

J U N E 2 0 2 4

*Report to the Congress*

# Medicare and the Health Care Delivery System

**MEDPAC**



The Medicare Payment Advisory Commission (MedPAC) is an independent congressional agency established by the Balanced Budget Act of 1997 (P.L. 105–33) to advise the U.S. Congress on issues affecting the Medicare program. In addition to advising the Congress on payments to health plans participating in the Medicare Advantage program and providers in Medicare’s traditional fee-for-service program, MedPAC is also tasked with analyzing access to care, quality of care, and other issues affecting Medicare.

The Commission’s 17 members bring diverse expertise in the financing and delivery of health care services. Commissioners are appointed to three-year terms (subject to renewal) by the Comptroller General and serve part time. Appointments are staggered; the terms of five or six Commissioners expire each year. The Commission is supported by an executive director and a staff of analysts, who typically have backgrounds in economics, health policy, and public health.

MedPAC meets publicly to discuss policy issues and formulate its recommendations to the Congress. In the course of these meetings, Commissioners consider the results of staff research, presentations by policy experts, and comments from interested parties. (Meeting transcripts are available at [www.medpac.gov](http://www.medpac.gov).) Commission members and staff also seek input on Medicare issues through frequent meetings with individuals interested in the program, including staff from congressional committees and the Centers for Medicare & Medicaid Services (CMS), health care researchers, health care providers, and beneficiary advocates.

Two reports—issued in March and June each year—are the primary outlets for Commission recommendations. In addition to annual reports and occasional reports on subjects requested by the Congress, MedPAC advises the Congress through other avenues, including comments on reports and proposed regulations issued by the Secretary of the Department of Health and Human Services, testimony, and briefings for congressional staff.

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**REPORT TO THE CONGRESS**

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# Medicare and the Health Care Delivery System

**MEDPAC** | Medicare Payment  
Advisory Commission

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Advisory Commission

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June 13, 2024

The Honorable Kamala D. Harris  
President of the Senate  
U.S. Capitol  
Washington, DC 20510

The Honorable Mike Johnson  
Speaker of the House  
U.S. House of Representatives  
U.S. Capitol  
Room H-232  
Washington, DC 20515

Dear Madam President and Mister Speaker:

I am pleased to submit the Medicare Payment Advisory Commission's June 2024 *Report to the Congress: Medicare and the Health Care Delivery System*. This report fulfills the Commission's legislative mandate to evaluate Medicare payment issues and report to the Congress.

The six chapters of the June 2024 report include:

- Approaches for updating clinician payments and incentivizing participation in alternative payment models
- Provider networks and prior authorization in Medicare Advantage
- Assessing data sources for measuring health care utilization by Medicare Advantage enrollees: Encounter data and other sources
- Paying for software technologies in Medicare
- Considering ways to lower Medicare payment rates for select conditions in inpatient rehabilitation facilities
- Medicare's Acute Hospital Care at Home program

I hope you find this report useful. As always, the Commission remains ready to assist the Congress and CMS as part of our mission to preserve beneficiaries' access to high-quality care, control Medicare spending growth, and provide sufficient payment for efficient providers.

Sincerely,

A handwritten signature in black ink, appearing to read "m. chernew", with a horizontal line extending to the right from the end of the signature.

Michael E. Chernew, Ph.D.  
Chair

Enclosure

## Acknowledgments

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## **Executive summary**

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## Executive summary

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As part of its mandate from the Congress, each June the Commission reports on improvements to Medicare payment systems and issues affecting the Medicare program, including changes to health care delivery and the market for health care services. The six chapters of the June 2024 report cover the following topics:

- **Approaches for updating clinician payments and incentivizing participation in alternative payment models.** The Commission considers two approaches for updating fee-for-service (FFS) Medicare's physician fee schedule (PFS) payment rates and contemplates temporarily extending the bonus for participation in advanced alternative payment models (A-APMs).
- **Provider networks and prior authorization in Medicare Advantage.** The Commission discusses the use of provider networks and prior authorization in Medicare Advantage (MA) plans, CMS's regulation of these tools, and the data that MA plans currently report in these areas.
- **Assessing data sources for measuring health care utilization by Medicare Advantage enrollees: Encounter data and other sources.** Using data from 2020 and 2021, the Commission assesses the relative completeness of MA encounter data and other data sources that contain information about MA enrollees' use of services.
- **Paying for software technologies in Medicare.** The Commission reviews the Food and Drug Administration's (FDA's) process for clearing software as a medical device (SaMD), examines Medicare's current coverage process and payments for medical device software under the payment systems for Part A and Part B services, and discusses issues that policymakers should keep in mind when considering paying for medical software in FFS Medicare.
- **Considering ways to lower Medicare payment rates for select conditions in inpatient rehabilitation facilities.** The Commission considers alternative approaches to lower FFS Medicare's payment rates to inpatient rehabilitation facilities (IRFs) for beneficiaries with select conditions.

- **Medicare's Acute Hospital Care at Home program.** The Commission assesses the experience to date of hospitals and beneficiaries in the FFS Medicare Acute Hospital Care at Home (AHCAH) program and reviews considerations for Medicare policy.

### Approaches for updating clinician payments and incentivizing participation in alternative payment models

In Chapter 1, the Commission considers two approaches for updating FFS Medicare's PFS payment rates to adequately account for cost growth and to ensure Medicare beneficiaries maintain access to clinician services. The Commission also contemplates temporarily extending the bonus for participation in A-APMs.

Every year, the Commission assesses the adequacy of FFS payments made under the Medicare PFS and recommends an appropriate update to those payments in our annual March report to the Congress. As part of that process, the Commission measures beneficiaries' access to clinician care. For many years, the Commission has found that this access has been as good as, or better than, that of privately insured individuals; the share of clinicians who accept new Medicare patients has been comparable with the share who accept new privately insured patients; and volume of and spending on fee schedule services per beneficiary have consistently grown.

Nevertheless, the Commission is concerned about whether payments will remain adequate in the future. Payment rates are set to be flat in 2025 and, starting in 2026, increase by 0.75 percent per year for qualifying clinicians participating in A-APMs and by 0.25 percent for all other clinicians. Meanwhile, clinicians' input costs, as measured by the Medicare Economic Index (MEI), are expected to increase by an average of 2.3 percent per year from 2025 through 2033—exceeding the growth in PFS payment rates by more than has been the case over the past two decades. This larger gap could create incentives for clinicians to reduce the number of Medicare beneficiaries they treat or stop participating in Medicare entirely. In addition, the growing differential between payment rates when a service is billed in a freestanding clinician office

versus a hospital outpatient department (HOPD) could encourage more services to be billed in the higher-paid HOPD setting and could spur additional vertical consolidation in the health care industry.

The Commission is also concerned about the upcoming sunset of participation bonuses for clinicians in A-APMs after 2026. To date, the A-APM participation bonus (currently set at 5 percent of a clinician's Medicare payments for fee schedule services) has always been larger than the highest adjustment available through the Merit-based Incentive Payment System (MIPS) (which has reached up to 2.34 percent)—helping to incentivize clinicians to participate in A-APMs. After 2026, as described above, A-APM participation bonuses will be eliminated in favor of the differential payment updates for clinicians depending on whether or not they are in an A-APM. In the initial years of differential updates, the higher updates for qualifying clinicians in A-APMs will produce a relatively weak incentive to participate in A-APMs. In 2027, for example, A-APM clinicians' payment rates will be only 1 percentage point higher than those of other clinicians. MIPS may therefore become the more attractive option for top-performing clinicians in coming years, depending on CMS's implementation decisions, because MIPS adjustments can reach as high as 9 percent under current law.

Given these concerns, the Commission is considering alternatives to current-law updates, such as replacing them with updates based on some measure of inflation and temporarily extending the current A-APM participation bonus.

### **Alternative approaches to updating PFS payment rates**

One approach would be to update the practice expense portion of fee schedule payment rates by the hospital market basket, adjusted for productivity. This approach would attempt to address current differences in updates between the PFS and the hospital outpatient prospective payment system (OPPS): PFS payment rates are updated by statutorily specified percentages that are not linked to cost growth, while OPPS rates are updated by the hospital market basket (a measure of growth in hospital input costs). This approach defers consideration of automatic annual updates to the work component of fee schedule payments, but periodic updates to the work component could still occur

(and would be addressed by the Commission's annual assessment of payment adequacy).

Under this approach, services for which practice expenses represent a large share of the total payment would see larger updates compared with services for which practice expenses represent a small share of the total payment. As a result, certain specialists (e.g., radiation oncologists, vascular surgeons, interventional radiologists, and dermatologists) would receive larger updates than primary care providers, behavioral health clinicians, and certain other types of specialists (e.g., hospitalists, emergency medicine physicians, and hospice and palliative care physicians). To limit the degree to which this approach would exacerbate inaccuracies in the relative values of different services' payment rates, it would be important to pair this update approach with efforts to revalue fee schedule services.

Another approach would update total fee schedule payment rates (including payments for both practice expense and clinician work) by the MEI (which includes a productivity adjustment) minus 1 percentage point. To avoid updates that are very low or negative, this approach could include an update floor equal to half of MEI. This approach would reflect the fact that PFS updates have averaged around MEI minus 1 percentage point for the previous two decades. The approach would update payment rates for all codes by the same factor in a given year, so the percentage updates would be the same across services and specialties. To improve payment accuracy for services with high practice expenses and limit incentives for vertical consolidation, this approach could be paired with efforts to rebase the MEI using more recent data, change the treatment of practice expenses under the fee schedule for services performed in facilities, or other reforms.

