



# Examining Rural Hospital Bypass for Outpatient Services

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## INTRODUCTION

Rural hospitals and health care providers are important anchors for the overall health and economic stability of rural communities. Rural health care providers offer essential health services for approximately 60 million rural residents and serve as primary employers in rural areas.<sup>1,2</sup> Yet, the financial viability of rural health care providers is threatened by decreasing patient volumes, in part due to patients opting for health care outside of their community.<sup>3</sup> This occurrence, known as avoidable rural health care bypass, refers to instances when patients seek services beyond their local health care facilities and providers, despite the availability of those services locally. By decreasing utilization of and demand for rural health care services, avoidable rural bypass can also exacerbate health care provider shortages, financial instability, and the eventual closures of rural facilities.<sup>4</sup>

Much of the previous research on rural bypass has focused on factors associated with the bypass of inpatient hospital services. Patient bypass behavior may be driven by several considerations, including the ability to access care elsewhere, perceptions about quality of care, out of pocket costs and insurance coverage, and personal preferences.<sup>5</sup> Perceived quality of care is commonly related to bypass, suggesting that patients are more likely to seek care outside of their community if they are not satisfied with their local care.<sup>4-7</sup> Patients also tend to bypass their local facilities if they have more medically complex conditions or more severe illness.<sup>7-9</sup> However, older adults are more likely to stay local for their care.<sup>9-11</sup>

Few research studies have examined the rural bypass of outpatient services even though these services account for up to 70 percent of a rural hospital's revenue.<sup>12</sup> A previous study by Saunders et al. 2009 found that some factors commonly associated with inpatient bypass, such as patient sex, distance to other facilities, and patient age, were less significantly related to outpatient bypass.<sup>13</sup> Instead, patient bypass behavior was more closely related to insurance and facility type.<sup>13</sup> In addition, limited availability of primary care providers or poor relationships with local health care providers can also lead rural residents to seek care outside of their community.<sup>6</sup> Once patients leave their community for care, some continue to bundle those services with other nonlocal services.<sup>4,14</sup> For example, retail clinics are capitalizing on this trend by bundling primary care and pharmacy services in one location for convenience.<sup>4,14</sup>

Outpatient services provided to Medicare beneficiaries comprise an increasing share of total services provided. In 2018, inpatient stays per Medicare beneficiary fell by 1.6 percent while outpatient services per beneficiary rose by 0.7 percent.<sup>15</sup> Outpatient revenue continues to grow at a faster annual rate than inpatient revenue; thus, retaining outpatient services is increasingly important for the financial stability of rural health facilities.<sup>16,17</sup> Previous research has also shown that Medicare beneficiaries paid higher out-of-pocket costs for outpatient services received at critical access hospitals (CAHs)<sup>i</sup> than they would have paid at hospitals under the Outpatient Prospective Payment System (OPPS)<sup>16,18</sup>, which also could influence where rural patients choose to seek outpatient services.<sup>5</sup>

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<sup>i</sup> The critical access hospital (CAH) designation was created through the 1997 Balanced Budget Act to ensure the sustainability of hospital services in rural communities. CAHs receive cost-based reimbursement for inpatient and outpatient services provided to Medicare beneficiaries at 101 percent of allowable costs. An eligible hospital that meets the following conditions may be designated as a CAH by CMS: 1) be located more than a 35-mile drive (or 15-mile drive in areas with mountainous terrain or only secondary roads) from any other CAH or hospital; 2) have no more than 25 inpatient beds; 3) furnish 24/7 emergency services; and 4) maintain an annual average acute care inpatient length of stay of 96 hours or less.

## **Purpose of the study**

Considering these trends, this study aims to provide insight for policymakers, health care administrators, and other rural health stakeholders and inform strategies that preserve access to rural health care. Building upon the findings of our previous inpatient hospital bypass analysis, this study explores the relationship between hospital outpatient services and inpatient utilization, focusing on the following research questions:

- To what extent is bypass for outpatient hospital services associated with inpatient rural hospital bypass?
- What demographic and market characteristics are associated with bypass for outpatient services before and after inpatient admission?
- How does utilization for common outpatient services differ between CAHs and rural prospective payment system (PPS) hospitals?<sup>ii</sup>

## **DATA SOURCES AND METHODS**

We conducted a national mixed methods study using a quantitative analysis of Medicare fee-for-service (FFS) claims and qualitative data collection that included listening sessions. The quantitative analysis built on our previous inpatient hospital bypass study, using the key definitions described in the “[Examining Rural Hospital Bypass for Inpatient Services](#)” report, including: 1) rural hospitals, 2) rural hospital markets (Hospital Service Areas [HSAs]); 3) in-market admission; and 4) inpatient avoidable bypass.<sup>5</sup>

### **Quantitative Data and Analysis**

The outpatient rural hospital quantitative analysis is a cross-sectional observational study to assess where patients sought outpatient care within hospital service areas. We identified the inpatient stays for rural Medicare FFS beneficiaries in Calendar Year (CY) 2019 and determined the facilities where the beneficiaries received inpatient hospital services. We characterized each eligible discharge as either an avoidable bypass or in-market stay. Inpatient stays categorized as unavoidable bypasses (i.e., inpatient stays for services not available locally) were not included in this study. We examined rural Medicare beneficiaries’ outpatient services used 30 days before an inpatient admission and 30 days after discharge. The analysis includes all outpatient claims for rural Medicare FFS beneficiaries billed by rural PPS hospitals and CAHs in CY 2019 for common outpatient services.

The primary data sources used for the analysis were 2019 Medicare inpatient claims—Medicare Provider Analysis and Review files (MedPAR)—and outpatient claims, which include admission source, admission and discharge types, and information regarding outpatient care (including treating physicians and procedures). In addition to the claims data, we used the Medicare Beneficiary Files to obtain key demographic characteristics and other information, such as patients’ hierarchical condition category (HCC) scores, dual eligible status (i.e., individuals who receive both Medicare and Medicaid benefits), and other data sources containing hospital and market characteristics data. Hospital and market data used for the analysis included: Rural-

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<sup>ii</sup> Rural Prospective Payment System (PPS) hospitals include all general, acute care hospitals located in rural ZIP codes (RUCA  $\geq 4$ ) that receive reimbursement for inpatient services under the inpatient prospective payment system (IPPS).

Urban Commuting Area (RUCA) codes from the United States Department of Agriculture's Economic Research Service; the Rural Hospital List from the University of North Carolina at Chapel Hill Cecil G. Sheps Center; the CMS Provider Cost Report file; the Provider of Services file; the HRSA Area Health Resource File; County Health Rankings; and the CMS geographic variation public use file.

## Variables and Outcomes

One of the objectives of the analysis is to evaluate the association between hospital bypass for inpatient and outpatient services by merging inpatient and outpatient claims for rural Medicare FFS beneficiaries residing in a ZIP code with a RUCA code  $\geq 4$ ,<sup>iii</sup> and comparing beneficiary characteristics, hospital type, outpatient service types and market area characteristics. To understand where rural Medicare FFS beneficiaries sought common outpatient services, all diagnostic related groups (DRGs) for inpatient admissions were included (the analysis was not limited to the top 50 DRG inpatient admissions as was used for the previous inpatient study).<sup>5</sup> We combined inpatient admissions for beneficiaries who had less than 30 days between the discharge date and admission date of next admission. For eligible inpatient stays, Medicare rural beneficiaries were divided into two cohorts based on their inpatient hospital bypass status as shown in **Figure 1**:

