

Health Care Use Before and After Entering Long-Term Services and Supports

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Abstract

Objective: We examined the health care utilization patterns of Medicare and Medicaid enrollees (MMEs) before and after initiating long-term care in the community or after admission to a nursing facility (NF). **Method:** We used administrative data to compare hospitalizations, emergency department (ED) visits, and post-acute care use of MMEs receiving long-term care in California in 2006-2007. **Results:** MMEs admitted to a NF for long-term care had much greater use of hospitalizations, ED visits, and post-acute care before initiating long-term care than those entering long-term care in the community. Post-entry, community service users had less than half the average monthly hospital and ED use compared with the NF cohort. **Conclusion:** Hospital and ED use prior to and following NF and personal care program entry suggest a need for reassessing the monitoring of these high-risk populations and the communication between health and community care providers.

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nursing facilities, home and community-based services, hospital use, emergency department use, personal care

Introduction

Individuals enrolled in both the Medicare and Medicaid programs (commonly referred to as Medicare and Medicaid enrollees or MMEs) are two-thirds low-income elder adults and one-third people younger than age 65 with disabilities (U.S. Centers for Medicare & Medicaid Services [U.S. CMS], 2011). Total spending for MMEs is estimated at over US\$300 billion in 2011. The nine million MMEs in the United States are more costly than Medicare only beneficiaries because they have higher health and long-term care needs (Kane, Wysocki, Parashuram, Shippee, & Lum, 2013; Medicare Payment Advisory Commission, 2012; U.S. CMS, 2011).

Long-term services and supports (LTSS) is a phrase used to encompass long-term care furnished either through extended nursing facility (NF) care or as Home and Community-Based Service (HCBS). HCBS, as used in this article, refers to Medicaid-funded health and social services intended to help people with limited ability for self-care to remain at home or in other community-based residential settings. The most common type of HCBS is personal care services. HCBS is provided to MMEs as a Medicaid benefit. Medicare does not provide a LTSS benefit but it does cover post-acute care for patients. This allows them to receive home health care, as well as rehabilitative services at home or in skilled nursing facilities for a limited time following a hospitalization.

Cross-sectional studies have found that the setting in which long-term care is delivered, the community versus a nursing facility, is associated with the subsequent use of acute care services, most specifically hospitalizations. Some studies have found that hospitalization rates are higher for those receiving long-term care in a nursing facility than in the community (Bogaisky & Dezieck, 2015; Segal, Rollins, Hodges, & Roozeboom, 2014). Others have reported that while total health care expenditures are higher for those receiving long-term care in a nursing facility than in the community, the difference is primarily related to the cost of long-term care and that acute care spending is actually lower for those cared for in nursing facilities as compared with those in the community (Kane et al., 2013).

Conflicting findings such as these have led some investigators to conclude that a clearer understanding of utilization patterns of MMEs receiving long-term care is needed (Miller & Weissert, 2000; Wysocki et al., 2015). The

work reported in the current article aims to address this issue by examining how the use of acute care (hospitalizations and emergency department [ED] care) as well as post-acute care service use changes over time for two cohorts of MMEs in California: those receiving long-term care in a nursing facility for an extended stay and those initiating HCBSs.

Design and Method

This is a longitudinal descriptive study using California Medicare and Medicaid claims as well as other administrative records. The California Department of Health Care Services used a common encrypted identification number to link the Medicare and Medicaid files prior to their release to us. These data security procedures were approved by the University of California Committee on Human Research (#10-02998) and the California Committee for the Protection of Human Subjects (#12-06-0416). Copies of the reports produced in fulfillment of the project's grants/contracts are available from the California Medicaid Research Institute (CaMRI) <http://camri.ucsf.edu/sites/camri.ucsf.edu/files>.

