Special Article

THE USE OF MEDICARE HOME HEALTH CARE SERVICES

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ABSTRACT

Background Medicare's home health care program, consisting primarily of home visits by nurses and health aides, was conceived as a means to facilitate hospital discharge. Because home health care is now one of the fastest-growing categories of Medicare expenditures, we analyzed Medicare claims data to determine current patterns of use.

Methods We used 1993 data from Medicare's National Claims History File to examine the temporal relation between home visits and hospital discharge, as well as the number of months Medicare enrollees received home health care. To determine whether home visits replaced hospital services, we calculated population-based utilization rates, adjusted for age and sex, for enrollees living in the 310 U.S. metropolitan statistical areas and determined whether the areas with higher rates of home health care also had lower admission rates or shorter lengths of stay. Finally, we compared the geographic variation in use of home health care with that of other Medicare services.

Results Roughly 3 million Medicare enrollees received over 160 million home health care visits in 1993. Seventy-eight percent of the visits either occurred more than a month after hospital discharge (35 percent) or were not associated with any inpatient care during the previous six months (43 percent). Home health care often represented a long-term intervention: 61 percent of the visits were to enrollees who received home health care for six months or more. We could find no evidence that home health care was substituted for hospital care; the metropolitan statistical areas with higher rates of home health care did not have fewer hospital admissions or shorter lengths of stay. There was more geographic variation in the use of home health care than in the use of other major categories of Medicare services (e.g., hospital admissions and physicians' services). Five states (all in the South) had more than 9000 visits per 1000 enrollees, and 14 states had fewer than 3000 visits per 1000 enrollees.

Conclusions Home health care visits are used primarily to provide long-term care. There is no evidence that services provided at home replace hospital services, and the dramatic geographic variation in home visits suggests a lack of consensus about their appropriate use. (N Engl J Med 1996;335:324-9.)

MEDICARE expenditures for home health care are growing exponentially. Home health care reimbursements grew from $2 billion in 1988 to $12.7 billion in 1994 and now account for more than 8 percent of the total budget for Medicare.[1] This growth was predominantly the result of the 1988–1989 liberalization and standardization of coverage for home health care services,[2] which in turn fostered a substantial increase in the number of home health agencies certified by Medicare. Between 1989 and 1995, the number of such agencies increased by more than 50 percent (from 5676 to 8747), and the number of for-profit agencies more than doubled (from 1818 to 3730).[3]

Home health care was originally conceived as a means to facilitate earlier hospital discharge — that is, it was to be transitional care following hospitalization.[2] In fact, before 1980, Medicare regulations stipulated that only beneficiaries who had been hospitalized could receive home health services. The incentive to decrease the length of stay under the prospective-payment system helped emphasize the transitional role of home health care and encouraged hospitals to provide the service. For selected diagnosis-related groups (DRGs), there is evidence that home health care was indeed effective in decreasing the length of stay[4,5] and that patients were being discharged earlier, in an earlier phase of their illness.[6]

The potential role for home health care greatly expanded during the 1980s.[2] In 1980, the requirement that home visits be restricted to enrollees who had recently been hospitalized was eliminated, and home health care began to be used more broadly. Toward the end of the decade, the Medicare manual

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for home health agencies was revised in response to litigation. Two changes were critical: first, coverage could no longer be denied solely because a patient had a chronic disease; and second, a physician's prescription of home health care services could no longer be rejected unless objective clinical evidence contradicted the order.

These changes set the stage for rapid growth. Although earlier studies have documented an increase in the number of home health care visits[7,8] and geographic variation in expenditures for these services,[5] clinicians may not be familiar with the current levels and patterns of use. We analyzed 1993 Medicare claims data to determine, first, the extent to which home health care services have moved beyond the provision of transitional care; second, whether there is strong evidence that home health care replaces other health care services; and third, the current geographic variation in the use of home health care.

