CHAPTER 3

Medicare's hospice benefit: Recent trends and consideration of payment system refinements

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Chapter summary

Medicare's hospice benefit has grown dramatically since its inception in 1983. Between 2000 and 2004, the total number of hospice users among beneficiaries rose almost 50 percent, while the total number of covered days of hospice care doubled. The payment system was developed from a demonstration project that analyzed the costs of hospice care for patients with terminal cancer diagnoses who lived in the community. As the number of users has grown, the population of hospice patients has become more diverse. Today, more Medicare hospice patients have noncancer principle diagnoses than cancer diagnoses and hospice patients can live in the community or in nursing homes.

Growth of the benefit and changes in the hospice population have led this Commission and others to suggest that the hospice payment system should be evaluated to assess whether it should be modified to improve payment accuracy. To test possible payment refinements in light of limited Medicare data, the Commission contracted with RAND to test the ability of case-mix adjusters to improve the predictive power of the hospice payment system. RAND used data on all Medicare patients

In this chapter

served by agencies of one large, multi-state, for-profit hospice chain for this analysis because its data contained detailed information not available from Medicare administrative records.

RAND found that adding diagnosis and other patient characteristics did not improve the ability of the number of days in the current per diem payment categories to predict variation in labor costs associated with a hospice episode. Results from analysis of this single chain do not rule out that additional case-mix adjusters would improve the accuracy of the per diem payment system if tested on a more representative population of hospice patients and providers. Nor can we conclude that case-mix adjusters would not improve the explanation of the variation in costs in an analysis that included data on all costs of hospice care, not just visit labor costs. The results from this study also show that the first and last days of the stays have more visits and higher visit labor costs than the intervening days. Higher payments for the beginning and end of stays, relative to the middle days of the stay, may result in more accurate payments. However, these results from a single chain's data are suggestive and should not be considered generalizable to all Medicare hospice patients without further evaluation.

Such evaluations would assess whether Medicare could improve the accuracy of the payment system. Paying accurately for all types of patients is important to ensure that the program is paying rates that cover providers' costs for all types of patients. The program needs to collect more detailed data from Medicare-participating hospice agencies to assess the relationship between patient characteristics and the frequency and intensity of services for a representative group of hospice users. An analysis of payment adequacy, such as those the Commission undertakes annually for other health care sectors covered by the Medicare program, could provide information about access to hospice care for Medicare beneficiaries, providers' access to capital, and the relationship of payments to costs of Medicare patients in hospice. These findings, along with data on the use of hospice and supply of providers, could inform an assessment of the adequacy of Medicare hospice payment policies. ■

Growth and change in Medicare's hospice benefit

The Medicare program began offering a hospice benefit in 1983 (HCFA 1983). From the beginning of the benefit, Medicare paid hospices using a prospective payment rate for each day of care. The payment method and Medicare base rates were developed using cost data from 26 hospices providing care to Medicare patients with terminal cancer under a Health Care Financing Administration demonstration project between 1980 and 1982. The payment rates have been increased for inflation and other cost increases, but the payment method and the base rates for hospice care have not been updated since the initiation of the benefit.

Medicare spent $6.7 billion on hospice care in 2004. The CMS Office of the Actuary estimates that the Medicare program will spend $9.8 billion on hospice care for beneficiaries in 2006 (OACT 2005). Hospice services' spending is projected to increase at an average rate of 9 percent per year from 2004 to 2015. This rate outpaces the growth in spending projected for hospital, physicians, skilled nursing facility, and home health services. During the same period the number of Medicare beneficiaries is expected to grow at an average annual rate of about 2 percent per year.

Changes raise payment accuracy questions, but data are limited

Since the establishment of the benefit, the population of hospice users has become more diverse and the practice of caring for hospice patients has changed. For example, the proportion of patients with cancer as the primary hospice admission diagnosis steadily declined from 75 percent in 1992 to 58 percent in 2000 (NCHS 2003). An analysis performed by RAND for the Commission found that in 2002 and 2003, the share of hospice users with cancer diagnoses had fallen to 43 percent. Neurodegenerative conditions such as dementia, end-stage Alzheimer's disease, and Parkinson's disease were the most common noncancer primary diagnoses among Medicare hospice patients, followed by cardiovascular disease. These changes raise the question of whether the Medicare hospice payment system accounts for the current costs of caring for hospice users that have terminal diagnoses unlike those patients in the original demonstration.

Another change has been growth in the use of hospice care among patients who reside in nursing home settings (Miller et al. 2000).[1] Nursing home patients were not included in the original demonstration that was used to develop the payment categories and base payment rates (Greer et al. 1983). But precisely tracking the use of hospice among nursing home residents over time is difficult because Medicare hospice data do not readily allow identification of nursing home residents. One study using Medicare data estimated that 45 percent of hospice patients lived in nursing homes between 1996 and 1999 (Campbell et al. 2004).[2]

Costly but beneficial treatments that may be both palliative and curative have been developed since the benefit began (Lorenz et al. 2004, Huskamp et al. 2001). But, because of limited data, the extent to which these treatments are being used is unclear. Some evidence of changes in the provision of hospice care come from a Government Accountability Office (GAO) study that found the relative costs of services that make up a typical day of hospice care have changed since the inception of the benefit (GAO 2004). Costs for home health aides, supplies, and outpatient services make up a smaller share of the cost of a day of routine home care—the most commonly billed category of Medicare hospice care—since the hospice demonstration. In contrast, costs of nursing, drugs, social services, and durable medical equipment have increased as a share of routine home care costs per day. For Medicare's coverage rules and examples of covered services, see the text box on page 62.

Evaluation of the relationship between current patients' characteristics and costs could determine whether these changes in the use of hospice and the mix of services matter—that is, whether the current payment system allocates payments according to the variation in the costs of different patient types. However, Medicare does not collect beneficiary-level data on the number and types of visits and the use of drugs, equipment, and supplies. Hospices report aggregate data on cost reports, but these do not allow us to understand differences among patients. Claims tell only the type of day for which the hospice was paid, not what resources were used. Medicare data on the characteristics of hospice users are also limited. Unlike in many other prospective payment systems, the program does not require hospice agencies to collect or report patient characteristics using a standard patient assessment instrument. Consequently, as currently collected, Medicare data do not permit a detailed assessment of the relationship between patient-level characteristics and service use and cost. For example, the claim does not indicate whether a beneficiary lives in the community alone or with a

Hospice coverage rules

The Medicare hospice benefit covers palliative and support services for beneficiaries who have a life expectancy of six months or less if the disease follows its normal course. Two physicians, typically the patient's own doctor and the hospice physician, must certify the prognosis for a patient to be eligible to elect hospice. Covered services under the hospice benefit include:

- skilled nursing care;
- drugs and biologicals for pain control and symptom management;
- medical equipment and supplies;
- physical, occupation, and speech therapy;
- social work services and counseling;
- home health aide and homemaker services;
- short-term inpatient care;
- inpatient respite care;
- grief support for the patient and family; and
- other services necessary for the palliation and management of the terminal illness.