Study Population

To perform our study, we combined four calendar years (2005-2008) of all California Medicaid and Medicare claims. We used the Medicaid claims to identify two cohorts of adults aged 18 years and older who began to receive HCBS or extended nursing facility care between January 1, 2006, and December 31, 2007. This time frame allowed us to create a 12-month look back on the health care services being used prior to LTSS entry, and a 12-month prospective post-entry period. In addition to the advantage of minimizing any left censoring of prior entry data, the sampling approach created a time reference point of service entry that is clinically relevant for comparing outcomes in the two long-term care settings.

The HCBS cohort was limited to California MMEs who initiated the most common form of HCBS: the Medicaid state plan personal care services program known as In-Home Supportive Services (IHSS). About 85% of MMEs receiving HCBS in California in a year are enrolled in IHSS. Adult enrollees in California's Social Security Act §1915(c) Medicaid HCBS waiver programs usually receive IHSS concurrently. All such recipients are also included in our sample. Statewide assessment data on the other HCBS programs including adult day health care, targeted case management, and Medicaid home health is limited. Consequently, individuals receiving these services without also receiving IHSS were excluded. We considered an individual to

be initiating IHSS if he or she had not received any IHSS in the 12 months prior to his or her first receipt of these services in 2006 or 2007.

The nursing facility cohort was limited to those with an extended stay. We categorized nursing facility stays as either short (post-acute) or extended (LTSS) based on their duration and payer. A stay was defined as extended if it met any of the following criteria: stay equal to or greater than 21 consecutive days; or length of stay 20 days or less, if Medicare did not pay during the stay; or the individual died during the stay. Nursing facility stays of 20 days or less reimbursed by Medicare were considered post-acute services rather than long-term care. We considered an individual to be initiating an extended nursing facility care if he or she had not had an extended nursing facility stay in the 12 months prior to their first extended nursing facility stay in 2006 or 2007.

In addition, to be included in our analysis individuals had to be eligible for both Medicare and Medicaid in the month in which they initiated HCBS or an extended nursing facility stay in 2006 or 2007. We excluded individuals who were enrolled in Medicaid managed care at any time during 2005-2008 (253,898) or who had a temporary Medicaid aid code (14,263) which is typically indicative of not meeting the requirement of being a U.S. citizen (California Department of Health Care Services, 2008). Also, because we did not have complete assessment and service use data on those receiving long-term care related to a developmental disability, we excluded these individuals from our analysis.

Data Sources and Measures

We identified MME recipients, and their age, sex, race/ethnicity, and managed care participation from Medicare and Medicaid eligibility files. We used Medicaid and Medicare claims to identify health care events, dates of occurrence, and diagnoses. We categorized diagnoses using the Chronic Illness and Disability Payment System (CDPS). CDPS maps the International Classification of Diseases (ICD-9) diagnoses codes into 58 categories and assigns each a score that represents the incremental, prospective expenditure risk associated with that category (Kronick, Gilmer, Dreyfus, & Lee, 2000). Our CDPS scores were derived from a 1-year look back from the date of IHSS or extended nursing facility entry.

We obtained beneficiary functional and cognitive ability measures from the assessments in the Case Management Information and Payrolling System (CMIPS) used for those entering IHSS (California Department of Social Services, 2005), and the Minimum Data Set (MDS) for those entering nursing facilities (U.S. CMS, 2002). Activities of daily living (ADL) limitations are based on five tasks common between the IHSS and NF program entry assessments (i.e., bathing, dressing, toileting, transferring, eating). Counts

reflect the number of tasks for which the assistance of another is needed. We used the most recent assessment information available at program entry. Information was missing for 0.5% of those entering IHSS and 4.4% of those entering nursing facilities. Most of those with missing assessments from nursing facilities were discharged before it was completed. We assumed that these individuals were less impaired and we coded those with incomplete information in either setting as having < 3 limitations. The bias of these imputations may be to slightly undercount the prevalence of those with three or more limitations in the program entry population.