The first approach would require substantial operational changes in the way payment rates are set and updated over time and would tend to result in smaller payment rate increases for primary care and behavioral health clinicians compared with those for many specialists. The second approach would be simpler to implement and would reduce or eliminate the need for policymakers to revisit fee schedule update policy in the future to provide separate increases to the work portion of fee schedule payments. The Commission finds the features of the

second approach more desirable and will continue to develop this option in the future.

### **Maintaining incentives to participate in A-APMs**

Under current law, clinicians in A-APMs receive a participation bonus worth 5 percent of their Medicare payments for fee schedule services from 2019 through 2024, a bonus worth 3.5 percent of these payments in 2025, and a bonus worth 1.88 percent of these payments in 2026. The Commission has discussed extending the bonus as one way to support participation in A-APMs. Extending the bonus for a few more years would help maintain clinician participation in A-APMs in the late 2020s, given uncertainty about the attractiveness of MIPS to clinicians in the coming years. Once the future direction of MIPS becomes clearer, a reassessment of the need for the A-APM participation bonus could be undertaken.

The Commission has also discussed restructuring the A-APM participation bonus to be based on a clinician's Medicare payments for fee schedule services for FFS Medicare beneficiaries in A-APMs (instead of a clinician's payments for all FFS Medicare beneficiaries, including beneficiaries not in A-APMs). This approach could be coupled with eliminating the requirement that a certain share of a clinician's payments or patients be in an A-APM to qualify for the bonus. Restructuring the bonus in this way would allow bonus payments for clinicians who participate in A-APMs but currently fail to qualify for the bonus.

### **Provider networks and prior authorization in Medicare Advantage**

In Chapter 2, the Commission discusses the use of provider networks and prior authorization in MA plans, CMS's regulation of these tools, and the data that MA plans currently report in these areas.

The MA program allows Medicare beneficiaries who are enrolled in both Part A and Part B to receive benefits from private plans rather than from the traditional FFS program. The Commission has long held that MA presents opportunities to achieve higher-quality care at lower cost. Using provider networks and utilization management tools such as prior authorization, MA plans can shape the services and providers that enrollees can access. On the one hand, these tools have the potential to promote more efficient care. On

the other hand, misapplication of these tools could lead to delays or denials of needed care. While CMS regulates both tools, limitations persist in current data collection and enforcement mechanisms. In the future, the Commission plans to explore the implications of provider networks and prior authorization on beneficiaries' access to care, quality of care, and cost.

### **Provider networks in MA**

One key distinction between MA and FFS Medicare is that MA beneficiaries trade the free choice of any provider participating in Medicare for a more managed set of relationships with providers in an MA plan's network. Being "in network" means that a provider has agreed to furnish covered services to plan members at specified payment rates. Networks can have positive implications for both cost and quality, such as filtering out low-performing providers. However, it is important to ensure that plans provide adequate access to the full range of statutorily defined Medicare benefits.

CMS has network adequacy standards for MA contracts that consist of minimum numbers of providers, maximum travel time and distance to providers, and maximum wait times. Some of the standards vary by rurality. For example, beginning in contract year 2021, CMS reduced the percentage of beneficiaries who must reside within the maximum time and distance thresholds in non-urban counties. Lowering thresholds for network adequacy in rural areas may decrease barriers for MA plans to enter new markets, but the reductions likely result in access discrepancies between rural and urban beneficiaries.

Using a three-year review cycle, CMS verifies that plans are compliant with network adequacy criteria at the contract level. Audits can also be triggered under special circumstances, including when an enrollee files an access complaint. When gaps in a network are identified, MA organizations are notified by CMS and must either expand their network of providers or seek an exception to the network adequacy criteria. CMS denies a majority of these exception requests. CMS has the authority to impose sanctions for noncompliance with network adequacy standards but has never done so. However, new applications have been denied on this basis.

Plans' provider directories must be accurate in order for CMS to be able to assess network adequacy and for

beneficiaries to identify in-network sources of care. However, maintaining an accurate record of contracted providers can be administratively burdensome for both plans and providers. Because of the logistical challenges associated with keeping provider directories up to date and the potential adverse consequences of not doing so, CMS has proposed maintaining a national provider directory.

### **Prior authorization in MA**

MA plans can require enrollees to obtain prior authorization to access certain services, a practice that is not widely used in FFS Medicare. Plans most often require prior authorization for relatively expensive services, such as certain Part B drugs, skilled nursing facility stays, and inpatient hospital stays. A recent study found that the use of prior authorizations by MA plans increased from 2009 to 2019 for most service categories. In 2023, nearly all MA enrollees were in plans that required prior authorization for some categories of services. Because prior authorization requirements can vary by service type and by plan, they can impact beneficiaries with certain conditions and some provider types and specialties more than others.

We analyzed the most recently available prior authorization determinations data that MA organizations report to CMS. In 2021, MA plans made about 37.5 million prior authorization determinations, or about 1.5 determinations per enrollee. Overall, we found that 95 percent of prior authorization requests had fully favorable decisions. The percentage of adverse prior authorization decisions varied across the largest MA organizations, with negative determination rates ranging from 3 percent to 12 percent. Providers or beneficiaries requested that MA plans redetermine 11 percent of negative prior authorization decisions in 2021. Eighty percent of those requests had fully favorable decisions. For those requests that had an unfavorable decision, an independent review entity upheld the MA plan's decision most of the time.

Prior authorization has been identified as a major source of provider administrative burden and can become a health risk for patients if it results in needed care being delayed or denied. Although only a small share of prior authorization requests have been denied, Office of Inspector General (OIG) audits suggest that many denied requests should have been approved. CMS

has recently finalized several regulatory changes to address concerns about prior authorizations, such as requiring more transparency around MA organizations' internal coverage criteria and better communication of rationales for denied prior authorization requests.

### **Assessing data sources for measuring health care utilization by Medicare Advantage enrollees: Encounter data and other sources**

In Chapter 3, using data from 2020 and 2021, the Commission assesses the relative completeness of MA encounter data and other data sources that contain information about MA enrollees' use of services.

Since 2012, MA plans have been required to submit to Medicare a record of each encounter that MA enrollees have with a health care provider. The Commission has long been interested in using MA encounter data to better understand plan practices and the services used by MA enrollees. This information could also be used to provide more rigorous oversight of Medicare's payments to MA plans—which reached \$455 billion in 2023—and to ensure that the Medicare beneficiaries enrolled in an MA plan (now more than half of eligible beneficiaries) receive the full Medicare benefit. Lessons learned from MA encounter data could inform improvements to MA payment policy, facilitate comparison with traditional (FFS) Medicare, and generate new policy ideas that could be applied across the entire Medicare program. If validated for such purposes, encounter data could replace several of the data summarization and submission tasks that are currently conducted by MA plans, improving the consistency of the data used to administer the MA program.

However, in previous assessments, the Commission has found that MA encounter data do not include records of all items or services provided to MA enrollees. In 2019, the Commission recommended that the Congress direct the Secretary to (1) establish thresholds for the completeness and accuracy of MA encounter data; (2) evaluate MA plans' submitted data and provide feedback to organizations, including comparisons to external data sources; and (3) apply a withhold to plan payments that would be refunded to MA organizations that meet the established thresholds. The Commission also recommended instituting a mechanism for direct submission of provider claims to Medicare administrative contractors as a voluntary

option for all MA organizations that prefer this method, for MA organizations that fail to meet completeness thresholds, or for all MA organizations if program-wide thresholds are not achieved.

In this chapter, we find that encounter data completeness has incrementally improved since 2017 for some services but that generally the data remain incomplete. In addition, other data sources that contain information about MA enrollees' use of services also appear to be incomplete: In each of the data comparisons we conducted, we found records of services provided to MA enrollees that were missing from the comparator source.

We also assessed variation in the completeness of data across and within MA contracts. We found that the share of contracts reporting at least one encounter in all six service categories has improved since the early years of encounter data collection. Within MA contracts, we found wide ranges of completeness across service sectors, even among contracts with relatively high completeness for any one sector. Given these findings, we urge policymakers and researchers to carefully consider the potential impact of missing data when using encounter data to examine MA utilization.

Because nationally representative independent data sources with which to compare the encounter data are limited, the next best alternative is to compare encounter data with other plan-reported sources, such as plan quality and bid data. Comparing MA encounter data with other plan-generated data sources does not provide an independent validation of data completeness and accuracy, but the comparison can be used to assess the consistency of the information that plans submit to CMS. In this chapter, we also explore whether such comparisons can provide insights regarding the relative completeness of encounter data.

Our findings suggest that the information plans submit to CMS through separate reporting processes is not internally consistent and that there are technical factors that limit our ability to use the data to identify underreporting of encounter data. In our comparison of encounter data and Healthcare Effectiveness Data and Information Set<sup>®</sup> (HEDIS<sup>®</sup>) data, we found that HEDIS hospitalization data differed substantially from encounter data and that HEDIS was the main

cause of this inconsistency. Our findings suggest that the encounter data are a more complete source for hospital utilization measures than HEDIS data.

