CHAPTER 5

# Congressional request: Medicare beneficiaries' access to care in rural areas (interim report)

CHAPTER 5

# Congressional request: Medicare beneficiaries' access to care in rural areas (interim report)

## Chapter summary

The Commission has a long history of monitoring beneficiaries' access to care. In our June 2012 report to the Congress, we analyzed rural beneficiaries' access to care by comparing their use of services with urban beneficiaries' use. The Commission found large differences across geographic regions of the country but few differences between rural and urban beneficiaries' service use within regions. However, the report prompted the Commission to establish a set of principles designed to guide expectations and policies with respect to rural access, quality, and payment. The Commission established that:

- Access to care should be equitable for rural and urban beneficiaries. However, equitable access does not mean equal travel times for all services. Small rural communities are expected to have longer travel times to access highly specialized services given the large population base needed to support such services.
- Expectations for quality of care in rural and urban areas should be equal for nonemergency services that rural providers choose to deliver.
- Rural payment adjustments should be empirically justified; targeted toward low-volume, isolated providers; and designed to encourage cost control on the part of providers.

In July 2020, the House Committee on Ways and Means submitted a bipartisan request for the Commission to update its June 2012 report. The Committee also requested further information on beneficiaries who are dually

## In this chapter

eligible for Medicaid and Medicare, have multiple chronic conditions, or reside in a medically underserved area. In addition, the Committee requested that the Commission examine factors and trends that may have affected rural communities since the 2012 report. The Committee requested an interim report by June 2021 and a final report by June 2022.

In this interim report, we examine rural beneficiaries' access to care primarily using Medicare claims data, supplemented with survey data and interviews with rural stakeholders. We also examine rural hospital closures, a trend that has become more prominent since the Commission's 2012 report and could affect beneficiaries' access to care.

### Comparing rural and urban beneficiaries' access to care

The Commission's annual survey of Medicare beneficiaries and CMS's Medicare Current Beneficiary Survey suggest that rural and urban beneficiaries have similar access to care, although some minor differences exist and those differences may increase as rurality increases.

Likewise, our analysis of Medicare claims data indicates rural and urban beneficiaries generally have comparable utilization rates among the types of services we examined—clinician visits, hospital inpatient admissions, hospital outpatient visits, home health episodes, and skilled nursing facility days. As we did in our 2012 report, we found substantial variation across geographic regions of the country, and those differences often were far larger than differences between rural and urban beneficiaries within a given region. Our findings by type of service include the following:

- For clinician services, we found that rural beneficiaries had fewer evaluation and management (E&M) encounters in 2018 than urban beneficiaries after accounting for substantial amounts of regional variation. Rural beneficiaries' lower E&M use was mainly attributable to fewer visits with specialist physicians, which may in turn be related to the longer distances rural beneficiaries travel to access specialists.
- For hospital inpatient services, we found that utilization rates in 2018 were very similar between rural and urban beneficiaries. Hospital inpatient use varied substantially across geographic regions of the country, but differences between rural and urban beneficiaries within regions were relatively small.
- For hospital outpatient services, rural beneficiaries had greater use in 2018 than urban beneficiaries, and regional variation was very large. Moreover, variation in the use of hospital outpatient department services between rural and urban beneficiaries could reflect differences in where patients received their care, as

opposed to how much care they received. For example, rural beneficiaries might have received more of their imaging services at hospitals (which were included in our analysis) rather than freestanding imaging centers (which were not).

- For home health and skilled nursing facility services, we found that rural beneficiaries had similar or higher utilization rates in 2018 than urban beneficiaries. Service use varied substantially across the nation's geographic regions. Variation in home health use was particularly notable, with utilization rates varying by sixfold to eightfold across regions.

Across our claims-based analyses, beneficiaries living in the most remote areas—frontier counties—tended to use fewer services compared with urban and (oftentimes) other rural beneficiaries. Beneficiaries residing in frontier areas represent about 1 percent of the Medicare population, are concentrated in a small number of states that generally have lower use of services (e.g., Montana and Wyoming), and appear to be somewhat healthier than other rural beneficiaries. These factors make it difficult to discern the extent to which lower utilization rates among frontier beneficiaries are attributable to access issues, regional provider practice patterns, beneficiary preferences, or differences in health status.

### Examining the causes and effects of recent rural hospital closures

Rural hospital closures have increased since 2013. To study the causes and effects of these closures, we conducted interviews with stakeholders (including community members, hospital executives, and clinician leaders) from three communities that experienced a recent hospital closure, and we analyzed a cohort of 40 rural hospitals that closed between 2015 and 2019.

Stakeholders from the three communities suggested that, prior to closure, patients commonly bypassed their local hospital for inpatient care, often due to perceived deficits in capabilities. Stakeholders from these communities reported that after their local hospital closed, the communities focused on maintaining access to emergency department (ED) care, urgent care, and primary care. In the three communities in which we conducted interviews, Federally Qualified Health Centers (FQHCs) were critical to maintaining access to primary care, and sometimes urgent care, after the local hospital closed. Community stakeholders suggested that, after the hospital closure, FQHCs were often the only remaining entity with the financial and organizational capabilities to recruit primary care physicians into the areas, which can be difficult and expensive.

Among our cohort of 40 recently closed hospitals, we found large declines in all-payer inpatient admissions (across a broad range of service lines) in the years before closure. From 2005 to 2014 (a period that began at least a decade before closure),

the cohort averaged a 54 percent decline in all-payer inpatient admissions. By 2014, the median number of annual all-payer admissions at the 40 hospitals had fallen to 488—about 1.3 admissions per day. Most of this decline was attributable to patients bypassing their local hospital in favor of other hospitals.

In contrast, up to the date of closure, Medicare beneficiaries continued to use these 40 hospitals to access ED and outpatient care. Before closure, the number of ED visits at these hospitals increased over time, and by 2014, these hospitals averaged more than 1,100 Medicare fee-for-service (FFS) ED visits per year. Similarly, the volume of outpatient visits among these hospitals was flat or declined only somewhat over time, and by 2014, these hospitals averaged more than 5,700 Medicare FFS outpatient visits per year.

The effects of these hospital closures on beneficiaries' service use were more difficult to discern. Beneficiaries residing in the market areas of the 40 hospitals that closed experienced faster declines in the number of hospital inpatient admissions and hospital outpatient visits per beneficiary after the closure occurred relative to beneficiaries living in rural areas without a hospital closure. However, even before the closures occurred, use of hospital inpatient and outpatient services was declining faster in the market areas of the hospitals that closed than in markets in other rural areas. Therefore, factors other than hospital closure (such as changes in physician practice patterns before and after closure) may have affected service use for beneficiaries in those communities. In addition, some of the decline in hospital outpatient visits in areas with a closure could represent shifts to other settings, such as freestanding physician offices and FQHCs, rather than beneficiaries forgoing needed care. In that vein, we found that areas with a closure experienced faster growth after the closure occurred in the number of E&M visits across all settings compared with areas without a closure. Regardless of the effect on the use of services, rural hospital closures could require beneficiaries to travel farther to access care, which is especially concerning for emergency care.

### Improving Medicare's policies to support rural beneficiaries' access to care

Historically, Medicare's primary response to rural hospital closures has been to create special categories of rural hospitals that receive increased payment rates per service. To maintain eligibility for these special payments, hospitals are required to provide inpatient services. As of 2018, nearly all rural hospitals received higher than standard Medicare rates. Nevertheless, rural hospitals continued to close.

To address the most recent increase in rural hospital closures, some stakeholders have proposed options that would seek to preserve inpatient services. Under one

proposed option, Medicare would further increase payments by expanding the number of hospitals eligible for cost-based reimbursement or boosting payments well above costs (e.g., 115 percent of costs). The Commission has substantial reservations about the expanded use of cost-based reimbursement because it can distort competition, reduce incentives for cost control, benefit wealthier communities, and may not prevent hospital closures. Under another option, a global budget could be set that could preserve the revenue stream of a hospital with declining admissions. CMS is currently testing the use of global budgets for rural hospitals in multiple demonstrations.

Yet another option for addressing access to care in rural areas focuses on preserving access to emergency care rather than maintaining inpatient capacity. In 2018, the Commission recommended that Medicare allow isolated freestanding EDs to bill Medicare and provide such EDs with annual payments to assist with fixed costs. Along these lines, the Congress recently enacted a program that will allow hospitals to convert to "rural emergency hospitals." These new hospitals will not provide inpatient care but will provide round-the-clock ED care and will be able to furnish other services, such as outpatient services, nursing facility services, and ambulance services. Medicare will pay these new providers a monthly fixed rate, enhanced outpatient rates, and standard rates for other types of care. The program starts on January 1, 2023.

In addition to the newly established rural emergency hospital designation, the Congress recently enacted other provisions designed to increase access to care among rural beneficiaries, including more than doubling Medicare's payment rate cap for certain rural health clinics. Further, the extent to which policymakers make permanent certain Medicare payment policy changes enacted during the coronavirus public health emergency, most notably those related to telehealth, could affect utilization patterns for rural beneficiaries. Any future analyses of rural communities' access to care will need to account for these substantial policy changes, which are likely to help maintain or increase access to care for rural beneficiaries.

In response to our congressional mandate, over the next year, the Commission plans to expand our utilization analyses to include information on beneficiaries who are dually eligible for Medicaid and Medicare, have multiple chronic conditions, or reside in a medically underserved area. A final report is due in June 2022. ■

## Background

The Commission has a long history of monitoring beneficiaries' access to care. In our June 2012 report to the Congress, we analyzed access to care among rural beneficiaries by comparing their use of services with that of urban beneficiaries (Medicare Payment Advisory Commission 2012). Our analysis found large differences in service use across the nation's geographic regions but few differences between rural and urban beneficiaries' service use within regions. The report included a set of principles established by the Commission to guide expectations and policies with respect to rural access to, quality of, and payment for care (see text box on the June 2012 report, p. 172). The Commission established that:

- Access to care should be equitable for rural and urban beneficiaries. However, equitable access does not mean equal travel times for all services. Small rural communities are expected to have longer travel times to access highly specialized services given the large population base needed to support such services.
- Expectations for quality of care in rural and urban areas should be equal for nonemergency services that rural providers choose to deliver.
- Rural payment adjustments should be empirically justified; targeted toward low-volume, isolated providers; and designed to encourage cost control on the part of providers.

In July 2020, the House Committee on Ways and Means submitted a bipartisan request for the Commission to update its June 2012 report on rural beneficiaries' access to care. The Committee also requested information on beneficiaries who are dually eligible for Medicaid and Medicare, have multiple chronic conditions, or reside in a medically underserved area.[1] Last, the Committee requested that the Commission examine factors and trends that may have impacted rural communities since the 2012 report, such as the expanded use of telemedicine and provider consolidation. The Committee requested an interim report by June 2021 and a final report by June 2022.

In this interim report, we examine access to care by analyzing data from two surveys—the Commission's annual survey of Medicare beneficiaries and CMS's Medicare Current Beneficiary Survey (MCBS). In addition, we analyze Medicare claims data to examine trends in the use of clinician services, hospital inpatient and outpatient services, skilled nursing facility (SNF) services, and home health services among beneficiaries who reside in rural or urban counties. Not all rural areas are alike, so our analyses divide areas with varying degrees of rurality into several categories to better understand beneficiary characteristics and utilization patterns in these areas (see text box on defining rural and urban counties, p. 173). We then examine one particular trend that could affect beneficiaries' access to care—rural hospital closures. We include a summary of virtual site visits to three rural communities that recently experienced a hospital closure, results from a quantitative analysis of 40 recent hospital closures, and information on Medicare's policies to improve access to care in rural areas.

In addition to access, quality of care in rural areas remains a top priority for the Commission. However, an assessment of rural quality of care is complex (in part due to data challenges related to rural and urban coding differences) and warrants a more complete evaluation than is possible in this report. A directory of rural health quality research is available from a database funded by the Office of Rural Health Policy (https://ruralhealthresearch.org/topics/quality).

## Rural and urban beneficiaries have similar access to care, although some differences exist

We examined access to care by analyzing data from two surveys—the Commission's annual survey of Medicare beneficiaries and CMS's MCBS—and Medicare claims data. Survey data have the benefit of measuring access directly and are less likely to be affected by issues that can confound the interpretation of claims-based access measures, such as utilization patterns driven by differences in provider practice patterns or Medicare billing rules. However, survey data can be limited by a relatively small number of rural respondents (especially in frontier areas) and somewhat blunt access measures (e.g., a yes/no question about whether someone had trouble accessing care) (Henning-Smith et al. 2019b). By contrast, Medicare claims data, though an indirect access measure, have the advantage of including information from 100 percent of Medicare fee-for-service (FFS) beneficiaries, allowing us to examine trends longitudinally

## The Commission's June 2012 report on rural beneficiaries' access to care

In our June 2012 report to the Congress, the Commission analyzed access to care among rural beneficiaries by comparing their use of services with that of urban beneficiaries. The Commission found very little difference between rural and urban beneficiaries' average use of services, but utilization varied substantially across geographic regions of the country. The 2012 report included a set of principles established by the Commission to guide expectations and policies with respect to rural access to, quality of, and payment for care.

The Commission's first principle is that access to care should be equitable for rural and urban beneficiaries. However, equitable access does not mean equal travel times for all services. Small rural communities are expected to have longer travel times to access highly specialized services given the large population base needed to support such services. The Commission examines the volume of services received, as well as beneficiaries' reported satisfaction with access to services, to assess whether access is equitable and results in beneficiaries receiving an equal level of services. Satisfaction can be met by ensuring that rural areas have adequate primary care networks and that rural patients receive referrals for appropriate specialty care when necessary.

The second principle is that expectations for quality of care in rural and urban areas should be equal for nonemergency services that rural providers choose to deliver. That is, if a provider has made a discretionary decision to provide a service, that provider should be held to a common standard of quality for that service, irrespective of whether the service is provided in an urban or rural location. By contrast, emergency services may be subject to different quality standards to account for different levels of staff, patient volume, and technology between urban and rural areas. The relevant quality benchmark for emergency care should be either a level that is achieved by other small hospitals or expected outcomes given additional transportation time if the small rural hospital no longer offers emergency care.

The third principle is that any special payments to rural providers should be targeted, empirically justified, and designed to encourage efficiency. Providers in rural areas often have a low volume of patients. In some cases, this lack of scale increases costs per unit of service and puts the provider at risk of closure. To maintain access in these cases, Medicare may need to make higher payments to low-volume providers that cannot achieve economies of scale available to urban providers. However, low volume alone is not a sufficient measure to assess whether higher payments are warranted. Medicare should not pay higher rates to two competing low-volume providers in close proximity. These payments may deter small neighboring providers from efficiently consolidating care in one facility, resulting in poorly targeted payments and possibly contributing to poorer outcomes for the types of care where there is a volume–outcome relationship.

