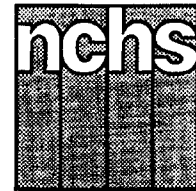


Advance Data



From Vital and Health Statistics of the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

Characteristics of Elderly Home Health Patients: Preliminary Data From the 1992 National Home and Hospice Care Survey

by Esther Hing, Division of Health Care Statistics

Introduction

Provision of formal home health services has increased dramatically in the last 30 years, due in large part to increased public funding of home health services through the Medicare and Medicaid programs (1). In 1991, for example, 65 of every 1,000 Medicare enrollees received home health services compared with 16 of every 1,000 Medicare enrollees in 1974 (2,3). Growth in the home health industry has also occurred as the introduction of Medicare's Prospective Payment System for hospitals resulted in the need for more post-acute care in the community (1,4). Home health agencies provide many therapies to assist early discharge from a hospital, including physical therapy, postburn and postsurgical therapy, decubitus treatment, pulmonary therapy, and occupational therapy (4). New opportunities for care in the home have also been created as medical technology has been adapted from the hospital to the home setting. Parenteral therapies (including parenteral nutrition, chemotherapy, antibiotic therapy, anticoagulation infusions, and transfusion of blood and blood products), oxygen therapy, and home dialysis are some of the services previously provided only in acute care

hospitals that are now provided by home health agencies (4).

This report presents findings on home health service utilization by the elderly regardless of agency certification by Medicare or Medicaid, and regardless of patient funding source. The data presented are preliminary estimates from the 1992 National Home and Hospice Care Survey, the first annual survey of hospices, home health agencies, and their respective patients. The National Center for Health Statistics (NCHS) instituted this nationwide sample survey in response to the rapid growth in the number of these agencies in the United States (5). The 1,500 agencies included in the survey were selected from a universe of 8,036 agencies classified by the 1991 National Provider Inventory (NHPI) (6) as agencies providing home health or hospice care. Also included in the universe was a sample of potentially new agencies identified between November 1991 (when the 1991 NHPI was completed) and June 1992. Detailed information on sample design, selection methods, data collection procedures, and sampling errors is included in the Technical notes.

Estimates in this report are based on the two patient samples (current patients on the agency's rolls as of the night

before the survey and discharges [alive and dead] during the last 12 months). Data were collected by interviewing knowledgeable staff members, who referred to the patient's medical records. Although the survey included patients from hospices and home health agencies, data presented in this report are based only on home health patients aged 65 years and over, that is, based on responses from 3,654 discharges and 3,897 current patients. Estimates for this report are preliminary. Further editing of the data may produce estimates slightly different from the estimates shown here.

Current patient characteristics

On any given day during the survey period in 1992, there were 929,500 elderly home health patients, who represented 3 out of 4 of the 1.2 million patients served by home health agencies (7). These patients were predominantly female (66 percent), of white race (70 percent), non-Hispanic (69 percent), widowed (44 percent), or married (35 percent) (table 1). Most of these patients (71 percent) were served by home health agencies located in a Metropolitan Statistical Area (MSA) (table 1). An MSA is an urban area defined by the U.S. Office of Management and Budget on the basis of



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics



Table 1. Number and percent distribution of elderly home health patients by demographic characteristics: United States, 1992

<i>Demographic characteristics</i>	<i>Number</i>	<i>Percent distribution</i>
Total 65 years of age	929,500	100.0
<i>Age</i>		
65-74 years	300,000	32.3
75-84 years	415,400	44.7
85 years and over	214,100	23.0
<i>Sex</i>		
Male	280,100	30.1
Female	649,400	69.9
<i>Race</i>		
White	651,400	70.1
Black and other	113,200	12.2
Black	105,800	11.4
Unknown	164,900	17.7
<i>Hispanic Origin</i>		
Hispanic	29,800	3.2
Non-Hispanic	641,900	69.1
Unknown	257,800	27.7
<i>Current marital status</i>		
Married	324,500	34.9
Widowed	406,600	43.7
Divorced/separated	30,200	3.2
Never married	40,500	4.4
Unknown	127,700	13.7
<i>Living quarters</i>		
Private or semiprivate residence:		
Private residence	866,400	93.2
Rented room/board	9,200	1.0
Retirement home	20,100	2.2
Board and care/residential care facility	24,900	2.7
Health facility	4,700	0.5
Other or unknown	*	*
<i>Location</i>		
MSA	658,100	70.8
Non-MSA	271,400	29.2
<i>Census region</i>		
Northeast	287,000	30.9
Midwest	197,900	21.3
South	323,700	34.8
West	121,000	13.0

the 1980 census (8). There was also regional variation in the distribution of home health patients; a larger proportion of home health patients were in the South and Northeast census regions (35 and 31 percent) than in the Midwest or West regions (13 and 21 percent). The regional distribution of patients partially reflects the distributions of home health agencies; according to the 1991 NHPI, 39 percent of home health agencies were located in the South, while 29 percent

were in the Midwest, 19 percent were in the Northeast, and 14 percent were in the West (6).