Our analysis of bid data and encounter data also showed discrepancies between the two sources. The bid data that MA organizations submit annually to CMS include plan-calculated utilization rates that can be compared with rates calculated from encounter data. We found that, among bids that could be compared with encounter data, utilization rates based on encounter data were within 5 percent of the rates reported in plan bids for less than 40 percent of bids, comprising less than half of enrollees in the analysis. Encounter-based rates for inpatient and skilled nursing facility services were more than 5 percent below the bid-based rate for roughly one-third of bids analyzed (about 20 percent to 30 percent of enrollees in our analysis), suggesting that encounter data remain incomplete, particularly for some organizations.

In conducting the comparisons, we identified a series of factors that would limit the usefulness of bid data and HEDIS data for identifying underreporting of encounter data. For example, we found that HEDIS specifications (instructions for processing the data) exclude a significant fraction of hospitalizations. In comparing bid data and encounter data, we found that less than half of bids (encompassing less than half of enrollees in the analysis) met the criteria needed to conduct the comparison. Thus, bid data can, at best, be used to assess only a fraction of plan-reported data. Further analysis is needed to more fully consider the utility of comparing encounter data with bid data.

The encounter data have the potential to be a valuable tool for policymakers seeking to monitor, learn from, and improve the MA program. However, incomplete reporting of the data continues to limit their utility. The Commission will continue to consider approaches for working with the data in their current state, additional methods for validating the data, and policy options for improving the accuracy and completeness of the data.

## **Paying for software technologies in Medicare**

In Chapter 4, the Commission reviews the FDA's process for clearing SaMD, examines Medicare's current coverage process and payments for medical device software under the payment systems for

Part A and Part B services, and discusses issues that policymakers should keep in mind when considering paying for medical software in FFS Medicare.

Software is increasingly important and pervasive in health care, driven by the availability of a multitude of technology platforms and the growing ease of access and distribution. Many types of clinical software are increasingly available to providers. These software products incorporate artificial intelligence (AI), which uses algorithms or models to perform tasks and exhibits behaviors such as learning, making decisions, and making predictions. A subset of AI known as machine learning uses computer algorithms to learn through data to perform a task without being explicitly programmed; this type of AI has become an important part of a growing number of medical devices. While many of these technologies are new, clinical software has been used to aid or augment clinical decision-making for decades.

In this chapter, we discuss software that performs functions that often categorize it as a medical device—software that is used for one or more medical purposes that diagnose or treat an illness or injury without being part of a hardware medical device. Even though the FDA classifies these technologies as SaMDs, for the purposes of this chapter we classify them into two distinct categories:

- Software as a service (SaaS), which is algorithm-driven software that is either cleared or approved by the FDA to help practitioners make clinical assessments, including decision support intervention software, clinical risk modeling, and computer-aided detection. These technologies often rely on complex algorithms or statistical predictive modeling to aid in the diagnosis or treatment of a patient's condition. Examples of Medicare-covered SaaS include LumineticsCore and fractional flow reserve derived from computed tomography.
- Prescription digital therapeutics (PDTs), which are software products that (1) receive market authorization (i.e., are either cleared or approved) by the FDA to manage or treat an injury or disease; (2) are prescribed by clinicians; (3) are typically administered by patients on a mobile phone, tablet, smartwatch, or similar technologies; and

(4) primarily use software to diagnose or treat an illness or injury. Examples of PDTs include Parallel and NightWare.

We do not include remote monitoring technologies, health and wellness applications (apps), and health information technology systems in our definition of SaaS or PDT technologies. The development of SaaS and PDTs is relatively new and evolving, and terminology that is used to refer to such technologies is generally not well established. In this chapter, we use the terms *SaaS* and *PDT* when discussing issues related to Medicare's coverage and payment because CMS, other policymakers, and stakeholders often use this terminology when discussing such issues.

Before manufacturers of SaaS or PDT items can market a new product and seek Medicare coverage, they must comply with the requirements of the FDA, which applies the approval process for medical devices to the software products. The FDA uses three pathways to clear or approve SaaS or PDT items: premarket notification (PMN, also referred to as 510(k) clearance), De Novo classification, and premarket approval (PMA). Under the 510(k) pathway, the FDA clears a low- to moderate-risk device that a manufacturer demonstrates is "substantially equivalent," meaning that it is as safe and effective as another, similar device that is already on the market, referred to as the "predicate device." Under the De Novo pathway, the FDA clears a low- to moderate-risk medical device for which there is no FDA-approved predicate device. The PMA pathway is the most stringent FDA process of scientific and regulatory review. The FDA approves devices under the PMA pathway if there are sufficient clinical data to demonstrate that the device is safe and effective.

After receiving clearance or approval from the FDA, a manufacturer of a SaaS or PDT item can seek Medicare coverage for its product. Medicare covers items and services under Part A or Part B that are:

- included in a Medicare benefit category, such as inpatient hospital services and hospice care under Part A and durable medical equipment (DME), immunosuppressive drugs, and outpatient services under Part B;
- not statutorily excluded (excluded services and supplies are, for instance, deemed medically unreasonable and unnecessary);

- reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member, as indicated under the Social Security Act; and
- approved or cleared by the FDA, which is specific to Part B drugs, devices, and certain laboratory tests.

All items and services covered under Part A or Part B must also be covered in Part C (Medicare Advantage) except for hospice care, which is carved out of MA. In addition, all items and services (including SaaS and PDT items) that are covered under Medicare are either separately payable or packaged. The Medicare payment systems that cover SaaS and PDT items include the outpatient prospective payment system (PPS), the PFS, the inpatient PPS, the DME fee schedule, and the end-stage renal disease PPS.

CMS has been deliberate in deciding whether to cover SaaS and PDT items that have FDA clearance or approval. Since 2018, FFS Medicare has covered and paid for SaaS in inpatient and outpatient hospital settings and in clinician offices. However, FFS Medicare generally does not cover PDTs because the Medicare statute lacks a separate benefit category for PDTs and the technology is not consistent with FFS Medicare's definition of DME. As of 2022, providers' use of the medical software that Medicare does cover had been relatively low.

A key issue facing the FFS Medicare program is how medical software that is generally separate from the medical device should be paid for. For the hospital inpatient and outpatient PPSs and the end-stage renal disease PPS, the Commission has long supported larger payment bundles because they give providers flexibility in the provision of care and incentives to use the most cost-efficient methods. By contrast, paying separately for software technologies can discourage providers from demanding lower prices for AI technologies and lead to overuse. Unfortunately, for the various FFS Medicare fee schedules (e.g., the PFS and DME fee schedules), in which the program generally pays for each service furnished, Medicare currently has few pricing tools that would help strike a balance between maintaining incentives for innovation and ensuring affordability. The Commission will continue to deliberate on appropriate payment for software technologies under FFS Medicare.

## **Considering ways to lower Medicare payment rates for select conditions in inpatient rehabilitation facilities**

In Chapter 5, the Commission considers alternative approaches to lower Medicare's FFS payment rates to IRFs for beneficiaries with select conditions.

Payments to IRFs are high relative to the cost of care, and Medicare margins have exceeded 10 percent for the past 20 years. In 2018, OIG concluded that the high profitability may have created incentives for IRFs to admit patients inappropriately. The Commission has recommended since 2009 that the Congress reduce the aggregate level of FFS payments to IRFs.

To differentiate IRFs from acute care hospitals, 60 percent of an IRF's admissions must be patients with 1 of 13 conditions (or have specified comorbidities and patient characteristics). We refer to these conditions as "contributing to the compliance threshold" because they count toward an IRF meeting the 60 percent compliance threshold. The remainder of an IRF's admissions can be patients with other conditions that do not contribute to the compliance threshold. Though some have questioned whether a clinical condition is sufficient to identify patients who require intensive rehabilitation, CMS has consistently relied on the list of 13 conditions to identify the types of cases that IRFs should be primarily engaged in treating because those conditions typically require intensive rehabilitation.

If it were possible to perfectly identify patients who do not require IRF care and could be treated in a skilled nursing facility (SNF), policymakers could establish SNF rates for them or narrow the payment differences between IRFs and SNFs. A targeted reduction would be in lieu of an across-the-board reduction to IRF payment rates. However, differentiating patients who do or do not require IRF-level care is difficult without reviewing medical records. After conducting such reviews, CMS and OIG found that a substantial share of cases admitted to IRFs did not meet medical necessity criteria and documentation requirements.

To assess the impacts of lowering payments for select conditions, we used cases that do not contribute to the compliance threshold as a proxy for cases that may not require IRF-level care. This approach is imperfect because this group can include patients who do require intensive rehabilitation; similarly, it is possible

that some patients who contribute to meeting the compliance threshold do not require this level of care. Comparing patients treated in IRFs and SNFs and their outcomes is difficult due to unobserved differences in the patients admitted to the two settings, but using this proxy allows us to compare patients treated in IRFs and SNFs.

We found that while patients treated in the two settings were similar across many dimensions, those treated in IRFs tended to be younger and less medically complex and impaired. Drawing conclusions about differences in the outcomes of patients treated in IRFs and SNFs was more challenging. Even with risk adjustment, underlying differences in the patient populations, not the care they received, could partly explain the results. Because IRFs are licensed as hospitals and their users face different coverage rules, we would expect certain outcomes to differ. Interviews with hospital discharge planners identified many factors that influence the placement of patients in one setting or the other. Except for stroke, few conditions have evidence-based guidelines to assist discharge planners in making placement decisions.