To target special payments where warranted, Medicare should direct these payments to providers that are uniquely essential for maintaining access to care in a given community. In addition, the payments need to be structured in a way that is empirically justified and encourages efficient delivery of health care services. Finally, rural payment adjustments should be designed in ways that encourage cost control on the part of providers. While all hospitals have some incentive for cost control (they must keep average costs below average revenue), fixed add-on payments generally have a greater incentive for cost control than cost-based payments. ■

and analyze granular trends regarding how beneficiaries access care. For example, claims data allow us to analyze the types of clinicians beneficiaries use (e.g., primary care vs. specialists), the sites of service where providers furnish care (e.g., hospital outpatient departments, rural health clinics), where care was delivered (e.g., locally or centralized in urban areas), and how utilization patterns have changed over time. Because of discrepancies in risk

## Defining rural and urban counties

In this report, we primarily rely on county-level designations established by the Office of Management and Budget to determine whether a beneficiary or provider is located in a rural or urban area. We consider all metropolitan counties to be urban and all other counties rural. We stratify rural counties by whether they are micropolitan or not; we describe rural counties that are not micropolitan as either adjacent to a metropolitan area (i.e., rural adjacent) or not adjacent to a metropolitan area (i.e., rural nonadjacent) (Table 5-1). (In some analyses with a limited number of observations, we combine rural adjacent and rural nonadjacent counties into an "other rural" category.)

To supplement our main rural and urban classifications, we also separately analyze frontier counties. Counties are classified as frontier if the population density within that county is six or fewer people per square mile.[2] These areas are more sparsely populated than most counties and therefore merit careful consideration. ■

**TABLE 5–1** **Definitions of rural and urban counties used in this report**

| Category | | | Definition of category |
|---|---|---|---|
| Urban | | | Urban (i.e., metropolitan) counties contain an urban cluster of 50,000 or more people. |
| Rural | Rural micropolitan | | Rural micropolitan counties contain a cluster of 10,000 to 50,000 people. |
| | Other rural | Rural adjacent | Rural adjacent counties are adjacent to urban areas and without a city of at least 10,000 people. |
| | | Rural nonadjacent | Rural nonadjacent counties are not adjacent to an urban area and do not have a city with at least 10,000 people. |

Note: A rural county is defined as adjacent to an urban area if it physically adjoins one or more metropolitan areas and has at least 2 percent of its employed labor force commuting to central metropolitan counties.

Source: Office of Management and Budget and USDA's Urban Influence Codes.

scores and MCBS data (and in other academic literature) on the relative health of rural beneficiaries, we present unadjusted utilization results throughout this report. (For context, see text box describing beneficiaries' health and demographic characteristics (pp. 174–175).)

The Commission's annual survey and the MCBS both suggest that rural and urban beneficiaries have similar access to care, although some minor differences exist, and those differences may increase as rurality increases. Similarly, our analysis of Medicare claims data indicates rural and urban beneficiaries generally have comparable utilization rates among the types of services we examined—clinician visits, hospital inpatient admissions, hospital outpatient visits, home health episodes, and skilled nursing facility days. Similar to our 2012 report, we found that utilization varied substantially across the nation's geographic regions, and these differences typically were far larger than those between rural and urban beneficiaries within regions.

### Most survey data suggest rural and urban beneficiaries have similar overall satisfaction with access to care

The Commission's annual survey of Medicare beneficiaries suggests that rural and urban beneficiaries have similar ability to access care. Among other questions, the Commission's survey asks respondents whether they

## Health and demographic characteristics of rural and urban beneficiaries

To determine the extent to which differences in beneficiary health and demographic characteristics vary systematically across rural and urban areas, we analyzed data from the Medicare Current Beneficiary Survey (MCBS) and supplemented that information with Medicare enrollment and risk score data.[3]

MCBS data suggest that rural beneficiaries are slightly less healthy than their urban counterparts. For example, in 2018, a higher share of rural beneficiaries reported that their health was "fair" or "poor" compared with urban beneficiaries (Table 5-2). This finding is consistent with other research that found, compared with their urban peers, rural beneficiaries have slightly lower life expectancy and have higher rates of smoking, lung cancer, and obesity (Medicare Payment Advisory Commission 2020, Singh and Siahpush 2014).

One exception to this general finding is that beneficiaries who reside in frontier areas appear slightly healthier than urban beneficiaries. One possible explanation for this exception is that some beneficiaries with substantial health care needs may choose not to live in frontier areas, given the distance they have to travel to access care.

In contrast to the findings based on self-reported health status, we and others have found that rural fee-for-service beneficiaries have lower average risk scores than their urban counterparts (Malone et al. 2020). In theory, lower risk scores among rural beneficiaries imply that they are healthier than urban beneficiaries. However, we suggest caution when interpreting these data because provider coding behavior could help explain them. Providers in rural areas have fewer financial incentives than urban providers to comprehensively document beneficiaries' diagnoses in claims data, which form the basis of risk scores. For example, Medicare's payments to critical access hospitals, which predominantly treat rural beneficiaries, do not increase based on the diagnoses they document because these hospitals are paid on the basis of their costs. In contrast, Medicare's payments to hospitals operating under the inpatient prospective payment system (primarily urban hospitals) generally increase if they document additional diagnoses.[4]

Risk scores are commonly used to risk adjust data on patients' use of health care services. Doing so helps identify areas where utilization is high (or low) for reasons other than beneficiaries' health, which is generally seen as an appropriate reason for utilization to vary. However, the discrepancy between our findings on the relative health of rural beneficiaries based on risk scores and MCBS data (and academic literature) suggests that risk adjusting utilization based on comorbidities from claims or risk scores could produce misleading results. For that reason, we present unadjusted utilization results throughout this report and provide descriptive information regarding the health of rural and urban beneficiaries (Table 5-2). ■

*(continued next page)*

faced an unwanted delay in accessing care (for routine care or for an injury or illness), whether they did not access a doctor for a medical problem for which they should have, and the extent to which they faced problems getting an appointment with a new primary care provider or specialist physician. In the Commission's most recent survey, we found no statistically significant differences between rural and urban beneficiaries for these questions. For example, 82 percent of rural beneficiaries reported never having to wait longer than they wanted for an appointment for illness and injury care compared with 78 percent of urban beneficiaries, a difference that was not statistically significant. (For the full results of the most recent beneficiary survey, see the Commission's March 2021 report to the Congress.) The Commission has conducted this survey every year for over a decade, and while small transitory differences emerge occasionally, we have not found any substantial or sustained differences in access to care among rural and urban beneficiaries over that time.

**TABLE 5–2**

## Health and demographic characteristics of fee-for-service Medicare beneficiaries by location of residence, 2018

| | Urban | Rural micropolitan | Rural adjacent | Rural nonadjacent | Frontier |
|---|---|---|---|---|---|
| **Characteristics of all FFS beneficiaries with Part A for 12 months in 2018** | | | | | |
| Share of Medicare FFS population | 80.0% | 11.6% | 7.0% | 1.5% | 1.3% |
| Mean HCC risk score | 1.11 | 1.09 | 1.08 | 1.04 | 0.97 |
| Had a disability | 14.5% | 17.6% | 16.7% | 16.3% | 11.5% |
| ESRD | 1.1% | 0.9% | 0.8% | 0.6% | 0.6% |
| Age | | | | | |
| 64 or younger | 14.9% | 17.9% | 17.0% | 16.5% | 11.7% |
| 65–74 | 51.4 | 48.9 | 48.9 | 48.8 | 53.1 |
| 75–84 | 23.5 | 23.7 | 24.5 | 24.7 | 25.4 |
| 85 or older | 10.3 | 9.5 | 9.6 | 10.0 | 9.7 |
| **Responses from MCBS survey sample (*n* = 14,787)** | | | | | |
| Number of respondents | 11,096 | 2,080 | 1,013 | 276 | 322 |
| Race | | | | | |
| White | 71.4% | 80.7% | 85.1% | 91.3% | 78.9% |
| Black | 10.5 | 7.6 | 10.1 | 1.4 | 1.2 |
| Hispanic | 12.4 | 4.3 | 1.2 | 1.1 | 12.1 |
| Other | 5.7 | 7.4 | 3.7 | 6.2 | 7.8 |
| Education | | | | | |
| Less than high school | 17.3% | 20.5% | 24.2% | 15.0% | 16.1% |
| High school graduate | 26.9 | 32.5 | 41.1 | 33.8 | 30.6 |
| Beyond high school | 55.8 | 47.0 | 34.8 | 51.1 | 53.2 |
| Health status | | | | | |
| Excellent | 16.9% | 14.4% | 11.8% | 14.3% | 16.7% |
| Very good | 29.5 | 28.7 | 26.0 | 32.9 | 34.8 |
| Good | 30.5 | 30.1 | 30.6 | 30.2 | 27.0 |
| Fair/Poor | 22.6 | 26.4 | 31.2 | 22.2 | 21.2 |
| Supplemental insurance | | | | | |
| Medicaid | 20.1% | 20.9% | 28.3% | 25.7% | 14.3% |
| Medicare only | 23.2 | 26.4 | 23.6 | 24.6 | 26.6 |
| Employer sponsored | 26.6 | 19.8 | 16.8 | 18.3 | 22.4 |
| Medigap/other | 30.1 | 32.8 | 31.2 | 31.4 | 36.7 |
| Other | | | | | |
| Currently working | 13.7% | 14.4% | 8.9% | 11.4% | 21.8% |
| Has a usual source of care | 93.3 | 93.0 | 91.4 | 93.2 | 82.3 |
| Live alone | 30.3 | 31.2 | 35.2 | 30.6 | 31.9 |
| Any ADL limitation | 27.2 | 28.8 | 31.6 | 22.8 | 26.1 |
| Arthritis | 30.1 | 33.5 | 31.5 | 30.3 | 22.4 |
| Broken hip | 3.9 | 5.1 | 4.3 | 4.4 | 5.1 |
| Cancer | 19.3 | 19.7 | 19.5 | 26.2 | 17.4 |
| Dementia | 2.8 | 2.6 | 3.3 | 2.4 | 2.8 |
| Depression | 26.3 | 28.6 | 26.9 | 27.0 | 23.3 |
| Diabetes | 33.6 | 33.0 | 34.7 | 27.9 | 30.1 |

Note: FFS (fee-for-service), HCC (hierarchical condition category), ESRD (end-stage renal disease), MCBS (Medicare Current Beneficiary Survey), ADL (activity of daily living). We restricted this analysis to beneficiaries with 12 months of Part A coverage. Supplemental insurance is determined using a hierarchy of a beneficiary's insurance coverage over the 12-month period. HCC risk scores are normalized. Risk scores are generally above 1.0 because we require 12 months of Medicare enrollment to be included in the table, which excludes newly enrolled beneficiaries (who are relatively healthy on average). Numbers may not sum to totals due to rounding.

Source: MedPAC analysis of CMS's Medicare Current Beneficiary Survey (2018), enrollment data, and risk score data.

Most survey questions from the MCBS also suggest that rural and urban beneficiaries have similar access to care. The Commission's analysis of 2018 MCBS data found no substantive differences between rural and urban beneficiaries for several access measures, including identical rates of satisfaction with care (93 percent), trouble accessing care (7 percent), and forgoing care (7 percent) (Medicare Payment Advisory Commission 2021). These findings are similar to those published by other researchers using 2016 MCBS data (Henning-Smith et al. 2019a).

Despite the preponderance of similarities between rural and urban beneficiaries' access measures, some small differences exist around satisfaction with travel times, and those differences tend to increase as rurality increases. Based on 2018 MCBS data, we found that a higher share of rural beneficiaries was dissatisfied with the ease of getting to the doctor from their home, access to medical care on nights and weekends, and availability of specialist care. For example, the survey data showed that 4 percent of urban beneficiaries were dissatisfied with the ease of getting to the doctor from their home compared with 7 percent to 8 percent for rural micropolitan/rural adjacent/rural nonadjacent beneficiaries, and 10 percent for frontier beneficiaries. Other researchers, using 2016 MCBS data, found that some of the rural-urban differences persisted after adjusting for sociodemographic and health characteristics (Henning-Smith et al. 2021). The higher levels of dissatisfaction among rural beneficiaries, especially as related to accessing specialty care, were partially due to the need to travel farther to access care (see Table 5-6, p. 180).

## Rural and urban beneficiaries had similar numbers of primary care evaluation and management encounters but fewer encounters with specialists

To update our 2012 work on rural beneficiaries' access to care, we first examined differences in rural and urban FFS beneficiaries' use of clinician services.[5] For our 2012 report, the Commission examined ambulatory volume by combining clinician office visits and hospital outpatient department visits. In this updated analysis, we disaggregate ambulatory services into detailed service groups for a more granular view of how access to care varied for rural and urban beneficiaries.

To examine trends in the use of clinician services over time, we focused on evaluation and management (E&M) services in 2010 and 2018. E&M services are some of the most common services in Medicare, accounting for half of all physician fee schedule spending in 2019 (Medicare Payment Advisory Commission 2020). Examining E&M services can measure entry into the health care system because most beneficiaries receive an E&M service before receiving other services (e.g., an E&M office visit before getting an MRI). E&M services are billed by a variety of clinicians, including primary care physicians and specialists, and occur in a range of settings, such as physician offices, emergency departments (EDs), and nursing facilities.

To measure the use of E&M services, we count the number of beneficiaries' encounters with clinicians. Relying on encounters to measure utilization minimizes differences across payment systems through which Medicare pays for E&M services—the physician fee schedule, the Federally Qualified Health Center (FQHC) prospective payment system, the rural health clinic (RHC) payment system, and critical access hospital (CAH) method II billing.[6]

On a per beneficiary basis, we found that rural beneficiaries had fewer E&M visits than urban beneficiaries after accounting for substantial amounts of regional variation. Rural beneficiaries' lower E&M use was mainly attributable to fewer encounters with specialist physicians. On average, rural beneficiaries traveled substantially farther than urban beneficiaries to access specialist care, which may partially explain the differences in the number of specialist E&M encounters between these groups of beneficiaries.

### Rural beneficiaries had fewer E&M encounters than urban beneficiaries

Rural beneficiaries had fewer E&M encounters than urban beneficiaries in both 2010 and 2018. In 2018, urban beneficiaries had an average of 13.4 E&M encounters compared with averages ranging from 9.0 to 11.5 encounters per beneficiary for our various categories of rural beneficiaries (Table 5-3). Despite these differences, the average number of E&M encounters per beneficiary increased over time across all categories of rural and urban beneficiaries. Utilization growth was similar across these categories with the exception of frontier beneficiaries, whose use increased somewhat more slowly over time. For example, from 2010 to 2018, the average number of E&M encounters per urban beneficiary increased by 0.7 (12.7 to 13.4), 0.8 for rural adjacent beneficiaries (10.6 to 11.4), but only 0.2 for frontier beneficiaries (8.8 to 9.0).

**TABLE 5–3**

**Rural beneficiaries had fewer E&M encounters with clinicians than urban beneficiaries, but the growth in encounters was similar**

| Beneficiary residence, by type of county | Number of E&M encounters per beneficiary | |
|---|---|---|
| | 2010 | 2018 |
| **Range of use (statewide average is the unit of analysis): 5th and 95th percentiles** | | |
| States' urban areas *(50 states and DC)* | 9.5–14.9 | 9.9–15.9 |
| States' rural micropolitan areas *(47 states)* | 8.3–12.7 | 8.9–13.6 |
| States' rural adjacent areas *(44 states)* | 7.8–12.0 | 7.9–13.0 |
| States' rural nonadjacent *(43 states)* | 7.5–11.6 | 7.9–13.8 |
| States' frontier areas *(25 states)* | 7.2–10.6 | 7.9–11.5 |
| **Mean level of use per beneficiary** | | |
| Urban *(24.1 million beneficiaries)* | 12.7 | 13.4 |
| Rural micropolitan *(3.7 million beneficiaries)* | 10.9 | 11.5 |
| Rural adjacent *(1.8 million beneficiaries)* | 10.6 | 11.4 |
| Rural nonadjacent *(1.2 million beneficiaries)* | 10.0 | 10.6 |
| Frontier *(0.4 million beneficiaries)* | 8.8 | 9.0 |

Note: E&M (evaluation and management). Metropolitan (urban) counties contain an urban cluster of 50,000 or more people, rural micropolitan counties contain a cluster of 10,000 to 50,000 people, rural adjacent counties are adjacent to urban areas and without a city of at least 10,000 people, rural nonadjacent counties are not adjacent to urban areas and do not have a city with at least 10,000 people, and frontier counties have 6 or fewer people per square mile. Population numbers are from 2018. Only beneficiaries with 12 months of Part B fee-for-service coverage are included; because some beneficiaries have only Part A coverage, we include fewer beneficiaries in this table compared with other tables throughout this report. In the state-level analysis, states were excluded if they did not have a minimum number of Part B fee-for-service beneficiaries in a particular category.