Most of these patients had been served on a continuing basis; 58 percent had been in the program for more than 90 days (table 2). The average length of service (up to the day of the survey) was 322.4 days. The length of service distribution was skewed, however, since the median length of service since admission was 124 days.

Table 2. Number of elderly home health patients, percent distribution by length of service since admission, mean and median length of service since admission: United States, 1992

<i>Length of service since admission</i>	<i>Current patients in 1992</i>
Total, 65 years of age and over	929,500
<i>Percent distribution</i>	
All lengths of service	100.0
Under 15 days	6.3
15-30 days	11.0
31-60 days	15.9
61-90 days	9.2
91 days or more	57.5
Mean (in days)	322.4
Median (in days)	124.0

As shown in table 1, nearly all current patients (96 percent) were living in a private or semiprivate residence (retirement home, rented room, or boarding home) or some other noninstitutional residential setting (3 percent) while receiving home health services. An estimated 4,700 current patients, however, received home health services while in a hospital, nursing home, or other health facility. Because home health services are primarily used by the noninstitutionalized population, the rates presented in table 3 exclude patients who received home health services in a health care facility.

In 1992, on any given day during the survey period, 30 of every 1,000 civilian noninstitutionalized population aged 65 years and over received home health care (table 3). Use of home health services by the civilian noninstitutionalized population increased with age; home health use increased from 16 per 1,000 population aged 65-74 years to 82 per 1,000 population aged 85 years and over. Elderly women used home health services more often than elderly men. Home health use among elderly women was 67 percent higher than that for elderly men (36 per 1,000 elderly women compared with 22 per 1,000 elderly men). As shown in table 3, home health use varied by location and region. The number of home health patients per 1,000 population in areas outside urban MSA's (34 per 1,000 population aged 65 years and over) was higher than inside MSA's (29 per 1,000 population

Table 3. Civilian noninstitutionalized population 65 years of age and over, and number of current home health patients per 1,000 population 65 years of age and over by age, sex, location, and region: United States, 1992

Population characteristic	1992 civilian non-institutionalized population aged 65 years and over in thousands	Number of 1992 current home health patients per 1,000 population aged 65 years of age and over ¹
Total 65 years of age and over	30,792	30.3
Age		
65-74 years	18,470	16.2
75-84 years	9,698	42.8
85 years and over	2,624	81.6
Sex		
Male	12,892	21.7
Female	17,899	36.3
Location		
MSA	22,890	28.8
Non-MSA	7,901	34.4
Census region		
Northeast	6,822	42.1
Midwest	7,490	26.4
South	10,613	30.5
West	5,868	20.6

¹Numerator excludes home health patients who received care in a health facility.

Table 4. Number and percent of elderly home health patients by functional status in the activities of daily living and instrumental activities of daily living, and continence: United States, 1992

Functional status	Current patients
Total 65 years of age and over	929,500
Percent	100.0
Received personal help with the following activities of ADL	
Bathing or showering	56.3
Dressing	49.1
Eating	13.4
Transferring in or out of beds or chair	36.4
Using the toilet room	27.4
Continence status	
Difficulty controlling bladder	13.1
Difficulty controlling bowels	21.3
Had ostomy, indwelling catheter, or similar device	12.7
Received personal help in caring for this device	11.2
Received personal help with the following IADL	
Doing light housework	37.6
Managing money	3.1
Shopping for groceries or clothes	14.9
Using the telephone (dialing or receiving calls)	4.6
Preparing meals	24.9
Taking medications	26.5
Personal help with ADL'S and IADL'S	
None	28.6
Help with IADL's only	10.9
Help with one ADL	7.6
Help with two ADL's	16.1
Help with three ADL's	13.4
Help with four ADL's	14.8
Help with five ADL's	8.7

aged 65 years and over). Home health use was also higher in the Northeast (42 per 1,000 population aged 65 years and over) than in the remaining regions (20-30 per 1,000 population).

In this report health status refers to the patient's functional status (personal help with the activities of daily living, personal help with the instrumental activities of daily living, and continence status) and primary (or first-listed) diagnosis at the time of admission. The activities of daily living (ADL's) are basic activities that reflect an individual's capacity for self-care such as bathing, dressing, using the toilet room, transferring in and out of a bed or chair, and eating. For current patients, ADL assistance refers to help received by home health staff at the time of the survey. The most frequent ADL that elderly current patients received help with was bathing (56 percent), followed by dressing (49 percent), transferring in or out of a bed or chair (37 percent), using the toilet room (27 percent), and eating (13 percent) (table 4). As expected, the proportions of elderly home health patients requiring personal assistance are much higher than found among the noninstitutionalized elderly population. For example, according to data from the 1987 National Medical Expenditures Survey (NMES), 7 percent of noninstitutionalized elderly bathed with personal assistance, 4 percent dressed with personal assistance, and 3 percent transferred out of a bed or chair with personal assistance (9).

