Post-acute Care Trajectories for Rural Medicare Beneficiaries: Planned versus Actual Hospital Discharges to Skilled Nursing Facilities and Home Health Agencies

KEY FINDINGS

- Following discharge from an acute care hospital, 56.3% of rural, fee-for-service Medicare beneficiaries did not have any care transitions to a skilled nursing facility (SNF), home health agency (HHA), inpatient rehabilitation facility (IRF), long-term care hospital (LTCH), or an acute care hospital, while 26.1% experienced one care transition, 9.8% experienced two care transitions, and 7.8% experienced three or more care transitions.

- For rural beneficiaries receiving post-acute care services, the most common care trajectories were transition to a SNF only (23.7%), transition to an HHA only (18.2%), and transition to a SNF followed by a second transition to an HHA (6.9%). As rurality increased, the proportion of beneficiaries transitioning to an HHA decreased slightly and the proportion of beneficiaries transitioning to a SNF increased slightly.

- Only 58.7% of rural beneficiaries who had a planned discharge to an HHA received HHA care following discharge, while 88.9% of rural beneficiaries who had a planned discharge to a SNF received SNF care following acute hospital discharge.

- Identification of the reasons 41.3% of rural beneficiaries for whom HHA care was indicated at hospital discharge did not receive this care, and their outcomes compared to those who did receive planned care, will be critical for determining appropriate supports to improve care transitions for rural beneficiaries.

- While intra-rural variation exists in the number of care transitions, post-acute care trajectories, and planned versus actual discharges to SNF and HHA, the magnitude of these differences is relatively small.

BACKGROUND

Post-acute care services are designed to help patients transition from hospitalization in acute care facilities to their homes, by providing skilled nursing, rehabilitation, and medical social work services to help patients maximize their functional abilities and return safely to community living. Medicare is the largest payer for post-acute care services: Medicare patients use more post-acute care services than other patients with other payers.\(^1\) Just over one fifth of patients covered by all payers utilize post-acute care following acute hospital discharge compared to approximately two fifths of Medicare beneficiaries.\(^1,2\)

Skilled nursing facilities (SNFs) and home health agencies (HHAs) provide the vast majority of post-acute care services for Medicare beneficiaries, accounting for nearly 80% of post-acute care services for this population.\(^1,3\) In 2013, approximately 20% of fee-for-service beneficiaries were discharged from the hospital to a SNF and 17-18% to an HHA.\(^1,2\) Yet post-acute
care trajectories for rural Medicare beneficiaries specifically have not been well documented, despite the unique challenges of providing post-acute care in rural communities and possible limitations accessing SNF and HHA care.4-7

Even less is known about whether rural beneficiaries with planned discharges to post-acute care actually receive those services. One study found that only 43% of all (i.e., rural and urban combined) fee-for-service Medicare beneficiaries with a planned discharge to an HHA actually received this care with no difference based on rural-urban status, but this study did not consider intra-rural variation.8 With the continued focus on reforming Medicare payment mechanisms to reward value over volume and improving care transitions between acute and post-acute care, it is critical to understand how ongoing and proposed policy changes may affect rural beneficiaries. Describing rural patients’ trajectories from acute hospitalization to post-acute care is an important step toward that understanding and will provide insights into possible effects of Medicare policy changes on rural beneficiaries and providers.

The purposes of this study are to describe the number and most common types of care transitions among rural Medicare beneficiaries (including intra-rural variation) following discharge from acute hospitalization and to compare their planned versus actual discharges to SNFs and HHAs.