Source: MedPAC analysis of CMS's carrier file, outpatient file, and Master Beneficiary Summary File.

After controlling for substantial variation across states, we found that rural beneficiaries had fewer E&M encounters per beneficiary. The four categories of rural beneficiaries had lower utilization rates than urban beneficiaries in all but a handful of states (data not shown). After accounting for state-level geographic variation, we found that in 2018, relative to urban beneficiaries, rural micropolitan beneficiaries had 8 percent fewer E&M encounters, rural adjacent beneficiaries had 10 percent fewer encounters, rural nonadjacent beneficiaries had 12 percent fewer encounters, and frontier beneficiaries had 18 percent fewer encounters.[7] Comparing these results with the national results in Table 5-3 suggests that from a third to just under half of the differences between urban and rural beneficiaries at the national level were due to state-level geographic variation.[8]

## Rural beneficiaries rely more on hospitals to access clinician care than do urban beneficiaries

Relative to urban beneficiaries, rural beneficiaries are more dependent on hospitals to access clinician care, and this dependence is growing. In 2018, urban beneficiaries received 29 percent of their evaluation and management (E&M) encounters in hospitals, compared with 34 percent for rural micropolitan beneficiaries, 37 percent for rural adjacent beneficiaries, 43 percent for rural nonadjacent beneficiaries, and 46 percent for frontier beneficiaries (Table 5-4). From 2010 to 2018, the share of E&M encounters in hospitals increased by 3 percentage points for urban beneficiaries, but the share increased by 7 percentage points to 9 percentage points among rural beneficiaries.[9] ■

**TABLE 5–4**

**Relative to urban beneficiaries, rural beneficiaries received a high and more rapidly growing share of their E&M encounters in hospital-based settings**

| Beneficiary residence, by type of county | Encounter setting | Number of E&M encounters (in millions) | | Average annual growth rate, 2010–2018 | Share of E&M encounters in hospital or nonhospital settings (within beneficiary residence location) | |
|---|---|---|---|---|---|---|
| | | 2010 | 2018 | | 2010 | 2018 |
| Urban | Nonhospital | 247 | 262 | 0.7% | 74% | 71% |
| | Hospital | 85 | 105 | 2.7 | 26 | 29 |
| Rural micropolitan | Nonhospital | 32 | 31 | –0.2 | 73 | 66 |
| | Hospital | 12 | 16 | 3.9 | 27 | 34 |
| Rural adjacent | Nonhospital | 15 | 14 | –0.2 | 70 | 63 |
| | Hospital | 6 | 9 | 3.9 | 30 | 37 |
| Rural nonadjacent | Nonhospital | 8 | 8 | –0.7 | 66 | 57 |
| | Hospital | 4 | 6 | 4.5 | 34 | 43 |
| Frontier | Nonhospital | 2 | 2 | 0.9 | 62 | 54 |
| | Hospital | 1 | 2 | 5.2 | 38 | 46 |

Note: E&M (evaluation and management).

Source: MedPAC analysis of CMS's carrier file, outpatient file, and Master Beneficiary Summary File.

Because frontier areas are more sparsely populated than other rural areas, we further analyzed frontier beneficiaries' utilization patterns to determine whether their use was lower relative to other rural beneficiaries. Frontier beneficiaries are concentrated in a small number of states. In 2018, half of states had no frontier beneficiaries, and over 90 percent of frontier beneficiaries lived in 15 states. Restricting our analysis to only states with frontier beneficiaries, we found that frontier beneficiaries had 8 percent fewer E&M encounters than rural micropolitan beneficiaries but an equal number of encounters relative to rural adjacent and rural nonadjacent beneficiaries. These results suggest that the differences between frontier beneficiaries and rural adjacent/nonadjacent beneficiaries at the national level are due to state-level geographic variation (e.g., frontier beneficiaries tend to live in low-use states such as Montana and Wyoming).

**TABLE 5–5**

**Lower E&M utilization among rural beneficiaries was driven by fewer encounters with specialist physicians in 2018**

| | Average number of E&M encounters per beneficiary by specialty of clinician | | | | |
|---|---|---|---|---|---|
| **Beneficiary residence, by type of county** | **Specialist physicians** | **Primary care physicians** | **Advanced practice registered nurses or physician assistants** | **Other clinicians** | **Total** |
| Urban | 7.1 | 3.5 | 1.8 | 1.0 | 13.4 |
| Rural micropolitan | 5.1 | 3.2 | 2.3 | 0.9 | 11.5 |
| Rural adjacent | 5.2 | 3.2 | 2.2 | 0.8 | 11.4 |
| Rural nonadjacent | 4.6 | 2.9 | 2.3 | 0.8 | 10.6 |
| Frontier | 3.9 | 2.2 | 2.2 | 0.7 | 9.0 |

Note: E&M (evaluation and management). Only beneficiaries with 12 months of Part B fee-for-service coverage were included in this analysis. These figures do not account for "incident to" billing. The "other clinicians" category includes specialties such as psychologists, podiatrists, and licensed clinical social workers. Numbers may not sum to totals due to rounding.

Source: MedPAC analysis of CMS's carrier file, outpatient file, and Master Beneficiary Summary File.

### Rural beneficiaries' lower use of E&M services was driven by fewer encounters with specialist physicians

We conducted several additional analyses to explore why rural beneficiaries had fewer E&M encounters than their urban counterparts. We found several differences in the ways rural and urban beneficiaries access clinician care. For example, rural beneficiaries are more reliant on hospitals to access clinician care (see text box). However, the largest driver of differences was the number of visits with specialist physicians.

Rural beneficiaries' lower E&M utilization was mainly attributable to fewer encounters with specialist physicians. In 2018, urban beneficiaries averaged 7.1 E&M encounters per beneficiary with specialist physicians while rural beneficiaries' use ranged from 3.9 to 5.2 encounters per beneficiary (Table 5-5). These differences persisted after accounting for state-level regional variation. For example, rural micropolitan beneficiaries averaged fewer E&M encounters with specialists compared with urban beneficiaries in each of the 47 states with a rural population. After accounting for state-level regional variation, our four categories of rural beneficiaries had between 17 percent and 25 percent fewer E&M encounters with specialist physicians compared with urban beneficiaries (data not shown).

By contrast, rural beneficiaries had a similar number of primary care E&M encounters compared with urban beneficiaries. Nationally, rural beneficiaries averaged 0.3 to 1.3 fewer E&M visits with primary care physicians (Table 5-5). However, rural beneficiaries often had similar or higher numbers of E&M encounters with primary care physicians compared with urban beneficiaries in the same state (data not shown).[10] In addition, rural beneficiaries had more visits with advanced practice registered nurses (APRNs) and physician assistants (PAs), some of which were likely related to primary care.[11]

An exception to the similar numbers for primary care E&M encounters across geographic areas were the numbers for frontier beneficiaries. Even after accounting for regional variation and the use of APRNs and PAs, we found that frontier beneficiaries had fewer primary care E&M encounters than their urban counterparts. One factor that could partially explain this difference is that frontier beneficiaries appear to be somewhat healthier than urban beneficiaries.

In 2018, the median distance an urban beneficiary traveled for an E&M visit with a specialist was about 9 miles, compared with 26 miles to 58 miles for rural beneficiaries (Table 5-6, p. 180).[12] Differences in how far rural and urban beneficiaries traveled to access

**TABLE 5–6**

**Rural beneficiaries traveled substantially farther than urban beneficiaries for E&M visits with specialists in 2018**

| Beneficiary residence, by type of county | Median distance (in miles) from beneficiary residence to the location where the service was performed | |
|---|---|---|
| | Specialist physicians | Primary care physicians |
| Urban | 9.2 | 7.1 |
| Rural micropolitan | 26.3 | 9.3 |
| Rural adjacent | 34.6 | 15.6 |
| Rural nonadjacent | 42.9 | 13.2 |
| Frontier | 57.8 | 13.4 |

Note: E&M (evaluation and management). We used the centroid of the beneficiary ZIP code and the ZIP code where the service was performed to determine how far (in miles) a beneficiary traveled for a particular encounter.

Source: MedPAC analysis of CMS's carrier file, outpatient file, and Master Beneficiary Summary File.

primary care physicians were much smaller, with median travel distances ranging from about 7 miles for urban beneficiaries to almost 16 miles for rural adjacent beneficiaries. While local conditions vary, travel times could be even more similar due to less traffic in rural areas. These findings suggest that rural beneficiaries often accessed primary care locally while traveling substantial distances to access specialist care. The fact that rural beneficiaries traveled farther to access specialist care may partially explain the lower number of specialist visits among rural beneficiaries, as some beneficiaries may have chosen not to visit a specialist, condensed more issues into one visit, or sought care from local primary care providers regarding issues for which urban beneficiaries sought specialist care.

## Use of hospital inpatient services was similar among rural and urban beneficiaries, but rural beneficiaries used more hospital outpatient services

In addition to clinician use, we examined beneficiaries' use of hospital inpatient and outpatient services over time. In 2005 and 2018, rural beneficiaries had a similar number of hospital inpatient admissions compared with urban beneficiaries.[13] However, rural beneficiaries used more hospital outpatient services (e.g., imaging services and hospital-based clinic visits) than urban beneficiaries. This difference likely reflects where rural beneficiaries get their outpatient services rather than the number of services received. For all hospital services (and especially outpatient services), differences in utilization across geographic regions of the country were far larger than the differences between urban and rural beneficiaries within the same region.

### Inpatient use was similar among rural and urban beneficiaries, but variation across geographic regions was substantial

Use of inpatient care by rural and urban beneficiaries was similar in 2005 (the first year of our analysis) and stayed similar through 2018. In 2018, beneficiaries who lived in urban, rural micropolitan, and other rural areas averaged about 0.2 inpatient admissions per beneficiary (Table 5-7). One reason for the minimal difference in inpatient use among rural and urban beneficiaries is that rural beneficiaries receive much of their inpatient care in neighboring urban areas where admission recommendations will be made by the same physicians serving urban beneficiaries (Knudson et al. 2020).

Inpatient use varied substantially across geographic regions of the country, but differences among urban and rural beneficiaries within regions were minimal.[14] For example, in 2018, inpatient use in Hawaii was substantially below the national average for both rural and urban beneficiaries, with rural beneficiaries averaging 0.10 admissions per beneficiary and beneficiaries in the Honolulu metropolitan area averaging 0.11 admissions per beneficiary. By contrast, states such as West Virginia

**TABLE 5–7**

**Urban and rural beneficiaries had similar inpatient hospital use, but rural beneficiaries used hospital outpatient departments more**

| Beneficiary residence, by type of county | Inpatient admissions per beneficiary | | Outpatient claims per beneficiary | |
|---|---|---|---|---|
| | 2005 | 2018 | 2005 | 2018 |
| **Range of use (MSA/statewide rural area is the unit of analysis): 5th and 95th percentiles** | | | | |
| Urban areas *(384 MSAs)* | 0.19–0.32 | 0.14–0.25 | 1.5–5.2 | 1.7–7.1 |
| Statewide rural areas *(47 states)* | 0.20–0.33 | 0.15–0.23 | 2.6–5.5 | 2.7–7.1 |
| **Mean level of use per beneficiary** | | | | |
| Urban *(30.3 million beneficiaries)* | 0.26 | 0.20 | 2.8 | 3.2 |
| Rural micropolitan *(4.4 million beneficiaries)* | 0.28 | 0.20 | 3.6 | 4.5 |
| Rural adjacent *(2.6 million beneficiaries)* | 0.29 | 0.21 | 3.8 | 4.6 |
| Rural nonadjacent *(0.6 million beneficiaries)* | 0.29 | 0.20 | 4.4 | 5.2 |
| Frontier *(0.5 million beneficiaries)* | 0.27 | 0.18 | 4.2 | 4.6 |

Note: MSA (metropolitan statistical area). Metropolitan (urban) counties contain an urban cluster of 50,000 or more people, rural micropolitan counties contain a cluster of 10,000 to 50,000 people, rural adjacent counties are adjacent to urban areas and without a city of at least 10,000 people, rural nonadjacent counties are not adjacent to an urban area and do not have a city with at least 10,000 people, and frontier counties have 6 or fewer people per square mile. Data are limited to patients who had no months of Medicare Advantage coverage, were not in a Medicare cost plan, and were enrolled in Part A. Data are limited to those alive for 12 months.

Source: MedPAC analysis of the Medicare Provider and Analysis Review file and outpatient file from CMS.

had higher than average inpatient use, but variation within states was minimal. In 2018, rural beneficiaries in West Virginia averaged 0.23 admissions per beneficiary compared with 0.24 admissions per beneficiary in Morgantown, West Virginia.

### Rural beneficiaries had higher hospital outpatient use, with substantial variation across geographic regions

In both 2005 and 2018, rural beneficiaries had higher hospital outpatient utilization than urban beneficiaries. Over time, the use of hospital outpatient services increased among all beneficiaries, but the increase was generally faster among rural beneficiaries. For example, from 2005 to 2018, the number of hospital outpatient claims increased by 0.4 claims per urban beneficiary (from 2.8 to 3.2) compared with an increase of about 0.8 per rural beneficiary (Table 5-7).

While rural beneficiaries had higher hospital outpatient use than urban beneficiaries, differences in use across geographic regions of the country were far larger than the differences between urban and rural beneficiaries. For beneficiaries living in 384 urban areas across the country, the average number of outpatient claims per beneficiary ranged from 1.7 claims to 7.1 claims (Table 5-7). For rural beneficiaries, the state-level average number of outpatient claims per beneficiary ranged from 2.7 claims to 7.1. These wide ranges likely reflect differences in where beneficiaries received their care, as opposed to how much care they received.[15] Beneficiaries in some communities may get most imaging, urgent care, and even office visits

**TABLE 5–8**

**SNF and home health use was similar in rural and urban areas, but regional variation was substantial**

| Beneficiary residence, by type of county | Skilled nursing days per beneficiary in 2018 | Home health episodes per beneficiary in 2018 |
|---|---|---|
| **Range of use (MSA/statewide rural area is the unit of analysis): 5th and 95th percentiles** | | |
| Urban areas *(395 MSAs)* | 0.71–2.04 | 0.05–0.28 |
| Statewide rural areas *(47 states)* | 0.68–2.14 | 0.04–0.32 |
| **Mean level of use per beneficiary** | | |
| Urban *(30.3 million beneficiaries)* | 1.48 | 0.14 |
| Rural micropolitan *(4.4 million beneficiaries)* | 1.61 | 0.14 |
| Rural adjacent *(2.6 million beneficiaries)* | 1.71 | 0.16 |
| Rural nonadjacent *(0.6 million beneficiaries)* | 1.41 | 0.15 |
| Frontier *(0.5 million beneficiaries)* | 1.20 | 0.09 |

Note: SNF (skilled nursing facility), MSA (metropolitan statistical area). Metropolitan (urban) counties contain an urban cluster of 50,000 or more people, rural micropolitan counties contain a cluster of 10,000 to 50,000 people, rural adjacent counties are adjacent to urban areas and without a city of at least 10,000 people, rural nonadjacent counties are not adjacent to an urban area and do not have a city with at least 10,000 people, and frontier counties have 6 or fewer people per square mile. Data are limited to patients who had no months of Medicare Advantage coverage, were not in a Medicare cost plan, and were enrolled in Part A. Data are limited to those alive for 12 months.

