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RESEARCH BRIEF

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MEDICARE HOSPICE USE PATTERNS AMONG PATIENTS WITH ALZHEIMER'S DISEASE OR RELATED DEMENTIAS COMPARED TO THOSE WITH OTHER TERMINAL DIAGNOSES

KEY POINTS

- People living with Alzheimer's disease and related dementias (ADRD) have unpredictable disease trajectories that raise unique challenges for end-of-life care planning and may contribute to disparities in hospice care. This study investigated whether length of stay (LOS), visit frequency, and live discharge (LD) rates differed for Medicare hospice enrollees with ADRD compared to Medicare hospice enrollees with other common terminal diagnoses (e.g., cancer). This study also investigated whether hospice agency characteristics were associated with differences in these care patterns.
- Frequency of visits from each hospice staff discipline varied by patient diagnosis, with ADRD patients receiving fewer average daily hospice visits than patients with other primary diagnoses. Patients with a secondary diagnosis of ADRD also tended to receive fewer hospice visits than patients with no primary or secondary ADRD diagnosis.
- Patients with ADRD had longer lengths of stay in hospice, spent a larger portion of their hospice stay receiving routine home care (RHC), and had the second highest rate of LD compared to patients with other primary diagnoses.
- Hospice characteristics, including ownership type, size, age, location, and proportion of patients with ADRD, were associated with differences in hospice care patterns including LOS, RHC days, and frequency of hospice visits.

BACKGROUND

Established in 1983, the Medicare hospice benefit provides palliative and other supportive services to terminally ill Medicare beneficiaries with a life expectancy of 6 months or less. Since its inception, the use of hospice has steadily increased among individuals living with terminal illnesses. Between 2010 and 2023, the number of Medicare beneficiaries enrolled in hospice increased significantly from 1.15 million to 1.74 million, and more than half of decedents enrolled in Medicare (52%) used hospice in 2023 (Medicare Payment Advisory Commission [MedPAC], 2025). Although the hospice benefit was designed for patients with cancer, the percentage of patients with non-cancer diagnoses enrolling in hospice has grown. In particular, use of hospice care among individuals with ADRD grew from less than 5% of Medicare hospice patients in 2000 (Aldridge et al., 2015) to 23% of Medicare hospice patients in 2023, equal to the share of enrollees with cancer-related diagnoses (MedPAC, 2025). Some individuals may have a terminal diagnosis, such as cancer or congestive heart failure, and a comorbid ADRD diagnosis. One study estimated that approximately 45% of hospice decedents had either a primary or comorbid dementia diagnosis (Aldridge et al., 2022). Thus, people with ADRD now compose a large minority of hospice patients.

Hospice's team-based care can help support people with ADRD at the end of life. For example, proxies of older adults living with ADRD enrolled in hospice reported excellent care more often and fewer changes in care

settings during the last 3 days compared to those not enrolled in hospice (Harrison et al., 2022). Even for individuals with ADRD living in nursing facilities, there is evidence that receiving hospice care in the nursing home may help them avoid hospitalizations and improve some symptoms at the end of life (Miller et al., 2012). Regardless of their living situation, people living with ADRD have unique end-of-life functional trajectories and care needs compared to people living with other terminal conditions (Broyles, 2020), and prognostication of their end of life is challenging. These unique trajectories and needs can manifest in different patterns of hospice use from people with other terminal conditions (Broyles, 2023) and potential misalignment between the duration of needs and service availability through the Medicare hospice benefit. Understanding the experience of hospice care for people with ADRD motivates this closer look at measures of hospice care.

The Centers for Medicare & Medicaid Services (CMS), through the Hospice Quality Reporting Program, uses multiple measures, including types and timing of provider visits, the level of care provided, and LD rates to assess hospice provider quality. LOS is also often used to understand patients' experiences of end-of-life care in hospice. For example, among Medicare beneficiaries who died in 2023 while enrolled in hospice, those diagnosed with neurological-related conditions had a longer average LOS (164 days) compared to those with other diagnoses, including cancer-related conditions (51 days) (MedPAC, 2025). Potentially concerning are the very short (7 days or less) and very long stays (>180 days) that are more common for hospice enrollees living with non-cancer diagnoses compared with enrollees living with cancer (Aldridge et al., 2015); patients living with ADRD may be specifically at higher risk of very long hospice stays (>180 days) (Mitchell et al., 2007). In a study of Medicare beneficiaries aged 65 and older with dementia diagnoses, about 30% of those who enrolled in hospice did so during the last 7 days of life (Lin et al., 2022). There is also evidence that both primary and comorbid ADRD may affect LOS in hospice (Aldridge et al., 2022; Driessen et al., 2024).

Throughout the stay, hospice care is delivered by an interdisciplinary care team that visits patients and families. The team includes nurses, aides, chaplains, social workers, and physicians. Nurses, social workers, and physicians can assess symptoms and make changes to the plans of care and work with the patient and the primary caregiver to provide the appropriate palliation and emotional support, improving quality of care (Teno et al., 2015). Analyses dating back to 2004 by the U.S. Government Accountability Office, MedPAC, and other researchers have shown higher daily resource use (number of visits and visit labor costs) at the beginning of a hospice stay, followed by lower daily use during the middle of a stay, and then increasing use in the last few days preceding death (CMS, 2013). Researchers have observed fewer skilled visits for patients with ADRD in the middle of the stay (Bogasky et al., 2014). Differences in visit patterns may reflect differences in disease trajectories and care needs (Luth et al., 2021), but may also reflect specific hospices' operational decisions.

When Medicare beneficiaries are enrolled in hospice, Medicare will cover hospice care at four payment rates based on the level of care that the hospice provided: routine home care (RHC), continuous home care (CHC), general inpatient care (GIP), and inpatient respite care (IRC). RHC is provided wherever the patient lives (i.e., in the home, assisted living, or nursing home) and is the most common, with 98.8% of hospice days occurring at this level of care (CMS, 2024b). RHC includes physician services, nursing care, social work, counseling services, chaplain support, medication, and medical supplies. CHC accounts for 0.1% of hospice days, GIP for 0.8%, and IRC for 0.3% (CMS, 2024b). CHC services are meant to be temporary and provide a minimum of 8 hours per day of intense nursing care to manage severe symptoms, while GIP services are for patients who need more intense symptom management services in an inpatient setting, and IRC provides caregivers with short-term relief of up to 5 consecutive days. Receiving the right level of care can affect patient outcomes such as likelihood of death in an inpatient setting (Casarett et al., 2015) and LD from hospice (Wang et al., 2016).

Although most hospice enrollees continue to receive hospice care up until death, roughly one in five are disenrolled from hospice, experiencing a "live discharge" (CMS, 2025). An LD occurs when an individual is disenrolled from hospice while alive and can be initiated by the individual or provider. Reasons for LD can include when an individual is no longer determined to be terminally ill, moves out of the provider's service area, transfers to another hospice, chooses to discontinue hospice (revokes election of Medicare coverage of hospice care), or "for cause", as a last resort when patient or hospice staff safety is compromised (CMS, 2024). Rates of LD rose from 16% in fiscal year (FY) 2020 to 19% in FY 2024 (CMS, 2025). Hospice enrollees with ADRD, as a primary or comorbid diagnosis, have higher LD rates than enrollees with other diagnoses, especially after long stays, partly because of challenges in prognosticating their end of life (De Vleminck et al., 2018, Luth et al., 2021, Aldridge et al., 2022). LDs from hospice may reflect poor quality of care, program integrity issues (MedPAC, 2023), and negative experiences for patients, leading to immediate service loss or disruption and emotional distress for patients and caregivers (Hunt & Harrison, 2021; Luth et al., 2020). Compared to people living with other terminal conditions, this disruption in care can disproportionately affect people living with ADRD and their caregivers, who often have greater support needs and higher likelihood of caregiver burden (Vick et al., 2019).

Although the hospice model of care is consistent, hospices differ in their patient mix, the way they deliver services, and their outcomes. It is not always clear whether differences are the result of the clinical, geographic, and sociodemographic context in which hospices operate or hospice decision making regarding operations and finances. For example, hospices with longer average lengths of stay are observed to have higher margins and higher profitability (MedPAC, 2023). One study found that for-profit hospices have higher percentages of patients with ADRD than nonprofit hospices (De Vleminck et al., 2018). Another indicated that LD rates are higher in for-profit hospices than nonprofit hospices for both cancer and non-cancer patients (Aldridge et al., 2018). One way to potentially disentangle these factors is examining whether, among people with ADRD or a single diagnosis, there are differences in hospice visits, LOS, and discharge rates for patients depending on what kind of hospice they receive care from.

Each of these markers of hospice care—LOS, level of care received, visit type and frequency, and LD—can reveal important information about whether, and how well, patients are being served by the hospice model of care. This research uses more recent data to examine how these markers may be different for people with ADRD versus other terminal illnesses. Further, we examine questions about whether ADRD as a primary versus secondary diagnosis (with some other terminal condition as primary) is associated with differences in LOS, level of care, visits, and LD rates. Finally, we examine whether there are differences in the care provided to people with ADRD depending on the characteristics of the hospice caring for them.

RESEARCH QUESTIONS

The goal of this study was to further understand hospice use by diagnosis, particularly by comparing use among individuals living with ADRD to those living with other terminal diagnoses, such as cancer, both with and without comorbid ADRD. The study sought to answer the following research questions:

1. Are hospice LOS, visit frequency, and LD rates significantly different for Medicare hospice enrollees with ADRD compared to Medicare hospice enrollees with other common terminal diagnoses (e.g., cancer, heart disease)? If so, how do they differ?
2. Are provider characteristics (e.g., hospice ownership, size, age, or location) associated with hospice LOS, visit frequency, and LD rates for hospice enrollees with ADRD as compared to those with other common diagnoses? If so, how?

DATA AND METHODS

We analyzed Medicare fee-for-service (FFS) hospice claims data from 2016 through 2019. Our study population included all beneficiaries with hospice stays starting on or after January 1, 2016, and ending on or before December 31, 2019. This study period was selected to assess hospice use after implementation of a two-tier payment rate and service intensity add-on payment for RHC in the Medicare hospice benefit (80 FR 47161–47177) and prior to the COVID-19 public health emergency. We excluded stays with problematic data, such as stays overlapping with or embedded within another hospice stay; stays comprising only non-payment claims; stays missing key variables, such as level of care or primary diagnosis; and stays with a date of death (from the Master Beneficiary Summary File) occurring before the date of discharge. Using these criteria, we identified a sample of 5,044,977 hospice stays among Medicare FFS beneficiaries. To capture only one stay per beneficiary, we limited the final sample to the beneficiary's last stay during the study period, if the beneficiary had multiple hospice stays. Approximately 7.9% of beneficiaries had more than one hospice stay; removing the earlier stays from the sample resulted in 4,612,436 stays in our final sample. The sample included 5,238 hospice agencies.

We created four measures of hospice use using claims data: LOS, level of care, visit frequency, and LD rate (**Table 1**). We examined visit frequency separately for each hospice staff discipline type: registered nurse (RN), licensed practical nurse (LPN), medical social services (MSS), home health aide (HHA), therapist (physical, occupational, or speech), and physician (or nurse practitioner or physician assistant acting in that role). We could not measure visit frequency for chaplains or spiritual counselors because visits from these disciplines are not reported in Medicare hospice claims. We did not include postmortem visits and phone calls in this analysis. We limited analyses of visit counts and minutes to hospice patients receiving RHC for their entire stay (3,214,880, 69.7% of stays), as other levels of care are expected to have different care patterns, and visit data are not available on a daily basis for GIP care.

Table 1. Variables and Definitions

Variable	Definition
Hospice LOS	Number of days a patient spends in hospice care.
Level of Care	Type of care provided each day during hospice stay, based on the Hospice Conditions of Participation: RHC, CHC, GIP, IRC. Stays may include combinations of different levels of care.
Visit Frequency	Frequency of visits by hospice staff during hospice care, measured by visit count each day and averaged across the stay.
Live Discharge	Any completed stay in which the patient is discharged for any reason other than death. Reasons include discharged for cause (such as when patient or staff safety is compromised), transferred to another hospice, moved out of service area, patient revoked their hospice election, or unspecified. Discharges for which no reason is given in Medicare claims data include discharges when a patient is no longer considered terminally ill.

To identify each stay by type of patient diagnosis, the primary diagnosis on the first hospice claim was mapped to a Clinical Classifications Software Refined (CCSR) category using CCSR v2025.1. We then grouped the CCSR categories into seven primary diagnosis groups that are common terminal diagnoses among hospice patients. A list of CCSR categories in each diagnosis group can be found in **Appendix A**. All CCSR categories not listed in Appendix A are grouped in the category "Other," which includes malnutrition, infections, liver failure, and other diagnoses. We also divided the six non-ADRD primary diagnosis groups into two subgroups based on the presence of ADRD as a secondary diagnosis (e.g., cancer with ADRD and cancer without ADRD). We defined secondary diagnosis of ADRD as the presence of a diagnosis code in the CCSR group NVS011 (Neurocognitive

disorders) across any claims in the stay, excluding the primary diagnosis used to define the primary diagnosis group.

