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Comparison of Home Health and Hospice Care Agencies by Organizational Characteristics and Services Provided: United States, 2007

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Abstract

Objective—This report presents national estimates of the organizational characteristics of home health and hospice care agencies in 2007. Comparisons of organizational characteristics and provision of selected services are made by agency type. A comparison of selected characteristics between 1996 and 2007 is also provided to highlight changes that have occurred leading to the current composition of the home health and hospice care sector.

Methods—Estimates are based on data collected on agencies from the 1996, 2000, and 2007 National Home and Hospice Care Survey, conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. Estimates are derived from data collected during interviews with administrators and staff designated by the administrators.

Results—In 2007, there were 14,500 home health and hospice care agencies in the United States, an increase from 11,400 in 2000. Three-quarters of these agencies provided home health care only, 15% provided hospice care only, and 10% provided both home health and hospice care (mixed). The percentage of proprietary home health care only and hospice care only agencies increased during 1996–2007, whereas the percentage of proprietary mixed agencies remained relatively stable. The average number of home health care patients that home health care only and mixed agencies served decreased, while the average number of hospice care patients that hospice care only agencies served increased across years. Among mixed agencies, no significant changes were observed in the average number of hospice care patients being served. The percentage of home health care only agencies offering certain therapeutic and nonmedical services declined over the years. There was an increase in the proportion of hospice care only agencies' providing many core and noncore hospice care services during 1996–2007. Also during this time, the proportion of mixed agencies providing selected nonmedical services decreased.

Keywords: National Home and Hospice Care Survey • home health care • hospice care • organizational characteristics

Introduction

Home health and hospice care has grown over recent years (1–4). This growth may be due to a combination of factors. Patients and families may have become more aware of home health care services as an alternative, in some cases, to traditional inpatient care (5,6). Patients' preferences for spending their last days at home (7), and bereaved family members' high satisfaction with hospice care (8) may have been another contributing factor to the increase in hospice use (3,9). At the same time, changes in the Medicare payment system may underlie some of the recent growth in home health and hospice care agencies. Medicare is the single largest payer for both home health and hospice care (9,10) and, hence, changes in the Medicare payment system associated with the Balanced Budget Act of 1997 (BBA) had a major impact according to most observers (11–13). Initially BBA implementation seemed to have resulted in a considerable number of home health care agencies' exits from the market (11). But adjustment to changes in the Medicare payment system and regained financial stability of agencies under the prospective payment system (PPS) may have led to renewed growth

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in the home health care industry since 2000 (2,4,11). Expansion of Medicare payment and covered hospice care services may also have increased the supply of hospices (3,9).

Much of the information on the present-day characteristics of home health and hospice care agencies, as well as the trends in the home health and hospice care industry, deals with only Medicare-certified agencies, with data available from the Centers for Medicare & Medicaid Services (3,4). Previous reports have also been limited because they did not distinguish among agencies that provide only one set of services (i.e., home health care only or hospice care only) and those mixed agencies that provide both home and hospice care services. To provide a more complete picture of home health and hospice care agencies in the United States, this report focuses on differences among these three agency types. Little is known about the present-day characteristics of these three agency types or changes in their number and the services they provide. Data from the National Home and Hospice Care Survey (NHHCS) enable these comparisons and provide a unique opportunity to examine if, for example, the growth in home health and hospice care sectors has been tied mainly to home health care only and hospice care only agencies, or to mixed agencies, and if there have been changes in the services that different agency types provided over the years.

In this report, we used the 2007 NHHCS to compare the organizational characteristics and services provided by home health care only and mixed agencies, and by hospice care only and mixed agencies. Organizational characteristics compared include ownership status, chain affiliation, Medicare and Medicaid certification, patient volumes, primary patient referral sources, use of electronic medical records (EMRs), and patient care revenue by payer, among others. We also describe changes in agency number, organizational characteristics, and service provision within each agency type over time using data from NHHCS, conducted in 1996, 2000, and 2007. Through this comparison, we highlight changes within each agency type leading to the current composition of agencies in the home health and hospice care sector.

Methods

Data source

Data are from the NHHCS. The NHHCS was first conducted in 1992 and was repeated in 1993, 1994, 1996, 1998, and 2000, and most recently in 2007. The statistics in this report are based on information collected in the agency components of the 1996, 2000, and 2007 NHHCS (14–19). Agencies that provided home health or hospice care services at the time of the survey were eligible to participate in NHHCS. The 2007 NHHCS, while similar in structure to previous NHHCS years, included many new data items and collected data using a computer-assisted personal interviewing (CAPI) system. Core data items include selected organizational characteristics and the provision of selected services. For further information on the sampling, survey design, and other survey methodology, see the ''Technical Notes'' in this report and the documentation for each survey year provided on: http://www.cdc.gov/nchs/nhhcs.htm.

Variables

Agency type

Agencies were classified as home health care only agencies, hospice care only agencies, or agencies that provide both types of care (mixed). In 2007, respondents reported whether the agency provided either or both home health and hospice care services, and agency type was coded accordingly. In previous survey years, however, agency type was determined based on the numbers of current home health and hospice care patients the agency served. For instance, if the agency reported serving one or more home health care patients and no hospice care patients at the time of the interview, it was classified as a home health care only agency.

Ownership type and chain affiliation

Ownership type refers to the type of organization that controls and operates the home health or hospice care agency, and has three categories:

1. Proprietary
2. Voluntary nonprofit
3. Government and other ownership

Proprietary or for-profit means operated under private commercial ownership, including individual or private ownership, partnerships, or corporations. Voluntary nonprofit means operated under voluntary or nonprofit auspices, including church-related and nonprofit corporations. Government and other means operated under federal, state, or local government and other auspices not specified.

Chain affiliation has two categories:

1. Part of a chain of agencies
2. Not part of a chain of agencies

A chain agency is defined as an agency that is part of a group of agencies operating under one corporate authority or corporate ownership.

Medicare and Medicaid certification status

There are four certification statuses:

1. Certified as a Medicare home health care agency
2. Medicare-certified hospice care agency
3. Certified in the Medicaid program as a home health care agency
4. Medicaid-certified hospice care agency

A mixed agency could have all four statuses. If a certification status was pending, the agency was coded as not certified for the analyses in this report.

Geographic location

Geographic region has four categories corresponding to the U.S. Census Bureau's four geographic regions:

1. Northeast
2. Midwest
3. South
4. West

Another variable in the 2007 NHHCS is related to the metropolitan statistical area (MSA) status of the agency location:

1. MSA
2. Micropolitan statistical area
3. Neither

Definition and titles of MSAs are established by the U.S. Office of Management and Budget (OMB). Generally, a MSA consists of a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. It may also contain other counties that are economically and socially integrated with the central county as measured by commuting. In contrast, a micropolitan statistical area refers to a nonmetropolitan county or group of contiguous nonmetropolitan counties that contains an urban cluster of 10,000 to 49,999 persons. It may include surrounding counties if there are strong economic ties between the counties, based on commuting patterns.

In NHHCS data collection years prior to 2007, two categories were used: MSA and non-MSA. In the analysis of NHHCS across years, the categories of a micropolitan statistical area and neither in the 2007 survey were combined and recoded as non-MSA.

Number of current patients

In all NHHCS years, a respondent was asked to provide the number of home health and hospice care patients that the agency was serving at the time of the interview.

Primary referral source

Questions on primary patient referral sources were newly added to the 2007 NHHCS. Response categories for referral sources were hospital, nursing home, physician's office, outpatient medical or surgical center, rehabilitation facility, and the patient or family, among others. In this report, because of small sample sizes, estimates for categories other than hospital and physician's office are not reported.

Electronic medical records (EMRs)

A number of questions on EMRs were included in the 2007 NHHCS. The definition of EMRs was designed to include only ''a computerized version of the patient's medical information used in the management of the patient's health care,'' and to exclude ''electronic records used only for billing purposes and required documentation, such as OASIS (Outcome and Assessment Information Set) files.'' Questions on the availability and use of different components of EMRs were also added in the 2007 survey. In the 2000 NHHCS, although one question was included asking respondents if the agency had computerized medical records, the definition of ''computerized medical records'' was not provided and did not articulate the exclusion of systems used only for billing or OASIS. Findings on EMRs described in this report are based on the 2007 NHHCS data only.

Patient care revenue

In the 2007 NHHCS, the agency was asked to indicate approximately what percentage of the agency's patient revenue falls into the following five categories:

1. Medicare
2. Medicaid
3. Private health insurance program
4. Patient out-of-pocket payments
5. Other

The question wording noted that percentages provided should add to 100%.

Services provided

In the 2007 and previous NHHCS years, respondents were asked whether the agency provided a variety of services. Questions on the following services were worded in the same manner: bereavement counseling, continuous home care, dietary and nutritional services, durable medical equipment and supplies, (medical) social services, occupational therapy, personal care (i.e., assistance with activities of daily living), physical therapy, physician services, referral services, respite care, skilled nursing services, speech therapy or audiology, transportation services, and volunteer services. See the ''Technical Notes'' for definitions of the different services used in this report.

In 2007, respondents were asked if the agency provided pastoral or spiritual care. In NHHCS years prior to 2007, the provision of pastoral care and spiritual care was asked in two separate questions. Responses to pastoral care and spiritual care questions in 1996 and 2000 surveys were recoded to indicate if the agency offered either of the services in a given year. In the 1996 NHHCS, respondents were asked if the agency provided either companion services or homemaker services. For 2000 and 2007, the provision of companion services was asked separately from the provision of homemaker services. Responses to companion services and homemaker services for these 2 years were recoded to indicate whether the agency provided either of the services in a given survey year.

For the 1996, 2000, and 2007 data, if the respondent reported that the agency provided a given service, it was coded as ''yes, the agency provides the service.'' In the 1996 NHHCS, no distinction was made between ''no, the agency does not provide the service,'' and nonresponses (e.g., ''don't know,'' ''refused''). Responses of ''no'' in 1996, thus, include both actual ''no'' responses and nonresponses. In 2000 and 2007, distinctions were made between ''no'' responses and nonresponses.