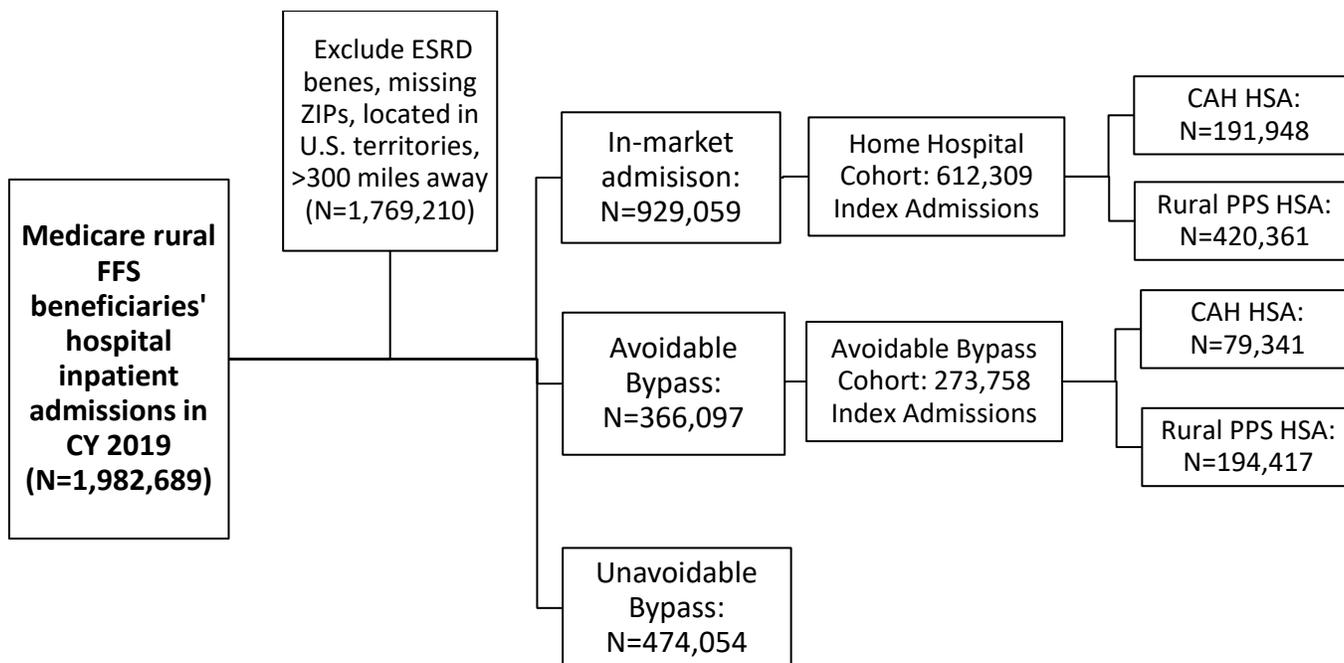
1. **Home Hospital Cohort:** the inpatient admission is an in-market index admission that occurred in the home hospital service area (CAH or Rural PPS HSA);
2. **Avoidable Bypass Cohort:** the inpatient admission is an inpatient stay at a distant hospital for a service that is available at the home hospital.

To avoid potential patient level bias, beneficiaries who have both in-market (i.e., admission at the rural home hospital) and avoidable bypass admissions are excluded from the analysis.

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<sup>iii</sup> Rural-urban commuting area (RUCA) codes classify U.S. census tracts using measures of population density, urbanization, and daily commuting to define rural and urban. The U.S. Department of Agriculture (USDA) Economic Research Service maintains RUCA codes and a ZIP code version of the RUCA codes. ZIP codes with RUCA codes  $\geq 4$  are considered rural, while ZIP codes with RUCA codes  $< 4$  are considered urban.

**Figure 1. Inpatient Admission Cohorts Included in the Analysis**



NOTES: Index admissions combine admissions for the same beneficiary that have less than 30 days break between the discharge date and admission date of next admission; Beneficiaries who died within 30 days after discharge were excluded from the analysis.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

We limited our analysis to outpatient visits that occurred within 30 days pre-admission and 30 days post-discharge for the two cohorts to assess what type of outpatient services patients seek at different hospitals and whether these outpatient visits are generally associated with an inpatient admission. We examined the proportion of outpatient visits at distant hospitals and identified factors associated with rural hospital bypass for CAHs and rural PPS HSAs.

We included community level indicators using the following 2018 data: 1) physicians per capita: primary care physicians (i.e., MDs and DOs) per 100,000 population by county; 2) population wealth: median household income by county; 3) percentage of population below poverty level; 4) health insurance coverage: percentage of households comprised of individuals who are 18-64 years of age without health insurance by county. The outpatient service types are derived from revenue codes, each representing a cost center (i.e., division or unit within a hospital).

We identified telehealth services using Medicare professional claims based on a place of service code 02, CPT modifier 95, or a telemedicine specific CPT code 98969, 99444, G0425, G0425, G0427, G0508, G0509 and Q3014. A hospital outpatient visit was considered to have included a telehealth service or consultation if a same day telehealth service was billed by the same health care provider.

Sensitivity analyses were conducted to estimate the distance of bypass. We used chi-square Wald test to examine the equality of two independent proportions.<sup>19</sup> Statistical tests were 2-tailed and considered significant at an  $\alpha$  of .05. Analyses were performed in SAS Enterprise Guide 7.1 (SAS Institute).

## Qualitative Data Collection and Analysis

Results of the quantitative analysis were used to inform the collection of qualitative data from key stakeholders. Due to the COVID-19 public health emergency (PHE), we conducted virtual listening sessions with stakeholders from across the United States. We invited representatives from State Offices of Rural Health, the National Rural Health Association Hospital and Community Health Systems Constituency Group, and State Hospital Associations. As these were listening sessions and open to those who wanted to participate, we welcomed participants to invite colleagues and other stakeholders who might have input on the topic of bypass for outpatient services in rural communities.

Three listening sessions were completed in June 2021. Each listening session was 90 minutes in length. At the beginning of each listening session, we presented findings from the quantitative analysis of Medicare claims from CY 2019. The listening session covered topics about the use of local outpatient services, bypass for outpatient services, and opportunities for CMS to support the viability of the rural health care delivery system.

## QUANTITATIVE FINDINGS

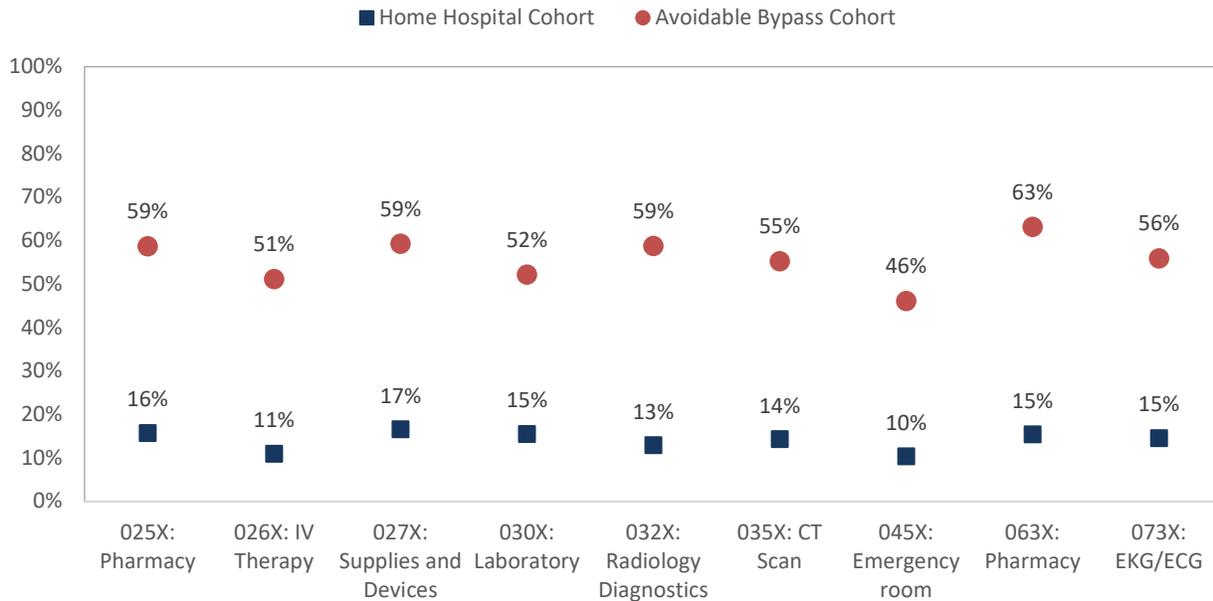
In 2019, of the total 8.5 million rural Medicare FFS beneficiaries, 1,296,232 were admitted at least once to acute care hospitals, resulting in 1,982,689 total inpatient stays (**Figure 1**). A total of 863 rural PPS hospitals and 1,159 CAHs were classified as home hospitals based on the RUCA code for the hospital's ZIP code (rural includes RUCA codes  $\geq 4$  and urban includes RUCA codes  $< 4$ ). After excluding rural Medicare beneficiaries with ESRD, missing or invalid ZIP codes, or who reside in U.S. territories, and rural Medicare beneficiaries who had unavoidable bypass admissions, we identified 612,309 in-market inpatient admissions for the Home Hospital Cohort and 273,758 admissions for the Avoidable Bypass Cohort. The eligible inpatient admissions were associated with a total of 2,166,437 hospital outpatient claims during the 30 days prior to an admission and 1,716,323 hospital outpatient claims during the 30 days post-discharge.