**METHODS**

This descriptive study was a secondary analysis of administrative data for the cohort of all fee-for-service Medicare beneficiaries residing in rural areas who were discharged alive from an acute care hospital in 2013. We used patient-level administrative data from the Centers for Medicare & Medicaid Services (CMS) including Medicare enrollment files, HHA claims, and summary claims for inpatient facilities from the Medicare Provider Analysis and Review (MedPAR) file, which includes hospitals, SNFs, inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs). Our sample included data from these files on all rural, fee-for-service beneficiaries in 2013. Rurality was based on beneficiary residence using the ZIP code approximation of the Rural-Urban Commuting Area Codes (RUCAs), version 3.10,9 which characterize the urban/rural status of areas based on U.S. Census Bureau definitions and work commuting information. We used the primary digit of the 2010 RUCA codes to classify beneficiary residence as large rural (RUCA code primary digit 4-6), small rural (RUCA code primary digit 7-9), and isolated small rural (RUCA code primary digit 10).

First, we identified index acute hospitalizations for all rural, fee-for-service beneficiaries. An index acute hospitalization was defined as an acute hospitalization stemming from a new episode of illness or injury (i.e., not having another acute hospitalization or post-acute care within 60 days prior to the acute care hospital admission). This definition ensures we captured a new spell of illness consistent with CMS benefit periods for acute and post-acute care services covered under the Part A benefit for fee-for-service beneficiaries.10 Next, we used claims data to determine the number and type of care transitions associated with the index acute hospitalization by counting all post-acute care services (SNF, HHA, IRF, and LTCH) and additional acute hospitalizations that occurred following the index acute hospitalization without a 60-day break in services (i.e., within the same spell of illness). We examined intra-rural variation in the number of care transitions and the most common post-acute care trajectories using Chi-square tests. To identify planned discharges, we then calculated the proportion of beneficiaries with a discharge disposition to a SNF, including swing beds, or to an HHA on the claim for the index acute hospitalization. We calculated the proportion of beneficiaries where the discharge plan to a SNF differed from the actual discharge to a SNF and used a one-sample test of proportion to test whether the difference was significantly different from zero. We performed the same test for all rural beneficiaries and separately for rural beneficiaries living within each type of rural community (i.e., large rural, small rural, isolated small rural) to examine intra-rural variation. We used two-sample tests of proportion to compare differences between the proportion of planned discharges who actually received SNF services across types of rural communities. We used the same approach for planned versus actual discharges to an HHA.

The study was approved by the University of Washington Human Subjects Division.
FINDINGS

A total of 883,268 rural, fee-for-service Medicare beneficiaries were identified as having an index acute hospitalization in 2013 and were included in the analysis. Table 1 presents the number of care transitions overall and by type of rural community. Among these rural beneficiaries, 56.3% had records for only their index acute hospitalization, and 43.7% had records indicating one or more care transition following their index acute hospitalization. Over half (59.8%) of beneficiaries experiencing care transitions had only one transition. While there was statistically significant intra-rural variation in the number of care transitions beneficiaries experienced following index acute hospitalization (p<.001), the magnitude of the differences in the number of care transitions between beneficiaries living in large rural, small rural, and isolated small rural communities was small.

<table>
<thead>
<tr>
<th>Number of Care Transitions</th>
<th>All Rural (n=883,268)</th>
<th>Large Rural (n=437,294)</th>
<th>Small Rural (n=246,986)</th>
<th>Isolated Small Rural (n=198,988)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>497,219 (56.3%)</td>
<td>246,994 (56.5%)</td>
<td>138,275 (56.0%)</td>
<td>111,950 (56.3%)</td>
</tr>
<tr>
<td>One</td>
<td>230,742 (26.1%)</td>
<td>114,116 (26.1%)</td>
<td>64,145 (26.0%)</td>
<td>52,481 (26.4%)</td>
</tr>
<tr>
<td>Two</td>
<td>86,654 (9.8%)</td>
<td>42,285 (9.7%)</td>
<td>24,889 (10.1%)</td>
<td>19,480 (9.8%)</td>
</tr>
<tr>
<td>Three or More</td>
<td>68,653 (7.8%)</td>
<td>33,899 (7.8%)</td>
<td>19,677 (8.0%)</td>
<td>15,077 (7.6%)</td>
</tr>
</tbody>
</table>

Notes: The chi-square test comparing type of rural community and number of care transitions was significant (p<.001). Care transitions include any acute care or post-acute care following index acute hospitalization within the same spell of illness (i.e., without a 60-day break in services). Type of rural community was determined using Rural-Urban Commuting Area (RUCA) codes.