Source: MedPAC analysis of CMS's home health standard analytic file and Medicare Provider and Analysis Review file.

at hospital-based outpatient departments, while these services may be more often provided at freestanding imaging centers, urgent care centers, or physician offices in other communities.

## Use of skilled nursing facility and home health services was similar for rural and urban beneficiaries

We also examined differences between rural and urban beneficiaries' use of two types of post-acute care—SNF and home health services. We found no evidence of systematic differences in SNF use between rural and urban beneficiaries. In 2018, compared with urban beneficiaries, rural beneficiaries averaged similar or higher SNF use, but frontier beneficiaries had lower use (Table 5-8). Lower SNF use among frontier beneficiaries does not necessarily suggest an access issue; rather, lower use among these beneficiaries could reflect differences in beneficiary demographics. Relative to urban beneficiaries, we found that a lower share of frontier beneficiaries had a disability (11.5 percent vs. 14.5 percent) and a higher share of frontier beneficiaries remained in the workforce (21.8 percent vs. 13.7 percent) (Table 5-2, p. 175). These findings suggest that a portion of frontier beneficiaries may relocate when they need institutional care, thus leaving frontier areas with a healthier Medicare population needing less SNF care.

Despite no systematic differences in SNF use between rural and urban beneficiaries, we found wide variation in use regionally, regardless of urban-rural location. Across the nearly 400 urban areas we studied, SNF use varied nearly threefold (0.71 days per beneficiary vs. 2.04 days per beneficiary) at the 5th and 95th percentiles (Table 5-8).

We found a similarly wide distribution of SNF use among rural beneficiaries.

For home health care, rural beneficiaries had similar or higher use rates compared with urban beneficiaries (Table 5-8). Beneficiaries residing in frontier areas had lower use than urban or other rural beneficiaries. This difference appears to reflect the fact that frontier beneficiaries are concentrated in relatively low-use states such as Montana, North Dakota, and South Dakota.

Geographic variation in home health use was particularly notable, with utilization rates varying by sixfold to eightfold across regions nationally (Table 5-8). In general, home health use was high in both rural and urban areas of the Gulf states but lower in other parts of the country. For example, in Louisiana, home health use was 147 percent above the national average among rural beneficiaries and 60 percent above the national average among urban beneficiaries. In contrast, home health use was 75 percent below the national average among both rural and urban beneficiaries in Hawaii.

We compared the 2018 service use shown in Table 5-8 with the 2008 service use we reported previously (Medicare Payment Advisory Commission 2012). In 2008, SNF use among urban beneficiaries was slightly higher than among rural beneficiaries. This difference had reversed by 2018, with SNF use slightly higher for rural beneficiaries due to a greater decline in SNF use by urban beneficiaries. From 2008 to 2018, SNF use declined by 0.6 day per urban beneficiary compared with 0.3 day per rural beneficiary.[16] Home health use also declined slightly over the same period among urban beneficiaries (by 0.01 episode per beneficiary). Home health use among rural beneficiaries has not changed since 2008. Changes in SNF and home health use reflect a broader trend in declining institutional care (including hospital care) over the past decade among FFS beneficiaries, the expansion of bundled payment demonstrations and accountable care organizations that encourage lower use of post-acute care (or the use of lower cost settings), patient preferences, and other factors.

## Examining causes and effects of rural hospital closures

Data from the University of North Carolina show that the annual number of rural hospital closures increased after 2013 (Figure 5-1, p. 184).[17] Given the central role hospitals often play in delivering care in rural communities, this trend has the potential to negatively affect beneficiaries' access to care. To study the causes and effects of rural closures, we conducted interviews with stakeholders (including community members, hospital executives, and clinician leaders) from three communities that experienced a recent hospital closure and analyzed a cohort of rural hospitals that closed from 2015 to 2019.

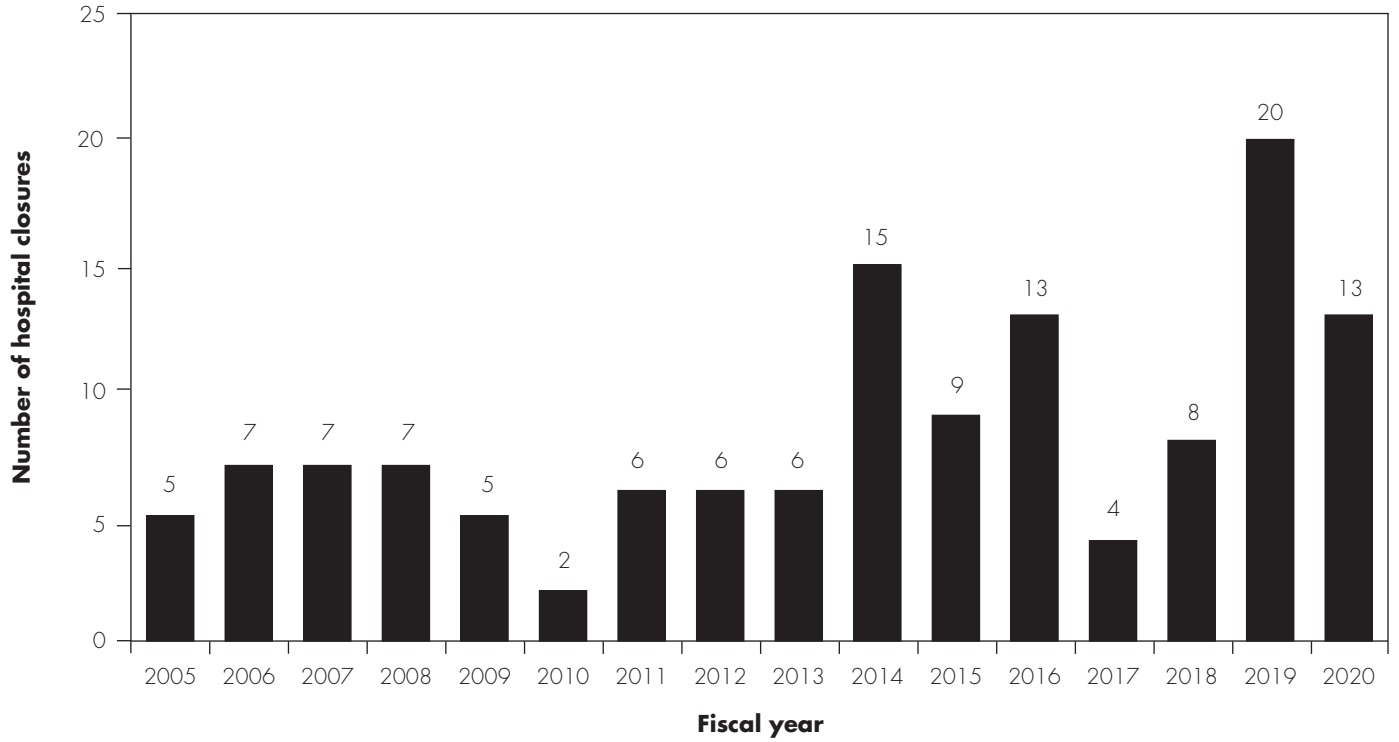
We found that hospital closures were preceded by dramatic declines in inpatient admissions, which was driven by patients increasingly bypassing their local hospitals in favor of more distant hospitals for inpatient care. Despite the loss of inpatient volume, these rural hospitals were important sources of outpatient care, especially emergency department (ED) care, before closure. This suggests that the loss of hospital EDs could have caused larger disruptions in access than the loss of inpatient services.

The effect of hospital closures on beneficiaries' service use was more difficult to discern. Areas that had a rural hospital closure experienced faster declines in the number of hospital inpatient admissions and hospital outpatient visits per beneficiary after the closure occurred compared with rural areas without a closure. However, factors other than hospital closures may have affected service use for beneficiaries in those communities. In addition, some of the declines in hospital outpatient visits in areas with a closure could represent shifts to other settings, such as freestanding physician offices and FQHCs, rather than beneficiaries forgoing needed care.

### Findings from virtual site visits to communities with a recent hospital closure

We conducted three virtual site visits to rural communities with a recent hospital closure. We selected communities based on geographic diversity and types of service providers that remained after the hospital closed (e.g., freestanding ED, urgent care center). We conducted interviews with several key stakeholders in each town, including hospital executives, city and county government officials, clinician leaders, and emergency medical services (EMS) staff. These interviews focused on assessing the reasons for the closures in these communities and how access to care changed after their local hospital closed. Table 5-9 (p. 185) summarizes some characteristics of the three communities.

**FIGURE 5–1** The number of rural hospital closures per year increased after 2013




Note: This figure is based on the count of closures as of February 2021 tracked by the Cecil G. Sheps Center for Health Services Research. Closures were aggregated by fiscal year. Closures were excluded from our summary if the hospital was located in a metropolitan statistical area. The annual number of closures could differ at points in time as some hospitals could eventually reopen.

Source: MedPAC analysis of closures among hospitals located in rural counties using data from the Cecil G. Sheps Center for Health Services Research.

### Before they closed, hospitals furnished little inpatient care but were a key source of access to emergency care

In each of the three rural communities, the local hospital furnished relatively little inpatient care before it closed. One hospital averaged less than one all-payer admission per day in the years before closure. Executives from all three hospitals reported an average daily inpatient census of one or two patients before closure. Stakeholders suggested that the decline in inpatient admissions was due in part to area residents bypassing their local hospitals in favor of larger, regional hospitals generally located within an hour's drive. Some community members we interviewed expressed concerns about the quality of care provided at their local hospital. Whether real or perceived, these concerns may have driven community members to use other hospitals for needed care. At a community meeting, one stakeholder asked, "Do you want your gallbladder taken out in a place that does two of them a year?" Hospital and clinician leaders in the community, while more measured, also expressed concerns about the quality of inpatient care furnished in their local hospitals. These leaders noted that, given the low volume of inpatient admissions, competing with larger regional hospitals in terms of the quality of facilities and staff would have been cost prohibitive.

Although inpatient volumes were very low, the three rural hospitals were a key source of access to emergency care before closure. Local leaders in all three communities said that ensuring timely access to emergency care was their first priority after their local hospital closed, although each community approached the problem differently. In one community, clinician leaders were convinced that they needed ED-level care to deal with accidents and

**TABLE 5–9** **Characteristics of the Commission's virtual site visit communities**

| Hospital or community characteristic | Town A | Town B | Town C |
|---|---|---|---|
| Ownership status | Private, for profit | Private, nonprofit | Private, nonprofit |
| Critical access designation | Yes | No | Yes |
| Number of beds | 25 | 25–50 | 25 |
| Distance to the nearest hospital | 25–35 miles | 25–35 miles | 25–35 miles |
| Medicaid expansion | No | No | Yes |
| Rural health clinics | Yes | Yes | No |
| Services after closure | Primary care practice with attached urgent care center; FQHC expansion | FQHC primary care clinic with urgent care center | 24/7 ED with outpatient services, FQHC primary care clinic |

Note: FQHC (Federally Qualified Health Center), ED (emergency department).

Source: MedPAC analysis of CMS's Provider of Services file and information gathered during MedPAC site visits.

other trauma cases. The hospital in their community became an outpatient department of a hospital about 30 miles away. On the site of the closed hospital, a new outpatient department operated as an ED and housed other services, including clinician services, imaging, and laboratory services. In another town, community members expressed a desire to open a freestanding ED but said that state law prohibited freestanding EDs, and an inability to bill Medicare as a freestanding ED made such a model financially unviable. In lieu of opening an ED, the FQHC in this community opened an urgent care clinic and hired a board-certified emergency medicine physician to staff it. Leaders in the community acknowledged that this arrangement did not replace an ED, but they expected to be able to treat many low-acuity or mid-acuity patients at the urgent care clinic. In addition, because urgent care clinics are less expensive to operate, the model was financially viable in that community. In the third community, a local physician opened an urgent care clinic adjacent to his existing primary care practice and hired nurse practitioners to help staff the clinic. The physician used the urgent care clinic to triage patients who began coming to his primary care practice after the hospital closed because he was the sole physician in the area. When patients presented at the urgent care clinic with conditions that could not be treated without hospital-level care, the staff worked with local EMS to transport the patients to a neighboring county.

Community members in multiple towns said that the importance of maintaining adequate EMS became heightened after their local hospital closed. In one town, transport times increased considerably after the hospital closed because ambulances had to drive patients to hospital EDs at least 30 miles away. When all ambulances in the county were transporting patients, the EMS staff coordinated with neighboring counties to provide backup service. These arrangements provided an important safety net in one town. However, these arrangements typically involve slower response times (because the ambulances are stationed farther away), which could be detrimental to patients who need immediate care.

### FQHCs played a leading role in maintaining access to clinician care after hospitals closed

Before they closed, each of the three hospitals supported access to clinician care in their communities. Two hospitals had provider-based RHCs. In the third community, the hospital hosted clinicians who would practice in the town one or two days a week. After the hospitals closed, the provider-based RHCs closed and other physicians stopped seeing patients in the town.

In each of the three communities, FQHCs were a major (and sometimes the sole) provider of clinician care after the hospitals closed. The FQHC staff we spoke with said their organizations increased access to care in multiple

ways. In one community, the FQHC moved into the facility once occupied by a provider-based RHC and began offering both primary care and urgent care services. In another community, the FQHC colocated with the new outpatient ED to provide primary care services. In two communities, FQHCs are in the process of outfitting buses to serve as mobile patient exam rooms. The buses will be staffed by nurse practitioners and registered nurses and outfitted to furnish office visits and simple diagnostics, such as laboratory tests.

Community leaders we spoke with said that FQHCs were critical to maintaining access to clinician care after their local hospital closed for multiple reasons. First, many new physicians do not want to open their own practice (especially in rural areas); without a local hospital, FQHCs are the only institutions capable of recruiting physicians into the rural communities. Second, FQHCs have the organizational and financial capabilities to recruit physicians. FQHCs can participate in the National Health Service Corps program, which provides student loan repayment that FQHC leaders said was critical to recruiting physicians into rural areas. FQHCs have other financial advantages, such as annual grant funding from the federal government, the ability to participate in the 340B program, and higher Medicare payment rates (relative to standard physician fee schedule rates). According to the FQHC leaders with whom we spoke, these financial advantages are important because, while they were able to hire nurse practitioners and physician assistants without too much difficulty, attracting primary care physicians to rural areas was difficult and expensive. Interviewees consistently said they had to offer primary care physicians substantially higher salaries to practice in rural areas. Across the communities, FQHC leadership reported paying base salaries of $215,000 to $250,000 for primary care physicians right out of residency, which they said is at least $15,000 more than they would offer in comparable urban areas. In addition to higher salaries, FQHC leaders also reported offering additional financial benefits to recruit physicians to rural areas, including loan repayment, relocation bonuses, and paying for moving expenses.