Beneficiaries who elect the Medicare hospice benefit agree to forgo Medicare coverage for curative treatment for the terminal illness. Medicare continues to cover items and services unrelated to the terminal illness. The first hospice benefit period is 90 days. The patient can then be recertified for another 90 days. After the second 90 days the patient can be recertified for subsequent 60-day periods. There is no limit on the number of benefit periods beneficiaries may elect as long as they remain eligible. Beneficiaries can switch from one hospice to another one time during a hospice election period and can disenroll from hospice at any time.

The interdisciplinary team must establish, maintain, and follow a written plan of care for each person admitted to a hospice program, according to Medicare's current conditions of participation for hospices.[3] The interdisciplinary team consists of a physician, registered nurse, social worker, and pastoral or other type of counselor. Hospices are also required to use volunteers to provide services equal to at least 5 percent of total paid patient care time. The plan of care must assess the patient's needs, identify services to be provided (including management of discomfort and symptom relief), and describe the scope and frequency of services needed to meet the patient's and family's needs.

Hospice care is carved out of Medicare's managed care benefit, Medicare Advantage.[4] Medicare Advantage plan enrollees can elect hospice care outside their plan under the same eligibility rules as beneficiaries in fee-for-service Medicare. Beneficiaries who elect hospice care do not need to disenroll from their Medicare Advantage plan, although they may choose to do so. When a Medicare Advantage enrollee elects hospice care and remains enrolled in a Medicare Advantage plan, the plan is no longer financially liable for all Medicare-covered services the beneficiary uses while in hospice care. Medicare, therefore, reduces its monthly capitated payment for that beneficiary. Fee-for-service Medicare pays for the hospice care as well as care unrelated to the terminal condition. The plan continues to be liable, however, for Part D benefits (prescription drugs) and non-Medicare benefits (e.g., vision or dental care) that it offers to its enrollees. Medicare's reduced capitated payment is meant to cover this liability. ■

caregiver or lives in a nursing home—circumstances that might affect service use or agencies' costs.

Payment categories and rates

The Medicare program pays hospice providers a set rate for each day a beneficiary elects the hospice benefit. Payment for each day is not contingent on a patient receiving a visit on a given day and providers are not required to report visit data to the program. Although a patient may not receive a visit on a given day, the hospice may still incur costs of on-call services, care planning,

TABLE 3–1 **Medicare hospice payment categories and rates, FY 2006**

Category	Description	Base payment rate	Labor share	Share of days
RHC	Home care provided on a typical day	$126 per day	69%	93.0%
CHC	Home care provided during periods of patient crisis	30.76 per hour	69	4.1
IRC	Inpatient care for a short period to provide respite for primary caregiver	131 per day	54	0.2
GIC	Inpatient care to treat symptoms that can not be managed in another setting	563 per day	64	2.7

Note: FY (fiscal year), RHC (routine home care), CHC (continuous home care), IRC (inpatient respite care), GIC (general inpatient care). Payment for CHC is an hourly rate for care delivered during periods of crisis if care is provided in the home for 8 or more hours within a 24-hour period beginning at midnight. A nurse must deliver half of the hours of this care to qualify for CHC-level payment. The minimum daily payment rate at the CHC level is $246 per day (8 hours at $30.75 per hour); maximum daily payment at the CHC level is $738 per day (24 hours at $30.75 per hour).

Source: Base payment rates and labor shares are from CMS Manual System Pub 100–04 Medicare Claims Processing, Transmittal 663, CR 3977, "Update to the Hospice Payment Rates, Hospice Cap, Hospice Wage Index and the Hospice Pricer for FY 2006." Data on share of days are from RAND Corporation's analysis of 100 percent hospice standard analytic files from CMS for calendar years 2002 and 2003.

drugs, or supplies for the patient. Medicare pays according to a fee schedule that has four base payment amounts for four categories of care: routine home care, continuous home care, inpatient respite care, and general inpatient care. Two caps apply to hospice agencies' payments each year. See the text box on page 64 for more information about the hospice caps.

In 2002 and 2003, 93 percent of Medicare hospice days were paid at the routine home care rate, 4.1 percent were continuous home care days, 2.7 percent were inpatient respite care days, and 0.2 percent were general inpatient care days. The payment categories are distinguished by the location and intensity of the services provided. Payment rates vary according to expected input cost differences based on the hospice demonstration data. The base payment rates are adjusted for geographic differences in wages by multiplying the labor share, which varies by category, of each base rate by the applicable hospice wage index (Table 3-1).[5] A hospice is paid the routine home care rate for each day the patient is enrolled in hospice unless the hospice provides continuous home care, inpatient respite care, or general inpatient care.

Beneficiary liability for hospice services is minimal. Hospices may charge a 5 percent coinsurance for each drug furnished outside the inpatient setting, but the coinsurance may not exceed $5 per drug. For inpatient respite care, beneficiaries are liable for 5 percent of Medicare's respite care payment per day. Beneficiary coinsurance for respite care may not exceed the Part A inpatient deductible, which was $952 per year in 2006.

Hospice providers' costs and payments

The Commission has never formally analyzed the adequacy of Medicare hospice payments because data on Medicare costs and payments at the agency level have been limited.[6] Between 1992 and 1999, hospices were not required to submit Medicare cost reports. However, the Balanced Budget Act of 1997 required hospice agencies to submit a cost report for each fiscal year, beginning in 1999. Unlike cost reports for other providers, such as hospitals, skilled nursing facilities, and home health agencies, the Medicare hospice cost report collects Medicare cost data, but not Medicare payment information. Medicare payments to each agency must be calculated from claims by matching claims for the time period overlapping the cost-reporting period. In addition, agencies were not required to submit electronic cost reports until reporting periods beginning on or after December 31, 2004.

Although data are limited, the available information about hospice margins suggests they vary by facility size and other characteristics. For example:

- The GAO estimated that the Medicare per diem rate for all hospice care in freestanding hospices was 8 percent higher than Medicare costs in 2000 and over 10 percent higher in 2001 (GAO 2004).[7] Smaller hospices had, on average, higher per diem costs than large or medium hospices for each of the payment categories.[8] Medicare costs were lower than payments for continuous home care, routine home care, and general inpatient care days, but costs were higher than Medicare payments for inpatient respite care days.

Hospice caps

When the hospice benefit was established, two caps were formulated to limit program liability for hospice spending. One cap limits the share of inpatient care days (either inpatient respite care or general inpatient care) an agency may provide to 20 percent of its total patient care days each year. This cap was also intended to prevent hospice care from becoming a predominantly inpatient benefit and to preserve the delivery of hospice care in the patient's home (Gage et al. 2000). If an agency exceeds the 20 percent inpatient cap, Medicare pays the routine home care rate for the days above the threshold.

The second cap limits the average annual payment per patient a hospice can receive from the program.[9] The average annual payment cap is calculated for the period November 1 through October 31 each year. For the year ending October 31, 2005, the cap amount was $19,776. If an agency's total payments divided by its total number of beneficiaries exceed the cap amount, then the agency must repay the excess to the program. As with the 20 percent inpatient day cap, this cap is not a spending limit on each individual beneficiary, but is applied at the agency level. The average aggregate payment cap is adjusted annually by the medical expenditure category of the consumer price index for all urban consumers. Unlike the daily payment rates, the average aggregate payment cap is not adjusted for geographic differences in cost. As a result, an agency serving a lower wage area can provide more days of the same category of care per beneficiary before reaching the cap than an agency serving a higher wage area.