Data analysis

All analyses were performed in SAS-callable SUDAAN (20) to account for sampling weights and the complex sampling design. Chi-square tests and *t*-tests were used to test for significance at the $p<0.05$ level. No adjustments were made for multiple comparisons. The difference between any two estimates is mentioned in the text only

if it is statistically significant. However, if a comparison is not made or mentioned, it does not mean it is not significant. Otherwise, terms such as ''similar'' or ''no significant differences'' are used to denote that the estimates being compared are not statistically significantly different. A weighted least squares technique was used (21) to test linear trends across 3 survey years. A downward or upward trend is mentioned if it is statistically significant.

There were cases in 1996 and 2000, but not in 2007, in which agency type was missing due to missing data on either current home health or hospice care patient numbers; 0.2% of cases in 1996 and 6.3% of cases in 2000. Cases missing agency type were not included in the analyses by agency type. Numbers of agencies by agency type do not sum to the total number of home health and hospice care agencies because of rounding.

Nonresponses (e.g., ''don't know,'' ''refused'') were excluded when calculating estimates for continuous variables (e.g., number of home health care patients or percentage of agency's patient care revenue from Medicare). The percentage of cases with nonresponses for continuous variables ranged from 0.02% for the number of current home health patients in 2007 to 9.2% for the percentage of agency's patient care revenue from private health insurance program in 2007. For categorical variables, nonresponses were recoded as unknown and included in the analyses. The percentage of cases with nonresponses for categorical variables ranged from 0.1% for service provision variables (e.g., the provision of skilled nursing services) in 2000 to approximately 4.4% for agency's Medicare certification status as a hospice care agency in 2007.

Results

Home health and hospice care agencies in 2007

In 2007, there were 12,300 home health care agencies, that is, home health care only and mixed agencies combined. There were 3,700 hospice care agencies, including both hospice care only and mixed agencies, in 2007 in the United States (Table 1). More than two-thirds of all agencies providing home health care were proprietary (69.7%), not part of a chain of agencies (69.5%), and were certified under Medicare (81.6%) or Medicaid (80.7%). Approximately one-half of agencies providing home health care were located in the South (50.3%) and 73.6% were in a MSA. About one-third (34.0%) of all agencies providing hospice care were proprietary. The rest were owned by either voluntary nonprofit organizations (55.5%) or government and other entities (10.6%). Over three-quarters (76.3%) of agencies providing hospice care were not part of a chain. A majority were certified as a hospice care agency under Medicare (93.4%) or Medicaid (86.4%). About 44.5% of hospice care agencies were located in the South and 66.8% in a MSA.

Home health and hospice care agencies in 2007, by agency type

Number of agencies by agency type

In 2007, there were 14,500 home health and hospice care agencies in the United States (Table 2); 74.8% of these agencies provided home health care services only, 15.3% provided hospice care services only, and 9.9% were mixed agencies that provided both home health and hospice care services.

Organizational characteristics

Ownership type and chain affiliation

A little over three-quarters (75.5%) of home health care only agencies were proprietary, while 25.6% of mixed agencies were proprietary. More than three-fifths (62.9%) of mixed agencies were owned by voluntary nonprofit organizations. In 2007, 32.2% of home health care only agencies were part of a chain while only 17.6% of mixed agencies were part of a chain of agencies.

When hospice care only and mixed agencies were compared, no significant differences were found in ownership type and chain affiliation.

Medicare and Medicaid certification

Nearly all mixed agencies were certified as a home health care agency by Medicare (97.6%) and Medicaid (96.6%), whereas close to four-fifths of home health care only agencies were certified as a home health care agency under Medicare (79.5%) and Medicaid (78.6%).

When hospice care only and mixed agencies were compared on certification status as a hospice care agency, no significant differences were found in the Medicare (90.9% compared with 97.2%) or Medicaid (82.8% compared with 91.9%) certification status.

Geographic location

More than one-half of home health care only agencies (53.9%) were located in the South and in a MSA (75.7%). In contrast, mixed agencies were more likely to be about evenly distributed across the four geographic regions and more likely to be located in non-MSAs than home health care only agencies (42.0% compared with 24.3%).

Similarly, hospice care only agencies were more likely than mixed agencies to be located in the South (58.1% compared with 23.4%) and in a MSA (72.5% compared with 58.0%)

Number of current patients

Home health care only agencies had 109.0 current home health care patients on average at the time of the interview while mixed agencies provided home health care services to 177.7 current patients (Table 3). Hospice care only agencies, on the other hand, reported serving nearly twice as many current hospice care patients as mixed agencies; hospice care only agencies were serving 78.1 patients on average at the time of the interview, while mixed agencies were serving 39.1 hospice care patients.

The number of current patients was broken into five categories (i.e., 0–25, 26–50, 51–100, 101–150, 151 or more)

and compared by agency type. More mixed agencies (37.4%) provided services to 151 or more current home health care patients on average than did home health care only agencies (23.0%). Compared with 51.6% of hospice care only agencies, the overwhelming majority of mixed agencies (82.1%) were serving on average 50 or fewer hospice care patients at the time of the interview.

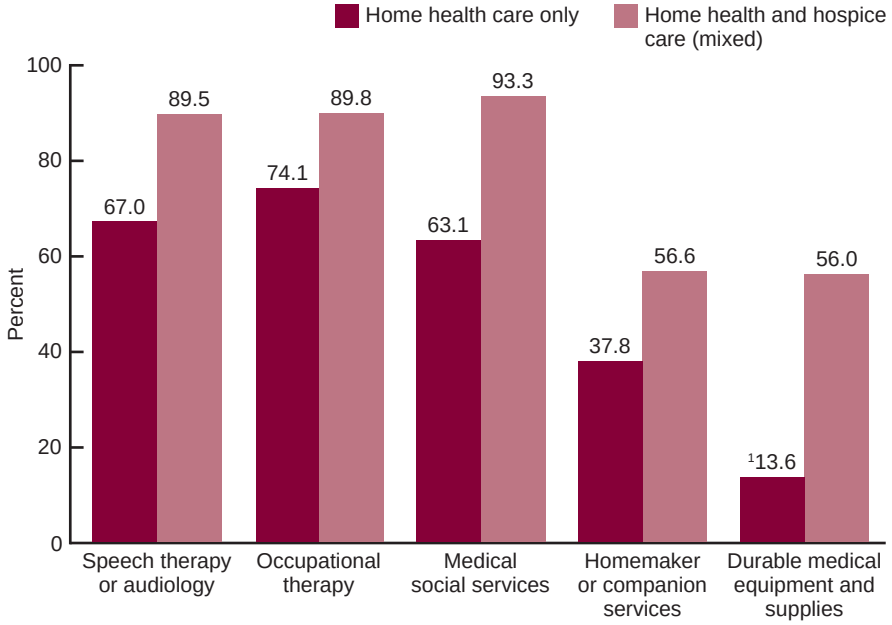
Services provided

Home health care agencies provide a range of medical and therapeutic services (e.g., skilled nursing services, physical therapy, occupational therapy, medical social services, or home health aide services) as well as other nonmedical services (e.g., homemaker or companion services) delivered at a patient's home or in a residential setting such as assisted living on an intermittent or part-time basis.

Home health care only agencies in 2007 were less likely than mixed agencies to provide speech therapy or audiology (67.0% compared with 89.5%), occupational therapy (74.1% compared with 89.8%), medical social services (63.1% compared with 93.3%), homemaker or companion services (37.8% compared with 56.6%), and durable medical equipment and supplies (13.6% compared with 56.0%) (Figure 1). No significant differences were found between home health only and mixed agencies relative to the provision of skilled nursing services, physical therapy, personal care, transportation services, and referral services.

Hospice care services are often categorized as core and noncore services based on federal regulations (22). Core services include skilled nursing services, physician services, volunteer services, dietary and nutritional services, spiritual care, counseling (including bereavement care), and medical social services. Noncore services are therapeutic services (e.g., physical therapy, occupational therapy, and speech therapy), continuous home care, respite care, personal care, homemaker services, and durable medical equipment and supplies.

In 2007, hospice care only agencies were more likely to provide both selected core and noncore services compared with mixed agencies: physician services (91.7% compared with 48.3%), pastoral or spiritual care (94.3% compared with 88.9%), volunteer services (93.6% compared with 87.9%), bereavement counseling (94.1% compared with 90.7%), continuous home care (78.3% compared with 56.5%), respite care (92.9% compared with 84.3%), homemaker or companion services (74.3% compared with 56.6%), and durable medical equipment and supplies (92.8% compared with 56.0%) (Figure 2). There were no significant differences between hospice care only and mixed agencies providing skilled nursing services, dietary and nutritional services, medical social services, physical therapy, speech therapy or audiology, occupational therapy, and personal care.



[1]Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.
NOTES: All differences between home health care only and mixed agencies are significant at $p<0.05$. Percentages are based on the unrounded numbers. Denominator includes unknowns.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Figure 1. Selected services offered by agencies providing home health care only and agencies providing home health and hospice care (mixed): United States, 2007

Primary referral source

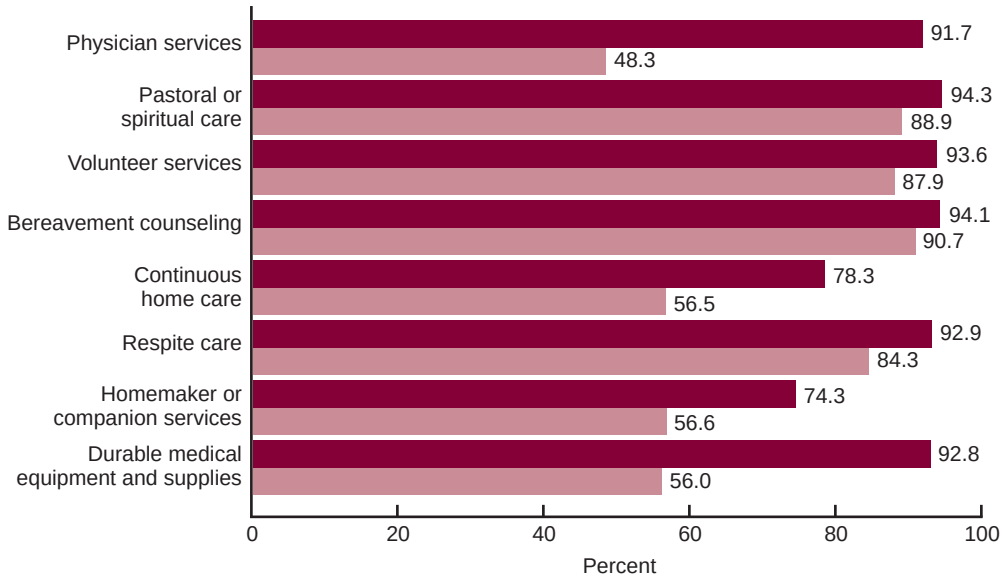
Hospital was the primary referral source of home health care patients for 74.3% of mixed agencies, while only 40.1% of home health care only agencies reported hospital as their primary patient referral source (Figure 3).