### Bypass for Hospital Outpatient Services

Information on facility type and percentage of hospital outpatient visits that are associated with the Home Hospital Cohort and Avoidable Bypass Cohort are provided in **Appendix Table 1a & 1b**. **Overall, beneficiaries in the Home Hospital Cohort were more likely to choose their home hospital for outpatient services compared to beneficiaries in the Avoidable Bypass Cohort** (14 percent bypass vs. 44 percent bypass, respectively). A higher proportion of visits to acute care hospitals in post-discharge was observed in both cohorts compared with pre-admission. Because the primary focus of the study was to explore if rural Medicare beneficiaries used their home hospitals for general outpatient services, we limited the analysis to outpatient services billed by CAHs and PPS hospitals.

Among the most frequently billed outpatient services for rural hospitals for the 30 days post-discharge, **Emergency Room (ER) visits had the lowest bypass rate in each cohort (Figure 2)**. Compared with 46 percent of Avoidable Bypass Cohort beneficiaries who bypassed their home hospitals for outpatient ER visits, only 10 percent of Home Hospital Cohort beneficiaries went to distant hospitals post-discharge. Similar patterns were observed for other types of outpatient services for both pre-admission and post-discharge visits as shown in **Appendix Table 2a & 2b**.

**Figure 2. Percentage of Post-discharge Outpatient Visits Billed to Distant Hospitals**



NOTES: Revenue center codes can be found at

[https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table\\_2.txt](https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table_2.txt)

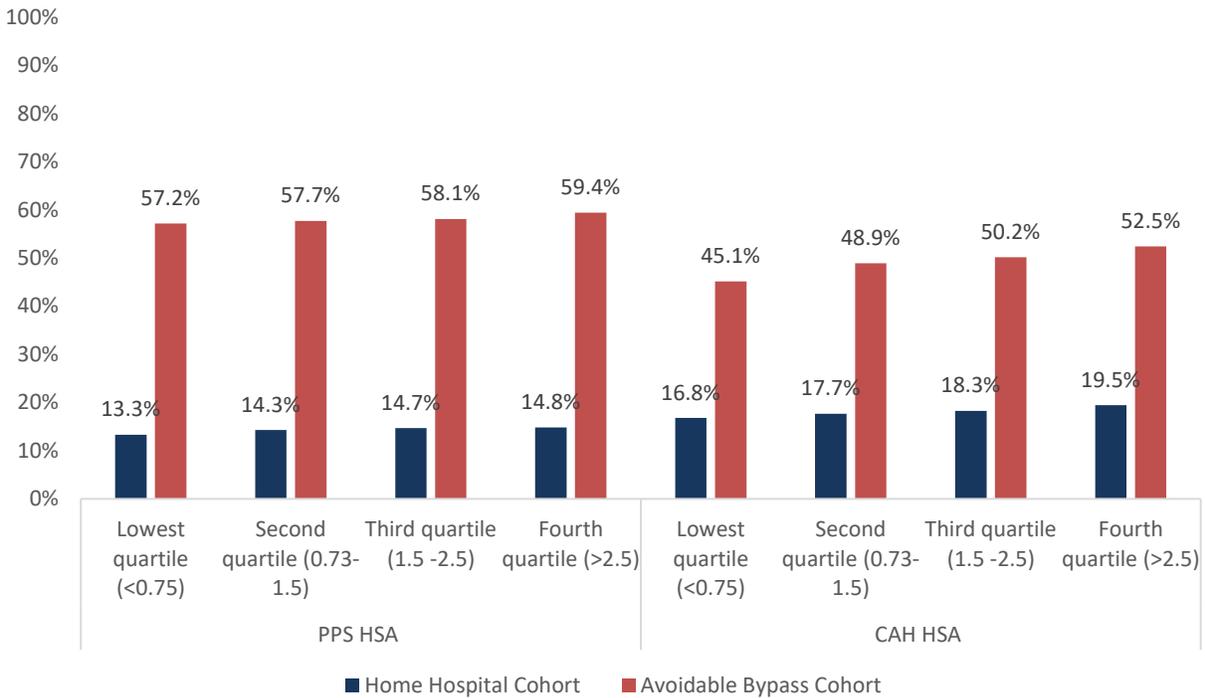
Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

### Demographic Characteristics Associated with Bypass for Hospital Outpatient Services

**Rural beneficiaries were less likely to seek outpatient services at distant hospitals as age increased, regardless of HSA type or Cohort** with the exception of older beneficiaries (85+ years) in the Avoidable Bypass Cohort who had a slightly higher outpatient bypass rate compared to the 75-84 years age group (rural PPS HSA: 59 percent vs. 57 percent; CAH HSA: 51 percent vs. 47 percent). Beneficiary sex was not found to be associated with outpatient hospital bypass in both cohorts. Appendix Tables 3a & 3b show rural PPS and CAH HSAs separately for both cohorts to reflect the differences between the types of markets. Higher outpatient bypass rates for Avoidable Bypass Cohort and lower outpatient bypass rates for Home Hospital cohort were observed in rural PPS HSAs compared to CAH HSAs.

When comparing pre-admission with post-discharge outpatient visits, bypass rates for outpatient services were not found significantly different for the rural PPS and CAH HSAs in the Home Hospital Cohort across all demographic characteristics. However, among rural Medicare beneficiaries who had an avoidable inpatient hospital bypass for both rural PPS and CAH HSAs, there were significant differences in where they sought outpatient services. Rural Medicare beneficiaries who were 85+ years, rural Medicare beneficiaries who were Black, and fully dual eligible rural Medicare beneficiaries were more likely to bypass their home hospitals for outpatient services post-discharge ( $p < .001$ ) than rural Medicare beneficiaries who had not bypassed their home hospital for inpatient care. The rate of post-discharge outpatient visit bypass for beneficiaries residing in CAH HSAs increased as beneficiaries' health risks increased (e.g., higher HCC scores), shown in **Figure 3**.

**Figure 3. Percentage of Post-discharge Outpatient Visits at Distant Hospitals by HCC Score Quartiles**



NOTES: Lower HCC scores suggest relatively better health and lower expected costs.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

### Physician Supply and Bypass for Hospital Outpatient Services

The primary care physician (PCP) supply was defined at the county-level as the number of primary care physicians per 100,000 population from the Area Health Resource File. **Overall, bypass for outpatient services decreased as the PCP supply increased (Appendix Tables 4a & 4b).** For post-discharge outpatient visits, there was a 10 percent or greater difference in bypass for outpatient services between counties with the lowest quartile of PCP supply (<39 physicians per 100,000 population) and counties with the top quartile of PCP supply (>72 physicians per 100,000 population) among beneficiaries who resided in a rural PPS HSA (Home Hospital Cohort: 20 percent in lowest quartile vs. 10 percent in top quartile; Avoidable Bypass Cohort: 64 percent in lowest quartile vs. 53 percent in top quartile). We observed a smaller difference—approximately 5 percent to 8 percent—between the lowest quartile and top quartile of PCP supply among beneficiaries who resided in CAH HSAs (Home Hospital Cohort: 20 percent in lowest quartile vs. 16 percent in top quartile; Avoidable Bypass Cohort: 53 percent in lowest quartile vs. 45 percent in top quartile). A similar trend was found in pre-admission outpatient visits.