Analysis

We report on the percentage of individuals in each cohort who, in the 12 months before and in the 12 months after initiating long-term care either through IHSS or an extended nursing facility care, have (a) an ED visit, (b) an acute inpatient (IP) hospital stay, or (c) post-acute care. In addition, for those in the IHSS cohort we examine the percentage subsequently receiving extended nursing facility care, and for those in the extended nursing facility cohort, the percentage who receive IHSS either before entry or after discharge. The ED visits reflect those visits that did not result in a hospitalization. Post-acute care refers to rehabilitative services following a hospitalization including Medicare home health and nursing facility stays that do not meet our criteria for an extended stay.

We present the results of each cohort (IHSS and extended nursing facility) separately because there is some crossover between the two entry cohorts. The findings are depicted in two graphs: one for IHSS entrants, the other for extended nursing facility stay entrants. Each graph shows the unadjusted percentage of the cohort per month using health and long-term care services in the 12 months before and after entry into long-term care. An individual's entry into IHSS or an extended nursing facility stay is shown as time "0" in the graphs. The monthly post-entry service use is calculated for those alive during the month regardless of whether they were still receiving the service that made them eligible at time "0." All analyses were conducted using SAS Version 9.2 (SAS Institute, 2015).

Results

Characteristics of the Service Users

Table 1 displays the demographic and other characteristics of the IHSS enrollees and those entering nursing facilities for an extended stay during the study period. Almost two thirds of those entering nursing facilities are

Table 1. Sample Characteristics of the Adult MME LTSS Population.

Demographic characteristics	IHSS entrants 2006-2007		Nursing facility entrants 2006-2007		p value
	Number	%	Number	%	
Total	57,251	100	43,063	100	
Age at 2007 (years)					***
18-34	761	1	231	1	
35-44	1,700	3	757	2	
45-54	3,953	7	1,986	5	
55-64	5,516	10	3,539	8	
65-74	18,612	33	9,920	23	
75-84	19,623	34	14,738	34	
>85	7,086	12	11,892	28	
Ethnicity					***
Alaskan Native or American Indian	187	0	145	0	
Asian/PI	14,945	26	5,854	14	
Black	5,779	10	4,498	10	
Hispanic	15,784	28	9,796	23	
White	17,042	30	20,113	47	
Unknown ^a	3,514	6	2,657	6	
Sex					
Female	35,870	63	26,899	62	
Male	21,381	37	16,164	38	
Activities of daily living					***
<3 ^b	38,103	67	9,782	23	
3 or more	19,148	33	33,281	77	
Mean number	1.8	SD 1.6	3.7	SD 1.5	
Health conditions					
CDPS mean score ^c standard deviation	2.2	SD 1.8	3.5	SD 2.1	***
% living alone	15,801	28	11,541	27	**

Note. Nursing facility entrants are for extended stays—generally these were longer than 21 days and involved some Medicaid payment. Sample is limited to Medicare and Medicaid beneficiaries in fee-for-service. Persons in managed care are excluded. All percentages are rounded to nearest whole number. MME = Medicare and Medicaid enrollee; LTSS = long-term services and supports; IHSS = In-Home Supportive Services; PI = Pacific Islander; CDPS = Chronic Illness and Disability Payment System; CMIPS = Case Management Information and Payrolling System; MDS = Minimum Data Set; ADL = activities of daily living. ^aIncludes Mixed/Other/Unknown race/ethnic groups

^bADL items available in CMIPS and the MDS are common in terms of ADL (i.e., bathing, dressing, toileting, transferring, eating). Our ADL limitations measure indicates that the individual requires at least the need of assistance from another in three or more ADL tasks or not.