We obtained hospice characteristics from Provider of Service files and Medicare hospice claims data. Hospice characteristics include ownership and facility type, quality (compliance status), location (CMS region, urban-rural status), size (average daily census), hospice age, and percentage of patients with ADRD. A comprehensive list of characteristics and their data sources is in **Appendix B.** We examined differences in hospice use measures for each hospice characteristic, for all patients and for each diagnosis group. We used descriptive statistical analyses to examine the differences in selected hospice use measures by diagnosis group across all hospices. For each hospice use measure, we tested whether differences between diagnosis groups were statistically significant using the Kruskal-Wallis test and repeated these analyses by hospice characteristic. This research did not test whether differences in the hospice use measures were the result of the ADRD diagnosis itself or other factors, such as patient or hospice characteristics.

Diagnosis groups:

- ADRD
- Cancer
- Cardiovascular Disease
- Respiratory Disease
- Chronic Kidney Disease or End-stage Renal Disease (ESRD)
- Neurodegenerative Disease or Stroke
- Other, including malnutrition, infections, liver failure, and other diagnoses

FINDINGS

Hospice Patient Diagnoses

One-third of hospice patients had a primary or secondary diagnosis of ADRD.

The hospice patients in our study population were classified by primary diagnosisTable 2, distinguishing between patients with and without a secondary diagnosis of ADRD (**Table 2**). Cancer was the leading primary diagnosis, accounting for 29.2% of hospice patients, followed by cardiovascular disease at 17.4%. ADRD was the third most common diagnosis group, comprising 732,498 patients, or 15.9% (Table 2).

One-fifth of hospice patients with a primary diagnosis other than ADRD (20.8%) had a secondary diagnosis of ADRD (not shown). Among these patients, those with a primary diagnosis of neurodegenerative disease or stroke showed the highest prevalence of ADRD as a secondary diagnosis (44.6%), while those with cancer as a primary diagnosis had the lowest prevalence (7.8%). One-third of hospice patients (33.3%) had either a primary or secondary diagnosis of ADRD.

Table 2. Principal Diagnosis and Secondary Alzheimer's Disease and Related Dementias (ADRD) Frequency

Primary Diagnosis Group	N	Percent of All	N with Primary or Secondary ADRD	Percent of Group with Primary or Secondary ADRD
All	4,612,436	Not applicable	1,537,820	33.3
ADRD	732,498	15.9	732,498	100.0
Cancer	1,345,645	29.2	105,439	7.8
Cardiovascular Disease	800,915	17.4	182,792	22.8
Chronic Kidney Disease or ESRD	145,506	3.2	25,734	17.7
Neurodegenerative Disease or Stroke	586,748	12.7	261,896	44.6

Primary Diagnosis Group	N	Percent of All	N with Primary or Secondary ADRD	Percent of Group with Primary or Secondary ADRD
Respiratory Disease	524,161	11.4	90,833	17.3
Other	476,963	10.3	138,628	29.1

Source: Analysis of Medicare claims data.
Notes: This table shows the distribution of hospice patients by primary diagnosis and the percentage with a primary or secondary diagnosis of Alzheimer's disease or related dementias. One-third of all hospice patients had a primary or secondary ADRD diagnosis. N = number; ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Hospice Length of Stay by Patient Diagnosis

Patients with a primary or secondary diagnosis of ADRD had longer hospice lengths of stay.

Hospice LOS differed between diagnosis groups. Patients with a primary diagnosis of ADRD had the longest hospice stays with an average of 92.5 days and median of 27 days (**Table 3**). The next longest lengths of stay were observed in the neurodegenerative disease or stroke and cardiovascular disease diagnosis groups, with average LOS of 70.8 days and 67.0 days and median LOS of 14 days and 17 days, respectively. Patients with chronic kidney disease or ESRD had the shortest hospice stays, with an average of 32.2 days and median of 7 days. Differences across diagnosis groups were statistically significant at $p < 0.0001$.

Overall, 35.1% of patients had very short stays (≤ 7 days), and 9% had very long stays (> 180 days). Patients with a primary diagnosis of ADRD were more likely to have very long stays relative to patients with other primary diagnoses. For example, 16.1% of patients with a primary diagnosis of ADRD had stay lengths exceeding 180 days, compared to a range of 4.4% (cancer) to 12.0% (neurodegenerative disease or stroke) for patients with non-ADRD primary diagnoses. Patients with a primary diagnosis of ADRD had the fewest stays lasting a week or less (23.8%) of any diagnosis group. Overall, patients with ADRD had the most variation in stay length as depicted by the largest standard error (SE).

Table 3. Distribution of Hospice Length of Stay (LOS) by Primary Diagnosis and Secondary ADRD Status

Primary Diagnosis	Status of Secondary Diagnosis of ADRD	Average LOS (days)	SE	1st	25th	50th (Median)	75th	99th	Percent LOS ≤ 7 Days	Percent LOS > 180 Days
All	Not applicable	59.0	131.1	1	5	15	57	571	35.1	9.0
ADRD	Not applicable	92.5	149.2	1	8	27	109	718	23.8	16.1
Cancer	All	40.6	74.3	1	6	15	42	372	32.4	4.4
Cancer	With ADRD	64.6	108.1	1	8	23	71	540	23.5	9.4
Cancer	Without ADRD	38.6	70.3	1	5	14	40	352	33.2	3.9
Cardiovascular Disease	All	67.0	121.3	1	5	17	71	600	33.5	10.8
Cardiovascular Disease	With ADRD	83.2	139.0	1	7	24	94	677	27.4	14.1
Cardiovascular Disease	Without ADRD	62.2	115.1	1	5	15	64	575	35.3	9.8

Primary Diagnosis	Status of Secondary Diagnosis of ADRD	Average LOS (days)	SE	1st	25th	50th (Median)	75th	99th	Percent LOS ≤ 7 Days	Percent LOS > 180 Days
Chronic Kidney Disease or ESRD	All	32.2	77.2	1	3	7	21	400	51.2	4.2
Chronic Kidney Disease or ESRD	With ADRD	48.3	101.3	1	5	11	39	515	39.3	7.1
Chronic Kidney Disease or ESRD	Without ADRD	28.8	70.5	1	3	7	18	362	53.8	3.6
Neurodegenerative Disease or Stroke	All	70.8	132.1	1	5	14	73	653	35.3	12.0
Neurodegenerative Disease or Stroke	With ADRD	86.7	146.4	1	7	23	98	714	26.5	15.0
Neurodegenerative Disease or Stroke	Without ADRD	58.1	117.8	1	4	10	52	591	42.4	9.5
Respiratory Disease	All	55.4	111.9	1	3	9	52	556	46.3	9.0
Respiratory Disease	With ADRD	59.7	119.0	1	3	10	56	592	44.7	10.0
Respiratory Disease	Without ADRD	54.5	110.3	1	3	9	51	548	46.6	8.8
Other	All	44.0	93.6	1	4	9	36	478	44.9	6.3
Other	With ADRD	61.2	116.5	1	5	13	60	583	36.4	9.8
Other	Without ADRD	36.9	81.4	1	3	8	29	418	48.3	4.9

Source: Analysis of Medicare claims data.
Notes: This table reports hospice LOS distribution statistics (mean, standard error (SE), percentiles) and the prevalence of very short (≤7 days) and very long (>180 days) stays by diagnosis and ADRD comorbidity. LOS = Length of Stay; ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Among patients with a primary diagnosis other than ADRD, LOS was longer for patients with a secondary diagnosis of ADRD. For example, patients with a primary diagnosis of cancer and a secondary diagnosis of ADRD had an average LOS of 64.6 days and a median LOS of 23 days, compared to an average LOS of 38.6 days and a median LOS of 14 days for patients with cancer but without a secondary ADRD diagnosis. Cancer patients with a secondary diagnosis of ADRD were also more likely to have a stay exceeding 180 days, compared with those without a secondary diagnosis of ADRD (9.4% compared to 3.9%).

Hospice Level of Care by Patient Diagnosis

Patients with ADRD received more days of routine home care and fewer days of general inpatient care compared to patients with other primary diagnoses.

Patients with a primary diagnosis of ADRD spent a larger percentage of their days in RHC compared to patients with non-ADRD primary diagnoses, with an average of 92.4% of days in RHC compared to averages of 68.4% (respiratory disease) to 83.5% (cardiovascular disease) (**Table 4**). Patients with a primary diagnosis of ADRD received the lowest percentage of days in GIP and IRC among all primary diagnosis groups and the second lowest percentage of days in CHC, after patients with a primary diagnosis categorized as other. Differences across diagnosis groups were statistically significant ($p < 0.0001$).

Table 4. Hospice Level of Care by Primary Diagnosis

Primary Diagnosis	Routine Home Care (RHC) %	General Inpatient Care (GIP) %	Continuous Home Care (CHC) %	Inpatient Respite Care (IRC) %
All	80.2	18.1	1.2	0.5
ADRD	92.4	6.4	0.9	0.3
Cancer	81.2	16.8	1.3	0.6
Cardiovascular Disease	83.5	14.8	1.2	0.5
Chronic Kidney Disease or ESRD	73.9	24.4	1.2	0.5
Neurodegenerative Disease or Stroke	78.5	19.4	1.6	0.4
Respiratory Disease	68.4	30.1	1.0	0.4
Other	70.2	28.6	0.8	0.5

Source: Analysis of Medicare claims data.
Notes: All values represent percentages of hospice care days by level of care. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

In all non-ADRD primary diagnosis groups, patients with a secondary diagnosis of ADRD had a higher percentage of days covered by RHC than those without a secondary diagnosis of ADRD (**Appendix C**). For example, patients with a primary diagnosis of cancer and a secondary diagnosis of ADRD had a higher percentage of days in RHC compared to those with cancer without a secondary diagnosis of ADRD (average of 88.1% compared to 80.6% of days).

Hospice Live Discharge Rates by Patient Diagnosis

Patients with a primary diagnosis of ADRD had an LD rate of 10.0%, the second highest rate after patients with cardiovascular disease (10.7%) (**Table 5**). The remaining diagnosis groups had LD rates ranging from 4.2% (cancer) to 9.2% (neurodegenerative disease or stroke). Differences across diagnosis groups were statistically significant ($p < 0.0001$).

Patients with a primary diagnosis of ADRD were discharged alive for different reasons compared to patients without ADRD. The most common reason for patients with cancer or cardiovascular disease to be discharged alive was the patient revoking the hospice benefit (2.1% of cancer stays and 4.7% of cardiovascular disease stays), while the most common reason for patients with primary ADRD was unspecified in Medicare claims data, a category that includes patients discharged because they were no longer considered terminally ill (5.7% of ADRD stays). Patients with a primary diagnosis of ADRD were more likely than other patients to transfer to another hospice (0.7% of ADRD stays). This analysis only included a patient's last completed stay in the study period. Patients may have had another stay after the study window, or those patients discharged alive went on to survive or die without hospice care.

Table 5. Hospice Discharge Reason by Primary and Secondary Diagnosis

Primary Diagnosis	Status of Secondary Diagnosis of ADRD	Death %	Live Discharge %	Discharged for Cause %	Transfer to Another Hospice %	Moved Out of Service Area %	Revoked %	Unspecified %
All	Not applicable	92.2	7.8	0.1	0.5	0.7	3.1	3.4
ADRD	Not applicable	90.0	10.0	0.1	0.7	0.6	2.9	5.7
Cancer	All	95.8	4.2	0.1	0.4	0.5	2.1	1.1
Cancer	With ADRD	95.0	5.0	0.1	0.5	0.5	1.9	2.0

Primary Diagnosis	Status of Secondary Diagnosis of ADRD	Death %	Live Discharge %	Discharged for Cause %	Transfer to Another Hospice %	Moved Out of Service Area %	Revoked %	Unspecified %
Cancer	Without ADRD	95.9	4.1	0.1	0.3	0.5	2.1	1.0
Cardiovascular Disease	All	89.3	10.7	0.2	0.5	0.9	4.7	4.4
Cardiovascular Disease	With ADRD	90.8	9.2	0.1	0.7	0.7	3.1	4.6
Cardiovascular Disease	Without ADRD	88.8	11.2	0.3	0.5	1.0	5.2	4.3
Chronic Kidney Disease or ESRD	All	94.8	5.2	0.1	0.3	0.4	2.4	2.0
Chronic Kidney Disease or ESRD	With ADRD	94.3	5.7	0.1	0.4	0.4	2.0	2.8
Chronic Kidney Disease or ESRD	Without ADRD	94.9	5.1	0.1	0.3	0.4	2.5	1.8
Neurodegenerative Disease or Stroke	All	90.8	9.2	0.1	0.5	0.7	3.2	4.6
Neurodegenerative Disease or Stroke	With ADRD	90.8	9.2	0.1	0.6	0.7	2.7	5.0
Neurodegenerative Disease or Stroke	Without ADRD	90.9	9.1	0.1	0.5	0.7	3.7	4.2
Respiratory Disease	All	90.9	9.1	0.2	0.5	0.8	4.2	3.4
Respiratory Disease	With ADRD	92.8	7.2	0.1	0.5	0.5	2.6	3.5
Respiratory Disease	Without ADRD	90.5	9.5	0.2	0.5	0.9	4.5	3.4
Other	All	92.3	7.7	0.1	0.4	0.5	2.8	4.0
Other	With ADRD	91.8	8.2	0.1	0.4	0.4	2.2	5.0
Other	Without ADRD	92.4	7.6	0.2	0.3	0.5	3.0	3.5

Source: Analysis of Medicare claims data.
Notes: This table reports death versus live discharge rates and the distribution of live discharge reasons by diagnosis and ADRD comorbidity. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

In most non-ADRD primary diagnosis groups, patients with a secondary diagnosis of ADRD had higher LD rates than those without a secondary diagnosis of ADRD (**Table 5**). For example, patients with a primary diagnosis of cancer and a secondary diagnosis of ADRD had a higher LD rate compared to patients with cancer and without a secondary diagnosis of ADRD (5.0% compared to 4.1%). The two exceptions were patients with cardiovascular disease (9.2% of patients with a secondary diagnosis of ADRD were discharged alive, compared to 11.2% without) or respiratory disease (7.2% of patients with a secondary diagnosis of ADRD were discharged alive, compared to 9.5% without). Across all non-ADRD primary diagnosis groups, patients with a secondary diagnosis of ADRD were more likely than those without ADRD to be discharged alive for unspecified reasons or for transfer to another hospice, and less likely to revoke their hospice benefit.