When comparing pre-admission to post-discharge outpatient visits, the difference in percentage of outpatient services received at distant hospitals between pre-admission and post-discharge were not significant across PCP supply quartiles. **However, for the rural Medicare beneficiaries who bypassed their home PPS hospital for inpatient care, there was a 4 percent (p<.05) higher bypass rate for post-admission outpatient care than pre-admission outpatient care for those residing in communities with the lowest PCP supply.**

## Differences in Bypass for Common Outpatient Services between CAHs and Rural PPS Hospitals

Among the mostly common Current Procedural Terminology (CPT) codes billed for rural Medicare beneficiaries in outpatient hospitals in CY 2019, we analyzed the four procedures generally offered: electrocardiogram (CPT code 93005) billed under the revenue code EKG/ECG, hydration infusion (CPT codes 96360 and 96361) billed under the revenue codes Intravenous (IV) therapy and Emergency Room, and diagnostic radiology (CPT code 71045) billed under the revenue code radiology diagnostic (**Appendix Tables 5a & 5b**). Less than 1 percent of those services for beneficiaries who resided in rural PPS HSAs were rendered at non-PPS hospitals. However, **for beneficiaries who resided in CAH HSAs, a significantly higher percentage of services were rendered at PPS hospitals, with the exception for IV infusions for hydration rendered at emergency rooms.**

Bypass rates for services furnished at PPS hospitals were lower for beneficiaries who resided in Medicaid expansion states. Fully dual eligible beneficiaries were less likely to bypass their home hospital for EKG/ECG services in both Medicaid expansion and non-Medicaid expansion states. Bypass for EKG/ECG services was 6 percent higher for non-fully dual eligible beneficiaries compared to fully dual eligible beneficiaries in Medicaid expansion states and 5 percent higher for non-fully dual eligible beneficiaries compared to fully dual eligible beneficiaries in non-Medicaid expansion states.

Although less than 0.11 percent outpatient visits billed by rural hospitals in CY 2019 involved telehealth services, remote PPS hospitals and CAHs utilized more telehealth services compared with hospitals located in micropolitan areas (**Appendix Table 6**). Similar trends were observed in ER visits, however, there were only 136 hospitals that were identified billing telehealth services in ER visits in CY 2019 FFS claims. The low volume of telehealth consultation or services billed in hospital outpatient settings is not sufficient to explore its relationship with hospital outpatient bypass.

Bypass for hospital outpatient services varied by state (**Appendix Table 7**). Virginia rural Medicare beneficiaries were the most likely to bypass their home hospital for outpatient services (27.9 percent), while rural Medicare beneficiaries residing in New Hampshire were the least likely to bypass their rural hospital for outpatient services (8.5 percent).

## LISTENING SESSION OBSERVATIONS<sup>iv</sup>

Listening session participants discussed their perceptions of the drivers influencing patient decisions to receive outpatient services in their home community or seek care outside of their home community. The most frequently cited reasons for using local services were convenience or limited transportation options, health care provider relationships, and knowledge and awareness of local services. Similar to the findings from the hospital inpatient bypass study, the most frequently cited drivers of hospital outpatient bypass were health care provider referrals and relationships, knowledge and awareness of services, and perceptions of quality.

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<sup>iv</sup> The observations summarized below reflect only the perceptions of listening session participants and what was discussed during these sessions.

## ***Transportation***

Several listening session participants noted that transportation and convenience are important factors in keeping rural Medicare beneficiaries local. Many rural older adults have limited ability to travel to metropolitan areas for care, in part due to the lack of public transportation, and are more likely to opt for services that are nearby.

A few participants commented on the role that EMS has on directing rural Medicare beneficiaries to certain facilities. Participants reported varying EMS protocols, such as transporting beneficiaries to the nearest facility, transporting beneficiaries to the highest level of care, and transporting beneficiaries to the hospital that houses the EMS unit. A few participants noted that beneficiaries may choose the facility in less emergent situations or if they previously had a bad experience at a particular facility. One participant suggested that CMS consider ways to support EMS personnel in rural areas, including through incentive programs, grants, or models such as [CMS's Emergency Triage, Treat, and Transport \(ET3\) Model](#).<sup>v</sup>

## ***Existing Relationships and Trust in Health Care Providers***

Many listening session participants mentioned that rural residents are likely to stay in their communities when they have existing relationships with health care providers in their area. Participants discussed that rural residents often have long-standing relationships with their health care providers, which may span from delivering their children to caring for them as they age. As a result, rural Medicare beneficiaries develop trust in their local health care providers and continue to use local services for familiarity and continuity of care. One participant said, “One of the benefits of that is that when you're in these rural communities, you tend to know the person greeting you at the desk, and it's a much more personalized service.” Some participants also mentioned that facilitating primary care relationships with rural Medicare beneficiaries reinforces access points to other avenues of local care, such as emergency departments and CAHs. Participants noted that as long as confidence in local services is upheld, rural Medicare beneficiaries are more likely to maintain these health care provider-patient relationships and stay local for care.

Conversely, rural Medicare beneficiaries who leave their communities for a particular service may develop relationships with nonlocal health care providers and continue seeking other services at nonlocal facilities. For example, a rural Medicare beneficiary may be diagnosed with a chronic condition at an urban health care provider and then continue to travel to that urban facility for follow-up procedures even when many routine procedures, such as blood draws, can be done locally.

## ***Health Care Provider Referral***

Several listening session participants commented that health care provider referrals influence where rural residents seek care. One participant noted that patients are likely to follow their health care provider's advice on where to go for care without question. However, many participants discussed that urban health care providers may not be aware of services available in rural communities or the capabilities of rural health care facilities and providers. For example, an urban hospital may refer patients to services near the hospital based on standard referral

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<sup>v</sup> The Emergency Triage, Treat, and Transport (ET3) is a voluntary, five-year payment model that will provide greater flexibility to ambulance care teams to allow Medicare FFS beneficiaries to access the most appropriate emergency services at the right time and place. More information is available at: <https://innovation.cms.gov/innovation-models/et3>.

protocols unless the rural Medicare beneficiary requests services elsewhere. Participants explained that increased education and awareness of rural services across all levels of hospital staff, from CEOs to scheduling nurses to social workers, can help to refer beneficiaries to services in their own rural community. However, frequent health care provider turnover and rural facility closures make it difficult for all hospital staff to stay up-to-date on the rural services available.

### ***Patient Knowledge and Awareness***

A few listening session participants commented that rural residents may or may not be aware certain outpatient services are available in their community. For example, following an inpatient stay or procedure in an urban hospital, rural patients may not be aware that they have the option to receive rehabilitation services in their home community. Word-of-mouth endorsement is particularly important in rural communities. Both positive and negative experiences at a rural hospital can spread quickly through the community. One participant noted that residents in their community receive marketing materials from urban hospitals, reinforcing the perception that “bigger is better.” Another participant observed that residents in more frontier communities may be better connected to their local health care providers and have a greater awareness of what services are provided locally than residents residing in larger communities.

Participants commented that patient education should encourage patients to ask their health care providers and insurers if they can receive any care closer to home. There are also opportunities to educate rural residents about the types of outpatient services available in their local community and the quality of those services is important. One participant noted that some rural health care providers educate their patients about local post-acute services before their patients leave the community for scheduled procedures at distant health care providers.

### ***Perceptions of Quality***

Several listening session participants commented that negative perceptions of the quality of care locally could deter rural Medicare beneficiaries from using rural facilities, regardless of objective quality outcomes. In particular, participants discussed that rural Medicare beneficiaries may associate the appearance of the physical plant with quality of care. Older rural facilities, such as Hill-Burton hospitals,<sup>vi</sup> look outdated compared to newer or updated urban facilities. Rural facilities may have less funding available to invest in aesthetic features and amenities. Some participants suggested that increasing investment in the physical plant of rural health facilities, such as creating a program similar to the Hill-Burton program, could help make local services more appealing for rural residents. One participant noted that they had observed increases in patient volumes after building new facilities.

Participants also mentioned that HCAHPS scores are influenced by subjective factors, such as physical appearance and patient perception, rather than health outcomes, which can place small rural facilities at a disadvantage when their scores are compared to large urban facilities. One participant noted that they were exploring the use of ambulatory measures, such as chronic care management, as indicators of quality that they could share with their community.