METHODS

We analyzed 1993 data in the National Claims History File, which is maintained by the Health Care Financing Administration. The standard 1 percent random sample was used for selected national analyses, whereas the full file was used for geographic analyses. We also determined the use of hospitals and skilled-nursing facilities and employed previously analyzed data on physicians' services.[9]

Definition of a Visit

Our primary measure of the use of home health care services was the number of visits, as opposed to the number of recipients or episodes of care.[10] To reflect the resources expended as directly as possible, we weighted the data on visits according to the costs of various categories of home health services. Medicare uses six categories for payments. Most visits fall into two categories: skilled-nursing care, which accounts for 42 percent of visits, and care provided by home health aides, which accounts for 47 percent; the other four categories are physical therapy, which accounts for 8 percent, and speech therapy, occupational therapy, and medical social services, which account for 3 percent. We developed a relative-value unit for each category, which was based on the ratio of the average national reimbursement for that category (e.g., about $83 for a visit by a nurse and about $41 for a visit by a health aide) to the average cost of all home visits (about $64).[11] Thus, a visit by a nurse counted as 1.3 visits (83 ÷ 64), whereas a visit by a health aide counted as 0.64 visit (41 ÷ 64). All the data on visits reported here reflect this refinement.

Claims Data

Claims for home health care include information on the number of visits; the visit category; the prescribing physician's unique provider identification number; the diagnostic code in the *International Classification of Diseases, Ninth Revision;* the enrollee's identification number; and the dates of visits. Because the original reason for offering home health care was to facilitate hospital discharge, we used the enrollee's identification number and dates of visits to link home health care claims to the most recent hospital discharge. To determine the temporal relation between home visits and hospitalization in a single year, we restricted this analysis to visits in the second half of 1993 and documented hospital discharges in the six months preceding the visits.

Home health care claims were aggregated for each beneficiary to create a user-level file. With this file, we determined the distribution of visits on the basis of the number of months in which beneficiaries received services. We also created user-level files for the use of hospitals and skilled-nursing facilities.

Population-Based Analyses

The three user-level files were merged with the Health Care Financing Administration's Denominator File to calculate population-based rates for the use of home health care services, hospitals, and skilled-nursing facilities. Because claims from health maintenance organizations (HMOs) are filed irregularly, HMO enrollees were excluded from the analysis. The unit of analysis was the metropolitan statistical area, as defined by the Bureau of the Census. There are 310 such areas in the United States. Use of services was ascribed to the geographic area where the enrollee resided rather than to the place where the service was delivered. Indirect standardization was used to adjust the data according to the age and sex of the enrollees.

We then investigated whether home health care served as a substitute for hospital care (Table 1). We further analyzed hospitalizations to determine whether home health care shortened the length of hospital stays (using visits within 10 days after discharge) or was a substitute for admission (using all visits). To increase the chances of detecting the use of home health care to shorten the length of stay, we performed an analysis restricted to DRGs frequently associated with home visits within 10 days after discharge. Whereas 17 percent of all hospital discharges were followed by home visits within 10 days, the 18 DRGs in this subanalysis were associated with home visits after at least 35 percent of the discharges (i.e., the DRGs were at least twice as likely to involve subsequent home health care). Similarly, to increase the chances of detecting the use of home health care as a substitute for admission, we performed an analysis restricted to DRGs for which hospitalization is highly variable (i.e., the decision to admit the patient is particularly subject to the physician's discretion).[12,13]

TABLE 1. CORRELATIONS BETWEEN HOME HEALTH CARE AND CARE PROVIDED IN A HOSPITAL OR SKILLED-NURSING FACILITY, ACCORDING TO 1993 MEDICARE CLAIMS DATA.*

CARE IN HOSPITAL OR SKILLED-NURSING FACILITY	HOME HEALTH CARE	CORRELATION COEFFICIENT (P VALUE)
Average length of hospital stay	Visits within 10 days	0.04 (NS)
Length of hospital stay restricted to 18 DRGs†	Visits within 10 days for 18 DRGs†	−0.08 (NS)
Rate of hospital admission	All visits	0.32 (<0.001)
Rate of hospital admission for high-variation DRGs‡	All visits	0.27 (<0.001)
Days in hospital	All visits	0.23 (<0.001)
Days in skilled-nursing facility	Visits within 60 days	−0.07 (NS)

*The metropolitan statistical area is the unit of analysis. All variables are adjusted for age and sex, except the analysis restricted to 18 DRGs, which is adjusted for the DRG. NS denotes not significant.