Because the cap is applied at the agency level, hospices can fall below the cap by having only patients whose lengths of stay do not cause the agency to exceed the average annual cap amount. Alternatively, agencies can have a mix of patients with long lengths of stay and payments in excess of the cap and patients with shorter lengths of stay and payments below the cap. The number of hospices exceeding the average annual payment cap has historically been low. The Government Accountability Office found that between 1999 and 2002 less than 2 percent of hospices reached the cap. Two large, publicly traded chain providers have had agencies that exceeded the aggregate annual caps, which has drawn attention to the caps (Joseph 2005).

To determine whether more hospices are reaching the average annual payment caps, we examined data from the four regional home health intermediaries (RHHIs), contractors that process and pay Medicare claims. We

(continued on next page)

- Total margins of freestanding hospices varied by agency size and for-profit/nonprofit status, according to an analysis using 2003 freestanding hospice cost-report data (McCue and Thompson 2005).[10] For example, the median margin for large for-profit agencies was 18 percent, but the median for large nonprofits was 2 percent. However, these total margins are calculated using all payers' payments and all patients' costs so they may not be the same as Medicare margins.
- Hospice industry data also showed that total margins varied by agency size as measured by average daily census from an average of 11 percent to 19 percent in 2004 (NHPCO 2005). However, excluding fundraising dollars, the National Hospice and Palliative Care Organization (NHPCO) reports average agency margins of 2 percent (NHPCO 2006). These margin data are from a small number of agencies voluntarily reporting their calculations to the NHPCO and therefore are not representative of all hospice providers.[11] These, too, are total margins so they may not be the same as Medicare margins.

Given the age and lack of representativeness of the currently available information, these data are merely suggestive of the magnitude and variability of the current relationship between costs and payments across the industry. Additional analysis of the most recent Medicare cost and payment data for a representative group of hospices is needed to confirm the magnitude and variation of current Medicare margins for hospice providers, which could in turn inform an understanding of the adequacy of Medicare payment for hospice services.

Hospice caps (cont.)

found that more agencies are reaching the aggregate annual cap, but that nearly all of the increase is accounted for by agencies in the Palmetto region (Table 3-2). Through 2003, the share of hospices reaching the cap in that region was a relatively small share of total agencies. In 2003, the 81 agencies that reached the cap were just 3 percent of hospices in the region; in 2004, the share of hospices reaching the cap jumped to almost 15 percent. The 20 percent inpatient cap is rarely reached in any of the regions according to data from the RHHIs.

Differences in shares of agencies reaching the cap across the four RHHIs raise the question of whether providers reaching the cap are concentrated in certain regions or whether all of the RHHIs are consistently applying the cap calculation payment method defined by law.[12] ■

TABLE 3–2

Recent trends in the number of hospices reaching the annual payment cap vary by region

Regional home health intermediary	2000	2001	2002	2003	2004
Hospices over cap					
Associated Hospital Services	0	0	0	0	0
Cahaba	0	2	4	0	N/A
Palmetto	10	21	21	81	128
United Government Services	N/A	N/A	3	7	10
Overpayment amount (in millions)					
Associated Hospital Services	$0.0	$0.0	$0.0	$0.0	$0.0
Cahaba	0.0	0.1	0.9	0.0	N/A
Palmetto	5.9	10.3	9.5	57.7	94.6
United Government Services	N/A	N/A	0.4	2.1	2.8

Note: N/A (not available). The four regions are each served by a different regional home health intermediary (RHHI). Associated Hospital Services is the RHHI for providers in CT, MA, ME, NH, RI, and VT. Cahaba is the RHHI for providers in CO, DC, DE, IA, KS, MD, MO, MT, ND, NE, PA, SD, UT, VA, WV, and WY. Palmetto is the RHHI for providers in AL, AR, FL, GA, IL, IN, KY, LA, MS, NC, NM, OH, OK, SC, TN, and TX. United Government Services is the RHHI for providers in AK, AS , AZ, CA, HI, ID, MI, MN, NJ, NY, NV, OR, WA, and WI. The annual spending cap limits the average annual payment per patient a hospice can receive from the program. If an agency's total payments divided by its total number of beneficiaries exceed the cap amount, then the agency must repay the excess to the program. The cap is adjusted annually by the medical expenditure category of the consumer price index for all urban consumers. The figures for 2004 are not final because guidance from CMS indicates that the cap amount for this period may change.

Source: Unpublished data from regional home health intermediaries.

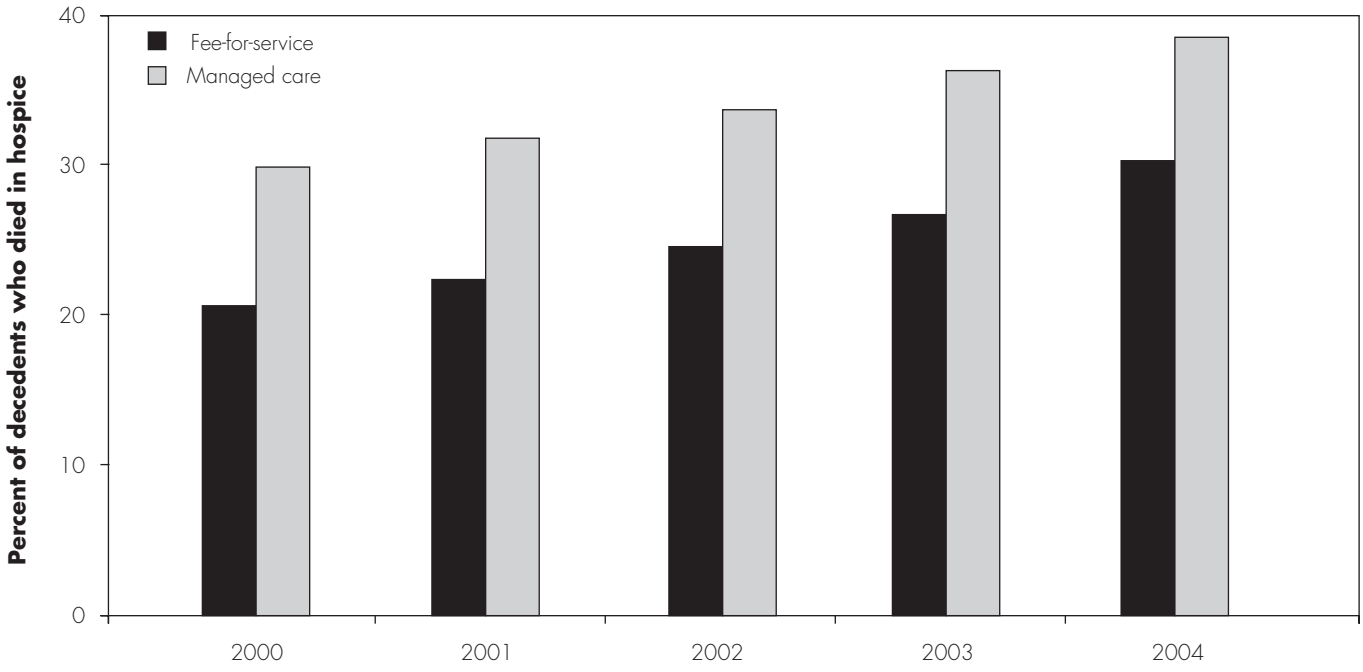
More Medicare beneficiaries used hospice in 2004 than in 2000