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<sup>vi</sup> Congress passed the Hospital Survey and Construction Act of 1946, known as [the Hill-Burton Act](#), in 1946 to give hospitals, nursing homes and other health facilities grants and loans for construction and modernization. As a result, [many small rural hospitals were built between the 1940s and 1970s](#). Some Hill-Burton hospitals continue to be used today.

### ***Cost or Insurance***

Listening session participants shared mixed comments about cost and insurance as a factor in rural bypass. Some participants did not observe cost or insurance as a driver of bypass, while other participants mentioned that payment mechanisms may discourage rural Medicare beneficiaries from using local facilities. For example, bundled payments, such as for hip and knee procedures, leads beneficiaries to receive follow up services at the same facility where the initial procedure was performed, often an urban facility. Rural health care providers who are able to participate in bundled payments are better positioned to keep patients local for related services. In addition, other participants indicated that some Medicare Advantage and managed care plans may send their members to urban facilities for procedures, such as elective surgeries and MRIs, where those procedures may be provided at a lower cost.

### ***System Affiliations***

Some listening session participants commented that health systems within and outside of their states acquired, affiliated, or established management agreements with small rural hospitals within the last several years. These relationships may change patterns of care and encourage rural residents to seek services at the larger facilities within the system. Participants noted affiliations and networks relationships could also support a more comprehensive continuum of care for rural residents.

### ***Other Factors that Influence Rural Bypass***

- A few participants noted that services are often limited in rural areas, which contributes to rural Medicare beneficiaries seeking services outside of the community. For example, rural facilities may have to refer out for mental health and behavioral health services because they do not have the financial capabilities to offer those services themselves. Participants also indicated that high acuity and specialty services are more limited in rural areas compared to urban areas.
- One participant mentioned that older adults may use facilities based on where family members live, which can lead beneficiaries to bypass their closest facilities. Family members may be needed to provide additional care at home after some outpatient services, such as physical therapy or chemotherapy.
- One participant shared that beneficiaries may opt for specialists in urban areas because it provides the opportunity to visit a city for shopping or other activities.
- Two participants commented that telehealth, particularly the expansion of telehealth during the COVID-19 public health emergency, provides an opportunity increase the use of local health care services.

## **LIMITATIONS**

Our analyses were subject to some limitations. We lacked information on some important patient attributes that could influence the choice of and need for outpatient services—including severity of health condition, functional status, and transportation availability. Second, we defined service areas using beneficiaries' mailing address ZIP code, which may not necessarily represent the beneficiary residence or where an emergent medical care occurred. Third, we limited the study to

services to the 30 days before and after an inpatient stay to ensure the services were closely related to the inpatient diagnoses, but inaccuracies may exist. Lastly, the listening session observations reflect the perceptions of listening session participants.

## **CONCLUSION AND NEXT STEPS**

Examining the use of health care services is important for understanding access to care for rural residents that can inform policies designed to address rural beneficiaries' health care needs. This study builds on a 2019 national study of hospital bypass for inpatient hospital services by examining the use of outpatient hospital services. Given the importance of outpatient care on rural hospital financial viability, which represents up to 70 percent of a rural hospital's revenue, we linked beneficiaries' inpatient admissions with their outpatient visits to determine how inpatient utilization affects outpatient utilization. We found that rural Medicare FFS beneficiaries who left their community for inpatient care were more likely to bypass their home hospital for outpatient services compared to rural Medicare FFS beneficiaries who received their inpatient care at their rural home hospital. As outpatient hospital services continue to grow as a percentage of overall rural hospital revenue, it is important to understand how utilization may affect a hospital's allocation of resources and provide actionable information that may help rural hospitals retain a larger share of their local market to support financial viability and meet the needs of the rural communities they serve.

We observed similar trends for beneficiary and market characteristics associated with hospital bypass for both inpatient and outpatient services. Rural Medicare beneficiaries who were older tended to use their home hospital's outpatient services. Likewise, rural Medicare beneficiaries who resided in communities with a greater supply of PCPs were less likely to bypass their home hospitals for outpatient services. In addition, rural Medicare beneficiaries who bypassed their home hospital for inpatient care traveled longer distances for post-discharge office visits with a PCP. This finding supports the hypothesis that a beneficiary's relationship with a distant PCP may play an important role in their health care decision-making for other services, such as outpatient hospital services. Our findings are consistent with other research that found that increasing access to local PCPs and specialists might help rural hospitals retain patients, contributing to improved access to care.<sup>6</sup>

We also observed that rural Medicare beneficiaries whose home hospital was a CAH and those who had higher HCC scores were more likely to bypass their home hospital for outpatient services. This finding indicates that these patients may require care or have established relationships with specialty physicians in large rural or urban areas due to the severity of their health conditions. Therefore, some hospital outpatient bypass may occur due to the nature of the healthcare needs of the individual patient as well as health care provider relationships.

Although telehealth consultation services were associated with reduced hospital bypass for inpatient services, telehealth outpatient utilization was low in 2019, in alignment with the American Hospital Association's 2019 findings. Barriers for hospitals to adopt telehealth include broadband access, coverage and reimbursement, cross-state licensure requirements, and credentialing and privileging.<sup>20</sup> However, telehealth, as seen during the COVID-19 public health emergency, can be an effective way to ensure access to care for rural residents. Findings from this study highlight opportunities to better understand how the expanded use of telehealth services may affect access, utilization, patient outcomes, and total cost of care before, during, and after the pandemic.

Consistent with previous studies, we found that rural Medicare beneficiaries' out-of-pocket costs for outpatient services are significantly higher at CAHs than at PPS hospitals.<sup>18</sup> Some rural Medicare FFS beneficiaries who resided in CAH HSAs shifted their outpatient care to PPS hospitals. While we cannot directly link out-of-pocket costs to outpatient bypass, findings indicate that cost could be a factor in hospital bypass for outpatient services.<sup>18</sup>

Market factors and the role of insurance coverage may also play a role in where rural residents seek outpatient services. Ambulatory surgical centers (ASCs) have become an integral part of the outpatient market in urban areas and in some larger rural areas. Listening session participants observed that MA plans and other payers might be driving outpatient care to certain settings that are lower cost to the plans, including PPS hospitals and ASCs.

Rural Medicare beneficiaries were least likely to bypass their local hospital for emergency department (ED) services. However, ED bypass was highest for patients who were transported by ambulance (24 percent overall vs. 27 percent for ambulance transported). Listening session participants commented that EMS relationships and availability of EMS providers may direct patients to certain facilities.

In summary, there are many considerations for understanding and addressing bypass for outpatient services. Findings suggest there may be opportunities to support access to outpatient hospital services in rural communities including: reducing rural Medicare beneficiaries' additional costs for outpatient hospital services provided by CAHs; increasing physician supply in rural areas, especially of specialty physicians; expanding access to telehealth services; providing funding for capital improvements and new equipment to rural facilities; and facilitating stronger connections between urban and suburban tertiary care centers and rural hospitals. Additionally, rural health care providers may consider providing information about outpatient services available locally to rural Medicare beneficiaries before they receive inpatient care at a distant hospital. Efforts to retain rural Medicare beneficiaries to receive outpatient hospital services not only improve rural hospital financial viability, but also contribute to patients' continuity of care that has been demonstrated to improve health outcomes and reduce overall costs of care.