#### Affiliating with larger hospital systems was not always sufficient to remain open

Our discussions with rural hospital leaders over the past decade suggest that rural hospitals' affiliations with urban systems vary in both their structure and effects on rural providers. Several individuals we interviewed over this period indicated that the resources and funding provided by an established health system can be beneficial to small, rural hospitals. One of this year's interviewees mentioned that a health system invested millions of dollars to upgrade the local hospital's facilities. In prior years, interviewees have stressed how urban hospitals can help recruit physicians and assist with billing and computer systems. However, two of the three hospitals in the communities we visited were part of larger hospital systems or chains when they closed, suggesting that affiliation by itself is not sufficient to remain open. In one case, the parent hospital system—though financially solvent—decided it would no longer subsidize the financial losses at the smaller hospital. In another case, the parent system's financial difficulties led to the local hospital closing. The mixed results from affiliations ended up matching the mixed opinions rural stakeholders had regarding the affiliations. In the end, the value of affiliation agreements and system ownership of rural hospitals needs to be assessed on a case-by-case basis.

#### Communities' efforts to maintain hospitals were substantial

In each of the three towns, community members were very engaged in efforts to retain their local hospital. The engagement stemmed from the belief that their communities' health and economic well-being would be detrimentally affected if their local hospital closed. In one community, despite being located in one of the poorest areas of the country, residents twice voted to raise their taxes to provide an annual subsidy to their local hospital. In another community, the state government provided substantial funding to help maintain access to ED services and other outpatient care locally.

### Findings on a cohort of recently closed rural hospitals

In addition to conducting virtual site visits, we sought to better understand rural hospital closures by analyzing how changes in utilization patterns can lead to closures. To elucidate this relationship, we examined a cohort of rural hospitals that closed between 2015 and 2019. (For more information about this cohort of hospitals, see the text box, pp. 198–199.)

Among our cohort of 40 recently closed hospitals, we found large declines in inpatient admissions across all payers in the years before closure. Most of this decline was attributable to patients bypassing their local hospital in favor of other hospitals. By 2014, the median number

**TABLE 5–10**

**Rapidly declining admissions preceded rural hospital closures, and most of the decline was due to beneficiaries bypassing their local hospitals**

| | All-payer inpatient admissions (average per hospital) | | | Medicare inpatient admissions (average per hospital) | | | |
|---|---|---|---|---|---|---|---|
| **Hospital status and location** | **2005** | **2014** | **Percent change** | **2005** | **2014** | **Percent change** | **Share of admissions lost due to losing market share (in their primary market)** |
| **Hospitals that closed from 2015 to 2019** | | | | | | | |
| Rural micropolitan *(13 hospitals)* | 1,895 | 938 | –51% | 865 | 361 | –58% | 65% |
| Other rural *(27 hospitals)* | 1,208 | 530 | –56 | 696 | 273 | –61 | 63 |
| **Hospitals remaining open through 2019** | | | | | | | |
| Urban *(2,504 hospitals)* | 11,021 | 10,701 | –3 | 3,947 | 3,369 | –15 | Gained market share |
| Rural micropolitan *(747 hospitals)* | 3,523 | 2,864 | –19 | 1,689 | 1,188 | –30 | 22 |
| Other rural *(1,023 hospitals)* | 994 | 677 | –32 | 561 | 333 | –41 | 48 |

Note: "Lost due to losing market share" is the share of the lost Medicare admissions (from the primary market) due to local patients bypassing the local rural hospital for other hospitals. The remaining reduction is due to an overall reduction in inpatient use among fee-for-service beneficiaries in the primary market. Urban hospitals that remained open show a market share gain because they increased market share in their primary market.

Source: MedPAC analysis of Medicare cost report and claims data from CMS.

of annual all-payer admissions at the 40 hospitals fell to 488—about 1.3 admissions per day. By contrast, up to the date of closure, Medicare beneficiaries continued to use these 40 hospitals to access ED and outpatient care, with the number of ED visits at these hospitals slightly increasing over time.

### Recent rural hospital closures were preceded by dramatic declines in inpatient volume due to rural beneficiaries bypassing their local hospitals

We found that the 40 hospital closures were preceded by dramatic declines in all-payer and Medicare FFS admissions. From 2005 to 2014, all-payer inpatient admissions at these 40 hospitals fell by a total of 54 percent—51 percent among rural micropolitan hospitals and 56 percent among other rural hospitals (Table 5-10). We observed similar declines in the number of total Medicare FFS admissions.[18] Over the same period, the population of the counties in which these hospitals were located declined by an average of only 1 percent, suggesting that the loss of inpatient volume was not driven by population changes.[19]

Within each of the 40 closed hospitals' primary markets, the decline in Medicare FFS admissions was primarily due to losing market share to competing hospitals. The decline within each hospital's primary market resulted from one of two factors—a shrinking market (i.e., beneficiaries using any hospital less often) or loss of market share (i.e., beneficiaries shifting from using the local hospital to using a competitor). While a shrinking market did contribute to volume declines, we found that about two-thirds of the decline in Medicare admissions was attributable to patients increasingly bypassing their local hospitals in favor of other hospitals for inpatient care. For example, among the rural micropolitan closures, we found that 65 percent of

**TABLE 5–11**

**The volume of FFS emergency department visits at rural hospitals increased in the years before closure**

| Status and location | Average FFS Medicare ED visits per hospital | | |
|---|---|---|---|
| | 2005 | 2014 | Percent change |
| **Hospitals that closed from 2015 to 2019** | | | |
| Rural micropolitan *(13 hospitals)* | 1,293 | 1,455 | 13% |
| Other rural *(26 hospitals)* | 1,069 | 1,116 | 4 |
| **Hospitals remaining open through 2019** | | | |
| Urban *(2,381 hospitals)* | 3,818 | 4,998 | 31 |
| Rural micropolitan *(720 hospitals)* | 2,506 | 3,125 | 25 |
| Other rural *(1,007 hospitals)* | 1,129 | 1,353 | 20 |

Note: FFS (fee-for-service), ED (emergency department). Other rural hospitals are located in a county without an urbanized population of 10,000. Numbers may not sum to totals due to rounding. Data are limited to hospitals with complete outpatient claims on 2005 and 2014 cost reports; this restriction eliminated one closed hospital from our analysis.

Source: MedPAC analysis of outpatient file data from CMS.

the decline in Medicare FFS admissions from the primary market was due to a loss of market share (Table 5-10, p. 187). (For more information about volume trends for our cohort of hospitals, see text box, pp. 198–199.)

In contrast to our cohort of closed rural hospitals, urban hospitals that remained open on average gained market share from their primary market as a few competing urban hospitals closed. Urban hospitals also increasingly cared for beneficiaries from rural areas (i.e., some of the market share that rural hospitals lost went to urban hospitals). This change is reflected in the fact that urban hospitals gained market share, while all categories of rural hospitals lost market share (Table 5-10, p. 187).

Because beneficiaries increasingly chose to bypass their local hospitals in favor of competing hospitals, our cohort of 40 hospitals generally had an extremely low number of inpatient admissions immediately before closure. In 2005, we found that the 40 hospitals captured 27 percent of the Medicare admissions among beneficiaries living in their primary markets. By 2014, their market share had fallen to 16 percent (see text box on closed rural hospitals, pp. 198–199). Due to beneficiaries seeking care elsewhere (and lower overall inpatient use), by 2014, the median number of annual all-payer admissions at the 40 hospitals had fallen to 488—about 1.3 admissions per day. Extremely low volume generally increases the costs per admission and creates logistical challenges (e.g., with staffing), which ultimately raises the question of whether hospitals that are used so infrequently are critical for ensuring access to inpatient care.

### Use of emergency department services by Medicare FFS beneficiaries increased before closure of rural hospitals, while outpatient visits declined modestly

In contrast to the decline in inpatient admissions, FFS beneficiaries' ED visits increased before closure among our cohort of hospitals. Specifically, from 2005 to 2014, total ED visits by FFS beneficiaries increased 13 percent at the 13 rural micropolitan hospitals and increased 4 percent at 26 other rural hospitals in the cohort (Table 5-11).[20]

**TABLE 5–12**

**Hospitals lost a moderate amount of outpatient market share before closure, but often continued to be a material provider of outpatient services**

| Status and location | Average Medicare FFS hospital outpatient claims per hospital | | |
|---|---|---|---|
| | 2005 | 2014 | Percent change |
| **Hospitals that closed from 2015 to 2019** | | | |
| Rural micropolitan *(13 hospitals)* | 8,807 | 8,728 | –1% |
| Other rural *(26 hospitals)* | 6,863 | 5,756 | –16 |
| **Hospitals remaining open through 2019** | | | |
| Urban *(2,381 hospitals)* | 35,208 | 41,818 | 19 |
| Rural micropolitan *(720 hospitals)* | 21,678 | 25,204 | 16 |
| Other rural *(1,007 hospitals)* | 9,281 | 9,902 | 7 |

Note: FFS (fee-for-service). "Other rural" hospitals are in a county without an urbanized population of 10,000. Data are limited to hospitals with complete outpatient claims on 2005 and 2014 cost reports; this restriction eliminated one closure from our analysis.

Source: MedPAC analysis of outpatient file data from CMS.

The increase in Medicare beneficiaries' ED visits among our cohort of hospitals was a product of two offsetting factors—an overall increase in the use of ED visits in the cohort markets and a declining market share captured by the cohort hospitals. For example, in the markets of our 13 rural micropolitan hospitals, the number of Medicare FFS ED visits increased from 2005 to 2014 by about 30 percent (data not shown). However, the local hospital's market share of that demand declined because beneficiaries bypassed their local ED, offsetting 17 percentage points of the gain. The net effect was a 13 percent increase in the number of ED visits furnished by these hospitals to FFS beneficiaries. We found a similar pattern for the 26 other rural hospitals that closed. The fact that ED use was increasing before closure suggests that the loss of the hospital EDs may have caused larger disruptions in access than the loss of inpatient services.

We also examined utilization changes among all hospital outpatient services, a category that includes ED visits, hospital-based office visits, outpatient therapy, and other services. For these services, among our cohort of hospitals, total Medicare FFS volume declined modestly before closure. From 2005 to 2014, the 13 rural micropolitan hospitals experienced a 1 percent decline in total Medicare FFS outpatient volume, and the 26 other rural hospitals experienced a 16 percent decline (Table 5-12).

Similar to our ED visit findings, the net changes in total Medicare FFS outpatient volume were the product of two partially offsetting effects. For example, from 2005 to 2014, in the markets of our 26 nonmicropolitan rural hospitals, the total number of Medicare FFS outpatient services increased by about 3 percent (data not shown). However, these 26 hospitals captured a 19 percent smaller share of their market's total services. The net effect was a 16 percent decline in the number of Medicare FFS hospital outpatient services furnished by these hospitals (Table 5-12). After these reductions, in 2014, the rural micropolitan and other rural hospitals provided an average of 24 and 16 Medicare FFS outpatient visits per day, respectively. These results suggest that beneficiaries still used these rural hospitals to access outpatient care before they closed.

## Hospital closures were associated with but may not have caused declines in hospital use

To analyze the effects of rural hospital closures, we compared changes in hospital service use in 20 markets where a rural hospital closed between 2015 and 2017 with 1,798 rural markets without a hospital closure over that period.[21] Specifically, for beneficiaries living in either "closure" or "nonclosure" markets, we calculated the change in per beneficiary inpatient admissions and hospital outpatient visits from 2014 (before the closures occurred) to 2018 (after the closures occurred). To account for the fact that beneficiaries who lived in areas with a closure likely increased travel for their care, we included services in our utilization rates regardless of whether they were furnished by local or more distant hospitals. To provide context for the changes in utilization that occurred immediately after the closures, we examined trends in the use of hospital services for a decade before the closures (2005 to 2014) for both our closure and nonclosure markets.

Beneficiaries' use of hospital services declined faster among those living in markets with a hospital closure compared with beneficiaries in other rural markets. From 2014 to 2018, the number of inpatient admissions per beneficiary among those living in markets with a closure declined by 1.4 percent per year compared with a decrease of 0.8 percent per year among beneficiaries in rural markets without a closure, a difference that was not statistically significant (Table 5-13). (In addition to having rates of change that were not significantly different, the absolute level of inpatient admission per capita in 2018 was equal for beneficiaries living in rural areas with and without a closure.) The difference for hospital outpatient visits was larger and statistically significant. Outpatient visits declined by 0.7 percent per year in markets with a closure compared with an increase of 1.6 percent per year in markets without a closure. Our results are similar to a recent Government Accountability Office (GAO) report, which conducted a similar analysis using a larger number of closures over a slightly different time frame (Government Accountability Office 2020).

These findings suggest that hospital service use may decline when a rural hospital closes. But we cannot conclude the closure caused the decline because service use trends among closure and nonclosure markets differed in the decade before the closures occurred, suggesting that factors other than hospital closures affect service use. For example, from 2005 to 2014, the number of inpatient admissions per beneficiary fell by an average of 4.3 percent per year in markets that would eventually experience a closure compared with a decline of 3.0 percent per year in markets without a closure (Table 5-13). This difference is not surprising because the decline in hospital use among a region's population may increase the probability that a hospital closes. In other words, a hospital located in a market where hospital use among residents declined significantly from 2005 to 2014 may have been more likely to close between 2015 and 2017.

### Hospital outpatient care likely shifted to other settings after hospitals closed

Some hospital outpatient visits (e.g., clinic visits) shift to other settings after a rural hospital closes. Under Medicare billing rules, services can generate two claims when billed in a hospital outpatient department—one claim for the hospital facility expenses and one claim for the clinicians' professional services. However, if the same service is performed in a physician's office, FQHC, or RHC, only one claim is generated. Therefore, if services shift from being performed in hospital outpatient departments to these other settings after a closure, then hospital outpatient volume could be expected to decline while the amount of care provided would stay the same. Therefore, to determine the extent to which some of the declines in hospital outpatient use found in our analysis's closure markets represented a shift from hospitals to other providers, we examined the change in the number of E&M encounters from 2014 to 2018 for both our closure and nonclosure markets. Our counts of E&M encounters are not sensitive to shifts in sites of care—that is, we count an E&M service as one encounter regardless of where it takes place.[22]

In our market analysis, the number of E&M encounters per beneficiary increased faster in the closure markets compared with the nonclosure markets. From 2014 to 2018, the number of E&M encounters per beneficiary grew 2.3 percent per year among beneficiaries in the closure markets compared with 1.7 percent per year among beneficiaries in nonclosure markets (data not shown).[23] Despite some differences in methodology, GAO's analysis also found that the number of E&M visits increased after rural hospitals closed (Government Accountability Office 2020).