More Medicare beneficiaries are electing to use hospice before they die. The rate of hospice use grew from 22 percent of decedents in 2000 to 31 percent of decedents in 2004. Differences in managed care and fee-for-service decedents' hospice use persisted through 2004, with decedents in managed care plans having higher rates of hospice use (Figure 3-1, p. 66). Use is still highest among white Medicare beneficiaries, with nearly one-third of decedents using hospice. But growth in the use of hospice has occurred among beneficiaries in all racial and age groups. This increased use of Medicare's hospice benefit suggests improved awareness and appreciation of the benefit by physicians, hospitals, patients, and their families (MedPAC 2004). In recent years, CMS has also promoted the availability of the benefit to providers and beneficiaries, for example through advertisements in physician journals.

With the increase in the share of decedents electing hospice before they die, the total number of hospice users has increased (Table 3-3, p. 66). Between 2000 and 2004, the number of hospice users increased almost 50 percent

FIGURE 3–1

Hospice use has grown for all Medicare decedents, but use remains higher among those in managed care



Source: MedPAC analysis of 5 percent Enrollment Database file, 2005 from CMS.

TABLE 3–3

Use of hospice among Medicare beneficiaries increased from 2000 to 2004

	2000	2004	Percent change 2000–2004
Beneficiaries in hospice	534,261	797,117	49%
Payment (in billions)	$2.9	$6.7	130
Days of care (in millions)	26	52	101
Share of decedents in hospice	22%	31%	N/A

Note: N/A (not available). Data include Puerto Rico.

Source: Beneficiaries, payments, and days of care from Medicare National Summary for HHA, Hospice, SNF, and Outpatient. http://www.cms.hhs.gov/MedicareFeeforSvcPartsAB/02_MedicareUtilizationforPartA.asp#TopOfPage. Accessed February 13, 2006. Share of decedents in hospice from MedPAC analysis of 5 percent Enrollment Database file, 2005 from CMS.

and the total number of covered days of hospice care doubled during that same period.

The increase in the number of covered hospice days outpaced the growth in the number of users. This trend is driven by increasingly longer lengths of enrollment over time for the share of beneficiaries at the upper end of the enrollment distribution. These stays drove up the mean length of enrollment between 2000 and 2004, but the median remains at about two weeks (Figure 3-2). From 2000 to 2004, more than 25 percent of beneficiaries dying in hospice were enrolled for less than a week before their deaths. These general trends in the distribution of length of enrollment in hospice are the same for hospice beneficiaries in fee-for-service Medicare and in Medicare managed care plans, so heavier rates of use do not seem to result in longer lengths of enrollment.

Analysis of the diagnosis on the Medicare hospice claims from 2002 and 2003 shows variation in the lengths of stay by disease category (Table 3-4, p. 68). Across all disease categories, at least half of patients did not use any type of days of care other than routine home care. This is consistent with the finding that, across all disease

categories, the vast majority of all hospice days—93 percent in 2002 and 2003—are routine home care days.

Length of stay also varied widely by state from a low of 41 days in South Dakota to a high of 122 in Mississippi in 2004 (Figure 3-3, p. 69). Reasons for this variation in length of stay are unknown. The rate of hospice use among Medicare beneficiaries also varies by state. Research has found that the use of hospice is associated with physician, patient, and market characteristics but that, as with other types of healthcare services, "much variation in hospice use is unexplained" (Lorenz et al. 2004).

The supply of hospice providers increased between 2001 and 2005

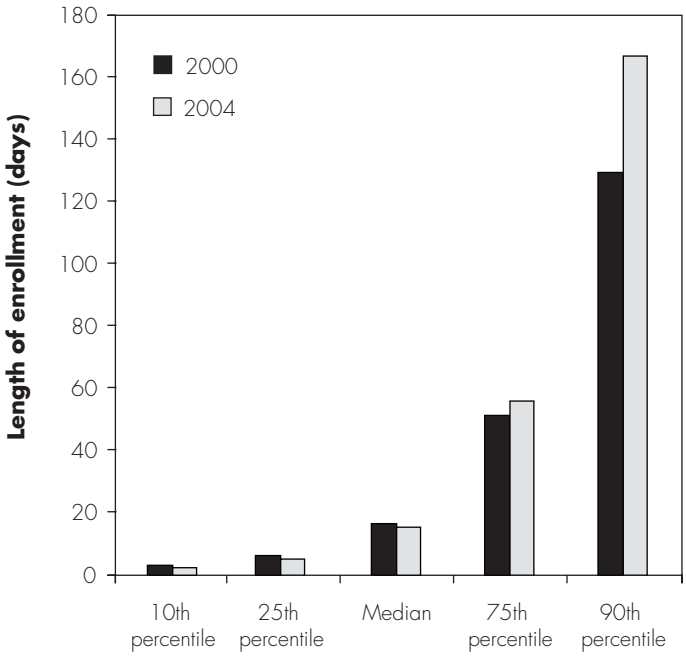
The number of Medicare-certified hospices has increased in the past five years. The mix of hospice provider types has changed as well. Hospice agencies can be freestanding agencies or based in a hospital, skilled nursing facility, or home health agency.[13]

The number of hospice agencies participating in the Medicare program rose 26 percent from 2001 to 2005. In 2005 alone, 251 new Medicare hospice agencies joined the program while 27 agencies terminated their participation. This recent period of growth is attributable to the increase in the number of freestanding providers (Figure 3-4, p. 70).

Freestanding hospices account for the largest share of any hospice type—57 percent in 2005. This is a change from the mix of hospice provider types participating in the 1980–1982 demonstration, where the most common type of hospice provider was hospital-based (42 percent), followed by freestanding providers (31 percent), and home health agency-based (27 percent). There were no skilled nursing facility-based providers in the demonstration (GAO 2004). As of February 2006, 46 percent of hospice agencies were for-profit compared to 31 percent in 2001.

FIGURE 3–2

Long hospice stays are getting longer, but short stays persist



Note: Data are for Medicare beneficiaries in fee-for-service Medicare.

Source: MedPAC analysis of 5 percent Enrollment Database file, 2005 from CMS.

Consideration of payment system refinements

Changes in the use and provision of hospice care suggest that the hospice payment system should be re-evaluated. Evaluation of the hospice payment system would assess whether the benefit structure and payment rates, developed 25 years ago, could be changed to improve the accuracy of the payment rate. Paying accurately for all types of patients is important to ensure that the program is paying rates that cover providers' costs for all types of patients.

Determining the accuracy of the current payment system is difficult. Medicare administrative data offer little detail about hospice services that each patient uses. In this section, we describe the limitations of Medicare data in more detail. We then describe an analysis of the hospice payment system using data from one large chain provider. The results of this analysis are not necessarily generalizable to the entire Medicare population, but they permit a description of one large chain's service provision and costs not available from Medicare data.