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## APPENDIX A: SUPPORTING TABLES AND FIGURES

**Table 1a. Home Hospital Cohort: Outpatient Facility Visits by Facility Type**

	Pre-admission Number of Claims	Pre-admission Percentage	Post-discharge Number of Claims	Post-discharge Percentage
CAH within HSA	376,479	25.3%	224,526	19.1%
PPS hospitals within HSA	616,907	41.4%	657,421	55.8%
Distant hospitals	187,747	12.6%	162,479	13.8%
Nursing Home	284,054	19.1%	114,031	9.7%
Outpatient Rehab Facilities	17,704	1.2%	13,958	1.2%
Other Facilities	5,709	0.4%	5,979	0.5%

NOTES: Other facilities include LTCH, IRF, IPF, HH, specialty hospitals etc. Facility type is defined by CMS Certification number (CCN), available at <https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/survey-and-cert-letter-16-09.pdf>  
Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 2b. Avoidable Bypass Cohort: Outpatient Facility visits by Facility Type**

	Pre-admission Number of Claims	Pre-admission Percentage	Post-discharge Number of Claims	Post-discharge Percentage
CAH within HSA	86,916	12.6%	67,867	12.6%
PPS hospitals within HSA	197,061	29.1%	148,371	27.6%
Distant hospitals	301,109	44.4%	268,267	49.9%
Nursing Home	76,387	11.3%	31,997	5.9%
Outpatient Rehab Facilities	9,533	1.4%	15,534	2.9%
Other Facilities	6,831	1.0%	5,893	1.1%

NOTES: Other facilities include LTCH, IRF, IPF, HH, specialty hospitals etc. Facility type is defined by CMS Certification number (CCN), available at <https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/survey-and-cert-letter-16-09.pdf>  
Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 2a. Home Hospital Cohort: Outpatient Facility Visits by Revenue Center Type**

	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of Claims	Post-discharge Percentage Billed to Distant Hospitals
025X: Pharmacy	116,220	17.6%	125,031	15.7%
026X: IV Therapy	54,461	14.1%	67,810	10.9%
027X: Supplies and Devices	88,569	18.0%	96,864	16.6%
030X: Laboratory	408,255	16.2%	453,137	15.5%
032X: Radiology Diagnostics	137,833	13.4%	133,484	12.9%
035X: CT Scan	66,782	14.0%	59,912	14.3%
045X: Emergency room	125,675	10.8%	120,892	10.4%
063X: Drugs	168,737	17.9%	197,722	15.5%
073X: EKG/ECG	94,068	13.6%	80,008	14.6%

NOTES: Revenue center codes available at

[https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table\\_2.txt](https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table_2.txt)

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims

**Table 2b. Avoidable Bypass Cohort: Outpatient Facility Visits by Revenue Center Type**

	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of Claims	Post-discharge Percentage Billed to Distant Hospitals
025X: Pharmacy	73,650	50.4%	63,729	58.7%
026X: IV Therapy	34,051	46.4%	33,726	51.2%
027X: Supplies and Devices	53,402	50.6%	45,597	59.3%
030X: Laboratory	240,798	52.7%	212,187	52.2%
032X: Radiology Diagnostics	82,531	47.8%	61,550	58.8%
035X: CT Scan	46,706	45.2%	29,972	55.2%
045X: Emergency room	78,048	36.4%	59,021	46.1%
063X: Drugs	106,511	51.8%	100,180	63.1%
073X: EKG/ECG	70,679	54.2%	37,177	55.9%

NOTES: Revenue center codes available at

[https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table\\_2.txt](https://resdac.org/sites/datadocumentation.resdac.org/files/Revenue%20Center%20Code%20Table_2.txt)

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 3a. Home Hospital Cohort, Rural PPS HSAs: Beneficiary Characteristics**

Beneficiary Characteristics	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>Age Group</b>					
<65 years	91,069	17.9%	113,582	17.5%	-0.4%
65-74 years	188,918	16.5%	235,060	14.6%	-1.9%
75-84 years	187,046	15.5%	220,947	13.9%	-1.7%
85+ years	103,093	13.6%	121,671	11.8%	-1.9%
<b>Sex</b>					
Male	250,105	16.2%	320,631	14.7%	-1.6%
Female	320,021	15.6%	370,629	14.0%	-1.6%
<b>Race/Ethnicity</b>					
Non-Hispanic White	516,615	15.5%	626,841	13.8%	-1.7%
Black	32,250	17.9%	37,201	19.4%	1.5%
Other	7,448	16.4%	9,994	14.3%	-2.4%
Asian/Pacific Islander	1,101	17.2%	1,433	16.3%	-0.9%
Hispanic	3,266	14.0%	3,800	13.8%	-0.2%
American Indian/ Alaska Native	9,446	28.4%	11,991	25.7%	-2.7%
<b>Dual Eligible Status***</b>					
Non-full	433,565	15.7%	535,854	14.0%	-1.7%
Full	136,561	16.4%	155,406	15.5%	-0.9%
<b>HCC Category</b>					
Lowest quartile (<0.75)	103,361	14.7%	148,251	13.3%	-1.4%
Second quartile (0.73-1.5)	152,486	15.7%	194,365	14.3%	-1.4%
Third quartile (1.5-2.5)	126,311	16.0%	149,436	14.7%	-1.3%
Fourth quartile (>2.5)	187,933	16.6%	199,166	14.8%	-1.8%

NOTES: \*p-value <0.001; \*\* p-value <0.05; \*\*\* Dual eligible status is based on the level of Medicaid benefits they receive. Full duals (1) if they have values of 02 = QMB and full Medicaid coverage, including prescription drugs ,04 = SLMB and full Medicaid coverage, including prescription drugs, or 08 = Other dual eligible (not QMB, SLMB, QWDI, or QI) with full Medicaid coverage, including prescription drugs, and to be Non-full duals(0) if they have values of 01= Qualified Medicare Beneficiary only, 03 = SLMB-only , 05 = QDWI , 06 = Qualifying individuals or no Medicaid benefits. Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 3b. Avoidable Bypass Cohort, Rural PPS HSAs: Beneficiary Characteristics**

Beneficiary Characteristics	Pre-admission Number of Claims	Pre-admission: Percentage Billed to Distant Hospitals	Post-discharge Number of Claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>Age Group</b>					
<65 years	63,821	54.7%	67,117	60.6%	5.9%*
65-74 years	133,151	57.5%	132,203	57.8%	0.3%
75-84 years	97,314	53.3%	92,701	56.7%	3.4%**
85+ years	32,159	50.8%	30,280	59.0%	8.2%*
<b>Sex</b>					
Male	156,477	55.8%	162,791	58.7%	2.9%
Female	169,968	54.4%	159,510	57.7%	3.3%
<b>Race/Ethnicity</b>					
Non-Hispanic White	292,232	55.1%	287,918	57.7%	2.7%
Black	20,434	55.9%	20,098	63.9%	8.0%*
Other	5,489	54.4%	5,710	56.0%	2.9%
Asian/Pacific Islander	558	56.5%	562	67.4%	11.0%
Hispanic	2,272	49.1%	2,360	64.5%	15.4%
American Indian/ Alaska Native	5,460	54.6%	5,653	59.9%	5.3%
<b>Dual Eligible Status***</b>					
Non-full	264,078	55.6%	261,419	57.7%	2.1%
Full	62,367	52.7%	60,882	60.2%	7.5%*
<b>HCC Category</b>					
Lowest quartile (<0.75)	73,851	57.7%	77,049	57.2%	-0.5%
Second quartile (0.73-1.5)	85,033	54.6%	84,957	57.7%	3.1%
Third quartile (1.5-2.5)	62,117	53.2%	60,217	58.1%	4.9%**
Fourth quartile (>2.5)	105,414	54.7%	100,046	59.4%	4.7%**

NOTES: \*p-value <0.001; \*\* p-value <0.05; \*\*\* Dual eligible status is based on the level of Medicaid benefits they receive. Full duals (1) if they have values of 02 = QMB and full Medicaid coverage, including prescription drugs ,04 = SLMB and full Medicaid coverage, including prescription drugs, or 08 = Other dual eligible (not QMB, SLMB, QWDI, or QI) with full Medicaid coverage, including prescription drugs, and to be Non-full duals(0) if they have values of 01= Qualified Medicare Beneficiary only, 03 = SLMB-only , 05 = QDWI , 06 = Qualifying individuals or no Medicaid benefits. Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 3c. Home Hospital Cohort, CAH HSAs: Beneficiary Characteristics**