For more than three-quarters of hospice care only and mixed agencies, hospital (33.3% and 40.4%) and physician's office (44.4% and 48.2%) were primary referral sources of hospice care patients; the difference between hospice care only and mixed agencies was not statistically significant.

Electronic medical records

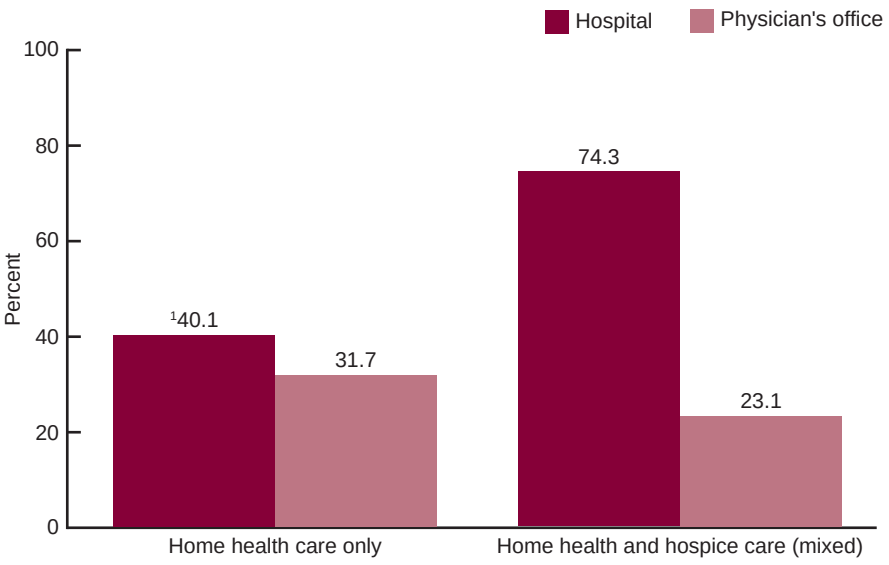
Less than one-half (41.0%) of home health and hospice care agencies reported having EMRs at the time of the interview (Figure 4). Compared with 36.6% among home health care only, 62.6% of mixed agencies had EMRs.

Among agencies with current EMRs, a substantial majority used EMRs to manage patient demographics



NOTES: All differences between hospice care only and mixed agencies are significant at $p<0.05$. Percentages are based on the unrounded numbers. Denominator includes unknowns.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Figure 2. Selected services offered by agencies providing hospice care only and agencies providing home health and hospice care (mixed): United States, 2007



[1]Significantly different from mixed agencies ($p<0.05$).
NOTES: Percentages are based on the unrounded numbers. Denominator includes unknowns.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

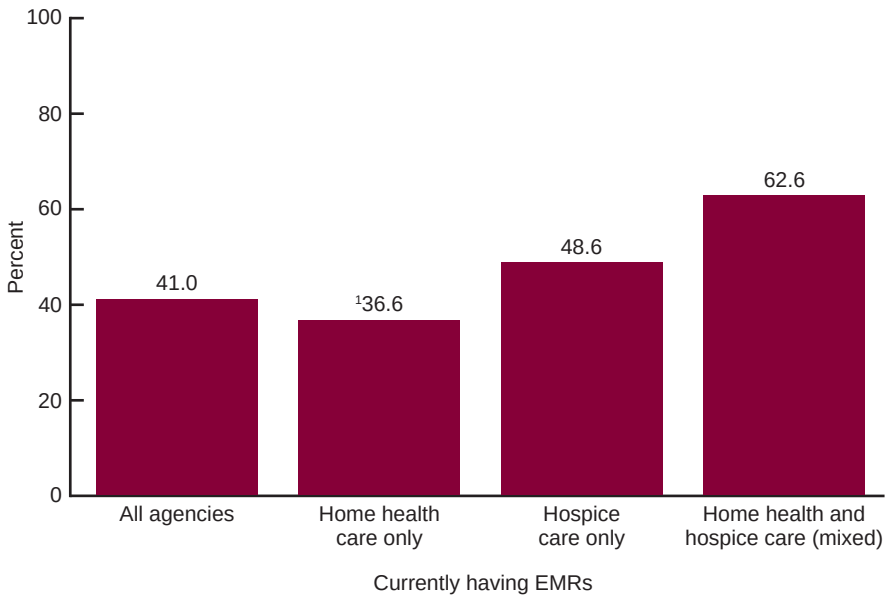
Figure 3. Selected primary referral sources of home health care patients, by agency type: United States, 2007

(98.5%) and for clinical notes (82.7%). More than one-half of agencies with EMRs utilized EMR components such as a Clinical Decision Support System (CDSS) for contraindications, allergies, and guidelines (56.6%), and Computerized Physicians Order Entry (CPOE) (52.1%) (Figure 5). Less than one-quarter of agencies with current EMRs reported using components for test reminders (22.6%), viewing test results (20.1%), or sharing medical records electronically with other agencies (8.9%). Comparison by agency type in usage of the different EMR components was not done due to small sample sizes.

Patient care revenue

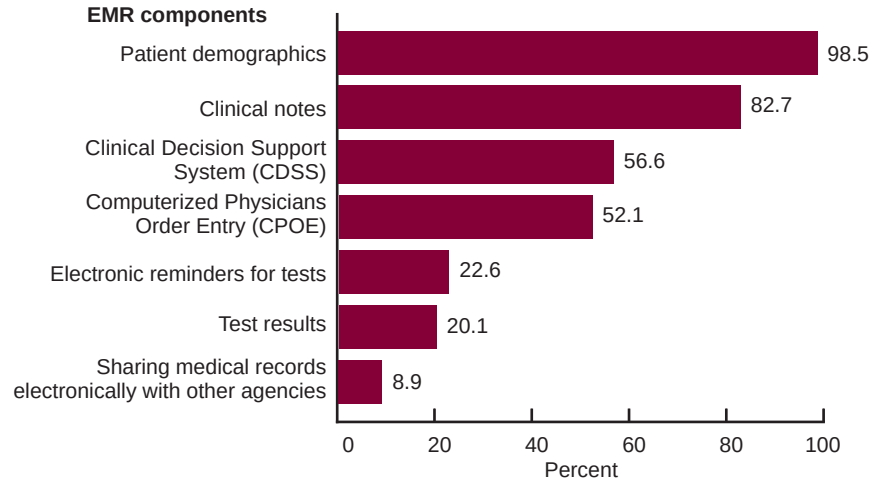
In 2007, at least 90% of the U.S. home health and hospice care agencies' patient care revenues, regardless of agency type, were from Medicare, Medicaid, and private health insurance programs (Figure 6). On average, more than one-half of home health care only agencies' (55.7%) and mixed agencies' (65.7%) patient care revenues were from Medicare; this difference was not statistically significant. A higher percentage of home health care only agencies' (22.4%) patient care revenues were from Medicaid compared with mixed agencies (10.3%).

On average, 81.0% of hospice care only agencies' patient care revenues were from Medicare, while a much lower percentage was reported for mixed agencies (65.7%). Compared with hospice care only agencies (6.7%), a higher percentage of mixed agencies' (10.3%) patient care revenues were from Medicaid. Payments with private health insurance accounted for 17.1% of mixed agencies' total patient care revenues, while only 5.1% of hospice care only



[1]Significantly different from mixed agencies ($p<0.05$).
NOTES: Electronic medical records (EMRs) include only "a computerized version of the patient's medical information used in the management of the patient's health care," and exclude "electronic records used only for billing purposes and required documentation, such as (Outcome and Assessment Information Set) OASIS files." Percentages are based on the unrounded numbers. Denominator includes unknowns.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Figure 4. Prevalence of agencies currently having electronic medical records, by agency type: United States, 2007



NOTES: EMR is an electronic medical record. Percentages in this figure are calculated using only respondents with EMRs who responded they used the EMR capability. Percentages are based on the unrounded numbers.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Figure 5. Usage of different electronic medical record components among home health and hospice care agencies with current electronic medical records: United States, 2007

agencies' revenues were from private health insurance.

No significant differences were found between different agency types in average percentage of revenues from patient out-of-pocket payments and other sources.

Home health care only, hospice care only, and mixed agencies from 1996 to 2007

Number of agencies

The number of home health and hospice care agencies in the United States has fluctuated over the years. It declined from 13,500 in 1996 to 11,400 in 2000 but since 2000, the number has increased and, by 2007, there were as many as 14,500 home health and hospice care agencies in the United States.

Number of agencies by agency type

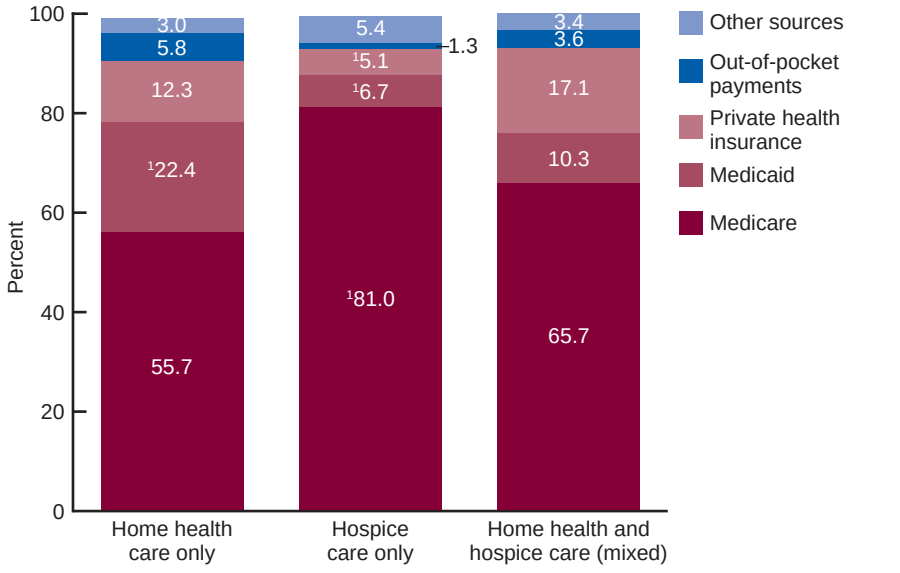
The number of home health care only agencies followed a similar pattern (Figure 7), decreasing between 1996 and 2000 and experiencing sizeable growth between 2000 and 2007 as an overwhelming majority of agencies in the home health and hospice care sector in the United States were those that provided home health care only.