Administrative data limitations

The Medicare data available to assess the relationship between hospice patient characteristics and the use of services are limited. The type of services provided, the type of personnel who provided the care, and the frequency and duration of patient visits are not collected on the Medicare claims. Medicare claims provide information at the patient level only on the payment

TABLE 3–4 **Total days of hospice care vary by disease category**

Disease category	Mean total days of care	Mean days of: RHC	CHC	IRC	GIC
All conditions	46.5	43.2	1.9	1.3	0.1
Cancer conditions					
Colorectal	48.3	44.0	2.4	1.4	0.1
Lung, larynx, pleura	40.1	36.6	1.8	1.2	0.1
Hematological	34.3	30.7	2.0	1.2	0.1
Noncancer conditions					
Neurodegenerative	61.3	58.7	2.4	1.0	0.1
Ill-defined debility	54.5	52.3	1.6	0.9	0.1
Cerebrovascular	35.4	31.3	1.9	1.9	0.0

Note: RHC (routine home care), CHC (continuous home care), IRC (inpatient respite care), GIC (general inpatient care). Disease categories were created using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD–9–CM) codes.

Source: RAND Corporation's analysis of 100 percent hospice standard analytic files from CMS for calendar years 2002 and 2003.

category for which the agency billed and the number of days of each category. Comprehensive evaluation of patient costs and service use by hospice patients would require Medicare to collect additional data.

When the Commission last reviewed hospice payment policy in 2004, we concluded that an examination of the services hospices currently provide was needed to ensure that payments accurately account for efficient provider costs (MedPAC 2004). While not a formal recommendation, the Commission suggested that data on the types of services different patients use could be collected nationally by requiring hospice providers to report the information on claims forms or in cost reports. Alternatively, the data could be collected from a sample subset of providers. Data collection efforts should balance the need for information with the administrative burden placed on providers and CMS.

The program has not collected any additional hospice data since the Commission's report. Thus, necessary data are not available for research on potential payment system refinements. In the absence of a representative Medicare hospice data set, we contracted with RAND to analyze one chain provider's data. These data allow us to assess whether detailed use information suggests any potential modifications to Medicare's hospice payment system to distribute payments according to the variations in the costs of different types of patients. This analysis is described in the following section.

Testing case-mix adjustment using data from a large chain provider

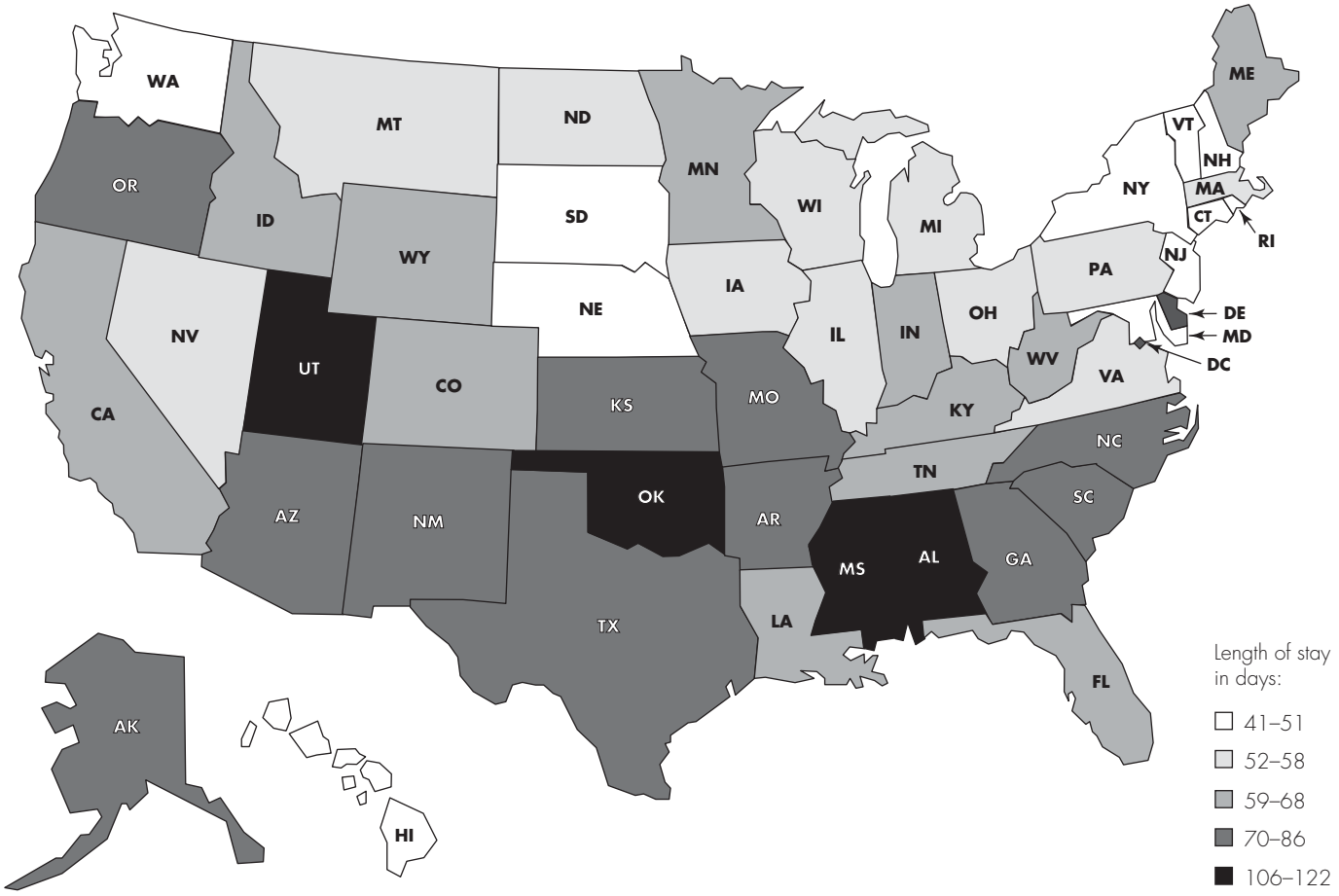
Given the current per diem payment structure and the change in the hospice population over time, RAND focused on three specific questions related to potential refinements to the hospice payment system. These questions had been raised in earlier literature and in the Commission's June 2004 report (MedPAC 2004).

- How well does the per diem system reflect the variation in hospice patient resource use?
- Should case-mix adjusters such as diagnoses be considered?
- Are the beginnings and ends of hospice stays more intensive?

Using one chain's data, RAND found that the variation across patients in the number of visits and visit labor costs was well explained by the number of days in each of the current per diem payment categories. (For additional information on data and methods see the text box on page 73.) In addition, RAND found that patient characteristics alone (including diagnosis, marital status, and residence in a nursing home) explain much less of the variation in resource use across patients for the hospice stay. When added to the model of days and per diem payment categories, case-mix adjusters were not found to improve the explanatory power of the per diem payment system. RAND also found that the beginnings and ends of

FIGURE 3–3

Average length of stay in hospice by state, 2004



Source: MedPAC analysis of CMS data from Medicare Hospice Utilization by State, CY 2004. http://www.cms.hhs.gov/MedicareFeeforSvcPartsAB/Downloads/HOSPICE04.pdf. Accessed February 13, 2006.

hospice stays are more resource intensive for this chain. This is consistent with findings from earlier qualitative research (Huskamp et al. 2001). For a variety of reasons discussed in the following section, these results may not be generalizable to the population of Medicare hospice patients.