Without being able to draw firm conclusions about differences in outcomes for patients treated in IRFs and SNFs, we evaluated lowering IRF payment rates for patients with noncompliant conditions. We considered three approaches. In one, rates would be lowered to the amount paid to SNFs. The resulting rates would not cover IRFs' costs, which might encourage IRFs to scale back admissions of these patients. Further, to lower their costs, IRFs might reduce staffing and care delivery that could worsen the care they provide. Because patients with conditions that do not contribute to the compliance threshold can include those who require IRF-level care, the very low payment rates could disrupt their care. In the second approach, IRF payment rates would be lowered so that in aggregate they would equal the cost of care. In the third, payment rates would be based on a blend of current rates and rates that equal the cost of care. Because these last two approaches would involve much smaller reductions in payment rates than SNF-based rates, IRFs would have less incentive to disrupt or change the care provided to beneficiaries.

In assessing whether a targeted reduction was a reasonable approach to lower IRF payments, the

Commission considered several factors. First, the list of conditions that contribute to compliance is imperfect for identifying beneficiaries who require IRF-level care. As a result, reductions targeted at patients with conditions that do not contribute to the compliance threshold could disrupt care for some beneficiaries. Second, cases that did and did not contribute to the compliance threshold were equally profitable overall. It was not clear that rates should be lowered for only a subset of conditions. Third, unmeasured differences in the patients treated in IRFs and SNFs undermined our ability to draw conclusions about the characteristics and outcomes of the patients treated in each setting. Taken together, these factors persuaded the Commission that our standing recommendation to lower payment rates for all cases was the best course of action. We will reevaluate our recommendation about the aggregate level of payments in December 2024 when we consider the adequacy of Medicare's payments to IRFs for fiscal year 2026.

Aside from the level of Medicare's payments, CMS, in conjunction with the Congress, could take several steps to improve the definition and identification of cases that do and do not require IRF care. The list of conditions contributing to the compliance threshold could be updated on a regular basis to include conditions that typically benefit from intensive therapy and exclude conditions that do not. An ongoing CMS demonstration that is reviewing 100 percent of claims in selected states might provide CMS with useful information for preventing unnecessary admissions. CMS may also need to continue to educate providers and claims reviewers about medical necessity and documentation rules. With additional funds, CMS could increase its auditing of IRF admissions.

### **Medicare's Acute Hospital Care at Home program**

In Chapter 6, the Commission assesses the experience to date of hospitals and beneficiaries in the FFS Medicare AHCAH program and reviews considerations for Medicare policy.

Acute care hospital services are an important benefit for Medicare beneficiaries who need inpatient clinical care or close medical supervision. For many years, hospitals and payers have experimented with providing this care through a modified acute care

benefit, referred to as “hospital at home” (HAH), which provides acute care in a beneficiary’s home rather than a traditional stay in a hospital. Proponents of HAH contend that it can provide better care at lower costs to the health care system, though past evaluations of HAH programs have not conclusively demonstrated these outcomes. Concerns about a shortage of acute care hospital capacity during the coronavirus pandemic led CMS to establish the AHCAH program in FFS Medicare. Though the program was originally set to expire at the conclusion of the coronavirus public health emergency (PHE), the Congress extended the program through December 31, 2024, in the Consolidated Appropriations Act, 2023.

Under the AHCAH program, hospitals apply to CMS to provide the inpatient acute care benefit at home. The AHCAH program waives some requirements of Medicare’s hospital conditions of participation but adds other requirements unique to home care, such as requiring two daily in-home visits by clinical staff. The payment for AHCAH cases is the same as the amount Medicare would have paid for an in-hospital acute care stay under the inpatient prospective payment systems (IPPS). Hospitals participating in the AHCAH program develop, with CMS review, the clinical and social criteria for patient inclusion and exclusion.

CMS reported that as of April 2024, about 23,000 AHCAH discharges have occurred (including both Medicare and Medicaid beneficiaries) and 328 hospitals have been approved to participate. However, past experience suggests that many approved hospitals may not have implemented programs. For example, CMS’s report on the AHCAH program in 2022 included 284 hospitals, but only 105 hospitals, or 37 percent, reported at least one discharge under the program. These hospitals reported approximately 6,100 discharges (less than 0.1 percent of all IPPS discharges), for an average of about 59 patients per active hospital. In 2022, AHCAH volume was concentrated among those hospitals, with 26 hospitals accounting for 71 percent of the AHCAH discharges.

Hospitals active in AHCAH in 2022 tended to have higher all-payer patient volume, higher occupancy, and nonprofit ownership status, and they tended to be located in urban areas. The reported rates of patient mortality and escalations from the home to the hospital

were low. The two most common diagnoses for AHCAH discharges in fiscal year 2022 were respiratory infection and heart failure.

Many aspects of AHCAH are new and evolving, which creates opportunities for experimentation and may ease implementation but could also result in risks for patients or in unmet patient needs. In interviews with Commission staff, hospitals participating in the AHCAH program noted challenges in getting their programs started. In addition, hospitals described experiences with beneficiaries declining AHCAH care (though the rates of patient uptake varied by hospital), citing beneficiary lack of familiarity with the model and distrust.

Though AHCAH probably played a negligible role in increasing hospital capacity during the PHE, the limited uptake likely reflects the implementation challenges that hospitals faced. The Commission’s interviews with hospitals participating in AHCAH found that beneficiaries receive fewer services (such as physician consults and laboratory tests) during an AHCAH stay than during a conventional inpatient stay. Nevertheless, the cost per unit of service may be higher due to the additional costs and inefficiencies of providing care to patients in their homes. Whether AHCAH can provide value to beneficiaries and the Medicare program—through better outcomes and reduced Medicare expenditures for follow-on care—has yet to be conclusively determined.

If the program continues, CMS will want to review many of the aspects of care provided under the program. Understanding how these factors impact beneficiaries’ care may help identify areas where the AHCAH model needs refinement. More important, policymakers will need to consider how to (1) measure outcomes for the program so as to safeguard quality of care; (2) ensure that beneficiaries using AHCAH require that level of care (and not a lower, less costly, level of care, such as that provided by home health agencies); and (3) set FFS payments appropriately. ■



C H A P T E R

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**Approaches for updating  
clinician payments and  
incentivizing participation in  
alternative payment models**

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# Approaches for updating clinician payments and incentivizing participation in alternative payment models

## Chapter summary

Every year, the Commission assesses the adequacy of fee-for-service (FFS) payments made under the Medicare physician fee schedule (PFS) and recommends an appropriate update to those payments in our annual March report to the Congress. As part of that process, the Commission measures beneficiaries' access to clinician care. For many years, the Commission has found that this access has been as good as, or better than, that of privately insured individuals; the share of clinicians who accept new Medicare patients has been comparable with the share who accept new privately insured patients; and the volume of and spending on fee schedule services per beneficiary has consistently grown.

Nevertheless, the Commission is concerned about whether payment updates under current law will remain adequate in the future. Payment rates are set to be flat in 2025, and, starting in 2026, payment rates will increase by 0.75 percent per year for qualifying clinicians participating in advanced alternative payment models (A-APMs) and by 0.25 percent for all other clinicians. Meanwhile, clinicians' input costs, as measured by the Medicare Economic Index (MEI), are expected to increase by an average of 2.3 percent per year from 2025 through 2033—exceeding the growth in PFS payment rates by more than has been the case over the past two decades. This larger gap could create incentives for clinicians to

## In this chapter

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- The evolution of Medicare's payments for clinician services
- Historically, beneficiaries' access to clinician care has been comparable with that of privately insured individuals
- Concerns about the adequacy of future payments to clinicians
- Alternative approaches to updating clinician payment rates
- Incentivizing participation in A-APMs

reduce the number of Medicare beneficiaries they treat or stop participating in Medicare entirely.

In addition, the Commission has long been concerned about the growing differential between FFS payment rates when a service is billed in a freestanding clinician office versus a hospital outpatient department (HOPD). Medicare payments are generally higher when the same service is billed in an HOPD rather than a freestanding clinician office. Research suggests that this site-of-service payment imbalance has contributed to vertical consolidation, though the effect may be modest and vary by clinician specialty or type of service, and other factors may also encourage vertical consolidation. Still, site-of-service payment differentials distort competition and, if allowed to worsen, could increase vertical consolidation—not because such a model is the most efficient way to deliver high-quality care, but because it generates higher revenues—at the expense of Medicare beneficiaries and taxpayers. Increased vertical consolidation could also result in providers negotiating higher payment rates from commercial payers, which would lead to higher premiums for privately insured enrollees.

The Commission is also concerned about the upcoming sunset of participation bonuses for clinicians in A-APMs after 2026. To date, the A-APM participation bonus (currently set at 5 percent of a clinician's Medicare payments for fee schedule services) has always been larger than the highest adjustment available through the Merit-based Incentive Payment System (MIPS) (which has reached up to 2.34 percent)—helping to incentivize clinicians' participation in A-APMs. After 2026, A-APM participation bonuses will be eliminated in favor of the differential payment updates for clinicians depending on whether or not they are in an A-APM, described above. But in the initial years of differential updates, the higher updates for qualifying clinicians in A-APMs will produce a relatively weak incentive to participate in A-APMs. In 2027, for example, A-APM clinicians' payment rates will be only 1 percentage point higher than those of other clinicians. MIPS may therefore become the more attractive option for top-performing clinicians in coming years, depending on CMS's implementation decisions. (MIPS adjustments can reach up to 9 percent under current law.) Waning interest in A-APMs could result in missed opportunities to achieve better-quality care more efficiently.