Beneficiary Characteristics	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of Claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>Age Group</b>					
<65 years	34,839	21.8%	41,090	21.2%	-0.6%
65-74 years	89,913	20.2%	108,271	18.4%	-1.7%
75-84 years	98,638	18.9%	109,400	18.0%	-0.9%
85+ years	67,207	15.1%	69,611	15.6%	0.5%
<b>Sex</b>					
Male	124,825	19.3%	149,416	18.4%	-1.0%
Female	165,772	18.3%	178,956	17.7%	-0.6%
<b>Race/Ethnicity</b>					
Non-Hispanic White	274,906	18.5%	310,597	17.8%	-0.7%
Black	5,466	23.8%	5,518	24.1%	0.3%
Other	4,263	21.2%	4,996	17.7%	0.0%
Asian/Pacific Islander	361	11.1%	485	12.4%	1.3%
Hispanic	1,230	19.6%	1,701	18.8%	-0.8%
American Indian/ Alaska Native	4,371	24.8%	5,075	24.7%	-0.1%
<b>Dual Eligible Status***</b>					
Non-full	224,877	18.8%	261,520	17.6%	-1.2%
Full	65,720	18.5%	66,852	19.5%	1.0%
<b>HCC Category</b>					
Lowest quartile (<0.75)	57,388	18.7%	79,330	16.8%	-1.9%
Second quartile (0.73-1.5)	83,113	18.3%	97,585	17.7%	-0.6%
Third quartile (1.5-2.5)	68,023	17.9%	71,595	18.3%	0.4%
Fourth quartile (>2.5)	82,067	20.0%	79,857	19.5%	-0.5%

NOTES: \*p-value <0.001; \*\* p-value <0.05; ; \*\*\* Dual eligible status is based on the level of Medicaid benefits they receive. Full duals (1) if they have values of 02 = QMB and full Medicaid coverage, including prescription drugs ,04 = SLMB and full Medicaid coverage, including prescription drugs, or 08 = Other dual eligible (not QMB, SLMB, QWDI, or QI) with full Medicaid coverage, including prescription drugs, and to be Non-full duals(0) if they have values of 01= Qualified Medicare Beneficiary only, 03 = SLMB-only , 05 = QDWI , 06 = Qualifying individuals or no Medicaid benefits.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 3d. Avoidable Bypass Cohort, CAH HSAs: Beneficiary Characteristics**

Beneficiary Characteristics	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>Age Group</b>					
<65 years	22,390	50.5%	24,390	55.8%	5.2%*
65-74 years	57,334	49.8%	61,421	47.8%	-1.9%
75-84 years	47,826	45.8%	48,307	47.0%	1.2%
85+ years	17,896	43.2%	17,372	51.1%	7.9%*
<b>Sex</b>					
Male	68,923	48.6%	75,971	49.2%	0.6%
Female	76,523	47.1%	75,519	49.3%	2.2%
<b>Race/Ethnicity</b>					
Non-Hispanic White	135,213	47.6%	140,861	48.8%	1.2%
Black	3,676	46.5%	3,628	58.5%	11.9%*
Other	2,651	53.6%	2,895	49.0%	-3.1%
Asian/Pacific Islander	196	47.4%	181	55.8%	8.4%
Hispanic	1,120	48.8%	1,203	48.5%	-0.3%
American Indian/ Alaska Native	2,590	51.8%	2,722	57.6%	5.8%
<b>Dual Eligible Status***</b>					
Non-full	117,445	47.6%	123,673	47.8%	0.2%
Full	28,001	48.7%	27,817	55.8%	7.0%*
<b>HCC Category</b>					
Lowest quartile (<0.75)	32,826	49.1%	38,285	45.1%	-4.0%**
Second quartile (0.73-1.5)	38,405	46.5%	40,899	48.9%	2.4%
Third quartile (1.5-2.5)	28,199	45.5%	28,290	50.2%	4.7%**
Fourth quartile (>2.5)	46,004	49.3%	43,997	52.5%	3.1%

NOTES: \*p-value <0.001; \*\* p-value <0.05; ; \*\*\* Dual eligible status is based on the level of Medicaid benefits they receive. Full duals (1) if they have values of 02 = QMB and full Medicaid coverage, including prescription drugs ,04 = SLMB and full Medicaid coverage, including prescription drugs, or 08 = Other dual eligible (not QMB, SLMB, QWDI, or QI) with full Medicaid coverage, including prescription drugs, and to be Non-full duals(0) if they have values of 01= Qualified Medicare Beneficiary only, 03 = SLMB-only , 05 = QDWI , 06 = Qualifying individuals or no Medicaid benefits.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 4a. Home Hospital Cohort: Physician Supply for Outpatient Hospital Services by Hospital Type**

Physician Supply	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>PPS HSA</b>					
Lowest quartile (<39 physicians per 100,000 population)	103,410	21.6%	122,756	20.0%	-1.6%
Second quartile (39-53 physicians per 100,000 population)	133,357	19.4%	159,360	18.3%	-1.1%
Third quartile (54-72 physicians per 100,000 population)	160,848	13.8%	196,512	12.2%	-1.6%
Fourth quartile (>72 physicians per 100,000 population)	168,464	11.5%	207,577	9.9%	-1.6%
<b>CAH HSA</b>					
Lowest quartile (<39 physicians per 100,000 population)	74,105	20.0%	81,494	19.6%	-0.4%
Second quartile (39-53 physicians per 100,000 population)	60,320	19.3%	67,516	18.7%	-0.7%
Third quartile (54-72 physicians per 100,000 population)	65,671	19.0%	75,498	18.4%	-0.6%
Fourth quartile (>72 physicians per 100,000 population)	83,842	16.8%	96,555	15.8%	-1.0%

NOTES: \*\* p-value <0.05;

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims; AHRF county level file 2019

**Table 4b. Avoidable Bypass Cohort: Physician Supply for Outpatient Hospital Services by Hospital Type**

Physician Supply	Pre-admission Number of Claims	Pre-admission Percentage Billed to Distant Hospitals	Post-discharge Number of claims	Post-discharge Percentage Billed to Distant Hospitals	Percentage Difference
<b>PPS HSA</b>					
Lowest quartile (<39 physicians per 100,000 population)	86,395	60.0%	85,300	64.4%	4.4%**
Second quartile (39-53 physicians per 100,000 population)	95,989	55.1%	95,554	58.5%	3.4%
Third quartile (54-72 physicians per 100,000 population)	83,217	52.4%	81,065	54.6%	2.2%
Fourth quartile (>72 physicians per 100,000 population)	57,154	51.1%	56,651	53.3%	2.2%
<b>CAH HAS</b>					
Lowest quartile (<39 physicians per 100,000 population)	42,737	50.1%	44,361	53.3%	3.2%
Second quartile (39-53 physicians per 100,000 population)	34,059	48.7%	35,753	50.5%	1.8%
Third quartile (54-72 physicians per 100,000 population)	33,789	47.3%	34,791	46.8%	-0.5%
Fourth quartile (>72 physicians per 100,000 population)	31,301	44.4%	32,622	45.0%	0.6%

NOTES: \*\* p-value <0.05;

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims; AHRF county level file 2019

**Table 5a. Home Hospital Cohort, CAH HSAs: Outpatient Bypass for Full Duals and Non-full Duals for Medicaid Expansion States**

CPT Code	Revenue Code	Full Duals: Number of Claims	Full Duals: Percentage Billed to PPS Hospitals	Non-full Duals: Number of Claims	Non-full Duals: Percentage Billed to PPS Hospitals	Percentage Difference
71045	0320: Radiology diagnostic	61,032	12.9%	159,774	16.4%	-3.6%
93005	0730: EKG/ECG	117,826	19.2%	482,501	25.3%	-6.2%*
96360	0260: IV therapy	8,911	16.6%	35,913	19.6%	-3.1%
96360	0450: Emergency room	7,283	11.0%	22,312	11.3%	-0.3%
96361	0260: IV therapy	25,854	17.7%	82,473	20.4%	-2.7%
96361	0450: Emergency room	19,797	11.6%	50,272	10.2%	1.5%

NOTES: \*p-value <0.01; CPT code 71045-Diagnostic Radiology (Diagnostic Imaging) Procedures of the Chest, 96360 and 96361- Hydration Infusion, 93005-electrocardiogram. Medicaid expansion states are AL, FL, GA, KS, MS, MO, NC, OK, SC, SD, TN, TX, WI, WY, NE, UT, ID as of Jan, 2019.