We also examined the type of E&M encounters that drove the higher growth rate among the closure markets. From 2014 to 2018, the number of E&M office visits

**TABLE 5–13**

**Closed hospitals tended to be in markets with declining hospital use both before and after closure occurred**

| Beneficiary residence location | Did the only hospital in the market close between 2015 and 2017? | Average annual percent change in the market's service use per beneficiary in the decade before closure, 2005 to 2014 | | Average annual percent change in the market's service use per beneficiary just before and after closure, 2014 to 2018 | |
|---|---|---|---|---|---|
| | | Admissions | Outpatient visits | Admissions | Outpatient visits |
| Rural | Closure *(20 hospitals)* | –4.3%** | 0.3%** | –1.4% | –0.7%* |
| | No closure *(1,798 hospitals)* | –3.0** | 1.8** | –0.8 | 1.6* |

Note: *Indicates that the market with a closed hospital differs from the market without a closed hospital using a T-test at the $p < .05$ level of significance.
**Indicates that the market with a closed hospital differs from the market without a closed hospital using a T-test at the $p < .01$ level of significance.

Source: MedPAC analysis of CMS's Medicare Provider and Analysis Review File and outpatient file.

per beneficiary grew at a higher average annual rate in closure markets compared with nonclosure markets (1.2 percent vs. 0.6 percent), and the per beneficiary number of E&M encounters at FQHCs grew substantially faster in closure markets compared with nonclosure markets (11.4 percent per year vs. 6.7 percent per year). These findings are consistent with the actions local stakeholders reported taking in response to recent hospital closures in their communities—retaining or expanding outpatient care in their community after the closure by opening an urgent care clinic or new FQHC locations.

In our analysis, not all types of E&M encounters had higher growth rates in the closure markets. From 2014 to 2018, the number of E&M encounters furnished at emergency departments increased modestly in both closure and nonclosure markets, going from 0.73 to 0.74 encounters per beneficiary in closure markets and from 0.63 to 0.65 encounters per beneficiary in nonclosure markets.[24]

The overall increase in E&M encounters we found in markets that experienced a hospital closure suggests that some of the hospital outpatient volume declines in those markets reflect technical differences in claim generation patterns (e.g., a visit generating only one claim instead of two) rather than beneficiaries forgoing care.[25] However, even if the amount of care received by rural beneficiaries does not decrease, rural hospital closures can result in beneficiaries needing to travel farther to access it, which is especially concerning for emergency care. GAO found that the median distance to access emergency services increased by more than 20 miles after a rural hospital closure (Government Accountability Office 2020).

## Improving Medicare's policies to support access to care in rural areas

Hospitals often play a central role in delivering care in rural communities. Therefore, the increasing number of rural hospital closures has the potential to negatively affect beneficiaries' access to care and should be addressed with appropriate, targeted policymaking. Historically, Medicare's primary response to rural hospital closures has been to create special categories of rural hospitals that receive increased per service payment rates. Hospitals can be designated as CAHs, Medicare-dependent hospitals (MDHs), sole community hospitals (SCHs), and low-volume hospitals (Table 5-14, p. 192). To maintain eligibility for these special payment categories, hospitals are required to provide inpatient services. In 2018, over 95 percent of rural hospitals were CAHs, MDHs, or SCHs or qualified as a low-volume hospital and received higher than standard Medicare rates (Centers for Medicare & Medicaid Services 2020a). Nonetheless, rural hospitals continued to close.

**TABLE 5–14** **Summary of key programs that increase Medicare payment rates for rural hospitals**

| Name and year created | Eligibility requirements | Payment methodology adjustments |
|---|---|---|
| Critical access hospital<br><br>1997 | • Geographic: meets all of the following requirements:<br>  • Located in rural area or reclassified as rural<br>  • One of the following: (1) >35 miles from nearest hospital, (2) >15 miles via mountainous or secondary roads, or (3) before 2006, deemed as a necessary provider by the state<br>• Size: ≤25 acute inpatient beds | • Inpatient services: generally 101 percent of reasonable costs<br>• Other services: generally 101 percent of reasonable costs |
| Medicare-dependent hospital<br><br>1989 | • Geographic: located in rural area or reclassified as rural<br>• Size: ≤100 beds<br>• Other: ≥60 percent of inpatient days or admissions were for Medicare beneficiaries | • Inpatient: operating payments based on higher of (1) standard prospective payment or (2) the standard payment plus 75 percent of the amount by which the standard payment is exceeded by the hospital-specific rate based on costs as of 1982, 1987, or 2002 |
| Sole community hospital<br><br>1983 | Geographic: meets any of the following requirements:<br>• >35 miles from like hospital (i.e., non-CAH hospital); or<br>• located in rural area or reclassified as rural, 25–35 miles from like hospital, and ≤25 percent of residents or Medicare beneficiaries who become inpatients in hospitals' service area are admitted to other like hospitals (or admitting criteria would have been met if not for unavailability of necessary specialty services, and hospital has <50 beds); or<br>• located in rural area or reclassified as rural, 15–35 miles from like hospital, and because of topography or weather conditions, like hospitals are inaccessible for at least 30 days in each of two out of three years; or<br>• located in rural area or reclassified as rural, ≥45 minutes travel time to nearest like hospital because of distance, posted speed limits, and predictable weather conditions | • Inpatient: operating payments based on higher of (1) standard prospective payment or (2) hospital-specific rate based on costs as of 1982, 1987, 1996, or 2006<br>• Other services: 7.1 percent additional payment for outpatient services |
| Low-volume hospital<br><br>2005 | • Geographic: generally >15 miles from nearest traditional (non-CAH) hospital<br>• Size: <3,800 all-payer inpatient admissions per year | • Inpatient: additional percentage based on number of all-payer admissions, up to a maximum of 25 percent for hospitals with ≤500 admissions |

Note: CAH (critical access hospital). CAHs receive 101 percent of costs less a reduction due to the sequester that was in effect until the coronavirus pandemic. Hospitals can also face some losses if beneficiaries fail to pay coinsurance. The Bipartisan Budget Act of 2018 temporarily changed the definition of low volume to include hospitals with up to 3,800 all-payer annual admissions in fiscal years 2019 to 2022. This definition of low volume includes most rural hospitals. In 2023, the definition of low volume is scheduled to revert to a level of 200 admissions per year, which was the level set by CMS before 2011 when CMS had some discretion over setting the low-volume threshold (Centers for Medicare & Medicaid Services 2020a).

Source: Government Accountability Office and CMS.

To address the most recent increase in rural hospital closures, some stakeholders have proposed additional options that would seek to preserve inpatient capacity in rural areas by increasing payments to hospitals, such as by expanding the number of hospitals eligible for cost-based reimbursement or by boosting cost-based payments well above the level of costs.[26] The Commission has substantial reservations regarding the expanded use of cost-based reimbursement because such payment can distort competition, reduce incentives for cost control, benefit wealthier communities, and may not prevent hospital closures.

A second option proposed by stakeholders, and currently being tested by CMS in multiple demonstrations, is the use of global budgets for rural hospitals. Global budgets have operated in Maryland alongside hospital all-payer rate setting and may have achieved some modest success (Haber and Beil 2018, Haber et al. 2018, Roberts et al. 2018). However, Medicare hospital spending in Maryland is still higher than spending in other states. Other global budget models are being tested in Vermont and Pennsylvania (Centers for Medicare & Medicaid Services 2020b). These states differ from Maryland in that they have less developed regulatory structures and no all-payer rate setting. It is too soon to evaluate the success of these models. An analysis of global budget models is beyond the scope of this chapter but may be a subject of future Commission research.

Another option for addressing access to care in rural areas focuses on preserving access to emergency care by allowing rural freestanding EDs to bill Medicare, which the Commission recommended in 2018; the Congress recently enacted legislation that is broadly consistent with our recommendation. In addition, while not directly related to supporting rural hospitals, the Congress also recently enacted other policies designed to improve access to care in rural areas, including more than doubling the cap on Medicare's payment rates for certain types of rural health clinics over the next eight years. Further, the extent to which policymakers make permanent certain Medicare payment policy changes enacted during the coronavirus public health emergency—most notably, those regarding telehealth—could affect utilization patterns for rural beneficiaries. Any future work will need to account for these substantial policy changes, which are likely to help maintain or increase access to care for rural beneficiaries.

## Expanding cost-based reimbursement for rural hospitals is not an efficient approach to maintain access to care

Some stakeholders have supported expanding the number of hospitals eligible for cost-based reimbursement or increasing cost-based payments to well above 100 percent of costs (e.g., 115 percent of costs) to prevent rural hospital closures. The goal of expanding cost-based reimbursement is to support hospitals that lack economies of scale and therefore struggle to remain financially viable under prospective payment systems. Under cost-based reimbursement, hospitals' payment rates generally increase as their volume decreases because their fixed costs are spread over fewer cases. However, we highlight four issues with cost-based reimbursement. First, it does not always prevent hospital closures. Second, it can distort competition. Third, it favors wealthier communities. Fourth, if rates are increased to more than 100 percent of costs, it can materially reduce incentives for cost control.

### Cost-based reimbursement does not prevent all closures

Among our cohort of 40 hospitals that closed from 2015 to 2019, 15 were CAHs that Medicare paid on a cost basis. Closures among CAHs reflect the fact that Medicare is one payer in a multipayer system. Because Medicare (and often Medicaid) pays CAHs based on reasonable costs, the CAHs need to obtain enough grant funds and profits on private-pay patients to cover any losses on the uninsured.[27] As a result, CAHs in poorer communities with few privately insured patients and more uninsured patients may struggle to remain financially viable.

### Cost-based reimbursement can distort competition

Paying hospitals their costs can distort competition. To demonstrate this concept, we compared the average cost-based payment CAHs received for swing-bed services from 2005 to 2014 with the payment rates SNFs received under the SNF prospective payment system.[28] We found that CAHs' average cost-based payment increased rapidly over time, among both CAHs that closed and those that remained open, reflecting increased costs as the number of inpatient days declined. By 2014, the CAHs in our analysis all received more than $2,000 per day for swing bed services (Table 5-15, p. 194). By comparison, Medicare would have paid SNFs less than $450 per day on average for post-acute care. Even considering potential differences in case mix and the effect of SNF days on hospital cost accounting, these large payment differentials may give hospitals an unfair advantage in attracting rural patients, leading to high Medicare spending for episodes with post-acute care in swing beds.[29] Setting Medicare payment rates more equally would allow discharge planning to focus on quality and patient preferences.

### Cost-based reimbursement can benefit wealthier communities

CAHs in wealthier communities generally have more privately insured patients and a smaller share of uninsured patients. Therefore, their revenue per patient tends to be higher. As CAHs spend the funds (on things such as higher staff wages and newer facilities) generated from privately insured patients and outside fundraising activities, their

**TABLE 5–15**

**Rapid growth in post-acute care payments can distort competition and yet not always result in the hospital staying open**

| | Average payment per post-acute swing bed or SNF day | | Change in payment rate per day (2005 to 2014) | |
|---|---|---|---|---|
| **Provider category** | **2005** | **2014** | **Amount** | **Average annual change** |
| CAHs that closed between 2015 and 2019 *(15 hospitals)* | $1,120 | $2,054 | $934 | 7.0% |
| CAHs that remained open *(973 hospitals)* | 1,118 | 2,206 | 1,088 | 7.8 |
| Rural SNFs *(2,862 SNFs)* | 311 | 423 | 112 | 3.5 |

Note: SNF (skilled nursing facility), CAH (critical access hospital). The analysis is limited to CAHs billing for swing services on a cost basis in 2005 and 2019.

Source: MedPAC analysis of Medicare hospital and SNF cost report data from CMS.

costs increase. Their higher costs lead Medicare, in turn, to pay them higher rates. As a result, wealthier hospitals can often receive higher rates than poorer hospitals. For example, in 2018, CAHs in counties with a median family income over $60,000 received a median payment per post-acute swing bed day of about $2,400, while CAHs in counties with a median income under $40,000 received a median payment per day of about $1,700. Thus, cost-based reimbursement can direct the highest payment rates to hospitals that can afford the highest costs.

### Paying more than 100 percent of costs can distort incentives for cost control

Beyond expanding the number of hospitals eligible for cost-based payments, another commonly discussed alternative is paying hospitals more than the cost of care (e.g., 115 percent of costs). However, allowing Medicare payment rates to increase by more than a dollar for every dollar increase in costs creates an incentive to increase costs. For example, if a hospital had a cost center that was 90 percent Medicare and the program paid 115 percent of costs for patients receiving these types of services, the hospital could increase profits by increasing costs.

Hospitals paid more than their costs would also have a greater incentive to distort charges by increasing charges on services received by Medicare beneficiaries. This behavior would increase their cost-based payments and increase cost sharing paid by Medicare beneficiaries.[30] At CAHs, Medicare beneficiaries' coinsurance is set at 20 percent of outpatient charges—not 20 percent of costs. As a result, rural beneficiaries and their Medigap insurers already pay over half of the cost of outpatient care as cost sharing. In some cases, they pay more than 100 percent of the full cost of care (Briggs et al. 2016). This excess cost sharing can occur if charges are so high that 20 percent of charges is greater than 100 percent of costs. Expanding cost-based payment rates to over 100 percent of estimated costs of treating Medicare patients would increase the incentive to increase the charges on services frequently used by Medicare beneficiaries, which could increase the cost of care borne by beneficiaries and their supplemental insurers.

## Supporting access to emergency and hospital outpatient care in rural areas

For decades, rural beneficiaries have increasingly bypassed their local hospitals for inpatient care, and rural hospitals' inpatient volumes have fallen dramatically. As a result, approximately 40 percent of all rural hospitals admitted fewer than one patient per day in 2018. Despite providing little inpatient care, rural beneficiaries continue to rely on these hospitals to access outpatient care, especially ED services. However, Medicare has historically paid a facility for ED services only if it maintained inpatient capacity. As a consequence, small rural communities that want an ED must maintain a low-occupancy inpatient department in the hospital. This requirement can lead to financial losses when inpatient volumes fall too low to cover fixed inpatient costs, potentially risking the solvency of the hospital.

**TABLE 5–16**

**Summary of rural emergency hospital provision in the Consolidated Appropriations Act, 2021**

| Characteristic | Description |
|---|---|
| Time line | Medicare can begin to pay for rural REH services on January 1, 2023. |
| Eligible facilities | Facilities eligible to become an REH include those that, as of the date the Consolidated Appropriations Act, 2021, was enacted, were a:<br>• CAH or<br>• rural hospital with 50 or fewer beds. |
| Payment rates | Medicare will make three types of payments to REHs:<br>• A monthly fixed payment equal to 1/12 of the average amount CAHs received in 2019 over what the prospective payment systems would have paid for inpatient, outpatient, and skilled nursing facility services under the various prospective payment systems (in 2024 and after, the monthly fixed payment amount will be adjusted based on the hospital market basket)<br>• OPPS rates plus a 5 percent add-on for outpatient services<br>• Standard provider-based payments for other services (e.g., ambulance and post-acute care services) |
| REH services | • REHs cannot furnish hospital inpatient care (a distinct part inpatient skilled nursing facility is allowed).<br>• REH services include ED services, observation care services, and other outpatient services. These services cannot exceed an annual per patient average of 24 hours in REHs.<br>• The REH may operate a provider-based rural health clinic. |
| Select requirements | REHs will be required to:<br>• have an ED that is staffed 24/7;<br>• have a physician, nurse practitioner, clinical nurse specialist, or physician assistant available to furnish rural emergency hospital services 24 hours a day;<br>• have a transfer agreement with a Level I or II trauma center; and<br>• submit certain quality data to CMS. |
| Other provisions | • REHs may revert to their previous status (e.g., to a CAH).<br>• REHs can operate only in states that license such facilities. |

Note: REH (rural emergency hospital), CAH (critical access hospital), OPPS (outpatient prospective payment system), ED (emergency department), 24/7 (24 hours per day, 7 days per week).