†The 18 DRGs (13 surgical and 5 medical DRGs) are those most frequently involving home care after discharge. The 13 surgical DRGs include amputation (DRGs 114 and 285), cardiac surgery (105 and 106), joint replacement (471), skin grafting (265 and 287), tracheostomy (482), and various other surgical procedures (191, 292, 303, 354, and 461). The five medical DRGs include endocarditis (DRG 126), inflammatory arthritis (244 and 245), osteomyelitis (238), and rehabilitation (462).

‡High-variation DRGs denote medical DRGs for which hospitalization is highly variable (i.e., the decision to admit the patient is particularly subject to the physician's discretion).

We also examined the use of home health care as a possible substitute for care provided in skilled-nursing facilities. Because Medicare coverage for care in a skilled-nursing facility is limited to conditions related to prior hospitalization (20 days are covered in full, with a substantial copayment for the next 80 days), we restricted the analysis to home health care visits within 2 months after hospital discharge.

Finally, we examined the geographic variation in the use of home health care and compared it with the geographic variation in the use of other Medicare services.

RESULTS

Of the 33.4 million Medicare enrollees not enrolled in HMOs, roughly 3 million (9 percent) received a total of over 160 million home health care visits in 1993. Two thirds of these visits were prescribed by generalist physicians (internists, family practitioners, or general practitioners). The recipients of home health care were older than the nonrecipients and were more likely to be female and poor.

Relation between Home Visits and Hospital Discharge

Figure 1 shows that most home health care visits took place long after hospital discharge, if they were preceded by hospitalization at all. Less than a quarter of home visits (22 percent) were preceded by a hospital stay within 30 days. Nearly half the visits (43 percent) were not associated with an inpatient stay in the previous six months. Thus, only a small proportion of home visits could have been made for the purpose of easing the transition from hospital to home.

The data in Figure 2 show that home visits were often part of a long-term intervention. Almost two thirds of the visits (61 percent) were to enrollees who received six or more months of home health care, whereas only 4 percent were to enrollees who received such care for a month or less. The bulk of the visits involved a relatively small number of enrollees: 30 percent of the recipients had more than 50 visits each and accounted for three quarters of all the visits. The majority of the diagnoses reported in home health care claims were chronic conditions (such as diabetes and cardiovascular disease), providing further evidence that home visits often represent long-term care (data not shown).

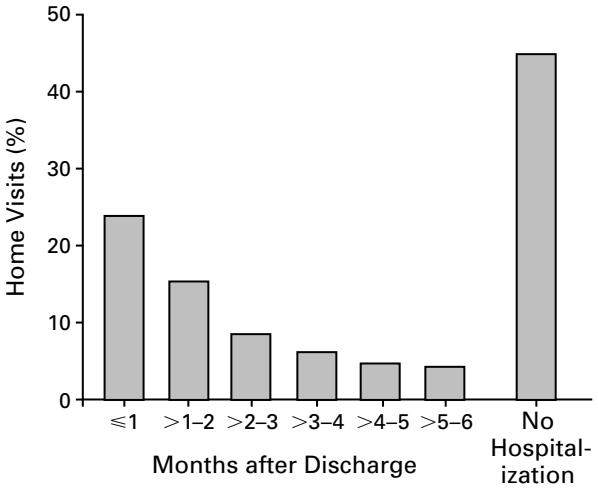

Figure 1. Relation between Home Health Care Visits and Hospital Discharges within the Previous Six Months among Medicare Enrollees in 1993.

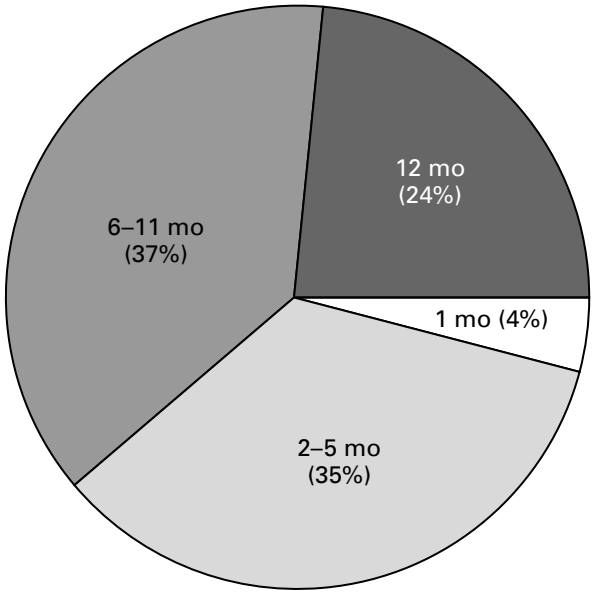

Figure 2. Distribution of Visits to Medicare Enrollees According to the Number of Months Home Health Care Was Received in 1993.