The number of hospice care only agencies stayed relatively unchanged between 1996 and 2000. However, between 2000 and 2007, it grew as did home health care only agencies. Between 1996 and 2007, there was close to a 70% increase in the number of hospice care only agencies. Mixed agencies did not experience significant changes in numbers during 1996–2007. Hospice care only and mixed agencies accounted for less than 20%, respectively, of all home health and hospice care agencies in 1996, 2000, and 2007.

Changes in organizational characteristics of home health care only agencies

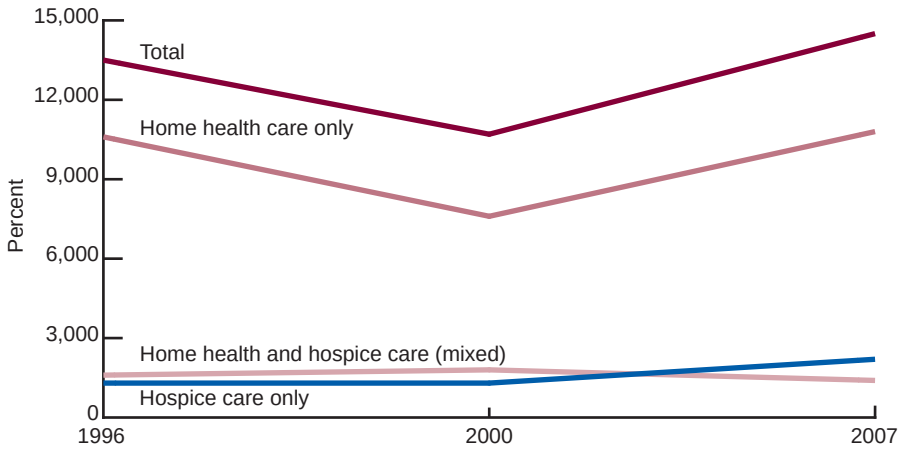
Ownership type and chain affiliation

In 2007, 75.5% of home health care only agencies were proprietary. This was a significant increase from 1996 and 2000 (Table 4). Between 2000 (53.3%) and 2007 (75.5%), the percentage of proprietary home health care only



[1]Significantly different from mixed agencies (p<0.05).
NOTE: Percentages in this figure are calculated using only respondents who reported the percentage of agency's patient care revenue by different payment source. Percentages may not add to totals because of rounding. Percentages are based on the unrounded numbers.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Figure 6. Patient care revenue, by revenue source and agency type: United States, 2007



NOTES: Total includes agencies with unknown agency type in 1996 and 2000. There was no unknown agency type in 2007.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, and 2007.

Figure 7. Number of home health and hospice care agencies, by year and agency type: United States, 1996–2007

agencies grew by approximately 42%, while the proportion of home health care only agencies owned by voluntary nonprofit organizations, and government and other entities fell by 46% (from 33.6% to 18.3%) and 51% (from 12.8% to 6.3%), respectively (Figure 8).

During 1996–2007, there was a downward trend in the percentage of home health care only agencies affiliated with a chain of agencies. About 32.2% of home health care only agencies were part of a chain in 2007, which was significantly lower than the percentage reported in 1996 (50.9%) and 2000 (46.6%).

Medicare and Medicaid certification

The percentage of Medicare-certified home health care only agencies declined from 87.4% in 1996 to 78.3% in 2000, and remained relatively stable thereafter.

There was a downward trend in the percentage of Medicaid-certified home health care only agencies during 1996–2007. Compared with 84.6% in 1996, 78.6% of home health care only agencies were Medicaid-certified in 2007.

Geographic location

No significant changes were noted during 1996–2007 relative to the percentage of home health care only agencies located in the Northeast and the West. There was an increasing trend in the percentage of home health care only agencies located in the South and in a MSA. By 2007, 53.9% of home health care only agencies were located in the South and 75.7% were located in a MSA. A decreasing trend, on the other hand, was observed in the percentage of home health care only agencies located in the Midwest.

Number of current home health care patients

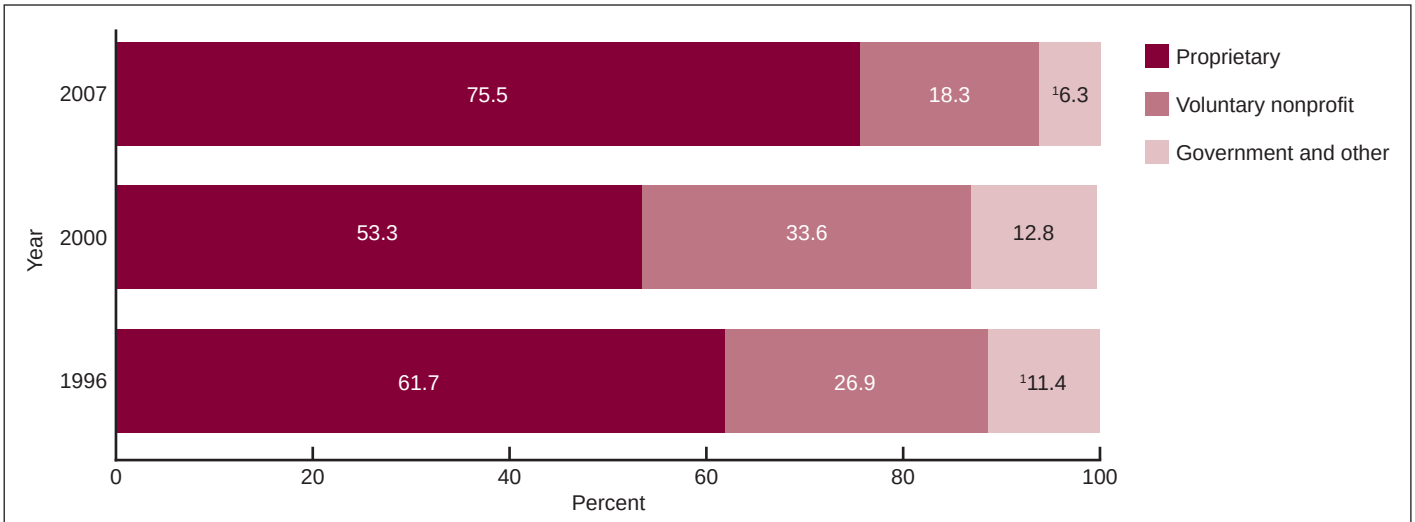
Compared with 1996, home health care only agencies in 2000 and 2007 were serving fewer patients on average at the time of the interview (Table 5). Home health care only agencies were serving about 53 fewer patients on average at the time of the interview in 2007 than in 1996.

Changes in organizational characteristics of hospice care only agencies

Ownership type and chain affiliation

Close to two-fifths (39.4%) of hospice care only agencies were proprietary in 2007, which was a significant increase from 21.5% in 2000 (Table 6). In contrast, the percentage of voluntary nonprofit hospice care only agencies declined by approximately 30% between 2000 and 2007 (from 71.5% to 50.7%).

Between 1996 and 2000, no significant changes were observed relative to the percentage of chain-affiliated hospice care only agencies. In 2007, however, a smaller proportion of



[1]Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.
NOTES: Percentages may not add to totals because of rounding, and because percent distribution includes a category of unknowns not reported in the figure. Percentages are based on the unrounded numbers.
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, and 2007.

Figure 8. Ownership type of agencies providing home health care only, by year: United States, 1996–2007

hospice care only agencies was part of a chain of agencies (27.6%) compared with 2000 (43.2%).

Medicare and Medicaid certification

In 1996, of hospice care only agencies, 60.7% were Medicare-certified and 50.9% were Medicaid-certified. In 4 years, the percentage of Medicare-certified hospice care only agencies rose by 58%, and was stable at approximately 93% between 2000 and 2007. The percentage of Medicaid-certified hospice care only agencies followed a similar trend, growing considerably between 1996 and 2000 and remaining relatively unchanged between 2000 (89.1%) and 2007 (82.8%).

Geographic location

With the exception of the Midwest, during 1996–2007, changes were observed in the percentage of hospice care only agencies located in all other regions. The percentage of hospice care only agencies located in the Northeast decreased from 29.7% in 1996 to 12.3% in 2007. In contrast, there was a rising trend in the percentage of hospice care only agencies located in the South; close to three-fifths (58.1%) of hospice care only agencies were located in the South in 2007, which was a significant increase from 38.1% in 1996 and 39.3% in 2000. Compared with 1996, the percentage of hospice care only agencies located in the West also increased by approximately 92% in 2000 (from 9.2% to 17.7%).

During 1996–2007, no significant changes were observed in the percentage of hospice care only agencies located in a MSA; about 7 out of 10 hospice care only agencies were located in a MSA during this time period.

Number of current hospice care patients

During 1996–2007, there was an upward trend in the average number of patients that hospice care only agencies were serving at the time of the interview (Table 5). In 1996, hospice care only agencies were serving fewer than 30 patients on average at the time of the interview. Compared with 1996, the average number of patients that hospice care only agencies were serving at the time of the interview doubled (53.7 patients) by 2000 and almost tripled (78.1 patients) by 2007.

Changes in organizational characteristics of mixed agencies

Ownership type and chain affiliation

During 1996–2007, the ownership status of mixed agencies was relatively stable (Table 7); less than 30% of mixed agencies were proprietary, while more than 60% were owned by voluntary nonprofit organizations, and government and other entities.

In 2007, 17.6% of mixed agencies were chain-affiliated. This was a significant decrease from 1996 (32.8%) and 2000 (41.4%). Conversely, the proportion of mixed agencies that were not affiliated with a chain grew by 41% between 2000 and 2007.