Given these concerns, the Commission is considering alternatives to current-law updates, such as replacing them with updates based on some measure of inflation and temporarily extending the current A-APM participation bonus.

## **Alternative approaches to updating PFS payment rates**

Basing updates on a portion of inflation would improve stability in clinician payments relative to changes in input costs. However, pushing payment updates closer to the full rate of inflation would result in a substantial increase in Medicare spending on fee schedule services relative to current law in future years, and the Commission has found that full inflation updates have not been necessary in the past to ensure that beneficiaries maintain access to care that is comparable with that of privately insured individuals. Therefore, the Commission has considered two different approaches to update fee schedule rates based on a portion of changes in input cost inflation.

One approach would be to update the practice expense portion of fee schedule payment rates by the hospital market basket, adjusted for productivity. This approach would attempt to address current differences in updates between the PFS and the hospital outpatient prospective payment system (OPPS): PFS payment rates are updated by statutorily specified percentages that are not linked to cost growth, while OPPS rates are updated by the hospital market basket (a measure of growth in hospital input costs). This approach defers consideration of automatic annual updates to the work component of fee schedule payments, but periodic updates to the work component of payments could still occur (and would be addressed by the Commission's annual assessment of payment adequacy).

Under this approach, services for which practice expenses represent a large share of the total payment would see larger updates compared with services for which practice expenses represent a small share of the total payment. As a result, certain specialists (e.g., radiation oncologists, vascular surgeons, interventional radiologists, and dermatologists) would receive larger updates than primary care providers, behavioral health clinicians, and certain other types of specialists (e.g., hospitalists, emergency medicine physicians, and hospice and palliative care physicians). To limit the degree to which this approach would exacerbate inaccuracies in the relative values of different services' payment rates, it would be important to pair this update approach with efforts to revalue fee schedule services—for instance, through improvements to the processes and data used to assign relative values to codes and by converting overvalued 10- and 90-day global surgical codes to 0-day codes.

Another approach would update total fee schedule payment rates (including payments for both practice expense and clinician work) by the MEI (which includes a productivity adjustment) minus 1 percentage point. This approach

could also include an update floor equal to half of MEI to avoid updates that are very low or negative. This approach would reflect the fact that PFS updates have averaged around MEI minus 1 percentage point for the previous two decades. During this period, Medicare beneficiaries have had access to care that is comparable with that of privately insured people, and similar shares of clinicians have accepted new Medicare patients and new privately insured patients. The approach would update payment rates for all codes by the same factor in a given year, so the percentage updates would be the same across different services and specialties. To improve payment accuracy for services with high practice expenses and to limit incentives for vertical consolidation, this approach could be paired with efforts to rebase the MEI using more recent data, change the treatment of practice expenses under the fee schedule for services performed in facilities, or other reforms.

The first approach would require substantial operational changes in the way payment rates are set and updated over time. It would also tend to result in smaller payment rate increases for primary care and behavioral health clinicians compared with increases for many specialists, which could exacerbate beneficiaries' existing problems accessing primary care providers and behavioral health clinicians. The second approach would be simpler to implement, would not lead to different rate increases among clinicians in different specialties, and would reduce or eliminate the need for policymakers to revisit fee schedule update policy in the future to provide separate increases to the work portion of fee schedule payments. The Commission finds the features of the second approach more desirable and will continue to develop this option in the future.

Both approaches would do more than current law to slow the growth in payment rate differentials between different sites of service. But the fact that large differentials would remain under both approaches highlights the importance of implementing site-neutral payments regardless of the approach chosen to update PFS rates.

### **Maintaining incentives to participate in A-APMs**

Under current law, clinicians in A-APMs receive a participation bonus worth 5 percent of their Medicare payments for fee schedule services from 2019 through 2024, a bonus worth 3.5 percent of these payments in 2025, and a bonus worth 1.88 percent of these payments in 2026. The Commission has discussed extending the bonus as one way to incentivize clinicians to participate in A-APMs rather than the MIPS program, which we have previously

recommended repealing. If MIPS is not repealed, extending the A-APM participation bonus for a few more years could help maintain clinician participation in A-APMs in the late 2020s, given uncertainty about the attractiveness of MIPS to top-performing clinicians in the coming years. Once the future direction of MIPS becomes clearer, a reassessment of the need for the A-APM participation bonus could be undertaken.

A key question is the optimal size for an extended bonus. Ideally, the A-APM participation bonus in addition to payments received directly through an A-APM (e.g., shared savings payments) would exceed the top MIPS adjustment. But this could result in the A-APM participation bonus reaching as high as 9 percent, which could be costly for the Medicare program and the taxpayers who support it (and be potentially untenable if access to A-APMs continues to be more limited for certain clinicians). A smaller bonus could be considered but might fail to ensure that A-APM participation is more attractive than MIPS.

The Commission has also discussed restructuring the A-APM participation bonus to be based on a percentage of a clinician's Medicare payments for fee schedule services for FFS Medicare beneficiaries in A-APMs (instead of on a percentage of a clinician's payments for all FFS Medicare beneficiaries, including beneficiaries not in A-APMs). In combination with this change, policymakers could eliminate the requirement that a certain share of a clinician's payments or patients be in an A-APM to qualify for the bonus. Restructuring the bonus in this way would allow bonus payments for clinicians who participate in A-APMs but currently fail to qualify for the bonus (e.g., clinicians in episode-based payment models for whom the discrete procedures or conditions targeted by the model make up only a small share of the care a clinician provides). ■



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## Introduction

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Every year, the Commission assesses the adequacy of fee-for-service (FFS) payments made under the Medicare physician fee schedule (PFS) and releases the findings in our annual March report to the Congress. As part of that process, the Commission measures beneficiaries' access to care. For many years, the Commission has found that beneficiaries' access to care has been as good as, or better than, that of privately insured individuals; the share of clinicians who accept new Medicare patients has been comparable with the share who accept new privately insured patients; and the volume of and spending on fee schedule services per beneficiary has consistently grown.

Nevertheless, the Commission is concerned about whether payment updates under current law will remain adequate in the future. Payment rates are set to be flat in 2025, and, starting in 2026, payment rates will increase by 0.75 percent per year for qualifying clinicians participating in advanced alternative payment models (A-APMs) and by 0.25 percent for all other clinicians. Meanwhile, clinicians' input costs, as measured by the Medicare Economic Index (MEI), are expected to increase by an average of 2.3 percent per year from 2025 through 2033—exceeding the growth in PFS payment rates by a greater amount than has been the case over the past two decades.<sup>1</sup> This larger gap could create incentives for clinicians to reduce the number of Medicare beneficiaries they treat or stop participating in Medicare entirely. Concerns about low updates in current law relative to higher inflation that began during the pandemic led the Commission to recommend in 2023 and 2024 that clinician payment rates be increased by half of the MEI, which measures changes to input costs for clinician practices (Medicare Payment Advisory Commission 2024, Medicare Payment Advisory Commission 2023b).

In addition, the Commission is concerned about the growing differential between payment rates when a service is billed in a freestanding clinician office vs. a hospital outpatient department (HOPD). This differential likely encourages more services to be billed in the higher-paid HOPD setting and could spur additional vertical consolidation in the health care industry. The Commission is also concerned about the upcoming sunset of participation bonuses

for clinicians in A-APMs after 2026. Without these bonuses, top-performing clinicians may exit A-APMs. Waning interest in A-APMs could result in missed opportunities to achieve better-quality care more efficiently.

In this chapter, we describe the history of fee schedule updates to provide context for the current issues policymakers face and summarize findings on FFS Medicare beneficiaries' access to care in recent years. We then review some key concerns about current-law updates to the fee schedule. Finally, we discuss policy approaches intended to address those concerns.

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## The evolution of Medicare's payments for clinician services

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Since the Medicare program first came into existence in the mid-1960s, policymakers have wrestled with how to set payment rates for services commonly furnished by physicians and other clinicians and how to update those rates over time. The methods Medicare has used to determine and update payment rates for clinician services have evolved markedly. In the early years of the program, Medicare's payment rates for clinician services largely reflected the amounts charged by clinicians themselves. Today, there is a complex system in place that aims to set payments according to the relative value of the clinician's time, nonclinician labor, and other costs needed to furnish roughly 8,000 items and services paid for under Medicare's physician fee schedule.

While CMS determines relative payment rates for clinician services through the PFS, for several decades the Congress has specified the methods and policies used to update those rates on a year-to-year basis. Since 1992, the Congress has enacted three overarching approaches to updating payment rates for clinician services: the volume performance standard, the sustainable growth rate, and updates specified by the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).

### Setting payment rates

Since the Medicare program was established, the program has used two approaches for setting

payment rates for clinician services. The program initially adopted a method of paying for physician services that based payments on charges submitted by physicians. However, this method of payment was inherently inflationary. In 1987, the Congress enacted legislation requiring the development of a fee schedule in which payment rates for clinician services would be empirically based on the resources needed to furnish each service rather than on what physicians charged for those services.

### **Customary, prevailing, and reasonable charges**

When the Medicare program was first established in 1965, the program adopted a method of paying for physician services that many Blue Shield plans used at the time. Like these private sector plans, Medicare based payments for clinician services on customary, prevailing, and reasonable (CPR) charges submitted by physicians. Specifically, Medicare's payment for a given service was equal to the lesser of three amounts: (1) the actual, submitted charge; (2) the physician's customary charge (i.e., the median of the charges submitted by the physician for the same service in the preceding year); or (3) the prevailing charge, which equaled the 75th percentile of the distribution of the customary charges of all physicians in the physician's area for the same service.