Sixty-one percent of all visits were to enrollees who received care for six or more months.

Home Health Care as a Substitute for Other Services

It is possible that home health visits were substituted for other health care services — in other words, increased use of home health care visits was associated with decreased use of other Medicare services. Table 1 shows the correlation coefficients for home health care visits and measures of the use of hospitals and skilled-nursing facilities. A negative correlation coefficient would indicate that increased use of home health care was associated with decreased use of other services, suggesting a substitution of home care for these other services. The only evidence of substitution for hospital care was in the analysis of length of stay with respect to 18 DRGs frequently associated with home health care after discharge; this correlation was weak and not statistically significant. All other correlations between home health care and hospital care were positive, suggesting that metropolitan statistical areas with high rates

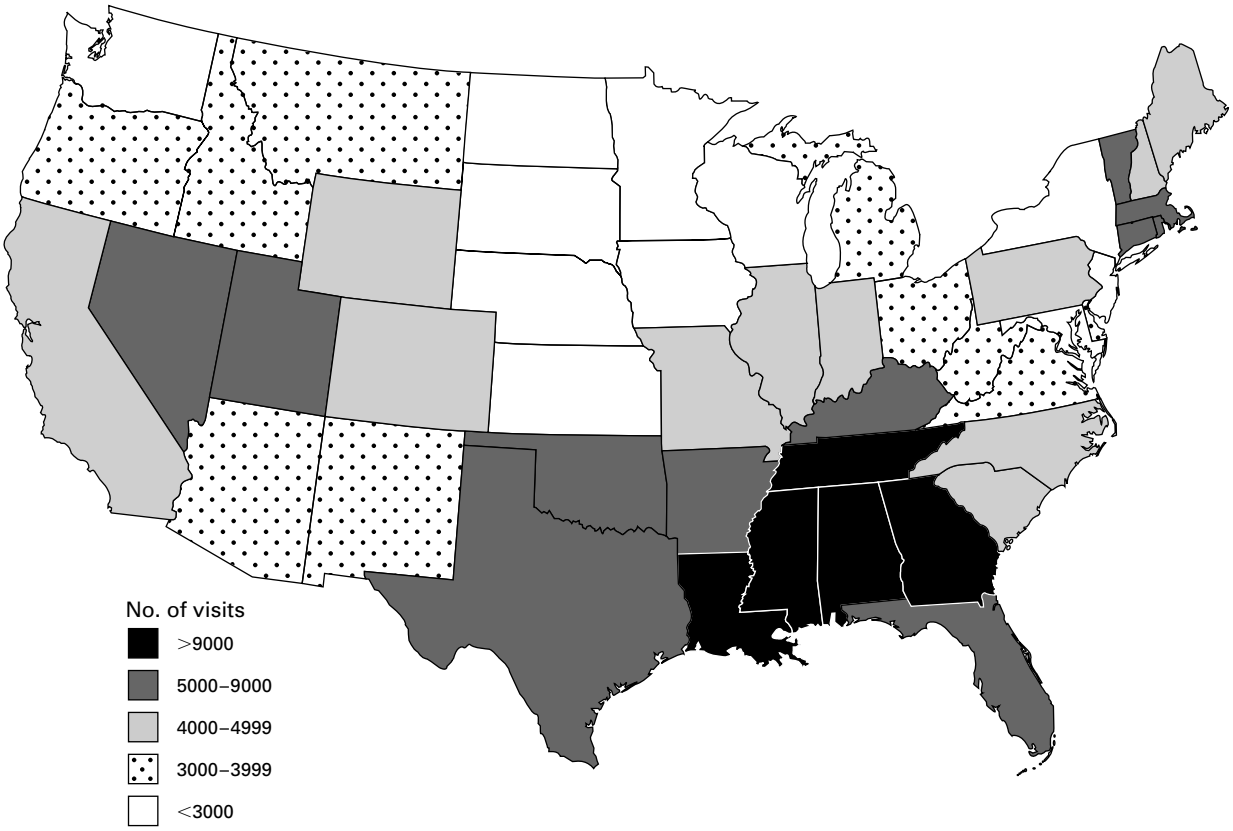

Figure 3. Number of Home Health Care Visits per 1000 Medicare Enrollees in the Contiguous United States in 1993. Data have been adjusted for the age and sex of enrollees. Both Alaska and Hawaii were in the lowest category.

of hospitalization also have high rates of home health care. The association between the use of home health care and the use of skilled-nursing facilities was not significant.

Geographic Variation

Figure 3 shows the number of home health care visits per 1000 Medicare enrollees in each state. Utilization rates tended to be highest in the South and lowest in the upper Midwest. Five states had more than 9000 visits per 1000 enrollees: Tennessee (13,460 visits), Mississippi (12,350), Louisiana (11,130), Alabama (9990), and Georgia (9230); three states had fewer than 2000 visits per 1000 enrollees: Minnesota (1825), Hawaii (1744), and South Dakota (1425).

Figure 4 shows that there was considerably more variation in expenditures for home health care than in expenditures for other categories of Medicare services. With the metropolitan statistical area as the unit of analysis, the coefficient of variation for home health visits greatly exceeded the coefficients of variation for services provided by hospitals, physicians, and skilled-nursing facilities. This dramatic variation suggests that there is no national consensus on whether and, if so, how often to use home health care.