^cCDPS score is based on weights associated with specific diagnoses (Kronick, Gilmer, Dreyfus, & Lee, 2000). All conditions were obtained from health care claims and hospital discharge abstracts available from the Office of State Health Planning and Development. Higher score = greater morbidity.

p < .01. *p < .001.

aged 75 years or older. Fewer than half those entering IHSS are this age. The White, Asian, and Hispanic subgroups account for generally similar proportions of new IHSS users. The Other race/ethnicity subgroups together account for about 16% of recipients. The extended stay nursing facility entrants have a different race/ethnicity distribution. Almost half of those entering nursing facilities are Whites. Hispanics comprise another quarter of the recipients. The proportion of Asians is about half that of Hispanic nursing facility entrants. The proportion of the remaining race/ethnic groups account for about 16% of NF entrants. Females make up more than 60% of both IHSS and extended stay nursing facility entrants.

More than twice as many of those entering nursing facilities for extended stays (77%) versus IHSS (33%) require assistance for three or more ADLs. IHSS recipients have an average CDPS score of 2.2; those entering NFs have an average score of 3.5. (Higher scores reflect greater morbidity.) Similar proportions of each group were living alone at time of program entry.

IHSS

Many of the IHSS entrants had either one or more ED visits (50.3%), a hospital stay (42.9%), or a skilled nursing facility stay (7%) during the 12 months prior to IHSS entry. The average monthly use is shown in Figure 1. These rates began to climb steeply about 5 months before IHSS entry. More than 25% of the new IHSS users had either an ED visit or a hospitalization in the month of or month prior to IHSS entry. Discharge from an extended NF stay or from post-acute care services in the prior or immediate month accounted for fewer than 10% of new IHSS recipients. The remaining program entrants came from community settings. Approximately 85% of those entering IHSS had been enrolled in Medicaid during the prior 12 months prior. The balance gained eligibility within the 3 months before IHSS entry.

The monthly percentage of IHSS recipients with hospitalizations and ED visits declined sharply in the first 2 months after enrollment. However, thereby the third month average use was trending toward rates that prevailed prior to IHSS entry. In total, just over one third (35.1%) of the cohort had at least one IP stay during the post-entry year. The unduplicated percentage of ED users was 44.8%. The monthly percentage of IHSS recipients with extended nursing facility and post-acute care use was similar to that prior to IHSS entry. More than three quarters of the original cohort (78.7%) was in the IHSS program at the end of the observation year. Of those not in IHSS ($n = 12,348$), 44.2% had died, 17.9% were in a nursing facility. The balance were living in the community without IHSS.

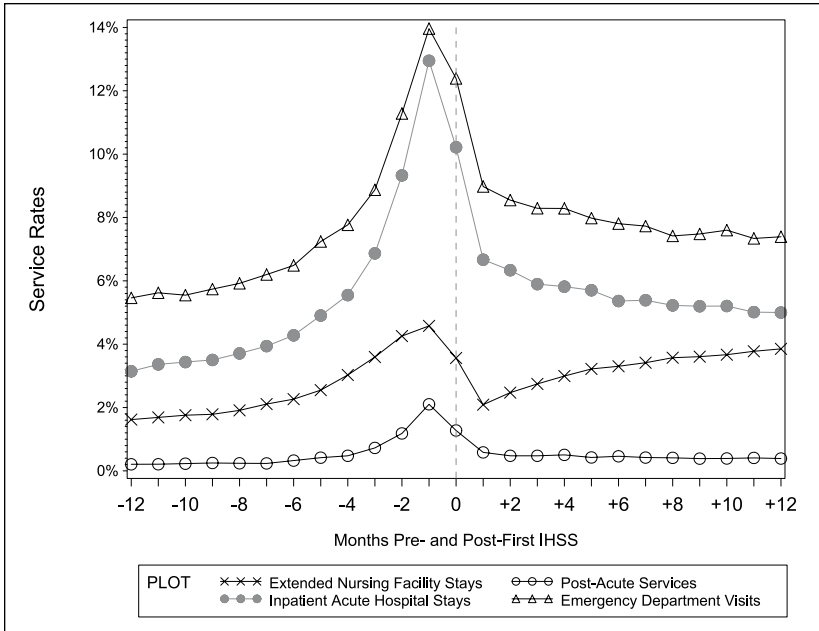


Figure 1. Service use before and after IHSS program entry adult MME beneficiaries 2006-2007 (n = 57,251).