Visits From Hospice Staff by Patient Diagnosis

Frequency of visits by hospice staff varied by patient diagnosis, with ADRD patients receiving the fewest total daily visits.

For each RHC-only stay (69.7% of stays), we identified the number of visits the patient received from each hospice staff discipline on each day and calculated the average daily visits. We compared the average daily staff visits for all patients and by diagnosis group. Visits by RNs were the most common among staff disciplines, averaging 0.47 visits per day across stays (**Table 6**), which is equivalent to three to four visits per 7-day week. Therapist and physician visits were rare, reflecting their low use in hospice care. Only 1.9% of stays included any therapist visits (visits from physical therapists, occupational therapists, or speech-language pathologists) and 8.8% included any hospice physician visits (not shown).

Patients with different diagnoses received varying numbers of average daily visits, with statistically significant differences ($p < 0.0001$) for visits by each hospice staff discipline. On average, patients with primary diagnoses of ADRD received the fewest daily RN visits (0.40 per day, or 2 to 3 visits per week compared to 0.47 per day, or 3 to 4 visits a week, for all patients), but received the most daily HHA visits (0.29 per day, or 2 visits a week, compared to 0.25, or 1-2 visits a week, for all patients) when compared with other diagnoses groups. Patients with chronic kidney disease or ESRD had the most daily RN visits on average (0.56 per day).

Table 6. Average Daily Visits by Hospice Staff Discipline, Primary Diagnosis, and Secondary ADRD Status

Primary Diagnosis	Status of Secondary Diagnosis of ADRD	RN	LPN	MSS	HHA	Therapist	Physician	Total Visits
All	Not applicable	0.47	0.05	0.10	0.25	0.00	0.01	0.88
ADRD	Not applicable	0.40	0.05	0.10	0.29	0.00	0.01	0.85
Cancer	All	0.50	0.06	0.10	0.22	0.00	0.01	0.88
Cancer	With ADRD	0.43	0.05	0.10	0.26	0.00	0.01	0.84
Cancer	Without ADRD	0.50	0.06	0.10	0.21	0.00	0.01	0.88
Cardiovascular Disease	All	0.46	0.06	0.10	0.25	0.00	0.01	0.87
Cardiovascular Disease	With ADRD	0.43	0.05	0.10	0.27	0.00	0.00	0.85
Cardiovascular Disease	Without ADRD	0.47	0.06	0.10	0.25	0.00	0.01	0.88
Chronic Kidney Disease or ESRD	All	0.56	0.06	0.12	0.24	0.00	0.01	0.99
Chronic Kidney Disease or ESRD	With ADRD	0.49	0.05	0.11	0.26	0.00	0.01	0.92
Chronic Kidney Disease or ESRD	Without ADRD	0.57	0.06	0.12	0.23	0.00	0.01	1.00
Neurodegenerative Disease or Stroke	All	0.46	0.05	0.10	0.29	0.00	0.01	0.91
Neurodegenerative Disease or Stroke	With ADRD	0.43	0.05	0.10	0.29	0.00	0.01	0.87
Neurodegenerative Disease or Stroke	Without ADRD	0.48	0.06	0.11	0.29	0.00	0.01	0.95
Respiratory Disease	All	0.48	0.05	0.10	0.23	0.00	0.01	0.87

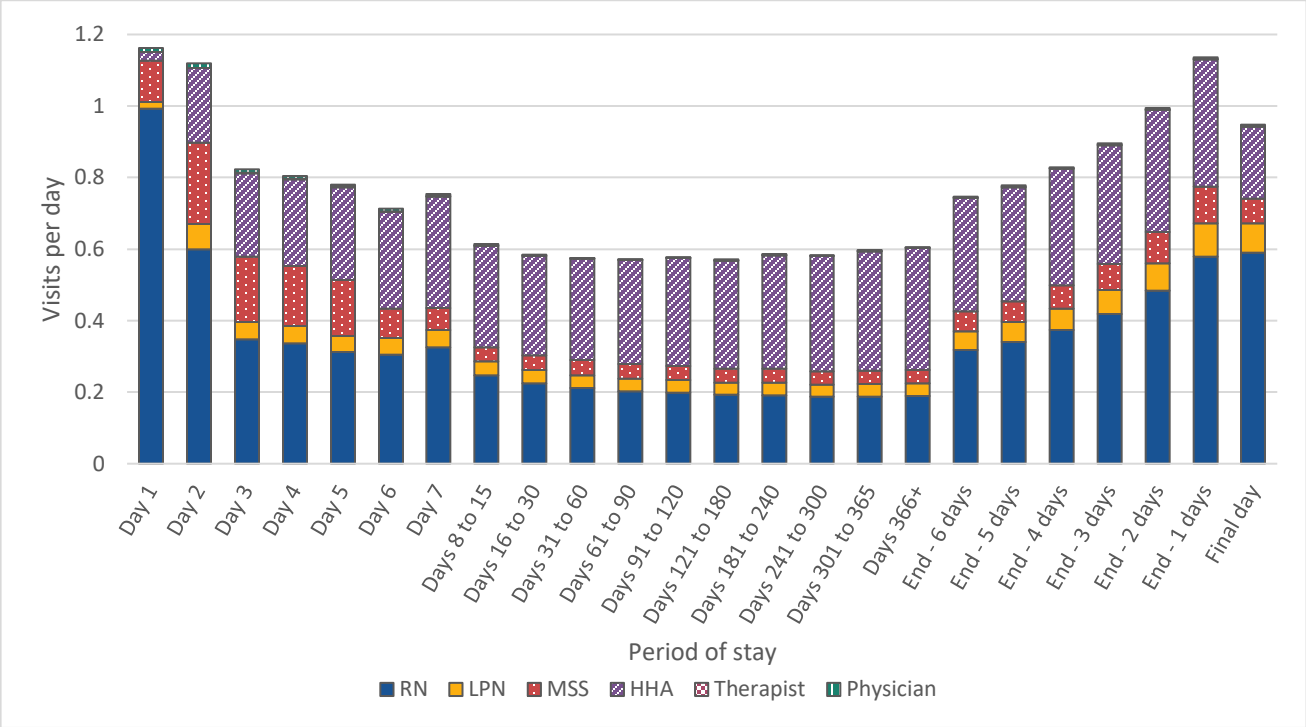
Primary Diagnosis	Status of Secondary Diagnosis of ADRD	RN	LPN	MSS	HHA	Therapist	Physician	Total Visits
Respiratory Disease	With ADRD	0.48	0.05	0.10	0.26	0.00	0.01	0.90
Respiratory Disease	Without ADRD	0.48	0.05	0.10	0.22	0.00	0.01	0.86
Other	All	0.51	0.05	0.11	0.26	0.00	0.01	0.94
Other	With ADRD	0.46	0.05	0.11	0.28	0.00	0.01	0.90
Other	Without ADRD	0.53	0.06	0.11	0.26	0.00	0.01	0.97

Source: Analysis of Medicare claims data.
Notes: This table reports average visits per day by discipline and totals. Total visits are calculated as a sum of visits from the six hospice staff disciplines. HHA = home health aide; LPN = licensed practical nurse; MSS = medical social services; RN = registered nurse; ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease. Therapist visits include visits from physical therapists, occupational therapists, and speech-language pathologists; therapist visits are rare and rounded to 0.00 across groups.

The frequency of hospice team visits also varied with the presence of a secondary diagnosis of ADRD. In all primary diagnosis groups except respiratory disease, patients with a secondary diagnosis of ADRD received fewer average daily RN visits than those without a secondary diagnosis of ADRD. For example, patients with a primary diagnosis of cancer and a secondary diagnosis of ADRD received an average of 0.43 daily RN visits (about 3 visits per week), compared to 0.50 (about 3 to 4 visits a week) for patients without a secondary diagnosis of ADRD. Patients with a secondary diagnosis of ADRD received more average daily HHA visits than those without a secondary diagnosis of ADRD in all primary diagnosis groups except neurodegenerative disease or stroke.

Hospice visit frequencies may shift over the course of a stay and vary depending on LOS. We examined hospice visits from each staff discipline at different points throughout the hospice stay for all RHC stays. **Figure 1** displays average visits received per day from each discipline during RHC stays. The first and final 7 days of a stay are shown as individual days. For stays longer than 14 days (57.3% of RHC-only stays), the middle period of the stay is summarized with daily averages for the weeks or months in the middle of the stay.

Figure 1. Average Hospice Visits per Day Across Stay by Discipline (All Diagnoses)



Source: Analysis of Medicare claims data.
Notes: HHA = home health aide; LPN = licensed practical nurse; MSS = medical social services; RN = registered nurse. Therapist visits include visits from physical therapists, occupational therapists, and speech-language pathologists.

Hospice visit frequency combined across disciplines was highest at the start and end of a hospice stay, averaging 1.2 visits on the first day and 1.1 visits on the second to last day, with less frequent visits during the middle of the stay. Higher visit frequencies at the beginning and end likely reflect the demands of setting up patients with a hospice care team at admission and then the escalation in patient needs in the final days of life. For stays longer than 14 days, there were an average of 0.6 visits per day, or about 4.0 per week, during the intermediate period after the first week and before the last week. Visit patterns varied by discipline. RN visits peaked near the start and end of the stay, with an average of 1.0 visit on the first day and 0.6 visits on the final day, decreasing to 0.2 visits per day during the middle of the stay (about 1 to 2 per week) (**Appendix D**). Visits from MSS were also most common during the first week, averaging 0.2 visits per day on days 2 through 5, and decreasing during the middle of the stay. HHA visits were infrequent on the first day of a hospice stay, but increased during the first week to an average of 0.3 visits per day (about 2 visits per week) during the middle of a stay (**Appendix E**).

The pattern of higher overall visit frequency at the start and end of a stay, compared to the middle, was consistent across all diagnosis groups, although the visit frequency varied by diagnosis (**Appendix F**). Patients with ADRD had more HHA visits throughout the stay than patients with most other terminal diagnoses. For example, patients with ADRD received an average of 0.6 total visits per day in the middle period of their stay, with over half of those visits coming from HHA (0.3 to 0.4 per day), compared to about 0.5 visits per day for patients with cancer (with 0.2 to 0.3 HHA visits per day).

Hospice Use Measures by Hospice Characteristics

Hospice characteristics are associated with differences in hospice use patterns for patients with ADRD, which hold for other diagnosis groups.

For each hospice characteristic, we examined four hospice use measures: LOS, percentage of days in RHC, average daily RN visits, and average daily HHA visits. Hospice characteristics included ownership type, hospice size, hospice age, compliance status as of the last certification survey,[a] urban or rural location, CMS region, facility type, and high ADRD patient population. A summary of patient- and hospice-level frequencies of each characteristic can be found in **Appendix G**. Comprehensive results of hospice use measures by hospice characteristic can be found in **Appendices H-O**.

Patients with ADRD had longer lengths of stay in hospices that were for-profit, newer, urban, medium size, certification compliant, freestanding, or had a larger ADRD patient population.

Patients with ADRD had longer average LOS in for-profit hospices than in nonprofit and government hospices (104.8 days compared to 77.1 days and 80.2 days, respectively). Average LOS and other outcomes by hospice ownership type and primary diagnosis are displayed in **Table 7**. Average LOS was longer for patients with ADRD in the newest hospices than the oldest hospices by quartile (106.0 days compared to 80.3) and in urban hospices than rural hospices (93.1 days compared to 86.8 days). Other hospice characteristics associated with longer LOS for patients with ADRD include medium size relative to small and large, certification compliance relative to noncompliance, freestanding relative to hospital or home health agency based and large ADRD patient populations relative to small. Averages by hospice characteristic and diagnosis shown in **Appendices H-O**.