Source: MedPAC summary of Consolidated Appropriations Act, 2021.

In June 2018, the Commission recommended that Medicare allow isolated stand-alone EDs (more than 35 miles from another ED) to bill standard outpatient prospective payment system (OPPS) facility fees and provide such EDs with annual payments to assist with fixed costs.

In the Consolidated Appropriations Act, 2021, the Congress created a new rural emergency hospital (REH) designation that is broadly consistent with the Commission's 2018 recommendation. Beginning in 2023, certain existing rural hospitals can convert to an REH. These new providers will be prohibited from furnishing hospital inpatient care but will furnish ED services and can provide other care as well. Medicare will make monthly payments to REHs to help cover fixed costs, pay OPPS rates with a 5 percent add-on for outpatient services, and pay standard provider-based rates for other services. Table 5-16 presents a detailed summary of the new REH designation.

The REH model will allow hospitals to eliminate the costs of maintaining an underutilized inpatient department while providing financial flexibility to furnish outpatient care that the local community desires. Hospitals' decisions on whether to convert to an REH will be influenced by a

number of factors, such as how CMS chooses to calculate the monthly payments REHs are scheduled to receive. The Commission will monitor the implementation of the new REH designation and, as mandated by the Consolidated Appropriations Act, 2021, will report on payments to REHs every year beginning in 2024.

## Supporting access to clinician care in rural areas

While not directly related to supporting rural hospitals, the Congress recently enacted other policies designed to improve access to care in rural areas. First, as part of the Consolidated Appropriations Act, 2021, the Congress substantially increased the payment rate cap for RHCs that are freestanding or associated with a hospital with 50 beds or more.[31] Before enactment, Medicare's payment rate for these RHCs was capped at $86 in 2020. The new law more than doubles this cap to $190 by 2028. After 2028, the payment rate cap will increase annually by the Medicare Economic Index (MEI).

As of 2018, most E&M visits among rural beneficiaries were billed through the physician fee schedule (see text box). As the increase to the RHC payment rate cap is phased in over time, rural clinicians may find it increasingly attractive to bill as an RHC rather than under the physician fee schedule. For example, for a midlevel office visit in 2021, the physician fee schedule rate ($92) is similar to the RHC payment rate cap ($100).[32] However, under current law, physician fee schedule rates will be flat through 2025 (and then increase by less than 1 percent per year thereafter), whereas the RHC payment rate cap is scheduled to increase by more than 10 percent per year until 2028 and increase thereafter by the MEI, which has averaged between 1 percent and 2 percent over the last few years. As a result, by 2028, the physician fee schedule payment rate for a mid-level office visit is projected to be about $95 compared with the RHC payment rate cap of $190.

Higher RHC payment rates could be attractive to a wide range of clinicians, especially nurse practitioners (NPs) and PAs. The Congress initially passed the Rural Health Clinic Services Act of 1977 to increase access to primary care in rural areas by allowing NPs and PAs to bill Medicare under the physician fee schedule directly. While NPs and PAs can now bill directly, Medicare pays 85 percent of the physician rate when a service is billed by an NP or PA under the physician fee schedule. Under the RHC payment system, Medicare's payment rate is not reduced if billed by an NP or PA.[33] In some states, NPs are allowed to own their own independent practice and thus will be able to bill for their costs up to the cap of $190 per visit.

RHCs have traditionally furnished primary care; however, neither statute nor Medicare regulations limit the care furnished at RHCs to only primary care. This flexibility suggests that the higher RHC payment rate caps could be attractive to different types of practices (e.g., urgent care facilities) and physicians with various nonsurgical specialties.[34]

Other policies enacted during the coronavirus public health emergency could also affect utilization patterns for rural beneficiaries if such policies are made permanent. For example, the Congress and CMS have temporarily expanded coverage of telehealth services, giving providers broad flexibility to furnish telehealth services in a variety of settings (including beneficiaries' homes), allowing audio-only E&M visits, and increasing payment rates for telehealth. Any future analysis will need to account for these substantial policy changes, which are likely to help maintain or increase access to care for rural beneficiaries. ■

## Most E&M encounters were billed under the physician fee schedule in 2010 and 2018

Most evaluation and management (E&M) encounters were billed under the physician fee schedule in 2010 and 2018. However, rural beneficiaries' encounters were more likely to be billed outside the fee schedule by Federally Qualified Health Centers, rural health clinics, and critical access hospitals (method II billing). Over time, rural beneficiaries' E&M encounters were also increasingly billed outside the fee schedule. For example, from 2010 to 2018, the share of rural nonadjacent beneficiaries' E&M encounters billed under the physician fee schedule decreased from 79 percent to 76 percent (Table 5-17). ■

**TABLE 5–17**

### Share of E&M encounters by billing pathway, 2010 and 2018

| Beneficiary residence location | Billing pathway | E&M encounters (in millions) | | Average annual growth rate, 2010–2018 | Share of E&M encounters in each billing pathway (within beneficiary residence location) | |
|---|---|---|---|---|---|---|
| | | 2010 | 2018 | | 2010 | 2018 |
| Urban | Physician fee schedule | 326 | 359 | 1.2% | 98% | 98% |
| | RHC | 2 | 2 | 0.9 | 1 | 1 |
| | FQHC | 4 | 6 | 5.7 | 1 | 2 |
| | CAH (method II billing) | <1 | 1 | 6.7 | <1 | <1 |
| Rural micropolitan | Physician fee schedule | 41 | 43 | 0.8 | 93 | 91 |
| | RHC | 2 | 3 | 2.3 | 5 | 5 |
| | FQHC | 1 | 1 | 6.4 | 2 | 3 |
| | CAH (method II billing) | <1 | 1 | 8.4 | 1 | 1 |
| Rural adjacent | Physician fee schedule | 18 | 19 | 0.8 | 85 | 83 |
| | RHC | 2 | 2 | 1.4 | 10 | 10 |
| | FQHC | 1 | 1 | 4.7 | 2 | 3 |
| | CAH (method II billing) | <1 | 1 | 7.7 | 2 | 3 |
| Rural nonadjacent | Physician fee schedule | 10 | 11 | 0.7 | 79 | 76 |
| | RHC | 2 | 2 | 2.0 | 15 | 16 |
| | FQHC | <1 | 1 | 4.4 | 3 | 4 |
| | CAH (method II billing) | <1 | 1 | 9.3 | 2 | 4 |
| Frontier | Physician fee schedule | 2 | 3 | 2.1 | 75 | 72 |
| | RHC | 1 | 1 | 2.3 | 18 | 17 |
| | FQHC | <1 | <1 | 5.7 | 3 | 4 |
| | CAH (method II billing) | <1 | <1 | 12.2 | 3 | 6 |

Note: E&M (evaluation and management), RHC (rural health clinic), FQHC (Federally Qualified Health Center), CAH (critical access hospital). Numbers may not sum to totals due to rounding. "CAH method II billing" refers to situations in which clinicians reassign their billing rights to a CAH. Medicare pays the CAH the standard physician fee schedule rate plus an additional 15 percent add-on for the professional component of the bill. Medicare also pays CAHs their standard cost-based payment for facility costs.

Source: MedPAC analysis of CMS's carrier file, outpatient file, and Master Beneficiary Summary File.

## Additional information on our cohort of 40 recently closed rural hospitals

To construct our cohort of the 40 rural hospitals we analyzed in this report, we started with a list of rural hospital closures from 2015 to 2019 that the Commission maintains as part of its annual payment adequacy work. We then excluded hospitals for which we could not identify Medicare claims data. After these exclusions, our final sample comprised 40 rural hospitals.[35]

To measure utilization changes before closure, we examined total all-payer admissions, total Medicare fee-for-service (FFS) admissions, and Medicare FFS admissions from a hospital's primary market from 2005 to 2014.[36] All-payer data provide the broadest view of hospital activity, and Medicare FFS data allow us to examine whether beneficiaries bypassed their local hospital for their inpatient care (because Medicare claims data has information on beneficiaries'

*(continued next page)*

**TABLE 5–18**

**Cohort of rural hospital closures, 2015 to 2019 (continued next page)**

| | | All-payer admissions | | | Medicare cases in the hospital's primary market | | Medicare market share | | Change in Medicare cases due to: | |
|---|---|---|---|---|---|---|---|---|---|---|
| Status after closure | Miles to nearest hospital | 2005 | 2014 | Percent change | 2005 | 2014 | 2005 | 2014 | A shrinking market | Losing market share |
| Fully closed | 13 | 1,941 | 782 | –60% | 729 | 279 | 43% | 26% | –151 | –299 |
| Clinic | 14 | N/A | N/A | N/A | 196 | 3 | 13 | 0 | –4 | –189 |
| 24-hour urgent care* | 117 | 353 | 51 | –86 | 82 | 16 | 49 | 15 | –9 | –57 |
| Fully closed | 16 | 1,751 | 1,035 | –41 | 706 | 228 | 24 | 10 | –65 | –413 |
| Fully closed | 31 | 1,839 | 618 | –66 | 1,076 | 336 | 59 | 36 | –314 | –426 |
| Clinic | 15 | 860 | 530 | –38 | 499 | 219 | 23 | 16 | –125 | –155 |
| ED | 22 | 1,109 | 743 | –33 | 683 | 266 | 40 | 18 | –49 | –368 |
| Urgent care | 18 | 3,014 | 1,703 | –43 | 1,667 | 713 | 73 | 51 | –453 | –501 |
| Clinic | 18 | 1,672 | 1,038 | –38 | 656 | 357 | 22 | 19 | –197 | –102 |
| Clinic | 24 | 661 | 199 | –70 | 362 | 90 | 49 | 21 | –67 | –205 |
| Urgent care | 29 | 157 | 133 | –15 | 108 | 73 | 6 | 5 | –16 | –19 |
| Clinic | 32 | 655 | 309 | –53 | 367 | 141 | 50 | 32 | –98 | –128 |
| Fully closed | 22 | 1,096 | 451 | –59 | 493 | 145 | 27 | 13 | –101 | –247 |
| Fully closed | 18 | 1,792 | 777 | –57 | 748 | 280 | 35 | 17 | –92 | –376 |
| Fully closed | 15 | 311 | 132 | –58 | 195 | 84 | 4 | 2 | –25 | –86 |
| Fully closed | 18 | 869 | 315 | –64 | 351 | 173 | 8 | 6 | –78 | –100 |
| Fully closed | 5 | 3,553 | 2,039 | –43 | 1,643 | 734 | 23 | 12 | –157 | –752 |
| Fully closed | 23 | 689 | 393 | –43 | 331 | 185 | 11 | 8 | –61 | –85 |
| Fully closed | 20 | 3,442 | 624 | –82 | 1,201 | 275 | 19 | 6 | –132 | –794 |
| Fully closed | 20 | 609 | 429 | –30 | 364 | 212 | 17 | 15 | –102 | –50 |
| Fully closed | 21 | 1,685 | 804 | –52 | 744 | 328 | 13 | 6 | –29 | –387 |

Note: ED (emergency department), N/A (not applicable). "Primary market" refers to the ZIP codes from which the hospital obtained at least 80 percent of its admissions during the 2011 to 2014 fiscal years (the five years before closure of any of the hospitals). "Loss in Medicare cases due to a shrinking market" refers to the expected number of admissions lost if the hospital's market share in 2014 was equal to its 2005 market share.
*The urgent care center is open 8 a.m. to 8 p.m., but a provider is on call 24 hours a day and will meet the emergency medical technician at the urgent care center if needed to stabilize and transport patients.

Source: MedPAC analysis of Medicare cost report and claims data from CMS.

## Additional information on our cohort of 40 recently closed rural hospitals (cont.)

ZIP code of residence). To evaluate bypass, we first created markets around each hospital in the country. To define the market, we ordered ZIP codes for each hospital according to how many Medicare admissions came from that ZIP code. We then added ZIP codes into the hospital's market until 80 percent of Medicare admissions were accounted for by the "primary market" ZIP codes. For some small hospitals, the primary market may be one ZIP code; for larger hospitals, it may be hundreds of ZIP codes. Once primary markets were defined, we examined changes in the share of beneficiaries from each hospital's primary market that used the hospital (as well as those who sought care at other hospitals) in the decade before closure. As a comparison, we calculated similar statistics for hospitals that remained open in urban, rural micropolitan, and other rural areas. Table 5-18 contains information for each of the 40 rural hospital closures we studied. ■

**TABLE 5–18**

### Cohort of rural hospital closures, 2015 to 2019 (cont.)

| | | All-payer admissions | | | Medicare cases in the hospital's primary market | | Medicare market share | | Change in Medicare cases due to: | |
|---|---|---|---|---|---|---|---|---|---|---|
| Status after closure | Miles to nearest hospital | 2005 | 2014 | Percent change | 2005 | 2014 | 2005 | 2014 | A shrinking market | Losing market share |
| Fully closed | 17 | 4,615 | 2,972 | –36 | 1,242 | 675 | 19 | 14 | –275 | –292 |
| Skilled nursing | 21 | 42 | 20 | –52 | 27 | 18 | 6 | 6 | –7 | –2 |
| ED | 29 | 320 | 140 | –56 | 177 | 66 | 29 | 18 | –47 | –64 |
| Fully closed | 14 | 993 | 340 | –66 | 461 | 174 | 11 | 7 | –92 | –195 |
| Fully closed | 17 | 1,747 | 636 | –64 | 921 | 365 | 34 | 26 | –334 | –222 |
| Fully closed | 32 | 1,297 | 526 | –59 | 546 | 266 | 25 | 18 | –135 | –145 |
| ED | 19 | 2,278 | 1,164 | –49 | 938 | 525 | 52 | 37 | –142 | –271 |
| Urgent care | 22 | 2,393 | 1,526 | –36 | 1,252 | 551 | 39 | 29 | –396 | –305 |
| Fully closed | 13 | 328 | 283 | –14 | 197 | 160 | 25 | 21 | –10 | –27 |
| Fully closed | 16 | 133 | 25 | –81 | 63 | 21 | 15 | 8 | –10 | –32 |
| Urgent care | 28 | 896 | 241 | –73 | 526 | 146 | 38 | 18 | –97 | –283 |
| Fully closed | 21 | N/A | N/A | N/A | 5 | 40 | 0 | 4 | –13 | 48 |
| Urgent care | 24 | 1,746 | 524 | –70 | 871 | 295 | 37 | 20 | –180 | –396 |
| Fully closed | 27 | 904 | 188 | –79 | 442 | 61 | 29 | 8 | –54 | –327 |
| Fully closed | 17 | 970 | 406 | –58 | 569 | 198 | 13 | 7 | –98 | –273 |
| Fully closed | 28 | 4,701 | 1,470 | –69 | 2,045 | 838 | 61 | 36 | –364 | –843 |
| Imaging center | 12 | 1,787 | 1,101 | –38 | 652 | 310 | 14 | 10 | –154 | –188 |
| Clinic | 16 | 87 | 39 | –55 | 62 | 10 | 5 | 1 | –7 | –45 |
| Clinic | 26 | 855 | 331 | –61 | 568 | 178 | 26 | 16 | –162 | –228 |
| Median values | 20 | 1,045 | 488 | –56 | 536 | 205 | 24 | 15 | –97 | –213 |
| Mean values | 23 | 1,425 | 659 | –54 | 619 | 251 | 27 | 16 | –123 | –246 |

Note: ED (emergency department), N/A (not applicable). "Primary market" refers to the ZIP codes from which the hospital obtained at least 80 percent of its admissions during the 2011 to 2014 fiscal years (the five years before closure of any of the hospitals). "Loss in Medicare cases due to a shrinking market" refers to the expected number of admissions lost if the hospital's market share in 2014 was equal to its 2005 market share.
*The urgent care center is open 8 a.m. to 8 p.m., but a provider is on call 24 hours a day and will meet the emergency medical technician at the urgent care center if needed to stabilize and transport patients.