Source: Medicare enrollment file, MedPAR file, and home health claims.

For beneficiaries receiving post-acute care, the most common trajectories were transition to a SNF only, HHA only, and a SNF followed by HHA (see Figure 1). There was significant intra-rural variation (p<.001) in the types of post-acute care received. More beneficiaries received care from SNFs and fewer beneficiaries received care from HHAs as rurality increased.

Figures 2 and 3 show planned versus actual discharges following index acute hospitalization to a SNF and HHA, respectively. While 19.0% of hospitalized rural beneficiaries had a planned discharge to a SNF, only 16.9% were admitted to one. While 12.1% of rural beneficiaries had a planned discharge to an HHA, only 7.1% were admitted. These differences were statistically significant, overall and within each type of rural community (p<.001).
Figure 2. Planned Versus Actual Discharge to Skilled Nursing Facilities Following Hospitalization for Rural Fee-for-Service Medicare Beneficiaries in 2013

![Chart showing planned vs actual discharge to skilled nursing facilities]

*P<.001 for test comparing the proportion of beneficiaries where the discharge plan to a skilled nursing facility differed from the actual discharge to a skilled nursing facility among all rural beneficiaries and rural beneficiaries living within each type of rural community.

Note: Type of rural community was determined using Rural-Urban Commuting Area (RUCA) codes.


Figure 3. Planned Versus Actual Discharge to Home Health Agencies Following Hospitalization for Rural Fee-for-Service Medicare Beneficiaries in 2013

![Chart showing planned vs actual discharge to home health agencies]

*P<.001 for the test comparing the proportion of beneficiaries where the discharge plan to a home health agency differed from the actual discharge to a home health agency among all rural beneficiaries and rural beneficiaries living within each type of rural community.

Note: Type of rural community was determined using Rural-Urban Commuting Area (RUCA) codes.

Source: 2013 Medicare enrollment file, MedPAR file, and home health claims.
To further illustrate the magnitude of the difference in planned versus actual discharges between SNF and HHA, we describe the proportion of beneficiaries with planned discharges to each setting that actually received care. Of the 168,041 rural beneficiaries with planned discharge to a SNF, 88.9% received SNF care (88.5% of beneficiaries in large rural, 88.7% in small rural, and 90.0% in isolated small rural communities). The proportion of rural beneficiaries with planned discharge to an HHA who received HHA care was much smaller than for SNFs. Of the 106,461 rural beneficiaries with planned discharge to an HHA, only 58.7% received HHA care (59.2% of beneficiaries in large rural communities, 57.8% in small rural communities, and 58.7% in isolated small rural communities). There was statistically significant intra-rural variation in the proportion of patients with planned discharge to a SNF and an HHA who actually received SNF and HHA care, respectively (p<.001 for all comparisons except for HHA care in large versus isolated small rural communities, where there was no significant difference); however, the magnitude of these differences was small.

**CONCLUSIONS**

Fewer than half of rural, fee-for-service Medicare beneficiaries experience care transitions following discharge from acute hospitalization. For those who do, the most common trajectories are discharge to a SNF only or an HHA only for post-acute care. Prior studies of post-acute care trajectories for the same year found that approximately 20% of all fee-for-service Medicare beneficiaries (i.e., urban and rural combined) were discharged to a SNF and approximately 17% to 18% were discharged to an HHA following acute hospitalization.\(^1\)\(^-\)\(^2\) Compared with these prior findings, our findings suggest that rural beneficiaries are less likely than urban beneficiaries to receive care from a SNF or an HHA following acute hospitalization. Our findings are consistent with a study of all hospital discharges (i.e., all payer, not Medicare only), which found that rural patients were less likely to receive post-acute care, driven by decreased discharges to an HHA.\(^11\)