In addition to assistance with ADL's, 13 percent of current patients had difficulty controlling bladder function. Eleven percent of current patients had an ostomy, indwelling catheter, or similar device, and 10 percent received help from home health staff in caring for this device.

The instrumental activities of daily living (IADL's) are complex tasks that enable an individual to live independently in the community. The IADL's are more complex than the ADL's since some IADL's such as shopping for groceries involve cognitive and physical functioning, whereas transferring in or out of a bed or chair involves only physical functioning. The IADL's used in this report are doing

light housework, preparing meals, taking medications, shopping for groceries or clothes, using the telephone, and managing money. In this report IADL assistance refers to help received by home health staff at the time of survey. In 1992 the most frequent IADL that elderly current patients received help with was doing light housework (38 percent), followed by taking medications (27 percent), preparing meals (25 percent), shopping for groceries or clothes (16 percent), using the telephone (4 percent), and managing money (4 percent). Home health patients were also more dependent in performing these activities than the noninstitutionalized elderly; according to the 1987 NMES, 6 percent of noninstitutionalized elderly did light housework with personal assistance, 5 percent prepared meals with personal assistance, and 4 percent shopped with personal assistance (9).

Nearly three-fourths of elderly home health patients received help with either an ADL or IADL (73 percent), and 61 percent of current patients received help with at least one ADL. Only 12 percent of current patients

received assistance with only IADL's. These findings indicate the high degree of functional dependence of elderly home health patients compared to most noninstitutionalized elderly persons. Data from the 1987 National Medical Expenditures Survey found that 20 percent of the noninstitutionalized elderly had difficulty with at least one ADL or IADL, 11 percent had difficulty with at least one ADL, and 8 percent had difficulty with only IADL's (9). In 1987, 15 percent of persons with difficulty in basic life (ADL or IADL) activities received formal home care service (10).

Another indicator of elderly home health patients' health status is their primary diagnosis at admission (table 5). Diagnostic information was collected from agency staff, who referred to patient medical records; this information was then coded according to the *International Classification of Diseases, Clinical Modifications, Ninth Revision (ICD-9-CM)*(11). As shown in table 5, elderly home health patients were admitted with a variety of chronic and acute primary diagnoses. The most frequent primary diagnosis was heart

disease (15 percent), followed by diabetes mellitus (8 percent), arthropathies and related disorders (7 percent), cerebrovascular disease (6 percent), malignant neoplasms (6 percent), essential hypertension (5 percent), fractures, all sites (4 percent), and chronic obstructive pulmonary disease (4 percent). These diagnoses accounted for 55 percent of all first-listed diagnoses at admission.

Table 6 presents services received by home health current patients during the last billing period. Although the billing period for current patients showed considerable variation, the most frequent billing period covered one month. In 1992, 4 out of 5 elderly home health patients received skilled nursing services (80 percent), while half (50 percent) received personal care services during the last billing period. Physical therapy (16 percent), homemaker and/or companion services (11 percent), social services (10 percent), medications (7 percent), and occupational and/or vocational therapy (4 percent) were received less frequently.

It should be noted that data on ADL and IADL assistance (table 4) differ from the percent of patients receiving personal care (generally ADL activities) and homemaker and/or companion services (generally IADL activities) in table 6 because of temporal and reporting differences. Personal help from agency staff in performing ADL and IADL activities was reported by agency staff for the time of the survey. In contrast, data on services received were usually obtained from billing records for the last billing period.

In 1992, Medicare was the predominant funding source for home health care; 71 percent of elderly patients relied on Medicare as their primary payment source (table 6). To be eligible for Medicare home health benefits, a beneficiary must be homebound, be under the care of a physician who establishes a home health care plan, and need at least one of the following: *intermittent* skilled nursing care, physical therapy, speech therapy, or continuing occupational therapy. The beneficiary must receive medically reasonable, necessary care from a

Table 5. Number and percent distribution of elderly home health patients by primary diagnosis at admission: United States, 1992