DISCUSSION

Although easing the transition from the hospital to the home was the original purpose of Medicare's home health care program, the results of our analysis show that this purpose actually accounts for a small proportion of home health care expenditures. Furthermore, our analysis raises questions about how successful this program is in reducing expenditures for other services. Even when we focused the analysis on the DRGs for which home health care is most frequently prescribed after discharge, there was no obvious evidence that home health care visits resulted in shorter hospital stays. And despite the evidence that home care provided to severely disabled veterans[14] and elderly patients with congestive heart failure[15] may lower hospital costs, metropolitan statistical areas with high rates of home health care visits also have high rates of hospital use, in terms of both length of stay and rate of admission.

In fact, in terms of resources expended, home

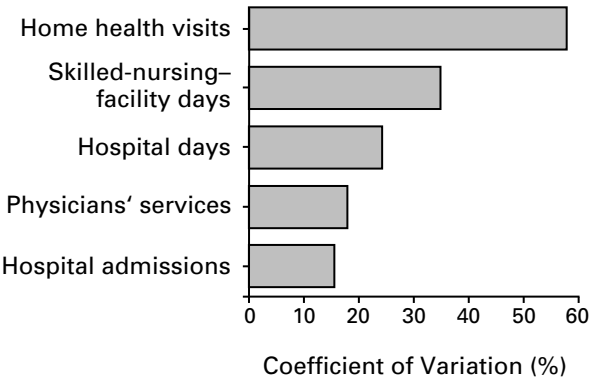

Figure 4. Coefficient of Variation for Major Categories of Medicare Services.

Data have been adjusted for the age and sex of enrollees. Data on physicians' services are from 1992 Medicare Part B claims and were calculated with the use of relative-value units.[9] All other data are from 1993 Medicare Part A claims. The unit of analysis is the metropolitan statistical area. The coefficient of variation was calculated as the standard deviation divided by the mean.

health care in 1993 was no longer predominantly linked to acute care. Most visits were to recipients who had not recently been hospitalized, who received visits over extended periods, and who were treated for chronic conditions. Thus, home health care has become primarily a form of long-term care.

The provision of long-term care represents a new role for the Medicare program. Although the program has covered services in skilled-nursing facilities, they are not the services most clinicians would associate with conventional long-term institutional care. The nursing home services covered must be related to a prior hospitalization and must be limited in duration. Coverage for home health care visits has no such restrictions, however, allowing the visits to be used for the provision of long-term care.