We also found some evidence of intra-rural variation in terms of fewer discharges to an HHA and more discharges to a SNF as rurality increased, also consistent with prior research on Medicare beneficiaries with a more limited set of diagnoses.\(^12\) These patterns could be the result of lower availability of HHA care in the most rural communities.\(^4\)\(^-\)\(^5\),\(^13\) However, the relatively small magnitudes of these differences (less than 1.5 percentage points) in our study suggest intra-rural variation may not be meaningful.

We found that fewer rural beneficiaries received post-acute care services than recommended by the discharging acute care hospital. The largest shortfall between planned versus actual discharge to post-acute care in our study occurred for HHAs. Fewer than 60% of rural, fee-for-service beneficiaries with a planned discharge to an HHA received care from an HHA compared with nearly 90% of rural, fee-for-service Medicare beneficiaries with a planned discharge to a SNF. While more research is needed to understand which beneficiaries are not receiving SNF care as planned and why, the discrepancy between planned and actual discharge to an HHA is more concerning given the magnitude of the difference.

Our findings on planned versus actual discharge to an HHA are consistent with a recent study that found 56.7% of fee-for-service Medicare beneficiaries with a planned discharge to an HHA received post-acute care from an HHA.\(^8\) That study also reported no difference in planned versus actual discharges to an HHA among all Medicare beneficiaries (i.e., fee-for-service Medicare plus Medicare Advantage beneficiaries) based on rural versus urban location of the discharging hospital.\(^8\) While we found statistically significant intra-rural variation in planned versus actual discharges to an HHA, the small magnitude of these differences (less than 2 percentage points) is less critical than the broader pattern across all types of rural communities: approximately 40% of rural beneficiaries did not receive planned care from an HHA.

It is perhaps unsurprising that fewer beneficiaries with planned discharge to an HHA received services, as compared with receipt of planned SNF services. Discharging hospitals assist in finding available SNF beds, gaining approval, and arranging transportation for discharge to a SNF, so patients transition directly from acute care hospital discharge to a SNF admission.
In contrast, a patient may discharge to home with a referral for home health services but without all arrangements secured. To receive HHA services, the patient and/or caregiver must follow-up with an HHA to schedule visits. Patients may also agree to services from an HHA at hospital discharge but then refuse services upon returning home. Prior research suggests from 6% to 28% of eligible patients refuse home health because they do not want providers in their homes, do not feel they need help to manage at home, have had previous negative experiences with home health, do not understand what HHA services entail, or other reasons. If refusals are a significant driver of the difference between planned and actual discharges to an HHA, then improved care transition planning and support for patients along with education about home health for patients and providers may be an important strategy for improving both uptake of care from HHAs by patients and appropriate referrals by providers. However, it is also possible this discrepancy is because some HHAs lack capacity, are unable to care for patients with complex needs, or prefer to serve more profitable patients. It is also possible that some patients were discharged alive from the hospital but then died prior to initiating services from an HHA. More research is needed to determine reasons behind the difference between planned and actual discharge to HHAs and if these reasons vary based on rural-urban status. In addition, research on which populations are most affected and their trajectories will help shed light on whether these missed opportunities for HHA care result in worse patient outcomes (e.g., readmissions).