Medicare and Medicaid certification

During 1996–2007, there was an upward trend in the percentage of mixed agencies certified by Medicare as a home health care agency; by 2007, 97.6% of mixed agencies were Medicare-certified. In contrast, no significant changes were observed in the percentage of mixed agencies certified by Medicaid as home health care

agencies; 94.2% in 1996, 93.4% in 2000, and 96.6% in 2007.

The percentage of mixed agencies that were Medicare- or Medicaid-certified as hospice care agencies also experienced considerable growth over the years. Although there was no significant change between 1996 and 2000, the percentage of mixed agencies that were certified by Medicare to provide hospice care increased from 86.0% in 2000 to 97.2% in 2007. An increasing trend was observed in the percentage of mixed agencies certified by Medicaid as hospice care agencies during 1996–2007; compared with 1996, the percentage of mixed agencies that were certified as hospice care agencies grew by approximately 20% in 2007 (from 76.5% to 91.9%).

Geographic location

There was a decreasing trend in the percentage of mixed agencies located in the South, while an increasing trend was observed in the percentage of mixed agencies located in the West. No significant changes were observed in the percentages of mixed agencies located in other geographic regions. About 69.5% of mixed agencies were located in a MSA in 1996. In 4 years, the proportion of mixed agencies in a MSA declined by more than 25% (to 51.1%), and remained fairly stable between 2000 and 2007.

Number of current patients

The number of home health care patients that mixed agencies were serving on average at the time of the interview declined from 290.2 patients in 1996 to 149.0 patients in 2000 (Table 5). Although no significant changes were observed between 2000 and 2007, compared with 1996, mixed agencies were serving approximately 113 fewer home health care patients in 2007.

During 1996–2007, no significant changes were observed in the number of hospice care patients that mixed agencies were serving; on average at the time of the interview mixed agencies were serving fewer than 40 hospice care patients.

Changes in services provided by home health care only agencies

During 1996–2007, no significant changes were observed in the percentages of home health care only agencies providing skilled nursing services and occupational therapy (Table 8). In any given survey year, for example, at least 9 out of 10 home health care only agencies provided skilled nursing services, and more than three-fifths offered occupational therapy.

Declines, on the other hand, were noted in the percentage of home health care only agencies providing physical therapy, speech therapy or audiology, medical social services, personal care, homemaker or companion services, transportation services, referral services, and the provision of durable medical equipment and supplies.

The percentage of home health care only agencies providing physical therapy decreased by approximately 10% between 1996 and 2000 and remained fairly stable between 2000 and 2007—84.6% in 1996, 76.2% in 2000, and 77.4% in 2007.

The percentage of home health care only agencies providing speech therapy or audiology followed a similar pattern, declining from 78.5% in 1996 to 68.4% in 2000 with no significant change between 2000 and 2007.

There was a decreasing trend in the percentage of home health care only agencies providing medical social services during 1996–2007.

The percentage of home health care only agencies providing personal care also experienced a downward trend between 1996 and 2007; it declined continuously from 92.0% in 1996 to 82.5% in 2007.

Almost two-fifths (37.8%) of home health care only agencies provided either homemaker or companion services in 2007. This was the lowest percentage reported during 1996–2007, and a significant decline from 50.6% in 1996 and 56.8% in 2000.

During 1996–2007, a downward trend was observed in the percentage of home health care only agencies providing transportation services. There was a decreasing trend in the percentage of home health care only agencies that provided referral services over the years; it declined from 83.5% in 1996 to 62.5% in 2000 and to 44.8% in 2007. Overall there was a decline of about 46% between 1996 and 2007.

The percentage of home health care only agencies that offered durable medical equipment and supplies also experienced a downward trend during 1996–2007. Compared with 1996, the proportion of home health care only agencies providing durable medical equipment and supplies fell by close to 60% in 2007 (from 33.9% to 13.6%).

Changes in services provided by hospice care only agencies

Core hospice care services

The percentage of hospice care only agencies providing skilled nursing services declined from 93.5% in 1996 to 88.0% in 2000 and remained steady thereafter (Table 9).

For all other core services, the proportion of hospice care only agencies that reported providing these services increased between 1996 and 2000; the proportion of agencies providing these core services remained fairly stable between 2000 and 2007. In 2000 and 2007, over 90% of hospice care only agencies offered pastoral or spiritual care, volunteer services, bereavement counseling, and medical social services.

The percentage of hospice care only agencies that offered physician services increased during 1996–2007. The largest increase occurred between 1996 (49.9%) and 2000 (86.4%) and, by 2007, close to 92% of hospice care only agencies provided physician services.

The percentage of hospice care only agencies providing dietary and nutritional services rose by approximately 20% between 1996 and 2000 (from 73.1% to 87.8%). The percentage of hospice care only agencies that provided pastoral or spiritual care increased between 1996 (65.8%) and 2000 (99.4%).

The percentage of hospice care only agencies providing volunteer services and bereavement counseling also

experienced growth over the years; between 1996 and 2000, there was an increase of about 42% and 21%, respectively—from 69.6% to 99.1% for volunteer services, and from 82.3% to 99.5% for bereavement counseling. By 2000, almost all hospice care only agencies provided medical social services, representing a significant increase from 85.0% in 1996.

Noncore hospice care services

There were no significant changes in the percentage of hospice care only agencies providing physical therapy, continuous home care, and homemaker or companion services during 1996–2007. For instance, at least 6 out of 10 hospice care only agencies offered continuous home care and homemaker or companion services, respectively, in any given survey year. Significant changes were noted in the provision of all other noncore services among hospice care only agencies during 1996–2007.

During 1996–2007, there was an increasing trend in the percentage of hospice care only agencies providing speech therapy or audiology, and occupational therapy. By 2007, 8 out of 10 hospice care only agencies offered speech therapy or audiology, and occupational therapy, respectively.

In 1996, 6 out of 10 hospice care only agencies provided respite care. By 2000 and 2007, 95.3% and 92.9% of hospice care only agencies, respectively, provided respite care.

The percentage of hospice care only agencies offering durable medical equipment and supplies increased between 1996 (59.1%) and 2000 (89.2%). Compared with 1996, there was an increase of about 57% in 2007. By 2007, close to 92.8% of hospice care only agencies offered this service.

Relative to personal care, on the other hand, a decreasing trend was observed in the percentage of hospice care only agencies offering these services; there was about a 2.3% decrease between 1996 and 2007 (from 92.4% to 90.3%).

Changes in services provided by mixed agencies

Mixed agencies provide services both to home health and hospice care patients. Hence, Table 10 contains the services listed in Table 8 for home health care only agencies and in Table 9 for hospice care only agencies.

During 1996–2007, there were no significant changes in the percentage of mixed agencies providing skilled nursing services, physical therapy, speech therapy or audiology, medical social services, physician services, pastoral or spiritual care, bereavement counseling, and homemaker or companion services (Table 10). In any given survey year, more than 80% of mixed agencies provided skilled nursing services, physical therapy, speech therapy or audiology, medical social services, pastoral or spiritual care, and bereavement counseling.

Although the percentage of mixed agencies offering physician services increased from 37.8% in 1996 to 50.3% in 2000, this increase was not statistically significant. With no significant changes, about one-half or more of mixed agencies provided homemaker or companion services in any given survey year during 1996–2007.

During 1996–2007, an upward trend was observed in the percentage of mixed agencies offering occupational therapy, dietary and nutritional services, volunteer services, and durable medical equipment and supplies. By 2007, over four-fifths of mixed agencies offered occupational therapy (89.8%) and dietary and nutritional services (87.7%). The percentage of mixed agencies providing volunteer services increased by about 9% between 1996 and 2007 (from 81.0% to 87.9%). The percentage of mixed agencies that provided durable medical equipment and supplies increased from 49.9% in 1996 to 56.0% in 2007. The percentage of mixed agencies that offered respite care also rose from 73.7% in 1996 to 87.4% in 2000.

At the same time, there were reductions in the percentage of mixed agencies providing continuous home care, personal care, transportation services, and referral services. Compared with 1996, the percentage of mixed agencies providing continuous home care fell by approximately 26% in 2007 (from 76.6% to 56.5%). The percentage of mixed agencies providing personal care fell from 97.2% in 2000 to 82.7% in 2007. The percentage of mixed agencies that provided transportation services experienced a 52% decrease between 1996 and 2007 (from 29.1% to 14.0%). In 1996, almost 9 out of 10 mixed agencies provided referral services. In about 10 years, less than 60% of the agencies offered referral services.

Discussion

Of 14,500 home health and hospice care agencies in 2007, 74.8% were home health care only agencies while 9.9% were mixed agencies. Significant differences by agency types relative to selected organizational characteristics and the provision of selected services were found. Home health care only agencies, compared with mixed agencies, were more likely to be proprietary, and were less likely to be certified by Medicare or Medicaid, and less likely to have current EMRs. Home health care only agencies (109.0 patients) were serving fewer home health care patients than mixed agencies (177.7 patients) on average at the time of the interview. Compared with mixed agencies, a higher percentage of home health care only agencies' patient care revenues was from Medicaid. In addition, home health care only agencies were less likely than mixed agencies to provide certain therapeutic and nonmedical services.

In 2007, there were 2,200 hospice care only agencies, accounting for 15.3% of all home health and hospice care agencies in the United States. No significant differences were observed between hospice care only and mixed agencies relative to ownership type, chain affiliation, and certification status. On the other hand, hospice care only agencies (78.1 patients) were serving nearly twice as many hospice care patients as mixed agencies (39.1

patients) on average at the time of the interview. Hospice care only agencies compared with mixed agencies reported, on average, a higher percentage of their total patient care revenues from Medicare, and lower percentages from Medicaid and private health insurance programs. Consistent with previous findings (23), hospice care only agencies were more likely than mixed agencies to provide many core and noncore services.

Although over three-quarters (75.5%) of home health care only agencies in 2007 were for-profit or proprietary establishments, this has not always been the case. According to data from the 1996, 2000, and 2007 NHHCS, the number of home health care only agencies was the lowest in 2000, of which only a little over one-half were proprietary. The growth in proprietary establishments is, however, not limited to home health care only agencies. Although less than one-half of hospice care only agencies were for-profit in 2007, the percentage of 39.4% represents a notable increase from 21.5% in 2000. In contrast, the percentage of for-profit mixed agencies has remained at about one-quarter or less between 1996 and 2007.