<i>ICD-9-CM diagnostic category and code</i>	<i>Current patients in 1992</i>
Total 65 years of age and over	929,500
Percent distribution	100.0
Infectious and parasitic diseases001-139	0.8
Neoplasms140-239	5.9
Malignant neoplasms140-208,230-234	5.6
Endocrine, nutritional and metabolic diseases and immunity disorders . . .240-279	9.9
Diabetes mellitus250	7.9
Diseases of the blood and blood-forming organs280-289	3.5
Mental disorders290-319	1.8
Diseases of the nervous system and sense organs320-389	4.8
Diseases of the circulatory system390-319	30.2
Essential hypertension401	4.6
Heart disease391-392.0,393-398,402, 404,410-416,420-429	15.4
Cerebrovascular disease430-436	6.4
Diseases of the respiratory system460-519	7.2
Chronic obstructive pulmonary disease490-496	3.6
Diseases of the digestive system520-579	3.5
Diseases of the genitourinary system580-629	2.1
Diseases of the skin and subcutaneous tissue680-709	4.1
Skin ulcers707	2.9
Diseases of the musculoskeletal system and connective tissue710-739	10.4
Arthropathies and related disorders710-719	6.8
Congenital anomalies740-759	*
Symptoms, signs, and ill-defined conditions780-799	4.9
Injury and poisonings800-999	7.7
Fractures, all sites800-829	4.3
Supplementary classification or unknown	3.0

Table 6. Number of elderly home health patients and percent by services received and primary source of payment last billing period: United States, 1992

Services received and primary source of payment last billing period	Current patients in 1992
Total 65 years of age and over	929,500
Percent distribution	100.0
Services received last billing period	
Skilled nursing services	80.2
Personal care	49.6
Social services	9.6
Counseling	2.6
Medications	7.9
Physical therapy	15.9
Homemaker/companion service	11.4
Referral services	2.5
Dietary and nutritional service	2.1
Physician services	2.1
High tech care	0.8
Occupational therapy/ vocational therapy	3.7
Speech therapy/audiology	1.5
Primary source of payment last billing period	
Private insurance	3.3
Own income	3.0
Medicare	71.7
Medicaid	10.1
Other government assistance or welfare	4.5
Other payment sources or unknown	7.5

Medicare-certified home health agency. These restrictions have limited use of Medicare home health services for *chronic* skilled nursing care (12). Such restrictions do not apply to home health services funded by Medicaid or other government programs. In 1992, 10 percent of elderly patients relied on Medicaid for primary payment, while 5 percent relied on other government assistance or welfare. Medicaid is a joint Federal-State medical assistance program for persons who qualify for welfare and to some of the “medically needy” (those who would be on welfare if their incomes were a little lower). The State-set criteria for Medicaid eligibility vary from State to State but cover most poor people in the United States. Other government programs that pay for home health services include State and local governments, the Older Americans Act (Title III), and Title XX Social Service Block Grants.

Although the number of long-term care policies issued in the last few years have increased (13), only 3 percent of

home health patients relied on private insurance as their primary payment source. Three percent of current patients relied on their own income or family income for payment.

Discharged patient characteristics

During 1991–92 there were an estimated 3.1 million discharges from home health agencies (7). Discharges represent discharge events, that is, the number of times patients completed an episode of care and were removed from the home health agency’s rolls during the 12 months preceding the survey. Discharges are not the same as discharged patients, since a patient could be included more than once if that individual had more than one episode of care during the year. The extent of multiple episodes of care by a single individual in the discharge sample is unknown. The annual number of discharges from home health agencies indicates that the volume of services provided by these agencies is extensive. As was found among current patients, nearly three-fourths (74 percent) of home health discharges were aged 65 years and over.

One of the advantages of looking at discharges compared with current patients is that information is available on the completed episode of care, including the reasons for discharge from the home health agency. A discharge may be due either to an improvement or stabilization of the condition causing admission, or due to a worsening of the condition, leading to transfer to a hospital, nursing home, or death. In 1991–92, 92 percent of elderly discharge patients were alive at discharge. The fatality rate among home health agencies is the percent of discharges released from the agency’s roster due to death. In 1991–92, the fatality rate among discharges aged 65 years and over was 8 percent (figure 1). Fifty-three percent of home health discharges were released from care because the patient recovered (14 percent) or stabilized (39 percent), while 20 percent were discharged because their condition worsened such that hospitalization or transfer to a nursing home was necessary.