Table 7. Average Hospice Length of Stay (LOS) by Ownership Type

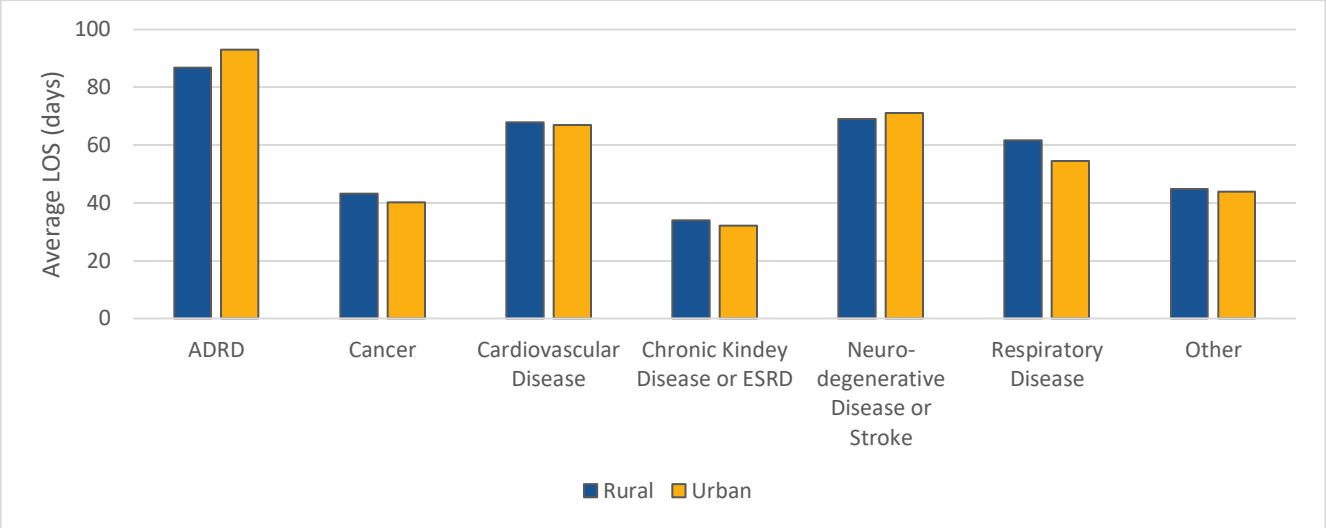
Primary Diagnosis	Combination	For-profit	Government	Non-profit	Other
ADRD	65.8	104.8	80.2	77.1	86.3
Cancer	38.0	44.3	40.0	38.3	38.4
Cardiovascular Disease	49.1	79.3	53.6	54.7	60.2
Chronic Kidney Disease or ESRD	25.8	38.2	31.4	27.0	29.4
Neurodegenerative Disease or Stroke	51.7	86.5	54.1	54.7	62.7
Respiratory Disease	45.0	67.5	48.6	45.6	48.2
Other	42.2	55.8	33.9	35.8	39.5

Source: Analysis of Medicare claims and Provider of Services data.
Notes: The "combination" ownership category contains ownership arrangements that are a combination of government and nonprofit. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's disease and related dementias; ESRD = end-stage renal disease.

[a] The hospice survey process evaluates the hospice's compliance with all applicable condition of participation and indicates safety and quality of care.

Patients with all other primary diagnoses had shorter average LOS than patients with ADRD, but had similar patterns of LOS by hospice characteristic. Average LOS by urban-rural location was an exception (**Figure 2**). ADRD and neurodegenerative disease or stroke were the only diagnosis categories for which patients had longer average LOS in urban facilities than rural. Patients in all other diagnosis categories had longer LOS in rural facilities than urban. Patients with ADRD also had different patterns in average LOS by CMS region. For example, patients with ADRD had shorter average LOS in Region 10 (Seattle) than all other CMS regions; in contrast, patients with cancer had the second longest LOS in Region 10 (Seattle). For all characteristics, differences across diagnosis groups were statistically significant ($p < 0.0001$).

Figure 2. Average LOS by Urban-Rural Location and Primary Diagnosis



Source: Analysis of Medicare claims and Provider of Services data.

Patients with ADRD received more RHC days in hospices that were government-owned or for-profit, smaller, newer, rural, certification compliant, or had a large ADRD patient population.

Patients with ADRD received more RHC (a higher percentage of days in RHC) in government and for-profit hospices than in nonprofit hospices (96.4% and 95.3%, respectively, compared to 88.7%) (**Table 8**). Patients with ADRD also received more RHC in the smallest hospices than the largest hospices by quartile (96.3% compared to 91.1%) and in the newest hospices than the oldest hospices by quartile (97.5% compared to 88.8%). Additional hospice characteristics associated with more RHC include rural location relative to urban, certification compliance relative to noncompliance, and large ADRD population relative to smaller. By CMS region, patients with ADRD received more RHC in Region 7 (Kansas City) and Region 10 (Seattle) (97.3% and 96.0% respectively) and lowest percentage in Region 4 (Atlanta) (86.3%).

Table 8. Average Percent of Days with Routine Home Care (RHC) by Ownership Type

Primary Diagnosis	Combination	For-profit	Government	Non-profit	Other
ADRD	88.8	95.3	96.4	88.7	90.0
Cancer	80.8	86.1	89.8	78.1	77.5
Cardiovascular Disease	78.3	89.0	88.3	78.0	79.2

Primary Diagnosis	Combination	For-profit	Government	Non-profit	Other
Chronic Kidney Disease or ESRD	68.3	81.0	84.9	67.8	68.8
Neurodegenerative Disease or Stroke	75.2	85.0	86.5	72.1	73.7
Respiratory Disease	64.7	76.7	78.2	62.0	61.4
Other	71.7	79.4	77.3	64.1	64.4

Source: Analysis of Medicare claims and Provider of Services data.
Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's disease and related dementias; ESRD = end-stage renal disease.

Patients with all other primary diagnoses had a lower percentage of days in RHC than patients with ADRD, but had similar patterns of RHC by hospice characteristic. The difference in RHC by hospice age, and by urban-rural status, was more pronounced for other primary diagnosis groups than for patients with ADRD. For example, patients with respiratory disease had 89.1% of days in RHC in the newest quartile of hospices, compared to 61.6% in the oldest quartile of hospices, a 27-percentage point difference, compared to a 9-percentage point difference for patients with ADRD. For all characteristics, differences across diagnosis groups were statistically significant ($p < 0.0001$).

Patients with ADRD received more daily RN visits in hospices that were government or nonprofit, larger, older, rural, certification compliant, hospital-based, or had a small ADRD population.

Patients with ADRD received more daily RN visits (higher average daily RN visit count) in government and nonprofit hospices than in for-profit hospices (0.47 and 0.43 daily visits compared to 0.38) (**Table 9**). Patients with ADRD also received more daily RN visits in the largest hospices than the smallest hospices by quartile (0.41 compared to 0.32), in the oldest hospices than the newest hospices by quartile (0.42 compared to 0.33), and in rural hospices than urban (0.44 compared to 0.40) (**Appendices I, J, and L**). The following hospice characteristics were also associated with more daily RN visits: certification noncompliance relative to compliance, hospital-based relative to freestanding and home health agency based, and smaller ADRD population relative to large. By CMS region, patients with ADRD had the most daily RN visits in Region 7 (Kansas City) (0.5) and the fewest in Region 10 (San Francisco) (0.32).

Table 9. Average Daily Registered Nurse (RN) Visits by Ownership Type

Primary Diagnosis	Combination	For-profit	Government	Non-profit	Other
ADRD	0.40	0.38	0.47	0.43	0.42
Cancer	0.46	0.47	0.57	0.51	0.50
Cardiovascular Disease	0.45	0.42	0.55	0.50	0.48
Chronic Kidney Disease or ESRD	0.51	0.52	0.62	0.59	0.57
Neurodegenerative Disease or Stroke	0.43	0.42	0.57	0.50	0.48
Respiratory Disease	0.48	0.45	0.59	0.52	0.49
Other	0.44	0.47	0.64	0.54	0.51

Source: Analysis of Medicare claims and Provider of Services data.
Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's disease and related dementias; ESRD = end-stage renal disease; RN = registered nurse.

Patients with all other primary diagnoses had more daily RN visits overall than patients with ADRD but had similar patterns of RN visits by hospice characteristic. Some diagnosis groups had differing magnitudes of difference by hospice size, though the direction of difference was the same. For example, patients with cardiovascular disease had 0.47 average daily RN visits in the largest quartile of hospices and 0.34 in the smallest, compared to a smaller difference for patients with diagnoses categorized as other, of 0.51 versus 0.49 daily RN visits. For all characteristics, differences across diagnosis groups were statistically significant ($p < 0.0001$).

Patients with ADRD received more daily HHA visits in hospices that were for-profit, larger, urban, moderate age, freestanding or home-health based, and large ADRD population.

Patients with ADRD received more daily HHA visits (higher average daily HHA visit count) in for-profit hospices than government and nonprofit (0.32 daily visits compared to 0.26 and 0.25) (**Table 10**). Patients with ADRD received more daily HHA visits in the largest two quartiles of hospices than the smallest quartile (0.30 and 0.29 compared to 0.23) and in urban hospices than rural hospices (0.30 compared to 0.27) (**Appendices I and L**). Other characteristics associated with more daily HHA visits include moderate hospice age relative to newest and oldest, freestanding and home health agency based relative to hospital-based, and large ADRD patient populations compared to smaller. By CMS region, patients with ADRD had the most HHA visits in Region 8 (Denver) and Region 6 (Dallas) (0.37 and 0.36 respectively) and the fewest HHA visits in Region 10 (Seattle) (0.17).

Table 10. Average Daily Home Health Aide (HHA) Visits by Ownership Type

Primary Diagnosis	Combination	For-profit	Government	Non-profit	Other
ADRD	0.16	0.32	0.26	0.25	0.29
Cancer	0.16	0.23	0.25	0.20	0.22
Cardiovascular Disease	0.17	0.27	0.26	0.23	0.25
Chronic Kidney Disease or ESRD	0.16	0.25	0.24	0.22	0.24
Neurodegenerative Disease or Stroke	0.18	0.30	0.30	0.27	0.30
Respiratory Disease	0.16	0.24	0.25	0.21	0.23
Other	0.17	0.28	0.30	0.25	0.27

Source: Analysis of Medicare claims and Provider of Services data.
Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's disease and related dementias; ESRD = end-stage renal disease; HHA = home health aide.

Patients with most other diagnoses had fewer average daily HHA visits than patients with ADRD (patients with neurodegenerative disease or stroke had a similar number), but had similar patterns of HHA visits by most hospice characteristic as patients with ADRD. There were some differences in patterns by hospice ownership (**Table 10**). Whereas patients with ADRD had more daily HHA visits in for-profit than government hospices, patients with other diagnoses received similar numbers of HHA visits in for-profit and government hospices, or received more HHA visits in government hospices (cancer, respiratory disease, and other). All diagnosis groups had more HHA visits at for-profit hospices than nonprofit, but patients with ADRD had a larger difference than

other diagnosis groups. All diagnosis groups had more HHA visits at freestanding hospices than hospital-based, but patients with ADRD had the largest differences (0.30 at freestanding hospices, compared to 0.20 in hospital-based). Differences in HHA visits per day by hospice characteristic were statistically significant ($p < 0.0001$) for all hospice characteristics except for compliance status.

LIMITATIONS

All analyses were descriptive. It is likely that for each characteristic examined, there were unobservable patient or hospice characteristics that may explain some of the relationships (e.g., patients with ADRD may be more likely to live in residential care facilities, which may affect the level of care they need). The data used for these analyses, from before the COVID-19 public health emergency, also limit the generalizability of findings to current hospice care. Changes in patterns of care that may have occurred during and after the public health emergency would not be reflected. There may also be systematic bias in the data regarding hospice visits. RN and MSS visits during the final week of life affect Medicare hospice payment through the Service Intensity Add-on payment implemented January 1, 2016. Because these types of visits are tied to payment, they are more likely to be reported. However, in Medicare hospice claims, the visits by LPNs and HHAs are not tied to payment. This could lead to lower accuracy in reporting of these visits. Therefore, it is possible that data on RN and MSS visits reported during the final week of life might be more accurate than LPN or HHA visits, or RN and MSS visits outside of the final week of life.

DISCUSSION

This study investigated the hospice use patterns of hospice patients with ADRD compared to those with other terminal diagnoses. Notably, ADRD was the third most common primary diagnosis among hospice patients, after cancer and cardiovascular disease, and appeared as a secondary diagnosis for one in five patients with other primary diagnoses. Patients with primary or secondary diagnosis of ADRD typically experienced longer lengths of stay in hospice care and spent more days in RHC and fewer days in GIP than patients with no primary or secondary ADRD. Our findings also indicate that hospice LD rates vary based on primary diagnosis, with patients with ADRD having higher LD rates than most other primary diagnosis groups, and the highest rate of discharge for unspecified reasons (not specified in Medicare claims data), which includes patients discharged because they were no longer considered terminally ill. Hospice visit frequencies varied among patient groups, with patients with ADRD receiving the fewest daily visits from all disciplines combined but the most HHA daily visits. We observed similar patterns for patients with a non-ADRD primary diagnosis and a secondary diagnosis of ADRD. The cognitive limitations of individuals with ADRD may affect patient needs, regardless of whether a patient has a primary diagnosis for another terminal condition. Overall, these findings suggest a distinct care trajectory that may necessitate tailored approaches to meet the needs of ADRD patients, including those with a secondary diagnosis of ADRD, at the end of life.