Note. Data are limited to Medicare and Medicaid fee-for-service claims. Persons in managed care are excluded. Monthly post-entry service use percentages are calculated for those alive in the month. IHSS = In-Home Supportive Services; MME = Medicare and Medicaid enrollee.

Nursing Facility Stays

Figure 2 illustrates the corresponding data for the extended nursing facility cohort. In this group, the average monthly percentage of individuals who had a hospitalization, made an ED visit, or used post-acute care was at more than double that of the IHSS cohort. This difference between cohorts is also reflected in the unduplicated count of those having at least one hospital stay (90%) or one ED visit (83.8%). The average monthly incidence of hospital stays and ED visits increased markedly in the 3 months immediately preceding the extended nursing facility admission. In further contrast with IHSS recipients, all individuals who entered a nursing facility for an extended stay had either a hospitalization, an ED visit, used post-acute care services, or had some combination of all of these services within the month of initiating long-term care. More than 84% of those with an extended nursing facility stay had Medicaid coverage throughout the prior 12 months, the remainder of the

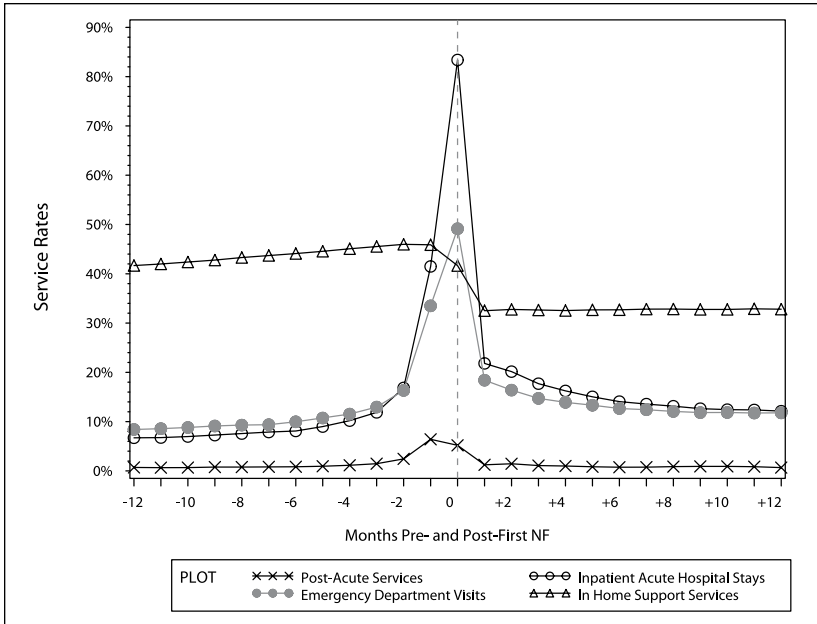


Figure 2. Service use before and after extended nursing facility entry adult MME beneficiaries 2006-2007 ($n = 43,063$).

Note. Data are limited to Medicare and Medicaid fee-for-service claims. Persons in managed care are excluded. Monthly post-entry service use percentages are calculated for those alive in the month. MME = Medicare and Medicaid enrollee.

cohort gained eligibility by the time of NF entry. More than half of the extended nursing facility cohort had received IHSS (53.4%) for some portion of the preceding year. About half those entering nursing facilities were receiving IHSS in the months immediately before admission. Another 11.3% were in skilled nursing facilities during this period.