The distribution of length of service for discharges with completed episodes of care indicates that the majority of discharges had shorter episodes of care than current patients. The average length of service for discharges was 95 days;

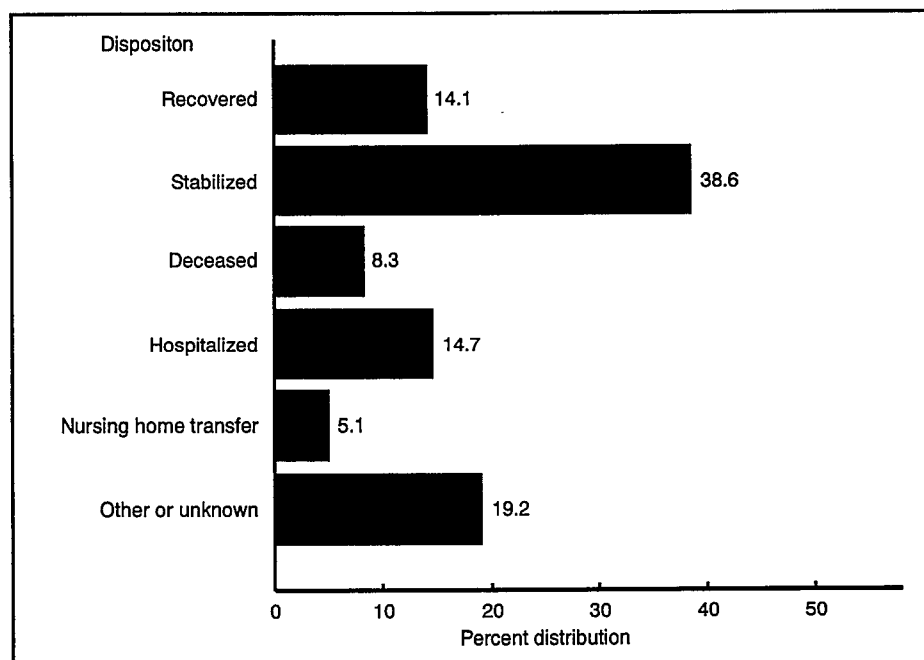


Figure 1. Disposition of elderly home health discharges: United States, 1991–92

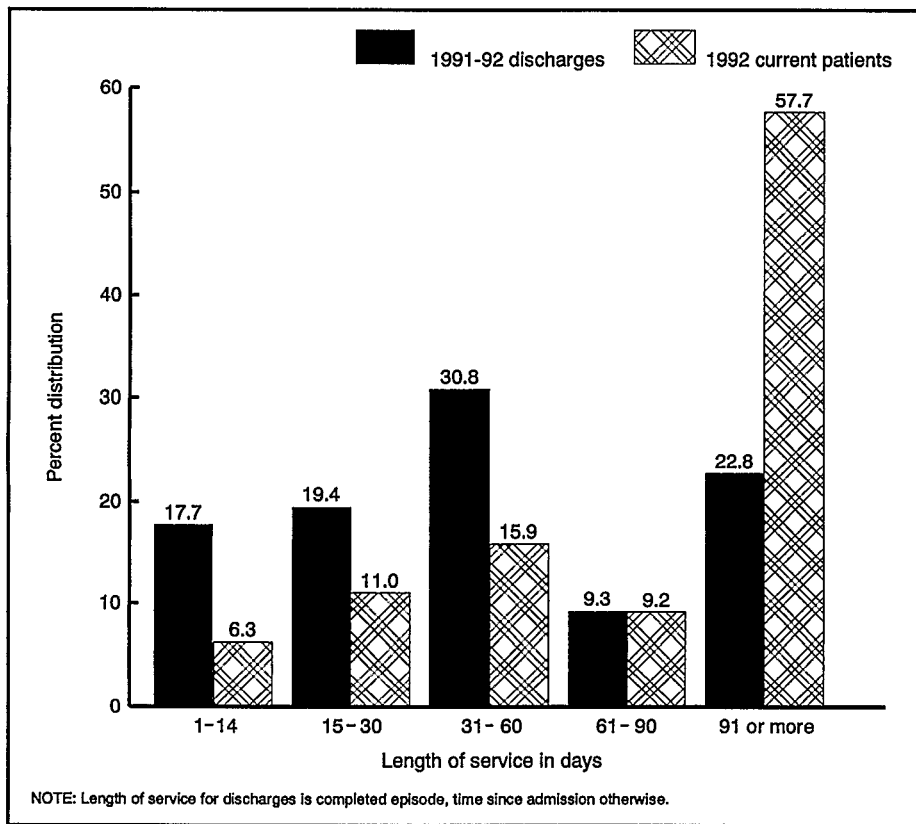


Figure 2. Length of service for elderly home health discharges and current patients: United States, 1991-92

the median length of service was 42 days. In contrast, the average length of service since admission for current patients was 322 days with a median stay of 124 days. As illustrated in figure 2 discharges were more likely to have short episodes of care lasting 60 days or less (68 percent) than current patients (33 percent). Conversely, current patients were more likely to have episodes of care lasting more than 90 days (58 percent) than elderly discharges were (23 percent). This difference is due, in large part, to survey methodology; patients with short episodes of care are more likely to be in the discharge sample than in the current patient (one day) sample (14).

Despite the differences in length of service, home health discharges were similar to current patients in age, sex, location, and regional distributions (table 7). Discharges differed from current patients, however, in health status and services received last billing period.