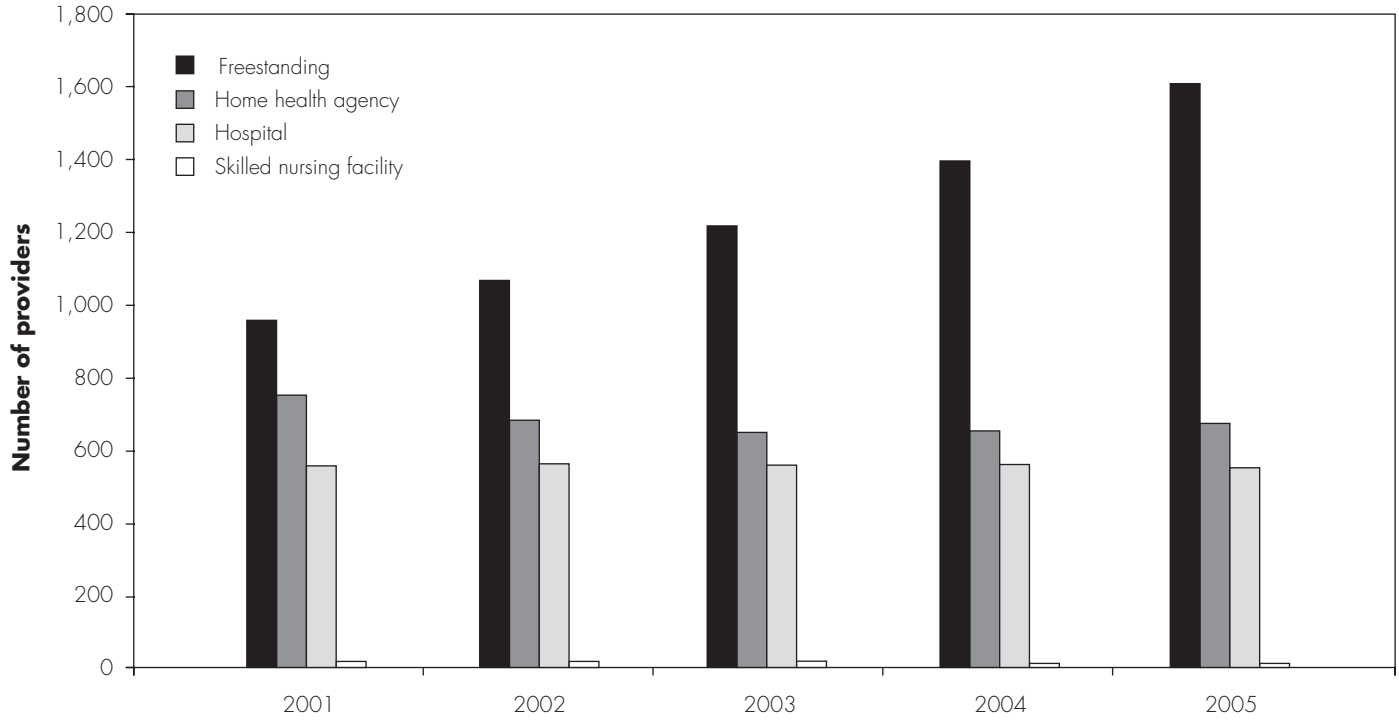
How well does the per diem system reflect variation in hospice resource use?

RAND estimated an ordinary least squares regression to examine how well the number of days in each of the per diem payment categories explained variation in hospice visits and visit labor costs across the chain's patients. The adjusted R-squared is approximately 90 percent for both the number of visits and visit labor costs, indicating that variation in both the number of visits and visit labor costs for patients' hospice stays are well explained by the number of days in each of the per diem payment categories.

This result reflects several factors. Within each type of day of care there was little variation in visits and visit labor costs, so the number of visits in the hospice episode was largely a function of the number of days of care by type of day. This lack of variation in visit labor costs could be a function of dying patients of all diagnoses and characteristics measured in this model having similar needs for hospice visits within the per diem categories. Other nonlabor costs, such as drugs, equipment, or travel time may vary by patient characteristics but the data did not allow us to test this. In addition, the regression results may simply reflect that the chain provider responded to the financial incentives of the current per diem system and provided the level of care that the per diem covers.

FIGURE 3–4

An increase in freestanding agencies fueled growth in the number of hospice providers, 2001–2005



Note: Data for 2001–2005 are as of the end of each calendar year.

Source: MedPAC analysis of unpublished Online Survey, Certification, and Reporting System data from CMS.

The lack of variation may also be a function of practice patterns of a single chain's agencies, which are more likely to be homogenous than those of a diverse and representative sample of providers. It is not possible with available data to determine whether or to what extent the findings reflect each of these factors. Data from additional providers would allow us to compare the level of care across different providers who may have different practice patterns.

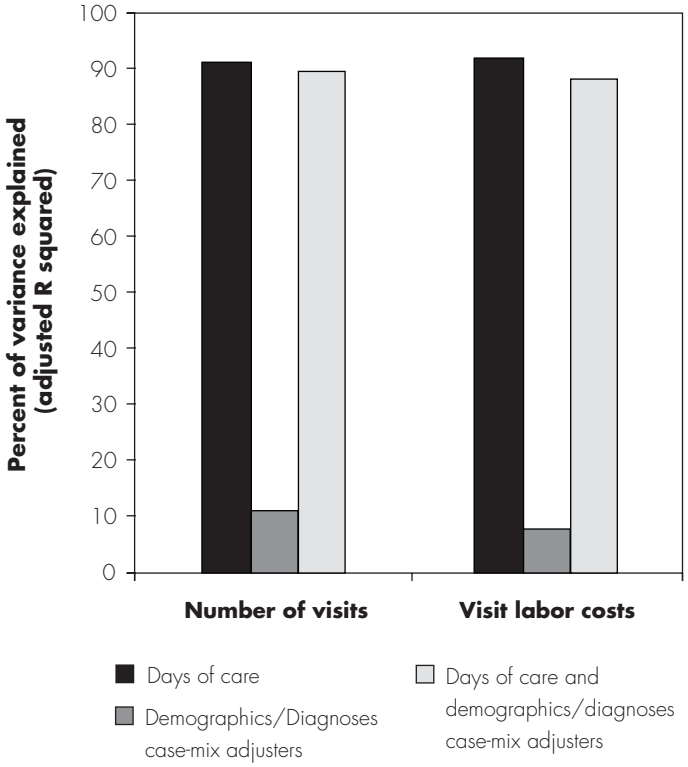
Should case-mix adjusters such as diagnoses be considered?