Many observers attribute the growth in for-profit home health care agencies to the changes in the payment environment associated with the implementation of the BBA (2,11–13,24–28). In particular, studies on Medicare-certified home health care agencies suggest that the decreases in the number of agencies and the number of patients served while undergoing the two BBA-mandated payment system changes (i.e., interim payment system in 1997, PPS in 2000) occurred primarily among for-profit establishments (11,13).

Other sources have shown that for-profit establishments in both home health and hospice care sectors have entered the market in greater numbers since 2000 (3,11). Our analysis of NHHCS shows a similar fluctuation across the years. It also shows that the fluctuation appears mainly among home health care only agencies and not among mixed agencies. The number of mixed agencies and their ownership status have remained relatively constant. Among hospice care only agencies, in addition to the increasing demand for hospice care services in recent years, changes in the Medicare hospice payment system may have made the hospice market a more viable enterprise, hence the growth in the number of hospice care agencies and the proportion of for-profit agencies in particular (3,29,30).

The average number of patients served per home health care only agency decreased considerably between 1996 and 2000, and stayed fairly unchanged even when the number of home health care only agencies increased between 2000 and 2007. But this trend is not isolated to home health care only agencies. The average number of home health care patients served by mixed agencies, although it has always been greater than the average among home health care only agencies during 1996–2007, also declined between 1996 and 2000. It remained relatively unchanged thereafter as did home health care only agencies.

In contrast, the average number of current hospice care patients served by a hospice care only agency continuously increased during 1996–2007. The number of hospice care patients served by hospice care only agencies and mixed agencies was basically similar in 1996. The number of hospice care patients that mixed agencies served on average remained fairly constant between 1996 and 2007, whereas the typical hospice care only agency had nearly twice as many current hospice care patients as the typical mixed agency by 2007.

Conceivably, the growth in the number of home health care agencies over the years could be associated with a change toward smaller home health care only agencies whereas the growth in hospice care agencies, predominately in hospice care only agencies, could be related to a change toward larger agencies. This study cannot depict the market dynamics that may underlie this differential change in agency size between the home health and hospice care sectors. Additional research could provide further insights into the dynamics underlying the changes in the organizational characteristics of agencies within the home health care sector and within the hospice care sector.

The analysis in this report does suggest, however, that changes in agency size—as measured by the average number of patients served at the time of the interview—may be associated with changes in services offered. As the number of home health care patients served by a home health care only agency dropped, so did the proportion of home health care only agencies offering services such as personal care, homemaker or companion services, and durable medical equipment and supplies. On the other hand, as the number of patients served by a hospice care only agency increased, so did the proportion of hospice care only agencies providing services such as physician services, bereavement counseling, respite care, and durable medical equipment and supplies among others. In contrast, among mixed agencies, agencies for which there was no significant change in the average number of hospice care patients served, there were no changes in the proportion of agencies offering many services. Among mixed agencies there were decreases only in the percentage offering continuous home care, personal care, transportation services, and referral services.

Estimates presented in this report are based on a large, nationally representative sample of home health and hospice care agencies in the United States. Using data from 1996, 2000, and 2007 NHHCS, changes were examined in the number of agencies, organizational characteristics, and service provision over time. In addition, this analysis included both Medicare-certified and non-Medicare-certified agencies, and differentiated agencies that provided a single type of service (i.e., home health care only, hospice care only) from those that provided both home health and hospice care, providing a more complete picture of the U.S. home health and hospice care sectors. Despite these strengths, however, there are several important limitations. First, the cross-sectional nature of the data collected in NHHCS precludes establishing causal links between agency

characteristics and service provision. The analysis in this report does not, by itself, demonstrate direct links among, for instance, changes in ownership composition, agency size, and services provided. Second, for some content, analyses by agency type were not conducted due to small sample sizes. Lastly, this study did not evaluate changes in case-mix and its association with changes in organizational characteristics or service provision, although service provision would be tied to the type of patients that the agency served. As a result, findings in this report cannot indicate whether the changes that were found over time in the organizational characteristics and services of home health and hospice care agencies were associated with any notable changes in the patient populations served. The findings of this analysis, therefore, should be considered as preliminary, suggesting a number of questions that could be explored in future research including:

1. Does the growth in hospice care agencies, and the size of hospice care only agencies, mean an expansion in the types of patients served?
2. To what extent does the growth in hospice care simply mean a greater acceptance and desire to use hospice care among the terminally ill and their family members?
3. Does the reduction in the size of home health care only agencies represent more specialization across agencies in the types of patients cared for?
4. To what extent does the reduced patient volume in home health care only agencies signify a change in the business model of agencies moving toward smaller agencies concomitant with the alteration of the financial environment associated with the BBA?

The home health and hospice care market is not stagnant and, as the findings in this report reveal, has undergone noticeable changes over the past decade. More research is needed to gain a better understanding of the causes of variations in organizational characteristics and service delivery and their impacts on patient outcomes.

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Table 1. Selected organizational characteristics of home health and hospice care agencies: United States, 2007

Characteristic	Home health care[1]	Hospice care[1]
	Number (standard error)	
All agencies[2]	12,300 (746)	3,700 (250)
	Percent distributions (standard error)	
All agencies[2]	100.0 ...	100.0 ...
Ownership		
Proprietary	69.7 (3.2)	34.0 (3.9)
Voluntary nonprofit	23.5 (2.9)	55.5 (4.0)
Government and other	6.9 (1.2)	10.6 (2.9)
Chain affiliation		
Part of a chain	30.5 (3.8)	23.7 (3.3)
Not part of a chain	69.5 (3.8)	76.3 (3.3)
Medicare certification status		
Certified as home health care agency	81.6 (4.0)	... ...
Certified as hospice care agency	... ...	93.4 (2.9)
Medicaid certification status		
Certified as home health care agency	80.7 (3.9)	... ...
Certified as hospice care agency	... ...	86.4 (3.4)
Geographic region		
Northeast	13.5 (3.3)	14.8 (2.5)
Midwest	22.1 (3.2)	22.6 (2.5)
South	50.3 (4.2)	44.5 (4.0)
West	14.1 (2.6)	18.2 (3.3)
Location		
Metropolitan statistical area (MSA)[3]	73.6 (1.9)	66.8 (2.5)
Micropolitan statistical area[4]	13.8 (1.2)	19.5 (1.7)
Neither	12.6 (1.2)	13.7 (1.2)

... Category not applicable.
[1]Include agencies that provide both home health and hospice care services (mixed).
[2]Include agencies that provide home health care services, hospice care services, or both types of services, and currently or recently served home health and/or hospice care patients. Agencies that provided only homemaker services or housekeeping services, assistance with instrumental activities of daily living (IADLs), or durable medical equipment and supplies were excluded from the survey.
[3]A metropolitan statistical area is a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. May also contain other counties that are economically and socially integrated with the central county as measured by commuting.
[4]A micropolitan statistical area is a nonmetropolitan county or group of contiguous nonmetropolitan counties that contains an urban cluster of 10,000 to 49,999 persons. May include surrounding counties if there are strong economic ties between the counties,based on commuting patterns.

NOTE: Numbers may not add to totals because of rounding, and/or because estimates and percent distributions include a category of unknowns not reported in the table. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Table 2. Selected organizational characteristics of home health and hospice care agencies, by agency type: United States, 2007

Characteristic	Total	Home health care only	Hospice care only	Home health and hospice care (mixed)
		Number (standard error)		
All agencies[1]	14,500 (769)	10,800 (753)	2,200 (210)	1,400 (145)
		Percent distributions (standard error)		
All agencies[1]	100.0 ...	100.0 ...	100.0 ...	100.0 ...
Ownership				
Proprietary	65.0 (2.9)	75.5 (3.3)	39.4 (5.6)	†25.6 (4.5)
Voluntary nonprofit	27.6 (2.7)	18.3 (3.0)	50.7 (5.6)	62.9 (4.9)
Government and other	7.4 (1.3)	†6.3 (1.4)	* (*)	†11.5 (2.1)
Chain affiliation				
Part of a chain	70.0 (3.3)	32.2 (4.3)	27.6 (4.7)	†17.6 (4.1)
Not part of a chain	30.0 (3.3)	67.8 (4.3)	72.4 (4.7)	82.4 (4.1)
Medicare certification status				
Certified as home health care agency	... ...	79.5 (4.5)	... ...	97.6 (1.6)
Certified as hospice care agency	... ...	... ...	90.9 (4.5)	97.2 (1.7)
Medicaid certification status				
Certified as home health care agency	... ...	78.6 (4.3)	... ...	96.6 (1.6)
Certified as hospice care agency	... ...	... ...	82.8 (5.3)	91.9 (2.3)
Geographic region				
Northeast	13.4 (2.8)	†12.9 (3.7)	†12.3 (3.4)	18.8 (3.4)
Midwest	21.5 (2.8)	21.1 (3.6)	18.2 (3.1)	29.3 (4.1)
South	51.5 (3.6)	53.9 (4.7)	58.1 (5.2)	23.4 (4.0)
West	13.7 (2.2)	†12.1 (2.8)	†11.5 (3.1)	28.6 (6.2)
Location				
Metropolitan statistical area (MSA)[2]	73.5 (1.7)	75.7 (2.1)	72.5 (2.8)	58.0 (4.5)
Micropolitan statistical area[3]	14.2 (1.1)	12.5 (1.4)	16.9 (1.9)	23.6 (3.3)
Neither	12.3 (1.0)	11.8 (1.3)	10.7 (1.2)	18.4 (2.5)

... Category not applicable.

† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

* Estimate does not meet standards of reliability or precision because the sample size is fewer than 30.

[1]Include agencies that provide home health care services, hospice care services, or both types of services, and currently or recently served home health and/or hospice care patients. Agencies that provided only homemaker services or housekeeping services, assistance with instrumental activities of daily living (IADLs), or durable medical equipment and supplies were excluded from the survey.

[2]A metropolitan statistical area is a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. May also contain other counties that are economically and socially integrated with the central county as measured by commuting.

[3]A micropolitan statistical area is a nonmetropolitan county or group of contiguous nonmetropolitan counties that contains an urban cluster of 10,000 to 49,999 persons. May include surrounding counties if there are strong economic ties between the counties, based on commuting patterns.