Hospice characteristics—such as ownership, size, age, compliance status, and the proportion of patients with ADRD—were significantly associated with differences in care patterns for people with ADRD. Our findings suggest that people with ADRD have longer hospice LOS and receive more RHC in hospices that are for-profit and newer. The type of hospice providing their care also appears to influence the discipline and frequency of the hospice team visits they receive. When people with ADRD get care in non-profit, older, and rural hospices, they receive more daily RN visits; if they receive hospice care from for-profit hospices, they receive more daily HHA visits. These patterns were similar for patients with other diagnoses, though the differences were more marked for people with ADRD. This variability indicates a complex interplay between hospice infrastructure and care delivery patterns, suggesting that the quality and quantity of care may be influenced by the

operational characteristics of hospices. Hospice characteristics are not independent of one another. For example, for-profit hospices tend to be smaller and newer than nonprofit hospices and are more likely to have a large ADRD population. Rural hospices tend to be older than hospices in urban areas, and nonprofit hospices are more common in rural areas than in urban. The type of hospice and the type of patient receiving care may be interdependent; regardless, we observed differences in the care patterns for people with ADRD depending on the hospice type.

Although this descriptive analysis highlights observable differences in the care experience for patients with ADRD, it raises questions about whether these differences are driven by the diagnosis itself or by other patient characteristics. It also raises questions about whether the different care experiences for patients with ADRD are driven by the characteristics of the hospice serving them. Future research employing multivariate techniques could better isolate the impact of ADRD on hospice care patterns and outcomes while accounting for patient and hospice characteristics. For example, these analyses could investigate whether primary or secondary diagnosis of ADRD are independently associated with fewer daily visits during the hospice stay and higher rates of LD, both of which may reflect unmet need, and whether these patterns are consistent across types of hospices. Future research could adjust for other observable patient characteristics and examine the role of diagnosis and hospice characteristics holding other patient characteristics constant.

The existing hospice model of care offers a framework for delivering flexible and supportive services to patients and their families, regardless of diagnosis. However, the rigidity of patient admission criteria, particularly the requirement for a prognosis of 6 months or less, poses challenges for those with ADRD, where prognosis can be imprecise because of the prolonged decline and sustained functional limitations inherent to the disease. Additionally, people with ADRD may enter hospice care after years of significant functional limitations and caregiving needs. Once entering hospice care, patients with ADRD appear to have higher rates of LD and lower numbers of hospice team visits. This may reflect a need to consider how hospice could be tailored for the unique needs of ADRD. CMS has recently begun testing new models of care, such as the Guiding an Improved Dementia Experience (GUIDE) model, to support people with ADRD and their caregivers (CMS, n.d.). This research highlights the importance of considering how hospice care could adapt to meet the distinct challenges faced by ADRD patients and their caregivers, fostering an environment where their specific needs are acknowledged and addressed during their final transition.

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APPENDICIES

Appendix A: CCSR Categories in Each Diagnosis Category

Each Clinical Classifications Software Refined (CCSR) category, using CCSR v2025.1, was grouped into one of seven primary diagnosis categories. All unlisted CCSR categories are included in Primary Diagnosis Category "Other."

Primary Diagnosis Category	CCSR Category	CCSR Category Description
Alzheimer's Disease or Related Dementias	NVS011	Neurocognitive disorders
Cancer	FAC006	Encounter for antineoplastic therapies
	FAC008	Neoplasm-related encounters
	FAC027	Personal history of malignant neoplasm
	NEO001	Head and neck cancers - eye
	NEO002	Head and neck cancers - lip and oral cavity
	NEO003	Head and neck cancers - throat
	NEO004	Head and neck cancers - salivary gland
	NEO005	Head and neck cancers - nasopharyngeal
	NEO006	Head and neck cancers - hypopharyngeal
	NEO007	Head and neck cancers - pharyngeal
	NEO008	Head and neck cancers - laryngeal
	NEO009	Head and neck cancers - tonsils
	NEO010	Head and neck cancers - all other types
	NEO011	Cardiac cancers
	NEO012	Gastrointestinal cancers - esophagus
	NEO013	Gastrointestinal cancers - stomach
	NEO014	Gastrointestinal cancers - small intestine
	NEO015	Gastrointestinal cancers - colorectal
	NEO016	Gastrointestinal cancers - anus
	NEO017	Gastrointestinal cancers - liver
	NEO018	Gastrointestinal cancers - bile duct
	NEO019	Gastrointestinal cancers - gallbladder
	NEO020	Gastrointestinal cancers - peritoneum
	NEO021	Gastrointestinal cancers - all other types
	NEO022	Respiratory cancers
	NEO023	Bone cancer
	NEO024	Sarcoma
	NEO025	Skin cancers - melanoma
	NEO026	Skin cancers - basal cell carcinoma
	NEO027	Skin cancers - squamous cell carcinoma
	NEO028	Skin cancers - all other types
	NEO029	Breast cancer - ductal carcinoma in situ (DCIS)
	NEO030	Breast cancer - all other types
	NEO031	Female reproductive system cancers - uterus
	NEO032	Female reproductive system cancers - cervix
	NEO033	Female reproductive system cancers - ovary

(continued)

Primary Diagnosis Category	CCSR Category	CCSR Category Description
Cancer (continued)	NEO034	Female reproductive system cancers - fallopian tube
	NEO035	Female reproductive system cancers - endometrium
	NEO036	Female reproductive system cancers - vulva
	NEO037	Female reproductive system cancers - vagina
	NEO038	Female reproductive system cancers - all other types
	NEO039	Male reproductive system cancers - prostate
	NEO040	Male reproductive system cancers - testis
	NEO041	Male reproductive system cancers - penis
	NEO042	Male reproductive system cancers - all other types
	NEO043	Urinary system cancers - bladder
	NEO044	Urinary system cancers - ureter and renal pelvis
	NEO045	Urinary system cancers - kidney
	NEO046	Urinary system cancers - urethra
	NEO047	Urinary system cancers - all other types
	NEO048	Nervous system cancers - brain
	NEO049	Nervous system cancers - all other types
	NEO050	Endocrine system cancers - thyroid
	NEO051	Endocrine system cancers - pancreas
	NEO052	Endocrine system cancers - thymus
	NEO053	Endocrine system cancers - adrenocortical
	NEO054	Endocrine system cancers - parathyroid
	NEO055	Endocrine system cancers - pituitary gland
	NEO056	Endocrine system cancers - all other types
	NEO057	Hodgkin lymphoma
	NEO058	Non-Hodgkin lymphoma
	NEO059	Leukemia - acute lymphoblastic leukemia (ALL)
	NEO060	Leukemia - acute myeloid leukemia (AML)
	NEO061	Leukemia - chronic lymphocytic leukemia (CLL)
	NEO062	Leukemia - chronic myeloid leukemia (CML)
	NEO063	Leukemia - hairy cell
	NEO064	Leukemia - all other types
	NEO065	Multiple myeloma
	NEO066	Malignant neuroendocrine tumors
	NEO067	Mesothelioma
	NEO068	Myelodysplastic syndrome (MDS)
	NEO069	Cancer of other sites
	NEO070	Secondary malignancies
	NEO071	Malignant neoplasm, unspecified
	NEO072	Neoplasms of unspecified nature or uncertain behavior
	NEO073	Benign neoplasms
	NEO074	Conditions due to neoplasm or the treatment of neoplasm

(continued)

Primary Diagnosis Category	CCSR Category	CCSR Category Description
Cancer (continued)	NEO075	Leukemia in remission
	NEO076	Hodgkin lymphoma in remission
	NEO077	Non-Hodgkin lymphoma in remission
	NEO078	Myeloma in remission
Cardiovascular Disease	CIR001	Chronic rheumatic heart disease
	CIR002	Acute rheumatic heart disease
	CIR003	Nonrheumatic and unspecified valve disorders
	CIR004	Endocarditis and endocardial disease
	CIR005	Myocarditis and cardiomyopathy
	CIR006	Pericarditis and pericardial disease
	CIR007	Essential hypertension
	CIR008	Hypertension with complications and secondary hypertension
	CIR009	Acute myocardial infarction
	CIR010	Complications of acute myocardial infarction
	CIR011	Coronary atherosclerosis and other heart disease
	CIR012	Nonspecific chest pain
	CIR013	Acute pulmonary embolism
	CIR014	Pulmonary heart disease
	CIR015	Other and ill-defined heart disease
	CIR016	Conduction disorders
	CIR017	Cardiac dysrhythmias
	CIR018	Cardiac arrest and ventricular fibrillation
	CIR019	Heart failure
	CIR026	Peripheral and visceral vascular disease
	CIR027	Arterial dissections
	CIR028	Gangrene
	CIR029	Aortic; peripheral; and visceral artery aneurysms
	CIR030	Aortic and peripheral arterial embolism or thrombosis
	CIR031	Hypotension
	CIR032	Other specified and unspecified circulatory disease
	CIR033	Acute phlebitis; thrombophlebitis and thromboembolism
	CIR034	Chronic phlebitis; thrombophlebitis and thromboembolism
	CIR035	Varicose veins of lower extremity
	CIR036	Post thrombotic syndrome and venous insufficiency/hypertension
	CIR037	Vasculitis
	CIR038	Postprocedural or postoperative circulatory system complication
	CIR039	Other specified diseases of veins and lymphatics
	INJ033	Complication of cardiovascular device, implant or graft, initial encounter
	INJ069	Complication of cardiovascular device, implant or graft, subsequent encounter
	MAL001	Cardiac and circulatory congenital anomalies

(continued)

Primary Diagnosis Category	CCSR Category	CCSR Category Description
Chronic Kidney Disease/ESRD	GEN003	Chronic kidney disease
Neurodegenerative Disease or Stroke	CIR020	Cerebral infarction
	CIR021	Acute hemorrhagic cerebrovascular disease
	CIR022	Sequela of hemorrhagic cerebrovascular disease
	CIR023	Occlusion or stenosis of precerebral or cerebral arteries without infarction
	CIR024	Other and ill-defined cerebrovascular disease
	CIR025	Sequela of cerebral infarction and other cerebrovascular disease
	EYE006	Neuro-ophthalmology
	NVS004	Parkinson`s disease
	NVS005	Multiple sclerosis
	NVS006	Other nervous system disorders (often hereditary or degenerative)
	NVS007	Cerebral palsy
	NVS008	Paralysis (other than cerebral palsy)
	NVS012	Transient cerebral ischemia
	NVS013	Coma; stupor; and brain damage
	NVS022	Sequela of specified nervous system conditions
Respiratory Disease	MAL007	Respiratory congenital malformations
	PNL005	Respiratory distress syndrome
	PNL006	Respiratory perinatal condition
	RSP001	Sinusitis
	RSP002	Pneumonia (except that caused by tuberculosis)
	RSP003	Influenza
	RSP004	Acute and chronic tonsillitis
	RSP005	Acute bronchitis
	RSP006	Other specified upper respiratory infections
	RSP007	Other specified and unspecified upper respiratory disease
	RSP008	Chronic obstructive pulmonary disease and bronchiectasis
	RSP009	Asthma
	RSP010	Aspiration pneumonitis
	RSP011	Pleurisy, pleural effusion and pulmonary collapse
	RSP012	Respiratory failure; insufficiency; arrest
	RSP013	Lung disease due to external agents
	RSP014	Pneumothorax
	RSP015	Mediastinal disorders
	RSP016	Other specified and unspecified lower respiratory disease
	RSP017	Postprocedural or postoperative respiratory system complication
Other	–	All unlisted CCSR categories are included in Primary Diagnosis Category “Other.”

Appendix B: Hospice Characteristics and Data Sources

Characteristic	Data Sources	Description
Ownership Type	Provider of Services (POS)	The ownership type of hospice (For Profit, Non-Profit, Government, Combination Government & Non-Profit, or Other). The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values.
Compliance status	POS	An indicator of whether the hospice was in compliance at the time of the last certification survey
Region	POS	Region in which the hospice is located, based on CMS region designation. The CMS regions are: 1. Boston (CT, MA, ME, NH, RI, VT) 2. New York (NJ, NY, PR, VI) 3. Philadelphia (DE, DC, MD, PA, VA, WV) 4. Atlanta (AL, FL, GA, KY, MS, NC, SC, TN) 5. Chicago (IL, IN, MI, MN, OH, WI) 6. Dallas (AR, LA, NM, OK, TX) 7. Kansas City (IA, KS, MO, NE) 8. Denver (CO, MT, ND, SD, UT, WY) 9. San Francisco (AZ, CA, HI, NV, AS, GU, MP) 10. Seattle (AK, ID, OR, WA)
Hospice Size	Claims	Size category of the hospice based on average daily census, divided into quartiles. The quartiles are: Quartile 1 (average daily census < 7.32) Quartile 2 (average daily census 7.33 to 20.07) Quartile 3 (average daily census 20.08 to 47.62) Quartile 4 (average daily census > 47.63)
Hospice Age	POS	Age of the hospice, based on years of certification as of the start of the study period, 2016, divided into quartiles. The quartiles are: Quartile 1 (age ≤ 4 years) Quartile 2 (age 5 to 11 years) Quartile 3 (age 12 to 23 years) Quartile 4 (age ≥ 24 years)
Urban-Rural Status	POS	An indicator of whether the hospice is located in an urban or rural area
Facility Type	POS	The facility type of the hospice (hospital, skilled nursing facility, nursing facility, home health agency, or freestanding)
High ADRD	Claims	An indicator of whether the hospice has a high percentage of patients with ADRD as a primary diagnosis, defined as being in the top quartile of all hospices. The quartiles are: Lower quartiles (ADRD patient population <24.75%) Top quartile (ADRD patient population >24.75%)

Notes: ADRD = Alzheimer's Disease and Related Dementias

Appendix C: Average Percentage of Days in Routine Home Care by Primary Diagnosis and Secondary Diagnosis of Alzheimer's Disease and Related Dementias (ADRD)

Primary Diagnosis	Secondary Diagnosis of ADRD	Routine Home Care (RHC) %	Continuous Home Care (CHC) %	Inpatient Respite Care (IRC) %	General Inpatient Care (GIP) %
Alzheimer's Disease and Related Dementias	Not Applicable	92.36	0.89	0.33	6.37
Cancer	With ADRD	88.13	0.86	0.51	10.41
Cancer	Without ADRD	80.62	1.35	0.58	17.32
Cardiovascular Disease	With ADRD	88.46	0.84	0.44	10.20
Cardiovascular Disease	Without ADRD	81.98	1.27	0.49	16.17
Chronic Kidney Disease or ESRD	With ADRD	82.13	0.81	0.41	16.59
Chronic Kidney Disease or ESRD	Without ADRD	72.08	1.26	0.56	26.02
Neurodegenerative or Stroke	With ADRD	86.09	2.12	0.34	11.41
Neurodegenerative or Stroke	Without ADRD	72.42	1.14	0.46	25.91
Respiratory Disease	With ADRD	71.27	0.81	0.38	27.47
Respiratory Disease	Without ADRD	67.80	1.04	0.44	30.62
Other	With ADRD	77.63	0.50	0.37	21.43
Other	Without ADRD	67.09	0.86	0.49	31.49

Source: Analysis of Medicare claims data.