The monthly percentage of individuals with hospitalizations, ED visits, and post-acute care dropped substantially in the month following admission for an extended nursing facility stay. However, in the ensuing months, the percentage of individuals using these services was similar to that of the months prior to nursing facility entry. The monthly rate for hospital stays and ED visits exceeded 20% combining both services. Over the post-entry year, 55.8% would have at least one hospital stay, and 59.4% would have at least one ED visit. Twelve months following the nursing facility admission, one third (33.0%) of the original cohort remained in a nursing facility. Another third (33.2%) of the recipients had died ($n = 14,307$). The remaining

individuals (33.8%) had been discharged to the community, most receiving IHSS or other HCBS.

Discussion

Studies of health care expenditures among MMEs have produced conflicting findings about the cost differences between those in nursing facilities and those in the community. Some of these differences stem from the source of payment investigated: Medicare, Medicaid, or both; some from cross-sectional analyses where distinctions are not made between long-standing and new program users. Our study uses longitudinal data to contrast the service use patterns of MMEs initiating long-term care during a similar time period in the community versus through an extended nursing facility stay. We identified and described similarities and differences between the two groups, and considered the possible implications for monitoring high-risk individuals, and the care coordination and management of these individuals.

There are notable differences between the service entry groups considered as a whole that may help explain the cost differences that have been observed in the studies cited earlier. Those entering IHSS are on average somewhat younger, more ethnically diverse, with fewer chronic health conditions, and fewer ADL limitations than those entering nursing facilities. It remains for other studies to explore the extent to which these differences explain the “selection” to enter IHSS or an NF. One advantage of our longitudinal data is that we have been able to supplement the demographic characteristics with health care use events over time. Our data do not allow us to determine whether these events are avoidable, but they do reveal a progressive trajectory that could perhaps help inform clinical practice. While the health event trajectories increase for both IHSS and NF entrants, the monthly incidence of these events is, on average, at least double among those entering NFs.

Predicting the eventual course of care from any one event is likely to be unreliable, but the progressive incidence increases prior to entry into either IHSS or NFs suggest the potential value of monitoring those who have had an ED visit or hospital stay as a high-risk population. Whether this can help reduce hospital readmissions or NF placements remains to be determined.

A second issue suggested for further study is the divergent trends in the month of LTSS program entry. While fewer than 30% of those entering IHSS came directly subsequent from a hospital stay or ED use, virtually all those entering NFs were coming via a hospital stay or subsequent to an ED visit. This hospital use may be influenced by Medicare post-acute care requirements for a 3-day hospital stay before Medicare will cover nursing home care, but the research and clinical issue is to better understand the circumstances

(beyond skilled NF placement) influencing the decision made by the health providers and families to discharge the patient into a nursing facility rather than into community services. Whether a higher incidence of referrals to IHSS (perhaps supplemented with home health care) from hospital discharges would be appropriate and effective in reducing some of these NF admissions needs further exploration. One indicator in support of this is that more than one third of those admitted to NFs having stays greater than 20 days were subsequently discharged to IHSS or to other community programs.

A related finding is that about half of those who are Medicaid eligible before entering NFs have been recipients of IHSS for at least 3 months. This suggests that IHSS recipients are a high-risk group, and that coordination between health care providers and those responsible for IHSS care planning and provision may have the potential to reduce the incidence of avoidable health care use and consequent NF admissions. This finding also raises the question of whether factors beyond changes in health status may have contributed to the need for these recipients to enter NFs. Such information was not available in the administrative records used in our analysis.

A final trend is that entrance into either IHSS or a NF is not necessarily associated with a subsequent sustained reduction in the prevailing incidence of health care events. On average, almost 60% of the NF entrants and 45% of those entering IHSS experienced at least one ED visit after program entry. The unduplicated incidence of hospital stays was also at rates approaching those prior to program entry: 35% for the IHSS cohort and 56% for those in the nursing facility cohort. While these utilization rates may be reflective of progressive chronic disease and disability and the differences between groups in age and health status, the rates are nevertheless high enough to warrant examination into the contributing factors and the exploration of treatment alternatives. The care transition challenges for those entering NFs have been well documented by prior studies, but there is much less work that has examined those entering and receiving personal care (Coleman, Rosenbek, & Roman, 2013; Gold, Jacobson, & Garfield, 2012; Toles, Abbott, Hirschman, & Naylor, 2012; Toles et al., 2014).