<https://www.kff.org/medicaid/issue-brief/status-of-state-medicare-expansion-decisions-interactive-map/>

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 5b. Home Hospital Cohort, CAH HSAs: Outpatient Bypass for Full Duals and Non-full Duals for Non-Medicaid Expansion States**

CPT Code	Revenue Code	Full Duals: Number of Claims	Full Duals: Percentage Billed to PPS Hospitals	Non-full Duals: Number of Claims	Non-full Duals: Percentage Billed to PPS Hospitals	Percentage Difference
71045	0320: Radiology diagnostic	38,259	16.4%	97,037	20.6%	-4.2%
93005	0730: EKG/ECG	60,514	21.2%	258,992	26.5%	-5.3%*
96360	0260: IV therapy	4,534	15.9%	15,505	20.3%	-4.4%
96360	0450: Emergency room	4,509	11.0%	14,334	10.7%	0.4%
96361	0260: IV therapy	11,025	18.3%	32,414	21.8%	-3.5%
96361	0450: Emergency room	9,519	13.5%	27,912	11.8%	1.7%

NOTES: \*p-value <0.01; CPT code 71045-Diagnostic Radiology (Diagnostic Imaging) Procedures of the Chest, 96360 and 96361- Hydration Infusion, 93005-electrocardiogram. Medicaid expansion states are AL, FL, GA, KS, MS, MO, NC, OK, SC, SD, TN, TX, WI, WY, NE, UT, ID as of Jan, 2019.

<https://www.kff.org/medicaid/issue-brief/status-of-state-medicare-expansion-decisions-interactive-map/>

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 6. Telehealth Utilization by Rurality and Hospital Type, CY 2019**

<b>RUCA Code</b>	<b>Rural PPS: Total Hospitals</b>	<b>Rural PPS: Percentage of Hospitals that Utilized Telehealth</b>	<b>Rural PPS: Percentage of Services that Involved Telehealth (Median)</b>	<b>CAH: Total Hospitals</b>	<b>CAH: Percentage of Hospitals that Utilized Telehealth</b>	<b>CAH: Percentage of Services that Involved Telehealth (Median)</b>
4,5,6	632	37%	0.014%	176	41%	0.059%
7,8,9	268	29%	0.022%	609	50%	0.133%
10	68	38%	0.017%	438	54%	0.284%

NOTES: RUCA code description: 4-Micropolitan area core: primary flow within an Urban Cluster of 10,000 to 49,999 (large UC), 5 -Micropolitan high commuting: primary flow 30% or more to a large UC, 6 - Micropolitan low commuting: primary flow 10% to 30% to a large UC; 7 -Small town core: primary flow within an Urban Cluster of 2,500 to 9,999 (small UC), 8 -Small town high commuting: primary flow 30% or more to a small UC, 9 -Small town low commuting: primary flow 10% to 30% to a small UC; 10 -Rural areas: primary flow to a tract outside a UA or UC.

Source: USDA Rural code file: <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx>; CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.

**Table 7. Avoidable Inpatient Rural Hospital Bypass for All DRGs, Inpatient Rural Hospital Bypass for the Top 50 DRGs, and Outpatient Bypass by State for CY2019**

State	Number of Rural HSAs	Number of Inpatient Stays	Avoidable Bypass (%)	Number of Top 50 DRGs' Inpatient Stays	Top 50 DRGs' Avoidable Bypass (%)	Number of Outpatient Visits 30 days Pre-admission and Post-discharge	Outpatient Bypass (%)
Alaska	17	6,088	14.7%	3,535	13.3%	13,652	17.2%
Alabama	36	38,614	27.3%	22,207	29.3%	41,181	23.6%
Arkansas	47	50,960	24.5%	29,932	27.9%	70,375	22.1%
Arizona	25	20,879	22.6%	11,027	26.3%	24,028	17.3%
California	54	59,959	21.6%	33,219	24.8%	94,794	15.6%
Colorado	40	19,093	21.6%	10,238	25.8%	33,428	16.7%
Connecticut	3	4,198	24.6%	2,419	23.5%	7,138	8.8%
Delaware	2	9,250	20.3%	4,980	16.0%	15,380	12.7%
Florida	17	21,435	29.3%	11,934	32.4%	19,432	22.4%
Georgia	51	46,859	23.3%	26,784	24.9%	54,977	17.9%
Hawaii	8	4,331	9.9%	2,452	9.7%	3,305	15.0%
Iowa	89	53,084	16.6%	31,131	19.9%	122,262	11.4%
Idaho	26	14,875	17.5%	8,355	20.5%	33,833	15.0%
Illinois	69	68,281	14.9%	40,921	16.4%	122,071	12.5%
Indiana	50	52,184	21.3%	30,663	24.1%	89,928	12.0%
Kansas	104	50,568	14.1%	29,930	16.2%	90,622	10.1%
Kentucky	66	80,380	16.9%	48,576	17.5%	120,307	14.5%
Louisiana	37	31,346	25.9%	18,550	30.0%	39,256	21.1%
Massachusetts	5	5,893	18.5%	3,242	20.4%	10,471	18.1%
Maryland	5	9,005	27.5%	4,852	29.5%	12,953	16.3%
Maine	24	21,166	16.0%	12,013	17.5%	57,020	14.7%
Michigan	59	61,978	20.1%	34,489	22.8%	117,544	13.5%
Minnesota	89	40,281	17.1%	22,783	19.3%	94,200	17.5%
Missouri	54	59,531	24.1%	34,568	26.5%	94,110	25.5%
Mississippi	57	70,808	18.5%	41,690	19.9%	102,401	14.7%
Montana	50	20,704	13.7%	12,051	16.0%	51,652	12.5%
North Carolina	49	87,249	21.4%	50,843	21.5%	113,559	21.7%
North Dakota	37	11,221	12.2%	6,613	15.2%	23,035	19.9%
Nebraska	72	32,460	13.5%	18,792	16.2%	67,102	10.6%
New Hampshire	17	20,981	12.3%	11,521	13.8%	58,151	8.5%
New Jersey							
New Mexico	26	18,767	21.3%	10,483	25.1%	26,985	19.6%
Nevada	12	7,885	26.6%	4,383	33.1%	10,462	19.3%
New York	50	52,590	22.9%	30,226	24.4%	96,856	13.4%
Ohio	62	87,916	18.2%	49,921	18.6%	168,491	12.7%
Oklahoma	76	70,298	24.2%	42,303	27.4%	90,836	22.1%
Oregon	31	28,678	18.0%	15,807	19.9%	54,350	14.2%
Pennsylvania	41	46,741	19.8%	26,163	19.9%	92,525	10.4%
Rhode Island							
South Carolina	19	29,289	28.5%	16,624	29.4%	35,637	21.6%
South Dakota	45	15,962	11.9%	9,541	14.0%	34,234	16.4%
Tennessee	48	60,202	26.6%	35,717	29.2%	61,920	19.6%
Texas	138	95,175	27.5%	55,069	31.4%	104,671	24.6%

State	Number of Rural HSAs	Number of Inpatient Stays	Avoidable Bypass (%)	Number of Top 50 DRGs' Inpatient Stays	Top 50 DRGs' Avoidable Bypass (%)	Number of Outpatient Visits 30 days Pre-admission and Post-discharge	Outpatient Bypass (%)
Utah	21	8,918	18.5%	4,987	22.0%	12,537	16.6%
Virginia	25	39,997	26.0%	23,885	27.5%	51,572	27.9%
Vermont	13	19,126	11.0%	10,862	10.8%	48,493	9.5%
Washington	38	29,146	20.0%	15,829	23.7%	47,483	18.1%
Wisconsin	70	46,951	19.8%	26,489	22.2%	95,816	17.8%
West Virginia	24	23,736	20.4%	13,964	20.9%	39,314	16.9%
Wyoming	23	13,010	15.1%	7,280	17.6%	23,275	17.9%

NOTES: Avoidable bypass is the percentage of inpatient stays for which rural Medicare beneficiaries received care in either a rural hospitals that are not the closest rural hospital and >30 miles away or an urban hospital even though those services were available in local home hospital service areas.

Source: CY 2019 Medicare Provider Analysis and Review (MedPAR) inpatient and Medicare Research Identifiable File (RIF) outpatient claims.