Notes: All values represent percentages of hospice care days by level of care. Rows may not sum to 100% due to rounding. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Appendix D. Average Daily Registered Nurse Visits (RN) by Primary Diagnosis and Period of Stay

Period of Stay	All Primary Diagnoses	ADRD	Cancer	Cardiovascular Disease	Chronic Kidney Disease or ESRD	Neurodegenerative Disease or Stroke	Respiratory Disease	Other
Day 1	0.99	0.98	0.99	0.99	1.00	1.00	1.00	1.00
Day 2	0.60	0.58	0.59	0.60	0.63	0.63	0.60	0.63
Day 3	0.35	0.30	0.37	0.34	0.40	0.35	0.35	0.38
Day 4	0.34	0.29	0.36	0.33	0.39	0.34	0.33	0.37
Day 5	0.31	0.27	0.33	0.31	0.36	0.31	0.31	0.34
Day 6	0.30	0.27	0.33	0.30	0.35	0.30	0.30	0.33
Day 7	0.32	0.29	0.35	0.32	0.37	0.32	0.32	0.35
Days 8 to 15	0.25	0.22	0.26	0.25	0.26	0.24	0.24	0.26
Days 16 to 30	0.22	0.20	0.24	0.22	0.23	0.21	0.22	0.23
Days 31 to 60	0.21	0.20	0.23	0.21	0.21	0.20	0.21	0.22
Days 61 to 90	0.20	0.19	0.22	0.20	0.20	0.20	0.20	0.21
Days 91 to 120	0.20	0.19	0.22	0.20	0.20	0.19	0.20	0.20
Days 121 to 180	0.19	0.18	0.21	0.19	0.19	0.19	0.20	0.19
Days 181 to 240	0.19	0.18	0.21	0.19	0.19	0.19	0.20	0.20
Days 241 to 300	0.19	0.18	0.20	0.19	0.19	0.18	0.19	0.19
Days 301 to 365	0.19	0.18	0.20	0.19	0.19	0.19	0.19	0.19
Days 366+	0.19	0.18	0.20	0.19	0.19	0.19	0.20	0.19
End - 6 days	0.32	0.29	0.35	0.31	0.32	0.30	0.30	0.32
End - 5 days	0.34	0.31	0.38	0.33	0.33	0.33	0.32	0.34
End - 4 days	0.37	0.35	0.41	0.36	0.37	0.36	0.35	0.37
End - 3 days	0.42	0.39	0.46	0.40	0.42	0.40	0.39	0.42
End - 2 days	0.48	0.46	0.53	0.47	0.48	0.46	0.46	0.48
End - 1 day	0.58	0.55	0.63	0.56	0.57	0.55	0.57	0.57
Final day	0.59	0.56	0.64	0.58	0.57	0.56	0.60	0.57

Source: Analysis of Medicare claims data.

Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Appendix E. Average Daily Home Health Aide (HHA) Visits by Primary Diagnosis and Period of Stay

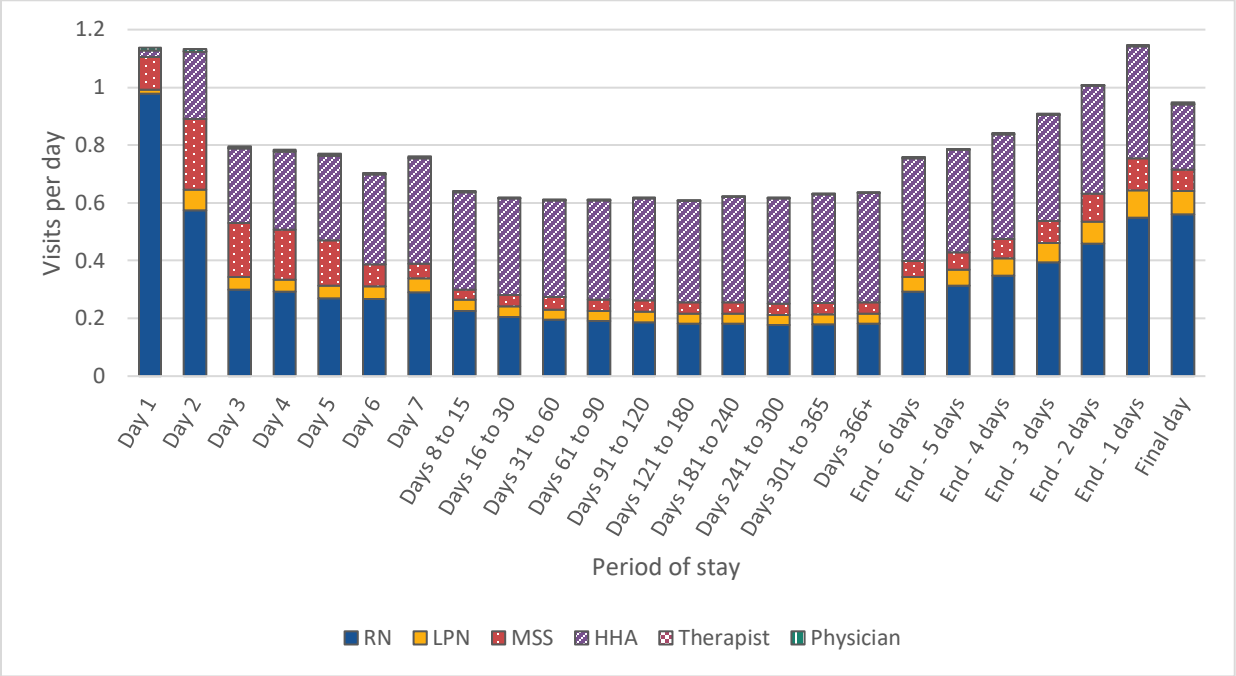
Period of Stay	All Primary Diagnoses	ADRD	Cancer	Cardiovascular Disease	Chronic Kidney Disease or ESRD	Neurodegenerative Disease or Stroke	Respiratory Disease	Other
Day 1	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.03
Day 2	0.21	0.23	0.18	0.21	0.23	0.24	0.20	0.23
Day 3	0.23	0.26	0.20	0.23	0.25	0.26	0.22	0.26
Day 4	0.24	0.27	0.20	0.24	0.26	0.28	0.22	0.26
Day 5	0.26	0.29	0.22	0.26	0.27	0.29	0.24	0.28
Day 6	0.27	0.31	0.22	0.27	0.28	0.31	0.25	0.29
Day 7	0.31	0.36	0.26	0.31	0.32	0.35	0.28	0.33
Days 8 to 15	0.28	0.34	0.22	0.29	0.28	0.33	0.25	0.30
Days 16 to 30	0.28	0.33	0.22	0.28	0.27	0.32	0.25	0.29
Days 31 to 60	0.28	0.34	0.22	0.28	0.26	0.32	0.24	0.29
Days 61 to 90	0.29	0.34	0.22	0.28	0.26	0.33	0.25	0.30
Days 91 to 120	0.30	0.35	0.23	0.29	0.27	0.34	0.25	0.31
Days 121 to 180	0.30	0.35	0.23	0.29	0.27	0.34	0.25	0.30
Days 181 to 240	0.32	0.36	0.24	0.30	0.28	0.35	0.26	0.32
Days 241 to 300	0.32	0.36	0.25	0.30	0.29	0.35	0.26	0.32
Days 301 to 365	0.33	0.38	0.26	0.31	0.29	0.36	0.27	0.33
Days 366+	0.34	0.38	0.27	0.32	0.30	0.37	0.28	0.34
End - 6 days	0.32	0.36	0.28	0.31	0.31	0.35	0.28	0.33
End - 5 days	0.32	0.36	0.29	0.31	0.31	0.35	0.28	0.33
End - 4 days	0.33	0.36	0.30	0.32	0.32	0.36	0.29	0.33
End - 3 days	0.33	0.37	0.31	0.33	0.32	0.36	0.30	0.34
End - 2 days	0.34	0.37	0.32	0.34	0.34	0.37	0.30	0.35
End - 1 day	0.36	0.39	0.34	0.35	0.35	0.38	0.32	0.36
Final day	0.20	0.23	0.18	0.20	0.19	0.22	0.18	0.21

Source: Analysis of Medicare claims data.

Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

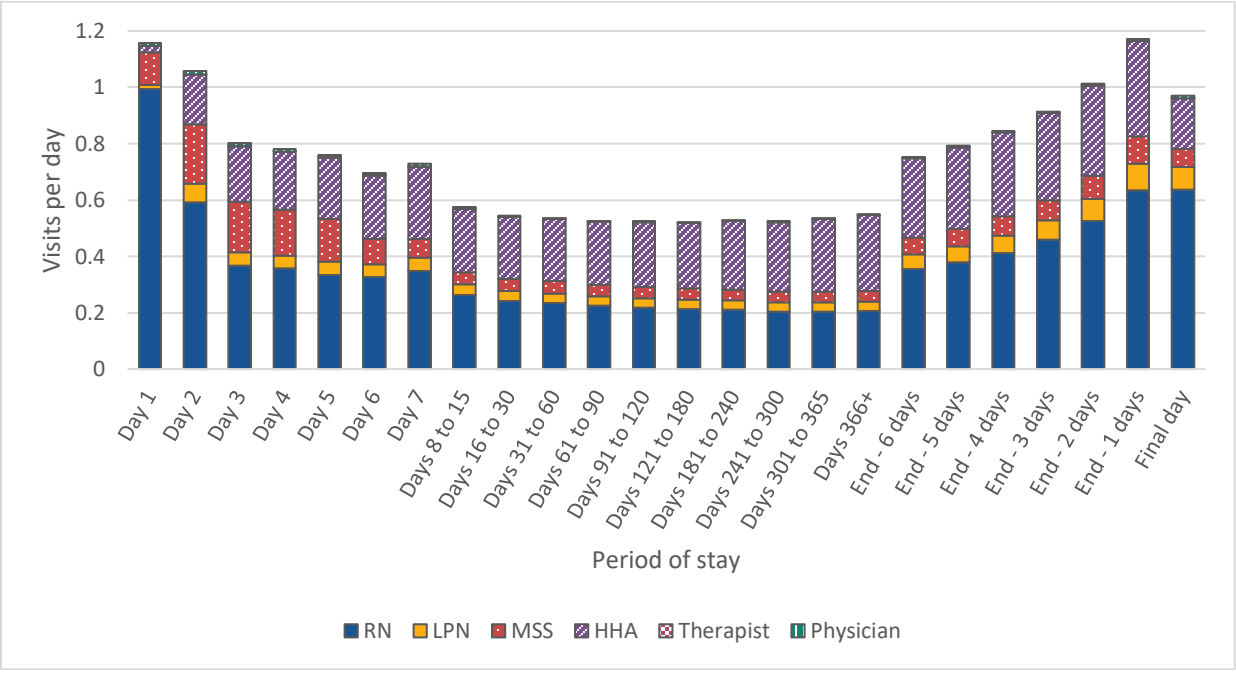
Appendix F. Visits per Day Across Stay by Discipline and Select Diagnoses

Figure F-1. Average Hospice Visits per Day Across Stay by Discipline (Primary Diagnosis of ADRD)



Notes: HHA = home health aide; LPN = licensed practical nurse; MSS = medical social services; RN = registered nurse. Therapist visits include visits from physical therapists, occupational therapists, and speech-language pathologists. ADRD = Alzheimer's Disease and Related Diagnoses.

Figure F-2. Average Hospice Visits per Day Across Stay by Discipline (Primary Diagnosis of Cancer)



Notes: HHA = home health aide; LPN = licensed practical nurse; MSS = medical social services; RN = registered nurse. Therapist visits include visits from physical therapists, occupational therapists, and speech-language pathologists.