LIMITATIONS

This study has several limitations. This is a descriptive study that provides an overview of post-acute care trajectories among rural Medicare beneficiaries, but did not consider characteristics of beneficiaries or providers. For example, we did not include clinical status of the beneficiaries at hospital discharge or whether they were admitted to the hospital from the community or a long-term care facility. We also did not account for whether discharging hospitals were involved in the Community-based Care Transitions program, a voluntary Medicare demonstration that was active during our study period, but involved fewer than 5% of hospitals at the time. Although we were able to compare our findings to published results, we did not have access to equivalent patient-level data on urban Medicare beneficiaries for comparison. In addition, this study of fee-for-service Medicare beneficiaries did not include the one-quarter of rural beneficiaries enrolled in Medicare Advantage plans, though prior research suggests Medicare Advantage performs only slightly better with respect to planned versus actual discharges to an HHA across all beneficiaries (i.e., urban and rural combined). It is also possible that our findings on planned versus actual discharges to SNFs and HHAs are influenced by data reporting discrepancies. Finally, more recent data should be used to replicate this study and assess longitudinal changes in post-acute care trajectories and planned versus actual discharges to SNFs and HHAs.

IMPLICATIONS FOR POLICY AND PRACTICE

Multiple Medicare program initiatives may impact transitions from acute to post-acute care and utilization of SNFs and HHAs, including the hospital readmissions reduction program, post-acute care transfer policy, bundled payment demonstrations, value-based purchasing, accountable care organizations, and revisions of the prospective payment systems in post-acute care. The first major prospective payment system reforms in two decades have recently been implemented for HHAs and SNFs. While payment for rural HHAs is expected to increase based on the new payment system, which may help increase access to care, HHAs are also facing the sunset of add-on payments for serving rural communities. The full impact of these concurrent reimbursement initiatives, and whether they complement or conflict with each other, has yet to be seen. Future research will also need to consider the impact of the COVID-19 pandemic, which has disproportionately impacted long-term care facilities, a category that includes SNFs, in terms of deaths compared to the general population and complicated care transitions between hospitals and SNFs due to outbreaks. The pandemic has also resulted in multiple waivers that have...
The potential to affect access to post-acute care during the public health emergency, including a waiver of the requirement for three-day hospital stay for SNF benefit eligibility and a waiver of the homebound status requirement for HHA benefit eligibility for COVID-19 positive patients and patients at high-risk for serious COVID-19 illness.

The most critical implication of this study’s findings is that it illustrates a need to address the gap between planned versus actual discharges to an HHA for rural Medicare beneficiaries. How best to address this gap will depend on detecting the reasons why planned discharges to an HHA do not result in those services being received and understanding which patient populations are most affected. Recently updated Medicare Conditions of Participation include new and revised discharge planning requirements for hospitals, including Critical Access Hospitals, that are a key resource in many rural communities, to assess the need for and availability of post-acute care. These requirements may help reduce differences between planned and actual discharges to SNFs and HHAs through multiple mechanisms, including ensuring discharge recommendations are appropriate and care is available from an HHA prior to discharge. Discharging hospitals are now also required to assist with planning for care transitions, including selecting an HHA and scheduling initial visits before the patient returns home. Future research should examine the impact of these discharge planning requirements on transitions to post-acute care. More focus on patient preferences and goals of care as required by Medicare may also help ensure patients are informed about HHA services and reduce refusals. Further research on which patients do not receive planned care, their health outcomes and costs to Medicare, and which factors are driving the discrepancy between planned and actual discharge to HHAs will help inform whether policy revisions, practice interventions, or both, are needed to improve care transitions from acute hospitals to HHAs.

REFERENCES


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AUTHORS
Tracy M. Mroz, PhD, OTR/L, Department of Rehabilitation Medicine and WWAMI Rural Health Research Center, University of Washington
Lisa A. Garberson, PhD, WWAMI Rural Health Research Center, University of Washington
C. Holly A. Andrilla, MS, WWAMI Rural Health Research Center, University of Washington
Susan M. Skillman, MS, WWAMI Rural Health Research Center, University of Washington
Eric H. Larson, PhD, WWAMI Rural Health Research Center, University of Washington
Davis G. Patterson, PhD, WWAMI Rural Health Research Center, University of Washington

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