The chain provider data contain patient-level characteristics including primary International Classification of Diseases, Ninth Revision, Clinical Modification (ICD–9–CM) diagnosis codes, race/ethnicity, marital status, age, receipt of care in a nursing home, discharge status, and location. The clinical advisors to the RAND team aggregated individual ICD–9–CM codes into nine cancer and seven noncancer diagnosis categories that were clinically similar and that they thought would have similar resource use for the purpose of the analyses described below.

RAND tested whether these characteristics were useful predictors of resource use both on their own and in conjunction with the per diem category variables. Figure 3-5 shows the results of three regressions. The first bar is the adjusted R-squared based on the number of days of care by type—routine home care, continuous home care, and general inpatient care. The second bar is the adjusted R-squared when only the patient-level demographics and diagnoses are included. Many of these disease categories are statistically significant predictors of visits and visit costs for the episode, but these factors alone explain no more than 12 percent of the variation in the number of visits and visit labor costs. When added to the model that contains days of care by type, the demographic and diagnoses variables add little explanatory power, as shown by the third bar. In a statistical sense, they do not add explanatory power when the number of variables added to the model is taken into consideration.

FIGURE 3–5

Potential case-mix adjusters explain little additional variation in visits and visit labor costs



Source: RAND Corporation analysis of chain provider's data from 2002 and 2003.

With these data alone, we can not rule out that additional case-mix adjusters (e.g., functional status or availability of caregivers) beyond those available in these data or the same case-mix adjusters tested on a different population served by other agencies would improve the explanation of variance. In addition, results using case-mix adjusters could change using a dependent variable that more fully captured the total costs of care, including drugs, supplies, and nonvisit labor costs.[14]

Are the beginnings and ends of hospice stays more intensive?

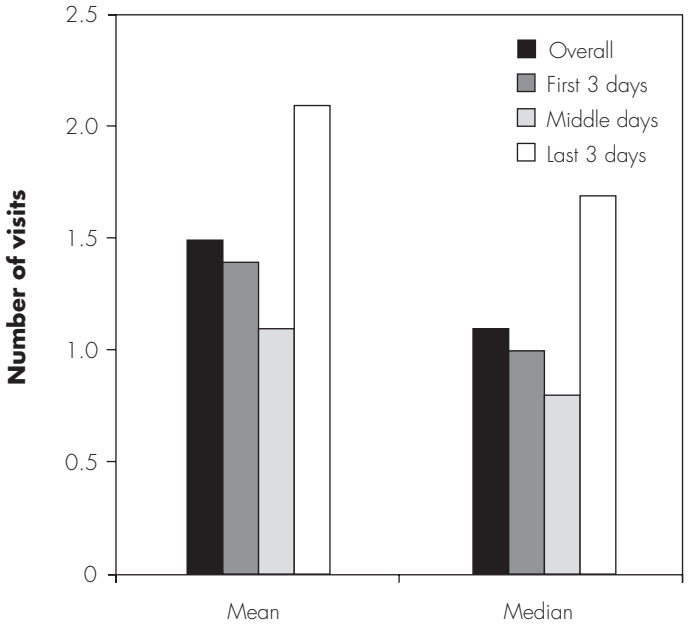
Because the data from the chain provider record the admission date, discharge date, and the date of each visit, RAND was able to construct measures of the distribution of visits across each patient's stay to assess how well a constant per diem rate reflects the resource use throughout a hospice stay. The first and last three days are more intensive than days falling in the middle of a hospice stay. The median length of stay in the sample is 13 days and the median number of visits received is 18; the median number of visits received per day is 1.5. Figure 3-6 plots the relative number of visits at the beginnings, middles, and ends of hospice stays. Given that the median length of stay is less than two weeks, stays were broken into three categories: first three, last three, and middle days of each stay. Stays of three days or less were allocated to the last three days; stays of six days or less were allocated first to the last three days and then to the first three days. At the median, patients received twice as many visits during the last three days as they did in the middle days. Because the beginnings and ends of stays are relatively more expensive, a constant per diem rate may create incentives for providers to seek patients with longer lengths of stay.

Medicare hospice payment: Directions for further investigation

Growth in the benefit, changes to the hospice population, and changes in the delivery of care over time underscore the need to evaluate Medicare's hospice prospective payment system—both the adequacy of the hospice

FIGURE 3–6

More intensive care is delivered at beginning and end of hospice stays



Note: Data for the first three days include preadmission visits. Data for the last three days exclude patients discharged alive.

Source: RAND Corporation analysis of chain provider's data from 2002 and 2003.

payment rates and the relative rates of the different payment categories. This is not to say that growth in the hospice benefit is not appropriate for or beneficial to the program or those who have elected the benefit. However, as with all payment systems, the hospice payment system should be evaluated to assess what the program is buying and whether it is paying adequately for all patients, as well as to ensure value for the program and taxpayer.

The results of RAND's analysis of the chain's data show that case-mix adjusters based on patient characteristics did not improve the per diem system's ability to predict variation in patient costs for this provider. However, these results do not rule out the viability of case-mix adjustments using alternative case-mix adjusters or using these adjusters on a representative population of hospice patients. In addition, this one chain may have more homogenous practice patterns and protocols across patients than a similarly large population selected randomly from the Medicare population of hospice providers. Replicating the patient-level analysis to yield results that reflect the universe of Medicare hospice patients and providers would require the Medicare program to collect additional data on all or at least a representative sample of patients and providers. The RAND study also can not evaluate the quality of the care received.

This Commission and the GAO have previously recommended evaluation of Medicare's hospice payment system, recognizing that this would require additional data. In our May 2002 report to the Congress, we called for the Secretary of the Department of Health and Human Services to evaluate hospice payments to ensure they are consistent with the costs of providing appropriate care (MedPAC 2002). We recommended that the Secretary: 1) analyze differences in the care and resource needs of hospice patients and 2) determine whether a case-mix-adjusted payment system for hospice care is feasible, including studying ways to establish a high-cost outlier policy. Similarly, the GAO recommended that the Administrator of CMS should: 1) collect patient-specific data on hospice visits and services and their costs and 2) determine whether the hospice payment method and payment categories need to be modified (GAO 2004). CMS concurred with the GAO recommendation that the agency should collect data but noted that funding for data collection was limited.

As discussed in this chapter, descriptive research on the care provided to Medicare hospice patients and how that care has changed over time can not be conducted with currently collected Medicare data. Therefore, the program needs to collect additional data. Collecting additional data (e.g., the number, frequency, and duration of visits; personnel providing the care; and patient residence) would provide more detail on the costs of providing care to different Medicare hospice patients and how those costs vary by patient and provider characteristics. Some information on the beneficiary's residence, such as whether it is an urban or rural area, is available. Other data, such as whether the beneficiary resides in a nursing facility or private residence, are not available from hospice claims. The relationship between the location of residence and costs can not be tested using currently available data.

In the future, the Commission could assess the adequacy of current Medicare hospice payments, like we do for other sectors, by examining information about beneficiaries' access to care, the supply of providers, the volume of services, and the quality of care, as well as providers' access to capital and Medicare payments and providers' costs. Analysis of these factors is undertaken annually for hospital inpatient, hospital outpatient, physician, skilled nursing facility, home health agency, and dialysis services, and most recently for inpatient rehabilitation facility and long-term care hospital services. The results of these analyses inform payment update recommendations that are intended to maintain Medicare beneficiaries' access to high-quality care while getting the best value for taxpayers' and beneficiaries' resources.