Several limitations arising from the study design and data warrant mention. First, we restricted our cohorts of MMEs receiving long-term care to those who were Medicare and Medicaid eligible at time of entry. A substantial number of Medicare beneficiaries who enter nursing facilities for long-term care are not initially eligible for Medicaid but become so over time as the cost of long-term care overwhelms their available resources. Our results are not generalizable to this group of MMEs.

Second, our analysis was unable to account for service use that may have occurred that was covered by a payer other than Medicare or Medicaid.

Third, we had only limited information, gathered primarily at the time of initiating long-term care, on individuals' functional status and living arrangements. We were therefore unable to determine how any ensuing changes in these individual characteristics affected the need for and the type of long-term care and other services that were provided.

Finally our results are from a single state, and do not include individuals in managed care. However, California is a significant state because it has the nation's largest Medicaid program and the largest Medicaid HCBS program.

Conclusion

The relatively high percentage of Medicare and Medicaid beneficiaries whose first use of long-term care is an extended nursing facility stay is an indication that there may be missed opportunities to furnish community support services in a way that better matches the preferences of patients to remain in the community. Furthermore, the service use trajectories preceding and subsequent to entry into IHSS and extended nursing facility stays suggest possible opportunities for improving the integration of acute, post-acute, and long-term care. Furthermore, while many individuals have similar risk factors in both the IHSS and nursing facility entry cohorts, proportionately more of those entering nursing facilities are older, have three or more ADL limitations, and higher numbers of chronic health conditions than those entering IHSS. Other factors also affect the care decisions being made. Among these is race/ethnicity, with Whites as a group being proportionately more likely than other race/ethnic groups to enter nursing facilities. Care planning and monitoring likely need to be tailored to the differences between the two groups, and to the clinical documentation of the factors affecting the "selection" of IHSS versus a nursing facility, when the choice of either option is clinically appropriate.

A third issue is the substantial movement between nursing facilities and IHSS during the initial observation year. Among those entering nursing facilities for stays exceeding 21 days or more, about 44% were later discharged to the community (usually to IHSS) with most of these alive at the end of the observation year. However, we observed that more than half of those entering nursing facilities for extended stays had previously been using IHSS. The monitoring of high-risk populations provides an opportunity to fully examine the factors affecting initial program choice and the transitions between these levels of care.

The literature comparing HCBS and nursing facility groups has been caught up in a polemic discussion of the choice between HCBS and nursing facility care, treating them as if these are comparable options. Findings from

our longitudinal analysis suggest that the issues may be much more nuanced, and that closer clinical attention to an individual's risk factors and changing circumstance is an appropriate next step in policy making and clinical practice.

Finally, while some studies have omitted MMEs from their samples, some have retained them in their original cohort. Our analysis points to the limitation of such designs. For a substantial proportion of long-term care recipients, there seems to be multiple opportunities for potentially complementary interplay between the long-term care programs and the health care providers. Much of this is missed if the focus is only on Medicaid for long-term care spending or Medicare for health care spending. An illustrative issue is the high and ongoing use of ED and hospital services prior to and subsequent to entry into both IHSS and nursing facilities. Strategies are needed to systematically identify and evaluate the needs of beneficiaries at high risk for these services both before and after entering either nursing facilities or IHSS. We recognize that with these high-risk populations, many health service events cannot be prevented, but there may still be opportunities for care coordination. From the trends observed, coordination should be undertaken in association with (or immediately following) a discharge from key health care events like an ED visit or hospital stay. It remains to be determined whether coordination and intra-provider communication is sufficient to integrate primary care and disease management for IHSS and nursing facility users.

Declaration of Conflicting Interests

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