As measured by help received in performing the ADL's and IADL's, discharges patients appeared to be in

better health than current patients. Overall, 62 percent of discharges received help with either ADL or IADL activities at discharge or just before discharge (table 8), compared with 71 percent of current patients at the time of the interview. A lower proportion of discharges than current patients received help with bathing or showering (46 percent compared with 56 percent) and with dressing (39 percent compared with 49 percent). Similarly, a smaller percentage of discharges received help in doing light housework (26 percent), preparing meals (18 percent), and shopping for groceries or clothes (8 percent) than current patients did.

There were differences in the ranking of primary admitting diagnoses for discharges compared with current patients. The most frequent admitting diagnoses for discharges were: heart disease (18 percent), malignant neoplasms (9 percent), fractures, all sites (8 percent), cerebrovascular disease (7 percent), diabetes mellitus (6 percent), arthropathies and related disorders (5 percent), chronic obstructive pulmonary disease (5 percent), and

essential hypertension (4 percent) (table 9). While heart disease was the most frequent admitting diagnosis for current and discharged patients, the second- and third-ranked admitting diagnoses for discharges were conditions likely to have required post-acute care (malignant neoplasms and fractures, all sites), while the comparably ranked diagnoses for current patients (diabetes mellitus and arthropathies and related disorders) were more chronic in nature. Home health services received by discharges also reflect a greater use of post-acute services than home health services for chronic conditions (table 10). A larger proportion of discharges received skilled nursing services (86 percent) and physical therapy (26 percent) than current patients (80 and 16 percent). Current patients, on the other hand, were more likely to have received personal care (50 percent), and homemaker and/or companion services (11 percent) than discharges (39 and 5 percent).

Similar to current patients, the primary source of payment for home health discharges was third-party payors, principally Medicare. In 1991-92 the most frequent primary source of payment for discharges was Medicare (83 percent), followed by private insurance (5 percent), and Medicaid (4 percent) (table 10). The percent relying on Medicare for primary payment was higher among discharges than current patients, while current patients were more likely to rely on Medicaid as the primary funding source than discharges were.

Conclusions

A previous study found that 15 percent of the population with difficulty in basic life activities received formal home care services (10). The findings of this report indicate the role home health agencies play in providing care to the population at risk of needing long-term care in 1992. Home health agencies provide not only long-term maintenance care, but also skilled rehabilitative and therapeutic services (4). Many of the findings of this report reflect the major role Medicare plays in funding home health care. Starting in

Table 7. Number and percent distribution of elderly discharges from home health agencies by demographic characteristics: United States, 1991-92

Demographic characteristics	Number	Percent distribution
Total, aged 65 years and over	2,274,500	100.0
Age		
65-74 years	762,700	33.5
75-84 years	1,041,400	45.8
85 years and over	470,400	20.7
Sex		
Male	770,000	33.9
Female	1,504,500	66.1
Race		
White	1,614,500	71.0
Black and other	201,200	8.8
Black	173,800	7.6
Unknown	458,800	20.2
Hispanic origin		
Hispanic	106,000	4.7
Non-Hispanic	1,416,800	62.3
Unknown	751,700	33.1
Marital status at discharge		
Married	858,300	37.7
Widowed	905,300	39.8
Divorced/separated	82,600	3.6
Never married	83,600	3.7
Unknown	344,700	15.2
Living quarters		
Private or semiprivate residence:		
Private residence	2,133,400	93.8
Rented room/boarded house	*	*
Retirement home	40,900	1.8
Board and care/residential care facility	45,900	2.0
Health facility	22,300	1.0
Other or unknown	*	*
Location		
MSA	1,771,800	77.9
Non-MSA	502,700	22.1
Census region		
Northeast	708,200	31.1
Midwest	425,400	18.7
South	673,600	29.6
West	467,300	20.5

1965, when Title XVII (Medicare) of the Social Security Act was enacted, Medicare coverage of home health services has been limited to post-acute care focusing on recuperative care rather than long-term maintenance care. Medicare was the primary source of payment for 83 percent of elderly discharges during 1991-92 and for 71 percent of elderly current patients in 1992.

This report has found that home health agencies provide primarily skilled rehabilitative and therapeutic services, or "medically oriented" home care. In 1987, national expenditures for medically oriented home health care were estimated to be 5 billion dollars according to the National Health Accounts (15), while another study, the 1987 National Medical Expenditures Survey (NMES) estimated annual

expenditures for home health care, including care paid to homemakers and personal care providers, to be 11.6 billion dollars (16). This implies that medically oriented home health care represents less than half of formal home health services rendered to the long-term care population.