According to a report released by one of the Commission's predecessor commissions, the Physician Payment Review Commission (PPRC), payments for physician services were determined by the CPR method, at least in part, because there was a great deal of existing variation in payment levels for those services. The variation in charges was thought to reflect meaningful differences in patient preferences and how the market priced physician services based on supply and demand. Policymakers feared that if payment rates in Medicare were set below market rates, Medicare beneficiaries might not have access to care comparable with that of nonbeneficiaries (Physician Payment Review Commission 1987).

Problems with the CPR payment system quickly became apparent, however. Unlike commercial payers, the Medicare program paid whatever prices physicians charged, and Medicare beneficiaries generally would not move to another insurer or drop coverage if costs grew too high. In the years that followed, physicians sharply increased what they charged for services, as

well as the volume of services furnished to Medicare beneficiaries (Physician Payment Review Commission 1987). As charges and payment rates steadily increased, so too did costs for taxpayers funding the program and for beneficiaries through higher cost sharing.

As a result, criticism of CPR payment was widespread among policymakers, researchers, and other stakeholders. The ability of physicians to essentially set their own payment rates was not only inflationary, it also had the effect of causing even greater variation in health care prices across providers, specialties, and geographic regions (Newhouse 2007). A PPRC report summarized the flaws of CPR payment as follows:

- It encouraged growth in the amount that physicians charged for their services.
- It provided incentives for physicians to increase the volume of services they delivered.
- It influenced physician decisions about where to practice medicine and what to specialize in.
- It was administratively complex and difficult for both physicians and beneficiaries to understand (Physician Payment Review Commission 1987).

The Congress had tried to prevent these problems with a series of refinements to the CPR system. In 1972, annual increases in prevailing charges were limited to the MEI. Actions were also taken to give Part B carriers (contractors that processed claims on Medicare's behalf) the power to review claims and restrict the use of unnecessary or low-value care, although these limitations were not widely enforced by Medicare or its carriers. In the mid-1980s, the Congress enacted several laws aimed at determining the "inherent reasonableness" of prices for physician services. These measures directed CMS's predecessor, the Health Care Financing Administration (HCFA), to identify allowable charges that were unreasonably high or low, modify payments to correct for inappropriate specialty or geographic differences, and adjust payments to reduce imbalances in the ratios of charges to resource costs for certain procedures. When these efforts to slow spending and volume largely failed, the Congress temporarily halted updates to reasonable charges and limited payments for specific services.<sup>2</sup>

Despite these efforts to restrain growth in physician spending, Part B expenditures (which include PFS

spending) grew at a rate that exceeded spending growth in Medicare as a whole. Between 1975 and 1982, Part B spending increased by an average of 18 percent per year (Physician Payment Review Commission 1987). A study by the Urban Institute found that price inflation was responsible for 40 percent of Part B spending growth, while volume increases were responsible for 33 percent (Juba and Sulvetta 1986). By the late 1980s, PPRC was one of many observers calling for a complete overhaul of the way Medicare paid for physician services: “Despite these measures to slow increasing expenditures, there is a growing dissatisfaction with the CPR method of payment and a realization that these efforts are only a stop-gap restraint on a fundamentally flawed payment system” (Physician Payment Review Commission 1987).

### **The Medicare PFS’s Resource-Based Relative Value Scale**

To address problems with the CPR approach, the Congress enacted legislation that fundamentally changed the way Medicare determined payment rates for physician services. The Omnibus Balanced Budget Act of 1987 required HCFA to develop a fee schedule in which payment rates for physician services would be empirically based on the resources needed to furnish each service rather than on what physicians charged for those services. The work to develop the fee schedule was carried out under a cooperative agreement with the Harvard School of Public Health and led to the creation of the Resource-Based Relative Value Scale (RBRVS).

The RBRVS approach aims to assign each physician-furnished service a value that is relative to the value of every other physician service; the value of each service is measured in relative value units (RVUs). A necessary precondition of an effective RBRVS system is that each service being valued must be clearly defined and consistent throughout the health care system. The process of defining and identifying services was started in the mid-1960s through development of the Current Procedural Terminology (CPT®) system by the American Medical Association. Eventually, HCFA began using CPT codes as part of the Healthcare Common Procedure Coding System (HCPCS). For the most part, the HCPCS codes used by clinicians to bill for services represent narrow and discrete services such as an office visit or a colonoscopy, although some codes

represent bundles of services such as the surgical procedure to replace a knee joint plus preoperative visits on the day prior and postoperative visits in the following 90 days.<sup>3</sup>

The number of RVUs assigned to each HCPCS code is based on an assessment of the various resources a typical practice requires when furnishing that service. Each service’s total RVUs are derived from three components that are each assigned their own relative values: clinician work, practice expense, and professional liability insurance. The RVUs for clinician work reflect the relative levels of time, effort, skill, and stress associated with providing each service. The RVUs for practice expense are based on the cost of renting office space, buying supplies and equipment, and hiring nonpractitioner clinical and administrative staff. The professional liability insurance RVUs are based on the premiums clinicians pay for professional liability insurance (PLI), also known as medical malpractice insurance.

The relative values for each of these three types of RVUs are supposed to be based on empirical data about relevant input costs. The American Medical Association/Specialty Society Relative Value Scale Update Committee (RUC), which is a 32-member committee representing physicians from various specialties whose work is coordinated by the American Medical Association (AMA), makes recommendations to CMS about RVUs for most billing codes in the fee schedule. The RUC primarily develops its recommendations based on data collected through surveys of physicians sponsored by physician specialty societies. Based on its assessment of the survey data, the RUC regularly makes recommendations to CMS about relative values for new services or updates to existing services. In addition to recommendations from the RUC, CMS also gathers data about costs from other surveys and data sources. While CMS makes the final determination of the RVUs used to determine payment rates under the PFS, the agency accepts the majority of the RUC’s recommendations (American Medical Association 2023b).

Under RBRVS, the Medicare-allowed payment amount is determined by adjusting each of the three RVU values to reflect local input prices (subject to certain restrictions, such as floors on certain payment adjustments), adding the geographically adjusted RVUs

for the three components together, and multiplying the total RVUs by a conversion factor, which is a fixed dollar amount.

For most fee schedule services, there are generally two total RVUs: one for services furnished in nonfacility settings (e.g., freestanding clinician offices) and one for services furnished in facilities (e.g., hospitals, skilled nursing facilities). Practice expense RVUs are generally lower when services are furnished at a facility setting rather than a nonfacility setting because facilities receive separate payments to cover their practice expenses through other payment systems (e.g., the hospital OPSS) and clinicians are assumed to use fewer of their own resources when services are furnished in a facility setting. RVUs for work and PLI are usually the same regardless of whether the service is furnished in a freestanding clinician office or a facility.

### Updating payment rates each year

Once Medicare moved away from the CPR method of paying clinicians, a mechanism for updating payment rates each year was needed to ensure that payment rates were adequate to support beneficiary access to high-quality care. Three approaches to updating payment rates for clinician services have been used: the volume performance standard, the sustainable growth rate, and the updates specified by MACRA. Under all three of these approaches, payment rates are updated each year by updating the fee schedule's conversion factor: Increasing the conversion factor by 1 percent, for example, results in a 1 percent increase to payment rates. Each year, the update to the conversion factor reflects two factors: (1) a percentage specified in law (either through a formula or a fixed percentage, described below), and (2) a percentage arrived at by CMS to ensure that any changes it makes to the set of codes available in the fee schedule and their relative values do not, in and of themselves, increase or decrease total PFS spending by more than \$20 million (referred to as CMS's budget-neutrality adjustment).

### The Volume Performance Standard

Starting in 1992, the RBRVS was coupled with a new method for annually updating Medicare's conversion factor for physician services: the Volume Performance Standard (VPS). The VPS approach aimed to accomplish two main goals: (1) link updates in payment rates to growth in input costs and (2) restrain the growth

of spending caused by increases in the volume and intensity of physician services delivered.

As established by the Congress in the Omnibus Budget Reconciliation Act of 1989, the VPS used two conversion factors to update rates for PFS services: one for surgical services and one for nonsurgical services. A third conversion factor was added later for primary care services. The VPS used the MEI as the default growth rate for annual updates of the conversion factors. The system also required HCFA to calculate a spending target growth rate against which the actual growth of aggregate physician spending would be compared. The VPS's spending target growth rate was the product of the following four components:

- the change in Medicare payment rates for physician services,
- the change in the number of beneficiaries enrolled in Part B FFS Medicare,
- the five-year average growth in the volume and intensity of physician services, and
- estimated changes in spending due to new laws and regulations.

The resulting growth rate was then reduced by a performance standard factor of 2 percentage points (which subsequent legislation later increased to 4 percentage points) to reduce the rate of spending growth and because historical trends were viewed as including a certain amount of inefficient and inappropriate care. Thus, if in a given year payment rates had been updated by 3 percent, enrollment had grown by 1 percent, volume and intensity had grown by 7 percent, there were no changes in law and regulation, and the 4 percent performance standard was in effect, the spending target growth rate for the year would be 7.3 percent  $((1.03 \times 1.01 \times 1.07 \times 1.0) - 0.04 = 1.073)$ .