NOTE: Numbers may not add to totals because of rounding, and/or because estimates and percent distributions include a category of unknowns not reported in the table. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Table 3. Home health and hospice care patients served at the time of the interview, by agency type and number of patients: United States, 2007

Number of patients	Home health care only	Home health and hospice care (mixed)
	Mean (standard error)	
Number of home health care patients	109.0 (9.2)	177.7 (17.7)
	Percent distributions (standard error)	
Total	100.0 ...	100.0 ...
0–25	†16.0 (4.3)	†9.8 (2.4)
26–50	†21.3 (4.2)	†25.1 (6.4)
51–100	29.0 (4.0)	18.4 (3.1)
101–150	†10.8 (2.3)	†9.4 (1.9)
151 or more	23.0 (3.5)	37.4 (4.8)

Number of patients	Hospice care only	Home health and hospice care (mixed)
	Mean (standard error)	
Number of hospice care patients	78.1 (6.4)	39.1 (5.7)
	Percent distributions (standard error)	
Total	100.0 ...	100.0 ...
0–25	29.5 (5.4)	57.6 (5.6)
26–50	22.1 (4.9)	24.5 (5.9)
51–100	21.2 (4.0)	†6.3 (1.4)
101–150	†9.9 (2.5)	* (*)
151 or more	†11.6 (2.3)	* (*)

. . . Category not applicable.

†Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

* Estimate does not meet standards of reliability or precision because the sample size is fewer than 30.

NOTE: Unknowns are excluded when calculating estimates. There was 1 (unweighted) case with unknown number of home health care patients, while 19 (unweighted) cases with unknown number of hospice care patients. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

Table 4. Selected organizational characteristics of agencies providing home health care only: United States, 1996, 2000, and 2007

Characteristic	1996	2000	2007
	Number (standard error)		
Total	10,600 (460)	7,600 (324)	10,800 (753)
	Percent distributions (standard error)		
Total	100.0 ...	100.0 ...	100.0 ...
Ownership			
Proprietary	61.7 (2.8)	53.3 (2.8)	75.5 (3.3)
Voluntary nonrpofit	26.9 (2.6)	33.6 (2.7)	18.3 (3.0)
Government and other	†11.4 (1.9)	12.8 (1.7)	†6.3 (1.4)
Chain affiliation			
Part of a chain	50.9 (2.9)	46.6 (2.8)	32.2 (4.3)
Not part of a chain	45.0 (2.9)	52.4 (2.8)	67.8 (4.3)
Medicare certification status			
Certified as home health care agency	87.4 (1.9)	78.3 (2.5)	79.5 (4.5)
Medicaid certification status			
Certified as home health care agency	84.6 (2.2)	80.9 (2.3)	78.6 (4.3)
Geographic region			
Northeast	13.0 (1.9)	14.4 (1.9)	†12.9 (3.7)
Midwest	26.8 (2.7)	24.9 (2.2)	21.1 (3.6)
South	41.6 (2.9)	46.9 (2.8)	53.9 (4.7)
West	18.7 (2.3)	13.7 (1.6)	†12.1 (2.8)
Location[1]			
MSA	66.8 (2.0)	65.9 (2.1)	75.7 (2.1)
Non-MSA	33.2 (2.0)	34.1 (2.1)	24.3 (2.1)

. . . Category not applicable.
† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.
[1]A metropolitan statistical area (MSA) is a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. May also contain other counties that are economically and socially integrated with the central county as measured by commuting.

NOTE: Numbers may not add to totals because of rounding, and/or because estimates and percent distributions include a category of unknowns not reported in the table. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 5. Home health and hospice care patients served at the time of the interview, by agency type: United States, 1996, 2000, and 2007

Patients served at the time of interview	1996	2000	2007
Home health care patients		Mean (standard error)	
Home health care only	161.8 (10.8)	114.9 (8.8)	109.0 (9.2)
Home health and hospice care (mixed)	290.2 (30.2)	149.0 (16.8)	177.7 (17.7)
Hospice care patients			
		Mean (standard error)	
Hospice care only	27.5 (3.4)	53.7 (4.6)	78.1 (6.4)
Home health and hospice care (mixed)	34.9 (12.2)	27.6 (2.5)	39.1 (5.7)

NOTE: Unknowns are excluded when calculating estimates. The (unweighted) number of cases with unknown number of home health care patients ranges from 1 to 28. There were no unknowns for the number of hospice care patients in 1996 and 2000, respecitvely. There were 19 (unweighted) cases with unknown number of hospice care patients in 2007.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 6. Selected organizational characteristics of agencies providing hospice care only: United States, 1996, 2000, and 2007

Characteristics	1996	2000	2007
		Number (standard error)	
Total	1,300 (145)	1,300 (96)	2,200 (210)
		Percent distributions (standard error)	
Total	100.0 ...	100.0 ...	100.0 ...
Ownership			
Proprietary	†28.0 (5.6)	21.5 (2.9)	39.4 (5.6)
Voluntary nonprofit	59.5 (6.3)	71.5 (3.2)	50.7 (5.6)
Government and other	* (*)	* (*)	* (*)
Chain affiliation			
Part of a chain	38.5 (5.2)	43.2 (4.1)	27.6 (4.7)
Not part of a chain	59.7 (5.3)	56.0 (4.1)	72.4 (4.7)
Medicare certification status			
Certified as hospice care agency	60.7 (5.9)	95.6 (0.9)	90.9 (4.5)
Medicaid certification status			
Certified as hospice care agency	50.9 (5.7)	89.1 (1.5)	82.8 (5.3)
Geographic region			
Northeast	†29.7 (6.8)	†18.8 (4.6)	†12.3 (3.4)
Midwest	23.0 (4.1)	24.3 (2.9)	18.2 (3.1)
South	38.1 (5.0)	39.3 (3.6)	58.1 (5.2)
West	†9.2 (1.7)	17.7 (2.8)	†11.5 (3.1)
Location of agency[1]			
MSA	71.5 (3.9)	69.8 (2.7)	72.5 (2.8)
Non-MSA	28.5 (3.9)	30.2 (2.7)	27.6 (2.8)

. . . Category not applicable.

† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

* Estimate does not meet standards of reliability or precision because the sample size is fewer than 30.

[1]A metropolitan statistical area (MSA) is a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. May also contain other counties that are economically and socially integrated with the central county as measured by commuting.

NOTE: Numbers may not add to totals because of rounding, and/or because estimates and percent distributions include a category of unknowns not reported in the table. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 7. Selected organizational characteristics of agencies providing home health and hospice care (mixed): United States, 1996, 2000, and 2007

Characteristics	1996	2000	2007
	Number (standard error)		
Total	1,600 (188)	1,800 (151)	1,400 (145)
	Percent distributions (standard error)		
Total	100.0 ...	100.0 ...	100.0 ...
Ownership			
Proprietary	†26.9 (5.4)	†17.7 (3.5)	†25.6 (4.5)
Voluntary nonprofit	63.5 (6.3)	66.6 (4.3)	62.9 (4.9)
Government and other	* (*)	* (*)	†11.5 (2.1)
Chain affiliation			
Part of a chain	32.8 (5.3)	41.4 (4.6)	†17.6 (4.1)
Not part of a chain	65.3 (5.4)	58.3 (4.6)	82.4 (4.1)
Medicare certification status			
Certified as home health care agency	92.0 (2.9)	92.6 (1.8)	97.6 (1.6)
Certified as hospice care agency	86.2 (4.2)	86.0 (4.3)	97.2 (1.7)
Medicaid certification status			
Certified as home health care agency	94.2 (2.6)	93.4 (1.4)	96.6 (1.6)
Certified as hospice care agency	76.5 (5.0)	83.3 (4.2)	91.9 (2.3)
Geographic region			
Northeast	†16.3 (3.6)	15.1 (2.8)	18.8 (3.4)
Midwest	31.4 (5.7)	32.9 (4.1)	29.3 (4.1)
South	†32.7 (6.1)	30.6 (4.7)	23.4 (4.0)
West	†19.7 (4.7)	21.4 (3.6)	28.6 (6.2)
Location of agency[1]			
MSA	69.5 (4.4)	51.1 (4.3)	58.0 (4.5)
Non-MSA	30.5 (4.4)	48.9 (4.3)	42.0 (4.5)

. . . Category not applicable.

† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

* Estimate does not meet standards of reliability or precision because the sample size is fewer than 30.

[1]A metropolitan statistical area (MSA) is a county or group of contiguous counties that contains at least one urbanized area of 50,000 or more population. May also contain other counties that are economically and socially integrated with the central county as measured by commuting.

NOTE: Numbers may not add to totals because of rounding, and/or because estimates and percent distributions include a category of unknowns not reported in the table. Percentages are based on the unrounded numbers.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 8. Selected services offered by agencies providing home health care only: United States, 1996, 2000, and 2007

Services provided	1996	2000	2007
		Number (standard error)	
Total	10,600 (460)	7,600 (324)	10,800 (753)
		Percent (standard error)	
Skilled nursing services	93.6 (1.4)	90.8 (2.2)	95.2 (1.8)
Physical therapy	84.6 (2.2)	76.2 (2.7)	77.4 (4.4)
Speech therapy or audiology	78.5 (2.5)	68.4 (2.8)	67.0 (4.6)
Occupational therapy	73.2 (2.6)	68.2 (2.8)	74.1 (4.4)
Medical social services	75.2 (2.7)	67.6 (2.7)	63.1 (4.8)
Personal care	92.0 (1.7)	87.7 (1.9)	82.5 (3.5)
Homemaker or companion services	50.6 (3.0)	56.8 (2.8)	37.8 (4.5)
Transportation services	12.8 (1.9)	12.5 (1.9)	†9.4 (2.1)
Referral services	83.5 (2.1)	62.5 (2.7)	44.8 (4.6)
Durable medical equipment and supplies	33.9 (2.8)	21.2 (2.3)	†13.6 (2.9)

† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

NOTE: Percentages are based on the unrounded numbers. Denominator includes unknowns.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 9. Selected services offered by agencies providing hospice care only: United States, 1996, 2000, and 2007