Home health care is the fastest growing segment of the health care system. In 1991 expenditures for home health care were 29 percent higher than in 1990 (15). Due to the rising cost of long-term care, many legislative proposals have been considered to control these costs. Findings from the National Home and Hospice Care Survey can be used to monitor changes in utilization of home health services as the range of services provided and the types of patients cared for change.

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Table 8. Number and percent of elderly home health discharges by functional status in the activities of daily living and instrumental activities of daily living, and continence: United States, 1991-92

<i>Functional status</i>	<i>Discharges from home health agencies in 1991-92</i>
Total 65 years of age and over	2,274,500
Percent	100.0
Received personal help with the following ADL	
Bathing or showering	45.9
Dressing	39.3
Eating	12.2
Transferring in or out of beds or chair	32.9
Using the toilet room	24.8
Continence status	
Difficulty controlling bladder	14.8
Difficulty controlling bowels	15.0
Had ostomy, indwelling catheter, or similar device	10.9
Received personal help in caring for this device	8.4
Received personal help with the following IADL	
Doing light housework	26.0
Managing money	1.5
Shopping for groceries or clothes	8.2
Using the telephone (dialing or receiving calls)	*
Preparing meals	17.6
Taking medications	25.4
Personal help with ADL'S and IADL'S	
None	37.9
Help with IADL's only	8.3
Help with one ADL	5.9
Help with two ADL's	15.5
Help with three ADL's	10.1
Help with four ADL's	13.5
Help with five ADL's	8.9

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Symbols

- - - Data not available
- . . . Category not applicable
- Quantity zero
- 0.0 Quantity more than zero but less than 0.05
- Z Quantity more than zero but less than 500 where numbers are rounded to thousands
- * Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)

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Table 9. Number of elderly home health discharges, and percent distribution by primary diagnosis at admission: United States, 1992

<i>ICD-9-CM diagnostic category and code</i>	<i>Discharges from home health agencies in 1991-92</i>
Total 65 years and over	2,274,500
Percent distribution	100.0
Infectious and parasitic diseases001-139	*
Neoplasms.140-239	9.1
Malignant neoplasms140-208,230-234	8.8
Endocrine, nutritional and metabolic diseases and immunity disorders.240-279	8.4
Diabetes mellitus.250	6.0
Diseases of the blood and blood-forming organs280-289	0.8
Mental disorders290-319	1.6
Diseases of the nervous system and sense organs.320-389	2.6
Diseases of the circulatory system390-319	32.1
Essential hypertension401	3.7
Heart disease391-392,0,393-398,402, 404,410-416,420-429	18.0
Cerebrovascular disease.430-436	6.6
Diseases of the respiratory system460-519	8.6
Chronic obstructive pulmonary disease490-496	4.5
Diseases of the digestive system520-579	4.9
Diseases of the genitourinary system580-629	3.2
Diseases of the skin and subcutaneous tissue680-709	2.7
Skin ulcers707	1.7
Diseases of the musculoskeletal system and connective tissue . . .710-739	10.2
Arthropathies and related disorders.710-719	5.3
Congenital anomalies740-759	*
Symptoms, signs, and ill-defined conditions.780-799	2.0
Injury and poisonings800-999	12.2
Fractures, all sites.800-829	7.6
Supplementary classification or unknown	0.9

Table 10. Number of elderly home health discharges and percent by services received and primary source of payment last billing period: United States, 1991-92

<i>Services received and primary source of payment last billing period</i>	<i>Discharges from home health agencies in 1991-92</i>
Total	2,274,500
Percent.	100.0
<i>Services received last billing period</i>	
Skilled nursing services	86.1
Personal care	39.2
Social services	12.2
Counseling.	3.8
Medications	6.3
Physical therapy	26.3
Homemaker/companion services	4.5
Respite care.	0.3
Referral services	2.0
Dietary and nutritional services	1.9
Physician services	1.9
High tech care	0.8
Occupational therapy/vocational therapy	5.3
Speech therapy/audiology	2.3
Meals on wheels	0.7
<i>Primary source of payment last billing period</i>	
Private insurance.	4.8
Own income.	1.7
Medicare	83.3
Medicaid	3.7
Other government assistance or welfare	0.7
Other payment sources or unknown	5.8

Technical notes

Source of data

The sampling frame consisted of all home health agencies and hospices identified in the 1991 National Health Provider Inventory (NHPI) and all agencies opened for business between 1991 and June 30, 1992, as identified through the Agency Reporting System (17). The NHPI is a comprehensive census of nursing and related care homes, residential care homes, facilities for the mentally retarded and mentally ill, home health agencies, and hospices conducted by the National Center for Health Statistics (6).

The sample design for the 1992 NHHCS is a stratified three-stage probability design. Primary Sampling Units (PSU's) are selected at the first stage, agencies are selected at the second stage, and current residents and discharges are selected at the third stage.