What kind of long-term care is provided through home health visits? Whereas some visits may involve intravenous therapies and assistance with complex therapeutic regimens, others may serve as an alternative to a trip to a medical facility for simple diagnostic tests (e.g., phlebotomy) or therapy (e.g., dressing changes). Home health aides have played an increasingly large part in the provision of home care[2] and now account for almost half the visits. These visits may also provide companionship and assistance with personal hygiene or household chores. Home health care may thus be a way to institutionalize societal "caring" and may be, at best, only tangentially related to medical care. Such visits may thus substitute for care previously provided by family members or friends.

We found considerable geographic variation in the use of home care. The magnitude of the variation (almost 10 times as many visits per 1000 Medicare enrollees in the state with the highest use as in the state with the lowest use) makes it extremely unlikely that the disease burden is the only explanation.

Three factors may contribute to the variation observed. First, the variation in home health care services may be explained in part by local nursing home practices. Our study is limited in its ability to determine the extent to which home visits serve as a substitute for nursing home care. Although we did not find any evidence that home visits were substituted for care provided by skilled-nursing facilities, most nursing home care is paid for either out of pocket or by state Medicaid programs, and these expenditures are not included in our data. We examined the discharge destinations of hospitalized patients admitted from home to determine the proportion discharged to nursing homes and used these data as a proxy for overall use of nursing home care. There was a weak negative correlation between the use of home health care and the proportion of discharges to nursing homes. Although most of the reports in the literature have questioned the effectiveness of home health care as a substitute for nursing home care,[16-19] the results of a recent trial suggest that a comprehensive geriatric assessment followed by infrequent home visits can reduce the use of nursing homes.[20]

Second, the geographic variation may in part reflect state Medicaid policy. Medicare expenditures for home health visits may be a mirror image of Medicaid expenditures for such visits. The five states with the highest home-visit rates in our analysis of Medicare data indeed have fairly low rates of Medicaid spending on home and community-based care, as reported in the *State Long-Term Care Profiles Report*.[21] When we examined this relation in all 50 states, however, we found that little of the variation in the Medicare expenditures was explained by the Medicaid expenditures. Because the Medicaid data provide only a crude estimate of state services provided to the elderly, the role of state policies in determining the use of the Medicare home health care program remains uncertain.

Finally, some of the geographic variation may be the result of business practices. Over half the recipients of home health care in the five highest-use states are served by for-profit agencies, which is roughly twice the national average.[22] For-profit agencies have been shown to provide considerably more visits per episode of care than other agencies.[23] Furthermore, because of budget cuts, home health care claims are less and less likely to be reviewed by Medicare.[23] There has been growing concern about fraud in the industry (with recent convictions on the charge[24,25]), the prevalence of which may vary geographically.

Pressures on providers and patients are likely to result in further increases in the use of home health care in the future. Given the large reservoir of needs that nurses may identify during home visits, it may

be difficult to stop such care. As other health care providers begin to focus on providing services that meet quantifiable standards of efficacy, home health care nurses may focus on the need for human contact, which is difficult to quantify. The demand for home health care may be reinforced by increasingly complex outpatient regimens that can be administered only through home visits. And because there are few disincentives for such services and no out-of-pocket costs, controlling expenditures may be very difficult, particularly given active advertising and the value placed on care received in the comfort of one's own home.[26,27]

Controlling the growth of home health care will ultimately require that physicians either live with rigid rules (e.g., visits allowed only within the first month after discharge, with no more than 50 visits per enrollee per year) or take a more active role in determining the need for such care. Currently, physicians may view their role as simply signing the required form and may be only vaguely aware that it is they, not nurses, who authorize home health care. A more active role on the part of physicians, however, will require information on when and how best to use home care. Equally important will be a social consensus about exactly what constitutes health care.

Supported by a grant (Cooperative Agreement No. 95-C-90401) from the Health Care Financing Administration to the Maine Medical Assessment Foundation. Dr. H.G. Welch is the recipient of a Veterans Affairs Career Development Award in health services research and development.

The views expressed here are those of the authors and do not necessarily represent the views of the institutions with which they are affiliated.

We are indebted to Xiaoqang Ren and Joe McGoldrick for programming assistance and to Robert Pritchard, M.D., Genevieve Kenny, Ph.D., and Andrew Dodds, M.D., for their critique of the manuscript.

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