Appendix G: Hospice Characteristics, Counts and Percentages of Hospices and Patients

Hospice Characteristic	Number of Hospices	% of Hospices	Number of Patients Served	% of all Patients Served
Ownership Type - For Profit	3,571	68.2	2,027,061	43.9
Ownership Type - Non-profit	1,057	20.2	1,946,525	42.2
Ownership Type - Government	103	2.0	34,624	0.8
Ownership Type - Combination Government and Non-profit	38	0.7	38,136	0.8
Ownership Type - Other	468	8.9	566,015	12.3
Hospice Size - Quartile 1 (Average Daily Census < 7.32)	1,309	25.0	62,443	1.4
Hospice Size - Quartile 2 (Average Daily Census 7.33 to 20.07)	1,308	25.0	288,869	6.3
Hospice Size - Quartile 3 (Average Daily Census 20.08 to 47.62)	1,309	25.0	774,171	16.8
Hospice Size - Quartile 4 (Average Daily Census > 47.63)	1,309	25.0	3,486,630	75.6
Hospice Age - Quartile 1 (Age ≤4 Years)	1,313	25.1	169,133	3.7
Hospice Age - Quartile 2 (Age 5 to 11 Years)	1,313	25.1	650,555	14.1
Hospice Age - Quartile 3 (Age 12 to 23 Years)	1,320	25.2	1,199,676	26.0
Hospice Age - Quartile 4 (Age ≥ 24 Years)	1,291	24.6	2,592,997	56.2
Compliance status - In Compliance	4,866	92.9	4,256,378	92.3
Compliance status - Not in Compliance	371	7.1	355,983	7.7
Location - Urban	4,298	82.1	4,115,246	89.2
Location - Rural	939	17.9	497,115	10.8
CMS Region - 1 (Boston)	174	3.3	220,555	4.8
CMS Region - 2 (New York)	151	2.9	296,126	6.4
CMS Region - 3 (Philadelphia)	356	6.8	457,649	9.9
CMS Region - 4 (Atlanta)	742	14.2	1,076,693	23.3
CMS Region - 5 (Chicago)	675	12.9	849,956	18.4
CMS Region - 6 (Dallas)	1,068	20.4	554,207	12.0
CMS Region - 7 (Kansas City)	330	6.3	240,341	5.2
CMS Region - 8 (Denver)	249	4.8	140,278	3.0
CMS Region - 9 (San Francisco)	1,346	25.7	597,072	12.9
CMS Region - 10 (Seattle)	146	2.8	179,484	3.9
Facility type - Hospital	354	6.8	323,278	7.0
Facility type - Skilled Nursing Facility	9	0.2	2,783	0.1
Facility type - Home Health Agency	435	8.3	428,122	9.3
Facility type - Freestanding	4,439	84.7	3,858,178	83.6
High ADRD population - ADRD Patient Population < 24.75%	3,916	75.0	3,981,616	86.3
High ADRD population - ADRD Patient Population > 24.75%	1,306	25.0	630,820	13.7

Source: Analysis of Medicare claims and Provider of Services data.
Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's Disease and Related Dementias.

Appendix H: Hospice Use Measures by Hospice Ownership Type and Diagnosis Group

Table H-1. Average Lenth of Stay

Primary Diagnosis	Combination	For-profit	Government	Nonprofit	Other
All	45.89	71.45	49.37	48.22	53.27
ADRD	65.80	104.85	80.17	77.14	86.33
Cancer	37.95	44.25	39.98	38.33	38.41
Cardiovascular Disease	49.11	79.32	53.61	54.69	60.15
Chronic Kidney Disease or ESRD	25.84	38.22	31.43	27.04	29.37
Neurodegenerative Disease or Stroke	51.73	86.51	54.11	54.72	62.70
Respiratory Disease	45.00	67.53	48.60	45.59	48.20
Other	42.21	55.80	33.85	35.83	39.46

Source: Analysis of Medicare claims and Provider of Services data.

Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership category includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table H-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Combination	For-profit	Government	Nonprofit	Other
All	77.47	86.40	87.20	74.98	75.68
ADRD	65.80	104.85	80.17	77.14	86.33
Cancer	80.77	86.06	89.79	78.12	77.50
Cardiovascular Disease	78.33	89.00	88.28	78.00	79.24
Chronic Kidney Disease or ESRD	68.30	81.03	84.88	67.79	68.83
Neurodegenerative Disease or Stroke	75.17	84.95	86.47	72.06	73.66
Respiratory Disease	64.66	76.74	78.18	62.03	61.36
Other	71.75	79.38	77.31	64.07	64.37

Source: Analysis of Medicare claims and Provider of Services data.

Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership type includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table H-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Combination	For-profit	Government	Nonprofit	Other
All	0.44	0.44	0.56	0.50	0.48
ADRD	0.40	0.38	0.47	0.43	0.42
Cancer	0.46	0.47	0.57	0.51	0.50
Cardiovascular Disease	0.45	0.42	0.55	0.50	0.48
Chronic Kidney Disease or ESRD	0.51	0.52	0.62	0.59	0.57
Neurodegenerative Disease or Stroke	0.43	0.42	0.57	0.50	0.48
Respiratory Disease	0.48	0.45	0.59	0.52	0.49
Other	0.44	0.47	0.64	0.54	0.51

Source: Analysis of Medicare claims and Provider of Services data.

Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership type includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table H-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Combination	For-profit	Government	Nonprofit	Other
All	0.16	0.27	0.26	0.23	0.26
ADRD	0.16	0.32	0.26	0.25	0.29
Cancer	0.16	0.23	0.25	0.20	0.22
Cardiovascular Disease	0.17	0.27	0.26	0.23	0.25
Chronic Kidney Disease or ESRD	0.16	0.25	0.24	0.22	0.24
Neurodegenerative Disease or Stroke	0.18	0.30	0.30	0.27	0.30
Respiratory Disease	0.16	0.24	0.25	0.21	0.23
Other	0.17	0.28	0.30	0.25	0.27

Source: Analysis of Medicare claims and Provider of Services data.

Notes: Combination ownership refers to the "combination government and non-profit" ownership type. The "other" ownership type includes ownership arrangements that are less common or unique and allows providers to submit their own values. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Appendix I. Hospice Use Measures by Hospice Size and Diagnosis Group

Table I-1. Average Length of Stay

Primary Diagnosis	Quartile 1 (Average Daily Census <7.32)	Quartile 2 (Average Daily Census 7.33 to 20.07)	Quartile 3 (Average Daily Census 20.08 to 47.62)	Quartile 4 (Average Daily Census >47.63)
All	56.42	61.69	62.46	58.11
ADRD	85.25	94.08	96.32	91.62
Cancer	39.15	42.11	42.41	40.13
Cardiovascular Disease	68.16	71.54	71.68	65.42
Chronic Kidney Disease or ESRD	35.48	37.47	36.21	30.74
Neurodegenerative Disease or Stroke	63.50	70.50	73.71	70.41
Respiratory Disease	55.86	62.81	60.36	53.59
Other	38.78	44.55	46.82	43.40

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD – Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table I-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Quartile 1 (Average Daily Census <7.32)	Quartile 2 (Average Daily Census 7.33 to 20.07)	Quartile 3 (Average Daily Census 20.08 to 47.62)	Quartile 4 (Average Daily Census >47.63)
All	91.13	91.11	87.63	77.45
ADRD	96.33	96.58	95.76	91.14
Cancer	92.03	91.70	88.47	78.56
Cardiovascular Disease	93.68	93.17	90.48	80.64
Chronic Kidney Disease or ESRD	88.52	87.34	83.41	70.02
Neurodegenerative Disease or Stroke	89.21	90.72	86.83	76.00
Respiratory Disease	85.58	84.74	78.18	64.53
Other	83.58	85.42	80.25	66.48

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD – Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide; RN = registered nurse.

Table I-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Quartile 1 (Average Daily Census <7.32)	Quartile 2 (Average Daily Census 7.33 to 20.07)	Quartile 3 (Average Daily Census 20.08 to 47.62)	Quartile 4 (Average Daily Census >47.63)
All	0.40	0.44	0.46	0.47
ADRD	0.32	0.36	0.40	0.41
Cancer	0.46	0.48	0.49	0.50
Cardiovascular Disease	0.34	0.41	0.45	0.47
Chronic Kidney Disease or ESRD	0.49	0.52	0.54	0.57
Neurodegenerative Disease or Stroke	0.39	0.43	0.46	0.46
Respiratory Disease	0.41	0.46	0.47	0.49
Other	0.49	0.50	0.51	0.51

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD – Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table I-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Quartile 1 (Average Daily Census <7.32)	Quartile 2 (Average Daily Census 7.33 to 20.07)	Quartile 3 (Average Daily Census 20.08 to 47.62)	Quartile 4 (Average Daily Census >47.63)
All	0.20	0.24	0.26	0.25
ADRD	0.23	0.28	0.30	0.29
Cancer	0.19	0.22	0.22	0.22
Cardiovascular Disease	0.18	0.24	0.26	0.25
Chronic Kidney Disease or ESRD	0.19	0.23	0.25	0.24
Neurodegenerative Disease or Stroke	0.22	0.28	0.30	0.29
Respiratory Disease	0.18	0.22	0.23	0.23
Other	0.20	0.26	0.27	0.26

Source: Analysis of Medicare claims and Provider of Services data.

Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix J. Hospice Use Measures by Hospice Age and Diagnosis Group

Table J-1. Average Length of Stay

Primary Diagnosis	Quartile 1 (Age ≤ 4 Years)	Quartile 2 (Age 5 to 11 Years)	Quartile 3 (Age 12 to 23 Years)	Quartile 4 (Age ≥ 24 Years)
All	78.11	75.20	68.05	49.58
ADRD	106.01	107.52	100.59	80.30
Cancer	46.19	45.80	43.56	38.31
Cardiovascular Disease	87.83	82.13	74.84	56.39
Chronic Kidney Disease or ESRD	46.28	41.34	36.30	27.24
Neurodegenerative Disease or Stroke	87.59	87.55	85.47	57.28
Respiratory Disease	76.33	71.78	63.48	46.70
Other	63.43	61.22	51.85	36.65

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table J-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Quartile 1 (Age ≤ 4 Years)	Quartile 2 (Age 5 to 11 Years)	Quartile 3 (Age 12 to 23 Years)	Quartile 4 (Age ≥ 24 Years)
All	93.66	90.30	84.80	74.65
ADRD	97.45	95.94	95.00	88.82
Cancer	92.35	89.84	84.75	77.78
Cardiovascular Disease	95.40	92.14	87.29	77.73
Chronic Kidney Disease or ESRD	90.64	85.48	79.78	67.21
Neurodegenerative Disease or Stroke	93.04	90.71	83.49	71.55
Respiratory Disease	89.07	81.89	73.99	61.59
Other	90.58	85.35	77.52	63.34

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table J-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Quartile 1 (Age ≤ 4 Years)	Quartile 2 (Age 5 to 11 Years)	Quartile 3 (Age 12 to 23 Years)	Quartile 4 (Age ≥ 24 Years)
All	0.37	0.42	0.46	0.49
ADRD	0.33	0.37	0.41	0.42
Cancer	0.43	0.46	0.49	0.51
Cardiovascular Disease	0.34	0.41	0.46	0.49
Chronic Kidney Disease or ESRD	0.45	0.51	0.55	0.58
Neurodegenerative Disease or Stroke	0.37	0.41	0.45	0.49
Respiratory Disease	0.38	0.44	0.48	0.51
Other	0.42	0.45	0.50	0.53

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table J-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Quartile 1 (Age ≤ 4 Years)	Quartile 2 (Age 5 to 11 Years)	Quartile 3 (Age 12 to 23 Years)	Quartile 4 (Age ≥ 24 Years)
All	0.26	0.29	0.27	0.23
ADRD	0.30	0.33	0.32	0.26
Cancer	0.23	0.24	0.23	0.21
Cardiovascular Disease	0.24	0.28	0.27	0.23
Chronic Kidney Disease or ESRD	0.24	0.26	0.25	0.23
Neurodegenerative Disease or Stroke	0.29	0.32	0.30	0.27
Respiratory Disease	0.22	0.25	0.24	0.21
Other	0.27	0.30	0.27	0.25

Source: Analysis of Medicare claims and Provider of Services data.

Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix K. Hospice Use Measures by Hospice Compliance Status and Diagnosis Group

Table K-1. Average Length of Stay

Primary Diagnosis	In Compliance	Not in Compliance
All	59.32	55.67
ADRD	92.78	88.90
Cancer	40.67	40.05
Cardiovascular Disease	67.29	63.43
Chronic Kidney Disease or ESRD	32.60	28.02
Neurodegenerative Disease or Stroke	71.13	67.30
Respiratory Disease	55.78	50.51
Other	44.17	41.94

Source: Analysis of Medicare claims and Provider of Services data.

Notes: The hospice survey process evaluates the hospice's compliance with all applicable condition of participation and indicates safety and quality of care. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table K-2. Average Percent of Days with Routine Home Care

Primary Diagnosis	In Compliance	Not in Compliance
All	80.50	76.59
ADRD	92.52	90.23
Cancer	81.46	78.21
Cardiovascular Disease	83.77	79.73
Chronic Kidney Disease or ESRD	74.29	68.80
Neurodegenerative Disease or Stroke	78.74	75.93
Respiratory Disease	68.75	64.55
Other	70.57	65.45

Source: Analysis of Medicare claims and Provider of Services data.