The first stage utilized the selection procedures that obtained the 198 PSU's used for the National Health Interview Survey (NHIS), a survey of the civilian noninstitutionalized population of the United States (18). The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). To minimize data collection costs and to establish linkage between the two surveys, home health agencies and hospices were selected within the same PSU's included in the NHIS allowing future research on availability and use of services (5).

The second stage involved the selection of agencies within six primary strata of agencies. These strata were formed in the 1992 sampling frame on the basis of type of agency [hospices compared with home health agencies and mixed agencies (providing both types of care or unknown)], and type of PSU [self-representing (SR) compared with non-self-representing (NSR), and within NSR PSU's, metropolitan statistical area (MSA) compared with non-MSA]. MSA is a metropolitan statistical area defined by the U.S. Office of Management and Budget on the basis of the 1980 census. Within

these sampling stratum, agencies were arrayed by four regions, five types of ownership, two types of certification status, and finally by the number of patients currently being served by the agency. The number of agencies selected from each sampling stratum was based primarily on results of leading to the best sample design for the 1992 NHHCS. Hospices in the NSR PSU's and home health agencies, mixed agencies in the non-MSA, and NSR PSU's were selected with certainty. Hospices in the SR PSU's and home health agencies and mixed agencies in the MSA-NSR PSU's, and the SR PSU's were selected with probability proportional to the current patient size (as reported in the NHPI sampling frame). A total sample of 1,500 agencies were selected; 384 were hospices, and the rest were home health agencies or mixed agencies (19).

The final stage is a systematic random selection of six patients currently served by the agency and six patients discharged from care during the last complete 12-month period.

Response rates for each stage of the sample follow:

<i>Sampling unit</i>	<i>Response rate</i>	<i>Number responding</i>
Agency	90	1,245
Current patients	99	6,897
Discharged patients	99	6,765

Data collection procedures

The data collection for the NHHCS began with a letter sent to all 1,500 sampled agencies informing the administrator of the authorizing legislation, purpose, and content of the survey. Within a week to 10 days after the letter was mailed, the interviewer assigned to conduct the survey for a particular agency made telephone contact to discuss the survey and to arrange an appointment with the administrator or person designated by the administrator.

Three questionnaires and two sampling lists were used to collect the data. The Facility Questionnaire was completed with the administrator or

designee. The interviewer would next complete the Current Patient Sampling List (CPSL) and Discharged Patient Sampling List (DPSL). With the CPSL, the interviewer listed all patients on the register of the agency on the evening before the day of the survey. The DPSL was used to list all discharges from agencies during the 12 full months before the month of the survey. Sampling of current patients and discharged patients within agencies was done by using tables showing sets of sample line numbers for each possible count of current patients and discharged patients in the agency. The interviewer drew a sample of up to six current patients and up to six discharges.

After the samples had been selected, the Current Patient Questionnaire and Discharged Patient Questionnaire were completed for each sampled person by interviewing the staff member most familiar with the care provided to the patient. The respondent was requested to refer to the medical or other records whenever necessary.

Sampling variability

Because the statistics presented in this report are based on a sample, they will differ somewhat from figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedures. The standard error is primarily a measure of the variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The standard error also reflects part of the measurement error, but it does not measure any systematic biases in the data. The chances are 95 out of 100 that an estimate from the sample differs from the value that would be obtained from a complete census by less than twice the standard error.

The standard errors used in this report were approximated using SUDAAN software. SUDAAN computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (20). Exact standard error estimates were used in tests of

significance in this report. A generalized variance function was produced for aggregate preliminary estimates of discharges and current patients by fitting the data presented in this report and from an earlier publication (7) into curves using the empirically determined relationship between the size of an estimate X and its relative variance (rel var X). This relationship is expressed as:

$$\text{rel var } X = \frac{S_x^2}{X^2} = a + \frac{b}{X}$$

where a and b are regression estimates determined by an iterative procedure. Estimates of standard errors for percents of the estimated number of discharges and estimates of standard errors for percents of the estimated number of current patients are presented in table I.

The Z-test with a 0.05 level of significance was used to test all comparisons mentioned in this report. Not all observed differences were tested, so lack of comment in the text does not mean that the difference was not statistically significant.

Table I. Standard errors for percents of estimated number of 1991–92 discharges and number 1992 current patients: National Home and Hospice Care Survey, 1992

<i>Estimated percent</i>	<i>Base of 1991–92 elderly home health discharges percentage (2,274,500)</i>	<i>Base of 1992 current elderly home health patients percentage (929,500)</i>
	Standard error in percentage points	
1 or 99	0.3	0.3
5 or 95	0.7	0.6
10 or 90	0.9	0.8
20 or 80	1.2	1.1
30 or 70	1.4	1.3
50	1.5	1.4

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National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.

Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

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