Source: MedPAC analysis of Medicare cost report and claims data from CMS.

# Endnotes

1 Medically underserved areas are areas designated by the Health Resources and Services Administration as having too few primary care providers, high infant mortality rates, high rates of poverty, or a large elderly population.

2 Our frontier designation is not mutually exclusive from our primary rural and urban categories. We classify counties as urban or as one of our three primary rural categories (micropolitan, rural adjacent to a metropolitan area, or rural nonadjacent to a metropolitan area). In addition, we categorize all counties as frontier or not frontier. In our primary classification scheme, frontier counties are in all three rural categories, and a small number of frontier counties are considered urban.

3 The MCBS is a continuous survey of a nationally representative sample of the Medicare population. The MCBS provides information on beneficiaries' health status, access to care, and demographics, among other topics.

4 There are other examples of why urban providers have more financial incentives to document beneficiaries' diagnoses. For example, a larger share of urban beneficiaries is enrolled in Medicare Advantage, so to the extent provider coding behavior "spills over" from Medicare Advantage beneficiaries to FFS beneficiaries, urban beneficiaries' risk scores would be artificially higher.

5 Our claims analyses in this report include only FFS beneficiaries. We do not include beneficiaries enrolled in Medicare Advantage because encounter data are not sufficiently complete for the types of analyses we conducted.

6 FQHCs are safety net providers that operate in both urban and rural areas. Medicare pays FQHCs through a prospective payment system that began in 2014. RHCs largely deliver primary care in rural areas. For freestanding and certain provider-based RHCs, Medicare pays an all-inclusive rate per visit; for other RHCs (in hospitals with fewer than 50 beds), Medicare paid for visits on a cost basis during our study period. For the purposes of this report, we consider all services furnished at FQHCs and RHCs to be E&M services. "CAH method II" billing refers to situations where clinicians reassign their billing rights to a CAH. Medicare pays the CAH the standard physician fee schedule rate plus an additional 15 percent add-on for the professional component of the bill. Medicare also pays CAHs their standard cost-based payment for facility costs.

7 To determine the average difference between urban and each category of rural beneficiaries after accounting for state-level geographic variation, we first calculated the percentage utilization differences between urban and rural micropolitan, rural adjacent, rural nonadjacent, and frontier beneficiaries in each state. We then calculated an average difference across all states, weighted by the number of rural micropolitan, rural adjacent, rural nonadjacent, and frontier beneficiaries in each state.

8 For example, in 2018, frontier beneficiaries had 33 percent fewer encounters per beneficiary compared with urban beneficiaries (9.0 vs. 13.4). After controlling for state-level geographic variation, the difference was 18 percent, suggesting that 44 percent of the national difference was due to state-level geographic variation (i.e., 1 – (18 percent / 33 percent)).

9 Among rural beneficiaries, the shift toward hospital-based settings occurred across three billing pathways—a steady shift from nonfacility- to facility-based physician fee schedule services, a rapid shift from freestanding to provider-based RHCs, and rapid growth of services billed through CAHs (method II billing).

10 For example, at least one of our categories of rural beneficiaries averaged a higher number of E&M encounters with primary care physicians compared with urban beneficiaries in 25 out of the 47 states with a rural population.

11 Claims data do not indicate the specialty in which APRNs or PAs practice. Research suggests that about half of nurse practitioners, the most common type of APRN, and less than a third of PAs practice in primary care. The Commission has recommended that Medicare should refine the specialty designations for APRNs and PAs (Medicare Payment Advisory Commission 2019). The share of APRN/PA E&M encounters that are related to primary care is likely higher among rural beneficiaries compared with urban beneficiaries because (1) APRNs/PAs often practice in RHCs and FQHCs; (2) RHCs and FQHCs predominantly furnish primary care; and (3) RHCs and FQHCs disproportionally serve rural beneficiaries.

12 We used median travel distances to limit the effect of outliers, including observations for which we believed the beneficiary ZIP code of residence in Medicare's enrollment data did not accurately reflect where beneficiaries lived when a particular encounter occurred (e.g., "snow birds"). We conducted sensitivity analyses that relied on the mean travel distance after trimming the top 1 percent and top 5 percent of

observations in terms of travel distance; the results of these two sensitivity analyses were substantially similar to the results presented in the report.

13 For the hospital analyses, we examined data over a longer period (2005 to 2018) than for the clinician analyses (2010 to 2018). We examined a longer time trend for hospitals so that we had enough data to support our closures analysis. We wanted a full decade of data before the first closures to adequately assess how changes in service volume may have led to closure.

14 We examined hospital use for FFS beneficiaries who had Part A and were alive for all of 2018 to remove regional differences in mortality and end-of-life spending. As a sensitivity analysis, we ran our analysis again, including decedents, and while inpatient use was higher, we found similar levels of geographic variation.

15 A small part of the difference could also be due to how CAHs bill for care. CAHs bill separately for outpatient care and emergency care that occur on the day of an admission (*Medicare Claims Processing Manual* Chapter 3, Section 30.1.1). In contrast, hospitals paid under the inpatient prospective payment system generally do not separately bill for outpatient or emergency care that occurs within three days of admission. Payments for these services are instead bundled into the inpatient stay payment. These different billing patterns are expected to increase rural outpatient billing by less than 0.1 visits per beneficiary.

16 The larger decline in SNF use among urban beneficiaries could be at least partially attributable to a greater prevalence of alternative payment models in urban areas, such as the Comprehensive Care for Joint Replacement model.

17 The University of North Carolina data follow the convention of the Health and Human Services Office of Inspector General to designate a closed hospital. A closure involves a facility that stopped providing general, short-term, acute inpatient care. A hospital would not be considered closed if it merged with or was sold to another hospital but the physical plant continued to provide inpatient acute care, converted to critical access status, or both closed and reopened during the same calendar year and at the same physical location. A move across town or outside city limits would generally not be considered a closure; reopening in a community 10 to 15 miles away, however, likely would.

18 The decline in inpatient admissions was not related to specific service lines but instead occurred across a broad range of services. For each of the seven most common diagnosis related groups at the closed hospitals (pneumonia, heart failure, chronic obstructive pulmonary disease, nutritional and metabolic disorders, esophagitis and digestive disorders, kidney and urinary tract infections, and septicemia), volume declined by between 40 percent and 84 percent from 2005 to 2014.

19 Nationwide, rural counties with a hospital experienced no population change on average from 2005 to 2014.

20 We excluded one of our 40 closed hospitals from our analyses of ED and hospital outpatient services due to incomplete outpatient claims on 2005 and 2014 cost reports.

21 In this analysis, we include only the 20 hospitals that closed from 2015 to 2017 instead of our full cohort of 40 rural hospitals that closed from 2015 to 2019 because we did not have sufficient data at the time of our analysis to examine the effects of closures that occurred in 2018 and 2019.

22 Even for services that do not generate two claims when billed in the hospital outpatient setting, the decline in hospital outpatient visits that we and other researchers have found to be correlated with hospital closures may represent a shift in site of service rather than an actual decline in utilization. For example, critical access hospitals furnish a substantial number of outpatient laboratory tests and bill Medicare for these tests as hospital outpatient services (type of bill 85x). If a critical access hospital closes, such laboratory tests are no longer billed through the shuttered hospital (i.e., the number of hospital outpatient visits goes down), but may shift to being billed by independent laboratories under the clinical laboratory fee schedule.

23 Some previous research includes only E&M visits billed under the physician fee schedule. Because rural beneficiaries receive a significant minority of their E&M visits in settings that are not paid under the physician fee schedule, our definition of E&M visits in this report is broader. Specifically, we include E&M visits billed under the physician fee schedule and those billed through the payment systems for FQHCs, RHCs, and CAHs (method II billing).

24 For this analysis, our results may differ from those of other researchers because we use clinician claims to measure emergency department use. Unless certain adjustments are made, using hospital claims data to measure emergency department use can result in overstating the decline in emergency department use among beneficiaries who lived in areas where a critical access hospital closed. Critical access hospitals are paid separately for emergency department services that result in inpatient admissions, whereas acute care hospitals paid under the inpatient prospective system (IPPS) are not. Therefore, if beneficiaries begin accessing emergency department services at IPPS hospitals after their local critical access hospital closes, the number of hospital emergency department claims could decline while the actual utilization of emergency department services could remain flat.

25 A shift in the setting of other services, such as imaging services or diagnostic tests, could also have contributed to the negative volume trends for hospital outpatient services in the closure markets.

26 We discuss policy options related to Medicare. Others have proposed policies to support rural hospitals that are not directly related to the Medicare program, such as encouraging states to expand Medicaid. Exploring these options is beyond the scope of this report.

27 CAHs may also incur smaller losses on Medicare beneficiaries because of the sequester and unpaid cost sharing among beneficiaries, often referred to as "bad debt." Medicare currently pays hospitals 65 percent of bad debt.

28 We examined swing-bed payments because patient needs in post-acute care are relatively constant over time.

29 Adding SNF days to a CAH will result in the fixed costs of the hospital spread over more inpatient days and will result in slightly lower acute care cost reimbursement; however, this revenue offset is small relative to dramatic difference in SNF and CAH payment rates. In addition, the large differential in payment rates between SNFs and CAHs can create issues for rural accountable care organizations (ACOs). ACO physicians may be reluctant to discharge patients to CAHs that are paid over $2,000 per day for post-acute care. Beneficiaries, however, may prefer to receive post-acute care at their local CAH.

30 Hospital costs are estimated by multiplying department level cost-to-charge ratios by the charges for specific services. Therefore, by increasing charges on services that are more commonly used by Medicare beneficiaries (e.g., bone density screening), the hospital could increase estimated costs of serving Medicare beneficiaries.

31 As part of this change, the Congress also capped the growth of payment rates for RHCs associated with a hospital with fewer than 50 beds at the Medicare Economic Index (MEI). Historically, the payment rates at these facilities grew much faster than the MEI because payment rates were based on each facility's costs. In 2018, the average per visit payment rate at these RHCs was about $200, although payment rates varied substantially given the variability of costs at each facility.

32 The physician fee schedule rate is the national rate. The actual rate in a particular rural area will likely be less than $92 based on adjustments made to reflect differences in practice expense costs across geographic areas. The fee schedule rate and RHC payment rate cap are not precisely comparable because the payment for all services performed in one day are generally bundled into the RHC payment. However, multiple RHC visits in one day are payable under Medicare in certain circumstances (e.g., one visit for a medical issue and another one for a mental health issue), and the RHC payment bundle excludes certain services, such as the technical components of imaging services and clinical laboratory tests.

33 In addition, because Medicare has established lower productivity standards for NPs and PAs (relative to physicians) under the RHC payment system, an RHC's per visit payment rate might be higher if the RHC is staffed by NPs and PAs instead of physicians, especially among low-volume RHCs. When determining an RHC's payment rate, Medicare divides total allowable costs by the number of visits in a year. If a physician has fewer than 4,200 visits per year, Medicare substitutes 4,200 visits, thereby lowering the payment rate. For NPs and PAs, Medicare sets the minimum number of visits at 2,100.

34 Medicare places some restrictions on the type of services RHCs must (or may not) furnish. RHCs cannot be a rehabilitation agency or a facility primarily for the care and treatment of mental diseases (42 CFR 491.2). In addition, RHCs are required to furnish "diagnostic and therapeutic services that are commonly furnished in a physician's office or at the entry point into the health care delivery system" (42 CFR 491.9).

35 Our count of rural hospital closures is lower than the count published by researchers at the University of North Carolina mainly because we exclude hospitals located in rural portions of metropolitan counties. We also exclude hospitals that merged with another hospital within a certain geographic distance, hospitals that closed and then reopened, and hospitals for which we could not identify Medicare claims data in both 2005 and 2014.

36 We defined the primary market as the collection of ZIP codes that provided over 80 percent of the hospital's Medicare admissions from 2011 to 2014.

# References


Briggs, A., M. Toth, and S. Freeman. 2016. *Medicare copayments for critical access hospital outpatient services—Update*. Report prepared by staff from RTI International for the Medicare Payment Advisory Commission. Washington, DC: MedPAC.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2020a. Medicare program; hospital inpatient prospective payment systems for acute care hospitals and the long-term care hospital prospective payment system and final policy changes and fiscal year 2021 rates; quality reporting and Medicare and Medicaid Promoting Interoperability Programs requirements for eligible hospitals and critical access hospitals. Final rule. *Federal Register* 85, no. 182 (September 18): 58432–59107.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2020b. Pennsylvania Rural Health Model. https://innovation.cms.gov/initiatives/pa-rural-health-model/.

Government Accountability Office. 2020. *Rural hospital closures: Affected residents had reduced access to health care services*. GAO–21–93. Washington, DC: GAO.

Haber, S., and H. Beil. 2018. Another look at the evidence on hospital global budgets in Maryland: Have they reduced expenditures and use? *Health Affairs* blog. May 14. https://www.healthaffairs.org/do/10.1377/hblog20180508.819968/full/.

Haber, S., H. Beil, P. Amico, et al. 2018. *Evaluation of the Maryland All-Payer Model: Third annual report*. Report prepared for the Centers for Medicare & Medicaid Services. Prepared for the Centers for Medicare & Medicaid Services. Waltham, MA: RTI International.

Henning-Smith, C., A. Hernandez, H. Neprash, et al. 2021. Differences by rurality in satisfaction with care among Medicare beneficiaries. *Journal of Rural Health* 37, no. 1 (January): 114–123.

Henning-Smith, C., A. Hernandez, and M. Lahr. 2019a. *Rural-urban differences in access to and attitudes toward care for Medicare beneficiaries*. Policy brief. Minneapolis, MN: University of Minnesota Rural Health Research Center.

Henning-Smith, C., A. Hernandez, H. Neprash, et al. 2019b. *Measuring access to care in national surveys: implications for rural health*. Policy brief. Minneapolis, MN: University of Minnesota Rural Health Research Center.

Knudson, A., S. Popat, W. Hu, et al., Department of Health and Human Services. 2020. *Understanding rural hospital bypass among Medicare fee-for-service (FFS) beneficiaries in 2018.* Data highlight, no. 19. Baltimore, MD: CMS.

Malone, T., D. Kirk, R. Randolph, et al. 2020. *Association of CMS–HCC risk scores with health care utilization among rural and urban Medicare beneficiaries*. Findings brief. Chapel Hill, NC: North Carolina Rural Health Research Program.

Medicare Payment Advisory Commission. 2021. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2020. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2019. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2012. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Roberts, E. T., J. M. McWilliams, L. A. Hatfield, et al. 2018. Changes in health care use associated with the introduction of hospital global budgets in Maryland. *JAMA Internal Medicine* 178, no. 2 (February 1): 260–268.

Singh, G. K., and M. Siahpush. 2014. Widening rural-urban disparities in life expectancy, U.S., 1969–2009. *American Journal of Preventative Medicine* 46, no. 2 (February): e19–29.