Each year, the Secretary of Health and Human Services and the PPRC were required to make recommendations for the coming year's update, based on their assessment of the above factors as well as considerations about inflation, changes in technology, and beneficiary access to care. If the Congress failed to pass legislation adopting either of those recommendations or to enact another update, the law specified that the conversion factors would be updated

by the MEI minus the difference between the VPS spending target growth rate and actual spending.<sup>4</sup> For example, if the VPS target growth rate was 7 percent and spending grew by 8 percent, the formula would call for that year's update to be the MEI minus 1 percentage point (i.e., the percentage difference between target growth and actual spending growth).

As time went on, clinicians and policymakers grew increasingly dissatisfied with the way the VPS operated. Since VPS's spending targets were based in part on actual growth in the volume and intensity of physician services minus the performance standard factor, the formula created continuous pressure to reduce volume and intensity. However, since the targets were determined at the national level, individual clinicians had very weak incentives to reduce their own volume and intensity. In addition, the spending targets for each of the three types of services were volatile and diverged over time, such that the conversion factor for surgical services was 9 percent higher than that for primary care services and 14 percent higher than the nonsurgical conversion factor (American Medical Association 2023c). And although annual growth in per beneficiary spending had gone down following the implementation of the VPS (from 7 percent annually from 1985 through 1991 to 4.4 percent from 1992 through 1997), many policymakers felt the system had failed to adequately control growth in the volume and intensity of physician services (Government Accountability Office 2004). In 1996, the PPRC called for a series of reforms to the VPS, including using growth in gross domestic product plus 1 percentage point or 2 percentage points as an allowance for volume and intensity growth, replacing one-year spending targets with cumulative targets, and reducing the volatility of annual updates by taking steps to smooth year-to-year changes (Physician Payment Review Commission 1996).

### **The sustainable growth rate**

In 1997, the Congress replaced the VPS with the sustainable growth rate (SGR) method of annually updating RBRVS-based payment rates in the PFS. In many ways, the SGR can be seen as a refinement of the VPS formula rather than a fundamental change in approach.

The SGR set an annual spending target that allowed annual fee schedule spending to grow at a rate consistent with the product of four components:

- the change in practice costs (i.e., the MEI);
- the change in the number of beneficiaries enrolled in Part B FFS Medicare;
- the change in national per capita gross domestic product (GDP) over a 10-year period; and
- changes in spending due to new laws and regulations.

The spending target formula for the SGR was similar to the one used for the VPS, with the major difference being that the SGR's formula allowed growth for volume and intensity and was based on real GDP, rather than historical volume and intensity growth minus a performance standard. Using GDP in the SGR formula was meant to tie allowed growth in volume and intensity to an exogenous measure of economic growth rather than an endogenous measure of volume and intensity growth among physician services—thus preventing circularity.

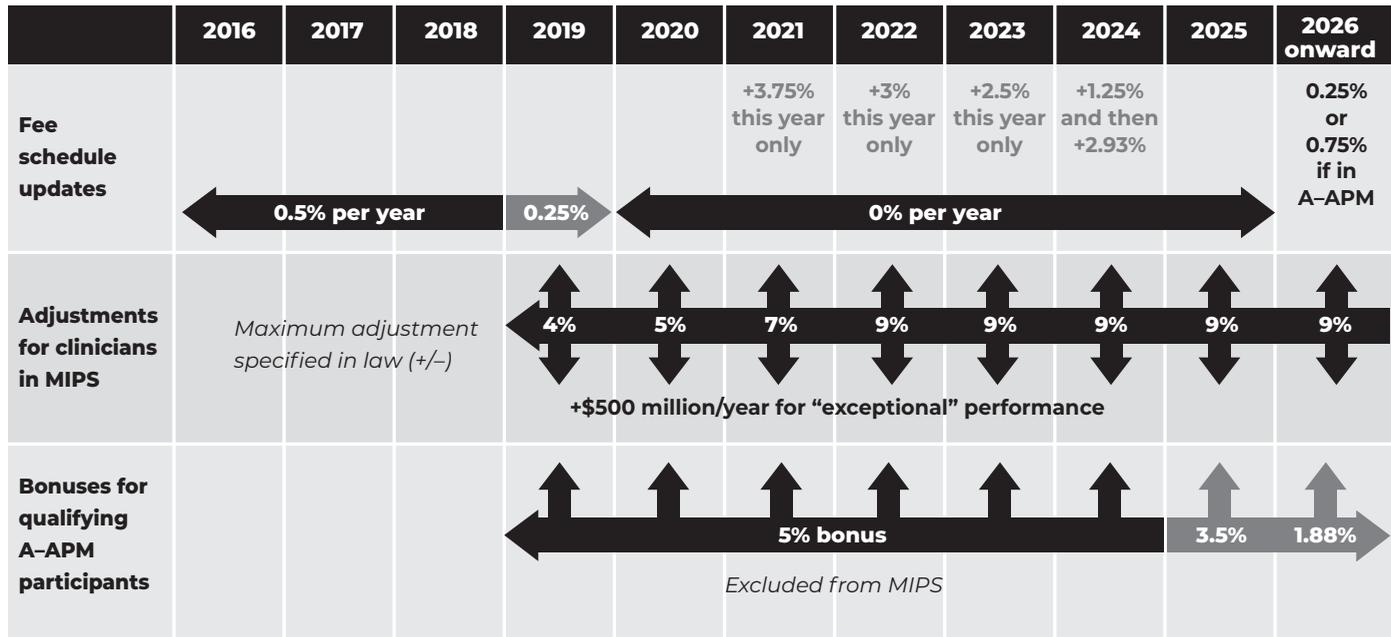
Another important difference between the two methods was that the SGR's spending targets were cumulative over time, while the VPS's spending targets were not. To determine fee schedule updates under the SGR, CMS was required to annually compare actual cumulative Medicare spending (starting in April 1996) on fee schedule services with the target spending amount over the same period. If cumulative expenditures equaled the cumulative targets, the SGR formula set physician fee updates equal to the MEI. However, if cumulative expenditures exceeded cumulative targets, the update for the subsequent year would be reduced, with the goal of bringing cumulative spending back in line with the target. Likewise, if cumulative expenditures were less than the cumulative target amount, the subsequent year's update would be higher than the MEI.

The SGR formula contained two guardrails against excessively large increases or decreases in updates. Regardless of how much the spending target exceeded actual spending or vice versa, the update in a given year could not be less than the MEI minus 7 percentage points or more than the MEI plus 3 percentage points.

In the first years of the SGR system, actual expenditures did not exceed spending targets because volume did not grow faster than GDP. Therefore, updates to the PFS in the early years of the SGR system

**FIGURE 1-1**

**Statutorily specified updates to PFS payment rates, payment adjustments, and bonuses under MACRA and subsequent legislation**



Note: PFS (physician fee schedule), MACRA (Medicare Access and CHIP Reauthorization Act of 2015), A-APM (advanced alternative payment model), MIPS (Merit-based Incentive Payment System). Changes to MACRA's original provisions are shown in gray. In 2024, rates were updated by 1.25 percent through March 8, 2024, and then are updated by 2.93 percent from March 9, 2024, through December 31, 2024. MIPS adjustments to payment rates can be positive, neutral, or negative. The highest MIPS adjustment actually paid out so far has been lower than the maximum possible under law (+1.9 percent in 2019, +1.7 percent in 2020, +1.8 percent in 2021, +1.9 percent in 2022, and +2.3 percent in 2023). The A-APM participation bonus is not available after 2026. MIPS adjustments and the A-APM participation bonus apply for only one year at a time and are not built into subsequent years' payment rates. Since the fee schedule updates for 2021 through 2024 shown in gray apply for one year only and in most years decline in size from one year to the next, they have generally had the effect of slowly lowering the fee schedule's conversion factor. The conversion factor needed to be lowered to offset a large increase to the payment rates for a widely used set of billing codes for office/outpatient evaluation and management visits, which took effect in 2021.

Source: MedPAC analysis of MACRA and subsequent legislation.

were at or above the MEI. However, beginning in 2001, actual cumulative expenditures exceeded allowed targets, and the discrepancy continued to grow each year, resulting in a series of prescribed multiyear cuts under the formula in order to recoup the difference.

The SGR's prescribed cuts were implemented in 2002; after that, the Congress passed a series of bills to override the SGR-specified fee schedule reductions. The primary rationale for overriding cuts called for by the SGR formula was a fear that allowing the scheduled reductions to take effect would cause physicians to reduce services provided to Medicare beneficiaries and perhaps stop participating in the program (Boards of

Trustees 2014, Medicare Payment Advisory Commission 2011b). Because many commercial insurers peg their physician payment rates to Medicare's, allowing the cuts to take place could have ripple effects in the larger health care system (Medicare Payment Advisory Commission 2011b).

Initially, when the Congress enacted short-term overrides of cuts called for by the SGR, the size of the following year's rate cut was not affected because annual reductions could be no larger than the MEI minus 7 percentage points (with the MEI at about 2 percent, the effective limit on a one-year reduction was around -5 percent). Although these legislative

overrides had the effect of avoiding a near-term reduction in rates, they had the longer-term effect of pushing the required reduction several years into the future in order to achieve the required spending reduction while staying within the formula's annual rate-reduction guardrails. Starting in 2007, the Congress began overriding annual cuts and adding the amount of the next year's required cut to the following year's cut, effectively eliminating the limitation on how much rates could be reduced in a given year. This approach avoided pushing the next year's reduction far into the future, but after using this approach to override cuts several times, the first-year reduction in payment rates grew to more than 20 percent (Boards of Trustees 2015).