We have provided information in this chapter on some of these factors (supply of hospice providers and volume of services), but information on others (access to care and Medicare payments and costs) would require additional analysis. Quality of care would likely be difficult to assess for all Medicare-participating hospices because of the lack of data on quality of care for all agencies. Additional analyses could provide information about the extent to which access to hospice care varies among patients. We could also assess how Medicare costs compare to Medicare payments for all hospices and hospices of different types (e.g., those serving mostly rural and those serving mostly urban patients). Although payment adequacy analysis using this framework could provide a clearer picture of the overall adequacy of Medicare payments, determining how differences in margins or costs across providers relates to differences in the care delivered would still require the collection of detailed visit data as described above. ■

Data and methods

RAND was able to address the question of how well the per diem system with additional case-mix adjusters reflects variation in hospice resource use using the chain's data because the chain's data contained patient- and visit-level detail beyond what is available in the Medicare claims. RAND's analysis sample consisted of 68,725 Medicare patients admitted to the chain's agencies in 2002 and 2003. The chain's patient population was about 6 percent of the total Medicare hospice population during the time period examined. The chain's patient population differs from the Medicare hospice population overall: There are fewer lung cancer and debility patients and more cardiovascular, cerebrovascular, and neurodegenerative patients than are typical in the Medicare population. The chain's patients are also somewhat older (Table 3-5). In addition, the chain billed for more inpatient care than the average hospice and did not bill for respite care days.

The chain data allowed RAND to construct two measures of patient-level resource use: the number of visits received and the labor costs associated with those visits. The number of visits per patient measure was constructed by counting each visit in the visit-level data.[15] Estimated visit labor costs were constructed using information on the number and length of visits, as well as titles of the staff involved. These data were merged with Bureau of Labor Statistics data on average hourly wages of each discipline and adjusted for geographic location using the Medicare wage index. The visit labor cost measure captures the direct costs of time spent with patients, but can not be interpreted as a total cost for the visit because it does not include transportation time, administrative overhead, benefits, and nonlabor costs (e.g., drugs). RAND estimates that visit labor costs for this chain are about one-fifth of total Medicare daily costs. ■

TABLE 3–5

Chain and all Medicare hospice patient demographics, 2002–2003

	Chain	All Medicare	Difference (in percentage points)
Disease category			
Cancer	34.0%	42.5%	–8.5%
Noncancer	66.0	57.5	8.5
Age category			
Under 65	4.1	5.1	–1.0
65 to 74	17.8	21.1	–3.3
75 to 84	37.0	37.9	–0.9
85 and over	41.1	35.9	5.2
Marital status			
Divorced/separated/ widowed	58.5	N/A	N/A
Married/ living together	33.5	N/A	N/A
Single	8.1	N/A	N/A
Race			
Asian	1.0	0.6	0.4
Black	11.6	7.7	3.9
Hispanic	11.4	1.3	10.1
Other	0.6	1.0	–0.4
White	75.4	89.5	–14.1
Sex			
Female	59.8	57.6	2.2
Male	40.2	42.4	–2.2
Discharge status			
Died	90.7	82.8	7.9
Discharged alive	9.3	17.2	–7.9

Note: N/A (not available). Category totals may not sum to 100 percent due to rounding.

Source: RAND Corporation analysis of chain provider data and Medicare 100 percent hospice standard analytic files for 2002 and 2003.

Endnotes

1 Because nursing home residence can not be determined from a hospice claim, this study imputed nursing home residence by determining whether hospice users also had a record of a nursing home assessment with a date that overlapped the hospice episode.

2 This study categorized a beneficiary as a nursing home resident using physician claims. It categorized a beneficiary as a nursing home resident if the place of service code or evaluation and management codes on the physician claims indicated that an encounter with the patient happened in a nursing facility or a skilled nursing facility.

3 New conditions of participation for hospices were published in a proposed rule on May 27, 2005. CMS has not yet issued a final rule. The current conditions of participation went into effect in 1983 and were amended in 1990.

4 According to CMS, hospice is not carved out of the Program of All-Inclusive Care for the Elderly (PACE), which is "a unique capitated managed care benefit for the frail elderly provided by a not-for-profit or public entity. The PACE program features a comprehensive medical and social service delivery system using an interdisciplinary team approach in an adult day health center that is supplemented by in-home and referral services in accordance with participants' needs. Since comprehensive care is provided to PACE participants, those participants who need end-of-life care will receive the appropriate medical, pharmaceutical, and psychosocial services through the PACE organization. If the participant specifically wants to elect the hospice benefit from a certified hospice organization, then the participant must voluntarily disenroll from the PACE organization" (CMS 2006).

5 The applicable wage index is determined by the location of where the services are provided not by the location of the hospice provider. The hospice wage index values are the pre-floor, pre-reclassification hospital wage index values subject to a budget neutrality adjustment or wage-index floor. Budget neutrality is defined as estimated aggregate payments to hospice providers that would have been made if the 1983 wage index values remained in effect.

6 The Commission conducts an analysis of providers' Medicare margins using Medicare cost reports. These margins are calculated by dividing the difference between Medicare payments and Medicare costs by Medicare payments. The Medicare margin is Medicare revenue as a share of Medicare payments. The results of these analyses can be found in our annual March report.

7 GAO calculated Medicare margins by comparing reported costs on the Medicare cost reports to the daily Medicare rates, unadjusted for geographic differences in wages. They used only freestanding hospice cost reports and excluded very low-volume providers from the analysis. The hospice industry noted that cost reports were unaudited and that GAO did not include volunteer or bereavement counseling costs. In response, GAO noted that Medicare cost reports are the only available source of information necessary for their mandated study. They also noted that only those costs that are, by law, reimbursable under Medicare were included in their calculation of hospice costs.

8 Agency size was based on the number of days of care provided during the year.

9 This cap was originally conceived to be an amount that reflected the cost to the Medicare program for patients with cancer in the last six months of life. However, the average annual payment cap was ultimately set at an amount that was not based on this calculation (GAO 2004).

10 Margins in this study were calculated as total net income divided by total patient revenue from the Medicare cost reports. The sample of facilities was limited to hospices with patient days greater than 9,696 and 3 years of financial data.

11 On the NHPCO survey, 154 hospices reported total margins and 153 reported margins minus fundraising data.

12 Beneficiaries are counted in a given year if they have filed an election to receive hospice care from the hospice during the period beginning on September 28 prior to the beginning of the cap period and ending on September 27 prior to the end of the cap period. If a beneficiary has received hospice care from more than one hospice during the year, each hospice counts the fraction of a beneficiary that represents the portion of a patient's total hospice stay spent in that hospice. This amount can be obtained from the RHHI.

13 Freestanding refers to hospice agencies that are not operated by a hospital, home health agency, or skilled nursing facility.

14 The chain provided aggregate drug and supply costs, but not for individual patients.

15 Visits made by volunteers were excluded, however, and the chain provider does not record all contacts between patients receiving general inpatient care and the inpatient facility staff.

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