:

Characteristics of participants

Patient Characteristics

The characteristics of the patient sample did not vary significantly by hospice organization. In total, 95% of the patients were over 65. The male/female ratio was 45/55 respectively. Cancer was the diagnosis among 55% of the study patients. The remaining diagnoses included end stage cardiac, respiratory and renal disease, as well as HIV/AIDS and neurological disorders.

Hospice characteristics

The hospice organizations that participated in this study ranged in size from about 1,000 to 7,000 patients (all payers) annually. The participants service a combination of rural, urban and suburban areas. Participants included freestanding, home health agency based and hospital based model hospices. The majority of hospice participants were not-for-profit organizations.

Hospice days by type of hospice care did not vary significantly by organization and closely corresponds to the distribution in the 5% Medicare data, as shown below.

Type of Hospice Care Provided by Participants

Type of Hospice Care	Milliman Sample Patients 1999-1998	Study Percent of	1998 Medicare 5% Sample Percent of Patients
Routine Home Care		95.6%	95.6%
Continuous Home Care		0.7%	0.6%
Inpatient Respite Care		0.2%	0.3%
General Inpatient		3.5%	3.5%