Notes: The hospice survey process evaluates the hospice's compliance with all applicable condition of participation and indicates safety and quality of care. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table K-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	In Compliance	Not in Compliance
All	0.46	0.51
ADRD	0.40	0.43
Cancer	0.49	0.54
Cardiovascular Disease	0.46	0.50
Chronic Kidney Disease or ESRD	0.55	0.62
Neurodegenerative Disease or Stroke	0.45	0.50
Respiratory Disease	0.48	0.54
Other	0.50	0.57

Source: Analysis of Medicare claims and Provider of Services data.

Notes: The hospice survey process evaluates the hospice's compliance with all applicable condition of participation and indicates safety and quality of care. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table K-4. Average Number of Home Health Aide (HHA) Visits Per Day

Primary Diagnosis	In Compliance	Not in Compliance
All	0.25	0.28
ADRD	0.29	0.30
Cancer	0.22	0.24
Cardiovascular Disease	0.25	0.27
Chronic Kidney Disease or ESRD	0.24	0.27
Neurodegenerative Disease or Stroke	0.29	0.33
Respiratory Disease	0.22	0.26
Other	0.26	0.30

Source: Analysis of Medicare claims and Provider of Services data.

Notes: The hospice survey process evaluates the hospice's compliance with all applicable condition of participation and indicates safety and quality of care. ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix L. Hospice Use Measures by Hospice Urban-Rural Status and Diagnosis Group

Table L-1. Average Length of Stay

Primary Diagnosis	Rural	Urban
All	58.67	59.09
ADRD	86.77	93.12
Cancer	43.10	40.30
Cardiovascular Disease	67.84	66.89
Chronic Kidney Disease or ESRD	34.05	32.02
Neurodegenerative Disease or Stroke	69.12	71.00
Respiratory Disease	61.70	54.48
Other	44.71	43.90

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table L-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Rural	Urban
All	88.53	79.19
ADRD	95.83	91.99
Cancer	90.13	80.07
Cardiovascular Disease	90.96	82.51
Chronic Kidney Disease or ESRD	85.31	72.45
Neurodegenerative Disease or Stroke	87.74	77.66
Respiratory Disease	80.58	66.72
Other	81.67	68.65

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table L-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Rural	Urban
All	0.49	0.46
ADRD	0.44	0.40
Cancer	0.51	0.49
Cardiovascular Disease	0.48	0.45
Chronic Kidney Disease or ESRD	0.58	0.55
Neurodegenerative Disease or Stroke	0.50	0.45
Respiratory Disease	0.50	0.48
Other	0.53	0.50

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table L-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Rural	Urban
All	0.23	0.26
ADRD	0.27	0.30
Cancer	0.20	0.22
Cardiovascular Disease	0.24	0.25
Chronic Kidney Disease or ESRD	0.22	0.24
Neurodegenerative Disease or Stroke	0.27	0.29
Respiratory Disease	0.21	0.23
Other	0.24	0.27

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix M. Hospice Use Measures by Hospice CMS Region and Diagnosis Group

Table M-1. Average Length of Stay

Primary Diagnosis	Region 1 (Boston)	Region 2 (New York)	Region 3 (Philadelphia)	Region 4 (Atlanta)	Region 5 (Chicago)	Region 6 (Dallas)	Region 7 (Kansas City)	Region 8 (Denver)	Region 9 (San Francisco)	Region 10 (Seattle)
All	54.32	50.03	55.32	59.83	56.58	64.87	55.90	62.15	65.92	56.97
ADRD	84.37	78.99	88.58	95.99	90.38	105.81	80.67	89.77	99.97	75.06
Cancer	38.99	36.47	40.32	39.93	40.36	41.75	42.26	44.72	41.78	44.68
Cardiovascular Disease	55.41	55.80	61.84	68.63	62.63	73.52	60.64	74.70	77.89	63.59
Chronic Kidney Disease or ESRD	31.41	28.15	32.04	30.73	30.31	34.25	31.31	41.82	35.13	36.16
Neurodegenerative Disease or Stroke	65.13	59.22	64.66	75.29	69.02	75.61	64.43	70.24	76.69	62.71
Respiratory Disease	50.43	45.47	50.52	54.79	51.28	60.41	56.42	62.96	64.34	61.63
Other	44.43	37.97	41.15	40.93	42.25	46.21	45.86	49.96	51.17	47.57

Source: Analysis of Medicare claims and Provider of Services data. Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table M-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Region 1 (Boston)	Region 2 (New York)	Region 3 (Philadelphia)	Region 4 (Atlanta)	Region 5 (Chicago)	Region 6 (Dallas)	Region 7 (Kansas City)	Region 8 (Denver)	Region 9 (San Francisco)	Region 10 (Seattle)
All	80.70	79.03	80.47	70.62	80.95	80.92	89.29	87.04	87.37	91.03
ADRD	93.39	92.28	94.26	86.28	94.20	93.34	97.27	95.76	93.83	95.99
Cancer	80.62	80.14	81.94	72.90	81.62	82.62	88.91	87.31	87.22	91.00
Cardiovascular Disease	82.69	81.99	83.36	73.82	84.58	84.94	91.66	91.02	89.77	92.94
Chronic Kidney Disease or ESRD	75.70	72.48	75.53	61.23	75.00	72.79	85.95	85.32	82.30	89.14
Neurodegenerative Disease or Stroke	80.56	76.76	79.55	67.66	80.76	78.22	88.23	84.71	86.46	90.66
Respiratory Disease	69.31	62.46	65.63	58.25	69.05	69.19	83.88	80.27	79.58	86.82
Other	70.37	66.02	70.00	57.04	70.18	68.06	83.43	81.09	82.17	85.30

Source: Analysis of Medicare claims and Provider of Services data. Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table M-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Region 1 (Boston)	Region 2 (New York)	Region 3 (Philadelphia)	Region 4 (Atlanta)	Region 5 (Chicago)	Region 6 (Dallas)	Region 7 (Kansas City)	Region 8 (Denver)	Region 9 (San Francisco)	Region 10 (Seattle)
All	0.48	0.44	0.47	0.46	0.51	0.45	0.57	0.52	0.39	0.44
ADRD	0.41	0.39	0.41	0.41	0.44	0.39	0.50	0.46	0.32	0.40
Cancer	0.53	0.47	0.49	0.49	0.54	0.48	0.59	0.54	0.43	0.45
Cardiovascular Disease	0.50	0.44	0.47	0.45	0.51	0.44	0.55	0.50	0.35	0.44
Chronic Kidney Disease or ESRD	0.56	0.52	0.54	0.55	0.61	0.54	0.66	0.59	0.47	0.53
Neurodegenerative Disease or Stroke	0.45	0.43	0.45	0.44	0.50	0.44	0.59	0.51	0.39	0.43
Respiratory Disease	0.49	0.46	0.48	0.46	0.53	0.46	0.59	0.52	0.40	0.45
Other	0.49	0.46	0.49	0.49	0.55	0.49	0.61	0.55	0.43	0.46

Source: Analysis of Medicare claims and Provider of Services data. Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table M-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Region 1 (Boston)	Region 2 (New York)	Region 3 (Philadelphia)	Region 4 (Atlanta)	Region 5 (Chicago)	Region 6 (Dallas)	Region 7 (Kansas City)	Region 8 (Denver)	Region 9 (San Francisco)	Region 10 (Seattle)
All	0.29	0.30	0.28	0.25	0.24	0.29	0.23	0.32	0.21	0.16
ADRD	0.34	0.34	0.31	0.29	0.27	0.36	0.24	0.37	0.25	0.17
Cancer	0.25	0.26	0.24	0.21	0.21	0.24	0.22	0.25	0.18	0.14
Cardiovascular Disease	0.28	0.30	0.28	0.25	0.24	0.30	0.23	0.33	0.20	0.16
Chronic Kidney Disease or ESRD	0.26	0.27	0.26	0.24	0.24	0.26	0.23	0.29	0.19	0.15
Neurodegenerative Disease or Stroke	0.32	0.34	0.30	0.30	0.28	0.34	0.28	0.40	0.24	0.17
Respiratory Disease	0.25	0.27	0.25	0.22	0.22	0.25	0.22	0.28	0.19	0.15
Other	0.31	0.32	0.31	0.26	0.25	0.29	0.25	0.33	0.21	0.17

Source: Analysis of Medicare claims and Provider of Services data. Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix N. Hospice Use Measures by Hospice Facility Type and Diagnosis Group

Table N-1. Average Length of Stay

Primary Diagnosis	Hospital	Skilled Nursing Facility (SNF)	Home Health	Freestanding Hospice
All	42.66	80.70	49.61	61.44
ADRD	62.45	100.01	81.19	95.11
Cancer	38.90	57.99	38.05	41.11
Cardiovascular Disease	50.28	87.37	54.92	69.57
Chronic Kidney Disease or ESRD	25.60	36.84	30.47	32.99
Neurodegenerative Disease or Stroke	43.99	99.05	56.09	74.02
Respiratory Disease	40.57	68.88	49.40	57.43
Other	31.66	60.99	38.66	46.02

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table N-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Hospital	Skilled Nursing Facility (SNF)	Home Health	Freestanding Hospice
All	76.94	98.10	81.70	80.29
ADRD	90.23	99.50	93.76	92.35
Cancer	82.31	98.04	83.57	80.79
Cardiovascular Disease	81.20	98.00	84.34	83.52
Chronic Kidney Disease or ESRD	71.67	96.46	78.64	73.51
Neurodegenerative Disease or Stroke	71.99	98.38	79.05	78.91
Respiratory Disease	62.38	96.63	71.70	68.61
Other	66.75	96.86	72.14	70.23

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table N-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Hospital	Skilled Nursing Facility (SNF)	Home Health	Freestanding Hospice
All	0.54	0.49	0.51	0.46
ADRD	0.47	0.41	0.43	0.40
Cancer	0.53	0.56	0.53	0.49
Cardiovascular Disease	0.53	0.52	0.51	0.45
Chronic Kidney Disease or ESRD	0.61	0.62	0.58	0.55
Neurodegenerative Disease or Stroke	0.55	0.44	0.50	0.44
Respiratory Disease	0.56	0.52	0.52	0.47
Other	0.59	0.54	0.53	0.49

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table N-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Hospital	Skilled Nursing Facility (SNF)	Home Health	Freestanding Hospice
All	0.21	0.21	0.24	0.26
ADRD	0.20	0.22	0.27	0.30
Cancer	0.19	0.20	0.21	0.22
Cardiovascular Disease	0.21	0.22	0.25	0.26
Chronic Kidney Disease or ESRD	0.20	0.22	0.23	0.24
Neurodegenerative Disease or Stroke	0.24	0.22	0.28	0.29
Respiratory Disease	0.20	0.20	0.22	0.23
Other	0.23	0.22	0.26	0.27

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

Appendix O. Hospice Use Measures by Hospice ADRD Population and Diagnosis Group

Table O-1. Average Length of Stay

Primary Diagnosis	Low ADRD (ADRD patient population <24.75%)	High ADRD (ADRD patient population >24.75%)
All	55.69	80.21
ADRD	87.44	106.68
Cancer	39.76	48.64
Cardiovascular Disease	64.82	80.85
Chronic Kidney Disease or ESRD	30.55	44.25
Neurodegenerative Disease or Stroke	68.23	88.34
Respiratory Disease	52.80	76.07
Other	41.84	63.54

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table O-2. Average Percent of Days with Routine Home Care (RHC)

Primary Diagnosis	Low ADRD (ADRD patient population <24.75%)	High ADRD (ADRD patient population >24.75%)
All	78.10	93.41
ADRD	90.77	96.80
Cancer	80.05	91.93
Cardiovascular Disease	81.76	94.27
Chronic Kidney Disease or ESRD	71.52	90.45
Neurodegenerative Disease or Stroke	76.34	93.20
Respiratory Disease	66.00	87.86
Other	67.99	89.85

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease.

Table O-3. Average Number of Registered Nurse (RN) Visits per Day

Primary Diagnosis	Low ADRD (ADRD patient population <24.75%)	High ADRD (ADRD patient population >24.75%)
All	0.48	0.42
ADRD	0.41	0.38
Cancer	0.50	0.46
Cardiovascular Disease	0.46	0.42
Chronic Kidney Disease or ESRD	0.56	0.51
Neurodegenerative Disease or Stroke	0.46	0.42
Respiratory Disease	0.49	0.44
Other	0.51	0.46

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; RN = registered nurse.

Table O-4. Average Number of Home Health Aide (HHA) Visits per Day

Primary Diagnosis	Low ADRD (ADRD patient population <24.75%)	High ADRD (ADRD patient population >24.75%)
All	0.24	0.29
ADRD	0.28	0.33
Cancer	0.21	0.25
Cardiovascular Disease	0.25	0.29
Chronic Kidney Disease or ESRD	0.23	0.26
Neurodegenerative Disease or Stroke	0.28	0.31
Respiratory Disease	0.22	0.26
Other	0.26	0.30

Source: Analysis of Medicare claims and Provider of Services data.
Notes: ADRD = Alzheimer's Disease and Related Dementias; ESRD = End-Stage Renal Disease; HHA = home health aide.

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