Services provided	1996	2000	2007
		Number (standard error)	
Total	1,300 (145)	1,300 (96)	2,200 (210)
Core services		Percent (standard error)	
Skilled nursing services	93.5 (1.5)	88.0 (2.3)	89.6 (4.2)
Physician services	49.9 (5.6)	86.4 (2.5)	91.7 (3.8)
Dietary and nutritional services	73.1 (5.1)	87.8 (1.7)	83.4 (5.9)
Pastoral or spiritual care	65.8 (6.9)	99.4 (0.4)	94.3 (3.9)
Volunteer services	69.6 (6.0)	99.1 (0.3)	93.6 (4.1)
Bereavement counseling	82.3 (5.4)	99.5 (0.2)	94.1 (3.9)
Medical social services	85.0 (4.7)	97.8 (0.6)	92.5 (3.9)
Noncore services			
Physical therapy	81.4 (4.6)	89.2 (1.6)	90.9 (3.9)
Speech therapy or audiology	75.4 (5.1)	80.9 (2.4)	83.8 (4.1)
Occupational therapy	76.2 (5.0)	81.0 (2.5)	87.4 (4.0)
Continuous home care	64.3 (6.4)	77.7 (3.1)	78.3 (5.2)
Respite care	64.2 (6.6)	95.3 (1.3)	92.9 (3.9)
Personal care	92.4 (1.9)	92.4 (4.1)	90.3 (4.1)
Homemaker or companion services	65.8 (5.7)	75.3 (3.3)	74.3 (5.4)
Durable medical equipment and supplies	59.1 (6.4)	89.2 (2.1)	92.8 (3.9)

NOTE: Percentages are based on the unrounded numbers. Denominator includes unknowns.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Table 10. Selected services offered by agencies providing home health and hospice care (mixed): United States, 1996, 2000, and 2007

Services provided	1996	2000	2007
		Number (standard error)	
Total	1,600 (188)	1,800 (151)	1,400 (145)
		Percent (standard error)	
Skilled nursing services	95.9 (3.1)	97.7 (0.6)	95.8 (1.9)
Physical therapy	93.4 (3.8)	95.4 (1.5)	88.2 (4.1)
Speech therapy or audiology	93.0 (3.7)	90.4 (2.6)	89.5 (3.1)
Occupational therapy	86.3 (6.1)	87.0 (4.1)	89.8 (3.0)
Medical social services	87.8 (5.9)	93.6 (2.4)	93.3 (2.6)
Physician services	37.8 (5.6)	50.3 (4.5)	48.3 (5.3)
Dietary and nutritional services	71.8 (6.9)	72.0 (4.0)	87.7 (3.0)
Pastoral or spiritual care	84.7 (6.1)	88.9 (2.9)	88.9 (3.2)
Volunteer services	81.0 (6.2)	82.0 (3.8)	87.9 (3.1)
Bereavement counseling	90.9 (4.0)	90.1 (2.9)	90.7 (3.0)
Continuous home care	76.6 (6.1)	67.6 (3.9)	56.5 (5.5)
Respite care	73.7 (6.2)	87.4 (2.6)	84.3 (3.8)
Personal care	95.3 (3.1)	97.2 (1.0)	82.7 (6.0)
Homemaker or companion services	57.5 (6.4)	69.8 (3.8)	56.6 (5.6)
Transportation services	29.1 (4.8)	†19.6 (4.3)	14.0 (2.8)
Referral services	89.6 (3.6)	85.9 (2.8)	57.4 (5.7)
Durable medical equipment and supplies	49.9 (6.1)	53.4 (4.5)	56.0 (5.1)

† Estimate does not meet standards of reliability or precision because the sample size is between 30 and 59, or the sample size is greater than 59 but has a relative standard error of 30 percent or more.

NOTE: Percentages are based on the unrounded numbers. Denominator includes unknowns.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 1996, 2000, 2007.

Technical Notes

Findings presented in this report were based on data from the agency component of the 1996, 2000, and 2007 National Home and Hospice Care Survey (NHHCS). NHHCS is a continuing series of cross-sectional, nationally representative sample surveys of home health and hospice care agencies in the United States. The survey includes agencies that are certified by Medicare or Medicaid, or licensed by a state. Data from NHHCS have been used to track changes in home health and hospice care provided to individuals and their family members since 1992.

Sample design

The sampling design for NHHCS was a stratified, two-stage probability design. The first stage consisted of the selection of a stratified sample of agencies. The primary sampling strata of agencies were defined by agency type, metropolitan statistical area (MSA) status, and Census region in 1996 and 2000 surveys. In contrast, agency type and MSA status were used to define the primary sampling strata in 2007. The second stage of sample selection was done using a sample selection table (in 1996, 2000) or a computer algorithm (in 2007) to obtain systematic probability samples of current patients and discharges.

Data collection

Data for NHHCS were collected through personal interviews with agency directors and staff who used administrative records to answer questions about the agencies, staffs, services, and programs, and medical records to answer questions about current patients and discharges. The agency component of NHHCS interviews was completed for 1,053 agencies in 1996, 1,425 in 2000, and 1,036 in 2007. The first-stage agency unweighted response rates were 96% in 1996, 96% in 2000, and 71% in 2007. Starting with the 2007 NHHCS, the weighted response rate was calculated. The first-stage agency response rate weighted by the inverse of the probability of selection was 59%.

A detailed description of the sampling design, data collection, and procedures, including data collection forms for each survey year, is provided in other reports (15,31) as well as at the following website: (http://www.cdc.gov/nchs/nhhcs/nhhcs_questionnaires.htm).

Estimation

Because of the complex multistage design of the NHHCS, NCHS computed a weight that took all sampling stages into account. This weight was used to inflate the sample numbers to national estimates, and included three basic components: inflation by reciprocals of selection probabilities, adjustment for nonresponse, and population ratio adjustment. Further information on the NHHCS estimation procedures is available at: http://www.cdc.gov/nchs/data/nhhcsd/NHHCS_NHHAS_web_documentation.pdf.

Standard errors

Because the statistics presented in this report are based on a sample, they will differ somewhat from statistics that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedures. The standard errors (SEs) of statistics presented in this report are included in each of the tables. The SEs used in this report were approximated using SUDAAN software, which computes SEs by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software has been published (20). Estimates are considered reliable if they are based on 60 or more sample cases and the RSE is less than 30 percent. Estimates based on 30–59 cases, or based on more than 59 cases but with an RSE exceeding 30%, are displayed with a dagger (†) and cannot be assumed to be reliable. Estimates based on fewer than 30 cases (indicated with an asterisk) are not reported because they do not meet standards of reliability or precision. Standard errors can be calculated for agency estimates using any statistical software package, including SUDAAN, so long as clustering within agencies and other aspects of the complex sample design are taken into account. Software products such as SAS, STATA, and SPSS all have these capabilities.

Definition of terms used in this report

Terms relating to organizational characteristics

Home health care—Home health care refers to a range of medical and therapeutic services as well as other services delivered at a patient's home or in a residential setting for the purpose of promoting, maintaining, or restoring health, or maximizing the level of independence, while minimizing the effects of disability and illness, including terminal illness.

Hospice care—Hospice care focuses on relieving pain and uncomfortable symptoms of individuals with terminal illness and providing emotional and spiritual support to both the terminally ill and their family members.

Geographic region—Geographic region refers to a region created by grouping the conterminous states into geographic areas corresponding to groups used by the U.S. Census Bureau, as follows:

Region	*States included*
Northeast	Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania;
Midwest	Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska;
South	Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana,

	Oklahoma, Arkansas, and Texas;
West	Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

Terms relating to services

Bereavement counseling—Bereavement counseling refers to services provided either or both one-on-one and group support in coping with grief and sadness upon the loss of a loved one.

Companion services—Companion services refer to the provision of companionship, support, and comfort to individuals who may not be left alone. These services are usually limited to the provision of sitter or escort services.

Continuous home care—Continuous home care refers to providing care to patients who need 24-hour monitoring of either or both equipment and conditions.

Dietary and nutritional services—Dietary and nutritional services refer to direct counseling by a trained nutritionist to individuals who need professional dietary assessment and guidance to properly manage an illness or disability, and do not include supervision of special diets.

Durable medical equipment and supplies—Durable medical equipment and supplies refers to nondisposable equipment such as respirators, intravenous infusion therapy equipment, total parenteral nutrition, and home dialysis machines that has equipment life expectancy of more than 1 year.

Homemaker services—Homemaker services include services that are necessary for maintaining a safe and healthy home environment for the patient such as housecleaning, personal laundry, and preparing meals. These services help to maintain a patient's household rather than providing hands-on personal care to patients.

Medical social services—Medical social services refer to the provision of counseling, advocacy coordination, information about, and referrals to available community resources such as legal aid, job, and housing assistance.

Occupational therapy—Occupational therapy is obtained from a registered or licensed occupational therapist. This therapeutic service is provided to restore or maintain independence in performing activities of daily living (ADLs) and basic functional skills.

Pastoral care—Pastoral care refers to care from a minister, priest, rabbi, or other clergy.

Personal care—Personal care refers to assistance with ADLs such as bathing, dressing, using the toilet, getting in and out of bed, eating, walking, shaving, combing or shampooing hair, care of dentures and teeth.

Physical therapy—Physical therapy is obtained from a certified or licensed physical therapist. This therapeutic service is provided to restore the mobility and strength and to relieve pain experienced by patients through the use of exercise, massage, and other methods.

Physician services—Physician services refer to evaluation and treatment provided by a licensed physician including M.D., Doctor of Osteopathic Medicine (D.O.), and physician associate (not including psychiatrist).

Referral services—Referral services refer to the provision of information on services available from public and private providers. Agencies may also order or arrange services but they do not provide the service directly.

Respite care—Respite care refers to care provided to the patient to relieve the stress of a family or primary caregiver due to family psychological problems, caregiver fatigue, or required short-term absence of the caregiver.

Skilled nursing services—Skilled nursing services are services essential to the maintenance or restoration of health provided to sick or disabled persons by a registered nurse (RN) or a licensed practical nurse (LPN). Examples of services provided are injections, wound care, education or disease treatment and prevention, and patient assessments. Also included is case management and coordination of a care plan.

Speech therapy or audiology—Speech therapy or audiology is obtained from a certified or licensed speech language pathologist or audiologist. It includes evaluation, treatment, and monitoring of specific communication disorders.

Spiritual care—Spiritual care refers to care provided either or both one-on-one and group support in coping with grief, fear, anxiety, and social problems for the patient, caregiver, and family.

Transportation services—Transportation services refer to the provision of a driver and vehicle by the agency.

Volunteer services—Volunteer services refer to services provided to patients by individuals in an unpaid capacity.

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