In a 2011 report to the Congress, the Commission identified a series of flaws with the SGR approach. As with the VPS, the SGR's primary flaw was that the formula imposed incentives to reduce volume and intensity growth at the national level; individual practitioners had almost no incentive to practice efficiently or look for ways to reduce the volume or intensity of services they delivered when treating Medicare beneficiaries (Medicare Payment Advisory Commission 2011b). Because the SGR formula applied payment adjustments on an across-the-board basis, the approach neither rewarded individual clinicians who restrained unnecessary volume growth nor penalized clinicians who contributed most to inappropriate volume increases. Arguably, the "tragedy of the commons" problem was even greater with the SGR approach than that of the VPS because it did not differentiate among types of care and used just one conversion factor.<sup>5</sup>

The underlying SGR formula itself, coupled with legislative action to override prescribed annual cuts with a series of deeper and longer reductions, led many to conclude that the required updates were unrealistic and untenable. These issues, in turn, threatened to destabilize other parts of the health care system since rates paid by many private payers are directly linked to Medicare's fee schedule rates and because Medicare Advantage benchmarks include fee schedule spending (Medicare Payment Advisory Commission 2011b).

The Commission recommended that the Congress repeal the SGR system and replace it with a 10-year path of statutory fee schedule updates. The

recommended path would have frozen payment rates for primary care for 10 years and imposed annual reductions of 5.9 percent for three years for all other services, followed by a freeze (Medicare Payment Advisory Commission 2011a).

### **Medicare Access and CHIP Reauthorization Act of 2015 framework: Low updates coupled with value-based incentives**

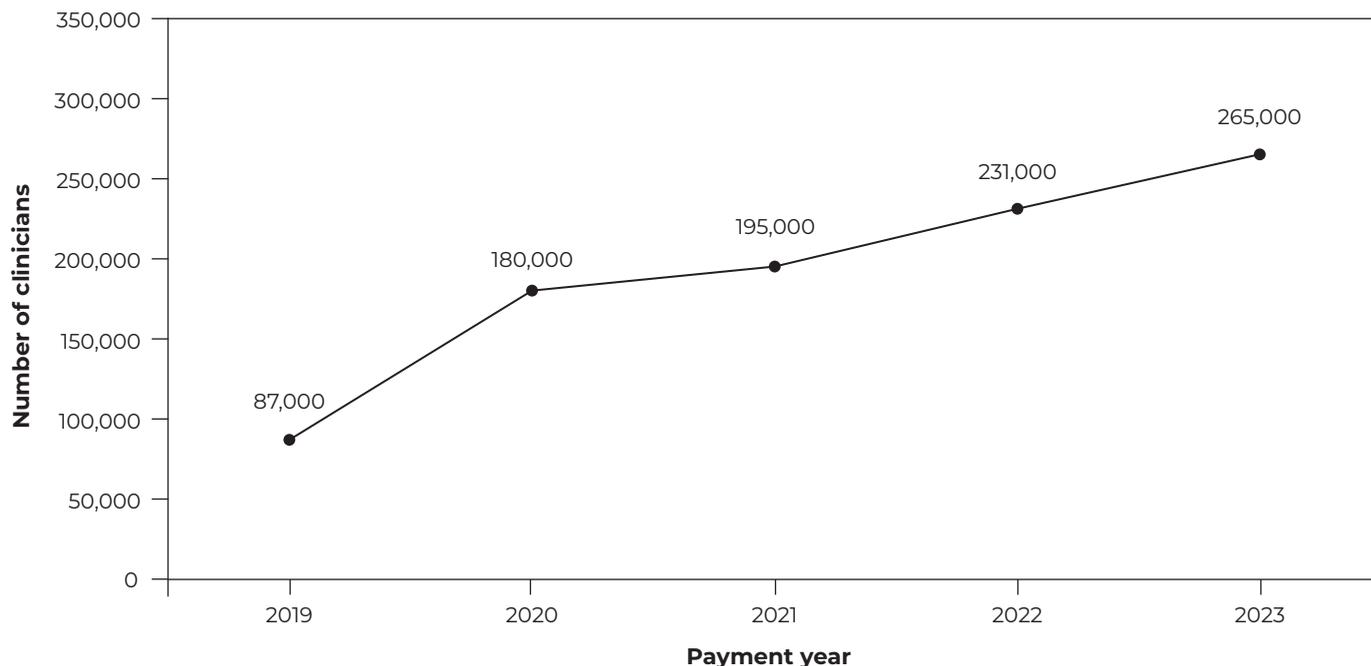
MACRA replaced the SGR formula and established a schedule of fixed annual updates to the PFS's payment rates coupled with incentives to perform well on quality measures or participate in A-APMs. A-APMs are payment models that (1) require clinicians to bear more than nominal financial risk,<sup>6,7</sup> (2) tie payment to quality measures that are comparable with those used in the Merit-based Incentive Payment System (MIPS), and (3) require clinicians to use electronic health record technology certified by the federal government (42 CFR 414.1415). The FFS Medicare A-APM with the largest number of participating clinicians is the Medicare Shared Savings Program for accountable care organizations (ACOs);<sup>8</sup> other FFS Medicare A-APMs are smaller models being tested by CMS's Innovation Center on a temporary basis (often only in certain geographic areas). Other payers can operate their own A-APMs, but relatively few have registered their payment models as A-APMs with CMS (Centers for Medicare & Medicaid Services 2023c).

Under MACRA's original framework, payment rates were to be updated by 0.5 percent annually from July 2015 through 2019, by 0 percent from 2020 to 2025, and by 0.75 percent for qualifying clinicians in A-APMs and 0.25 percent for all other clinicians starting in 2026. These fixed updates were coupled with (1) an annual 5 percent bonus for clinicians who participate in A-APMs, available from 2019 through 2024, and (2) an annual performance-based payment adjustment (which can be negative, neutral, or positive) for non-A-APM clinicians under MIPS, which is a program that does not expire (Figure 1-1).<sup>9,10,11</sup> From 2019 through 2024, Medicare is allowed to pay out \$500 million more in positive MIPS adjustments each year than it collects through negative adjustments; starting in 2025, MIPS adjustments must be budget neutral.

Subsequent legislation has amended MACRA's fixed updates, providing a 0.25 percent update in 2019 instead of 0.5 percent, and made temporary increases

**FIGURE 1-2**

**The number of clinicians who qualify for the A-APM participation bonus each year has been modest but increasing**



Note: A-APM (advanced alternative payment model). Numbers have been rounded to the nearest thousand. Figure shows the number of clinicians who qualified for the A-APM participation bonus in a given year (based on their A-APM participation two years prior), which may be higher than the number who actually received the bonus (e.g., due to retirements).

Source: MedPAC analysis of CMS data identifying the national provider identifiers of clinicians who qualified for the A-APM participation bonus linked to 100 percent of physician fee schedule claims.

to the fee schedule's payment rates in 2021 through 2024. These temporary increases differ from traditional updates in that they each apply for one year only and are not built into subsequent years' base payment rates. The Congress provided these temporary increases to partially offset a 10.2 percent budget-neutrality reduction to the fee schedule's conversion factor that was scheduled to take effect in 2021. The conversion factor reduction was required to offset the cost of increasing payment rates for widely used evaluation and management (E&M) visits and adding a new E&M add-on payment (the implementation of which was later delayed until 2024).<sup>12</sup> As a result, all other things being equal, total Medicare payments to clinicians who primarily deliver E&M services are expected to have increased while payments to other clinicians are expected to have declined. Subsequent legislation also

extended the availability of the A-APM participation bonus to 2025 (at a reduced value of 3.5 percent of a clinician's Medicare payments for fee schedule services) and 2026 (at 1.88 percent of these payments).

**The prevalence and size of MACRA's A-APM participation bonus**

The number of clinicians who qualify for the A-APM participation bonus has been increasing steadily since it first became available in 2019 (Figure 1-2), but the number nevertheless remains a minority of clinicians: About one in five clinicians who billed FFS Medicare received the bonus in 2023.

Another 62,000 clinicians participated in A-APMs in the 2023 payment year but did not qualify for the A-APM participation bonus due to an insufficient share of their payments or patients being in A-APMs

(Centers for Medicare & Medicaid Services 2023a, Centers for Medicare & Medicaid Services 2023h). (To qualify for the A-APM participation bonus, at least 50 percent of a clinician's FFS Medicare or multipayer payments must be associated with an A-APM or at least 35 percent of a clinician's FFS Medicare or multipayer patients must be participating in an A-APM at present (42 CFR 414.1430).) A-APM participants who failed to qualify for the participation bonus in the 2023 payment year were disproportionately in episode-based payment models (Centers for Medicare & Medicaid Services 2023a). Clinicians in these models could have a hard time meeting the participation thresholds if the particular types of clinical episodes targeted by these models (e.g., hip replacements) made up only a small share of the types of care they provided.

We estimate that another 107,000 clinicians were in alternative payment models that did not meet MACRA's three criteria to be considered an A-APM (e.g., they did not require clinicians to take on a sufficient degree of financial risk) (Centers for Medicare & Medicaid Services 2023a, Centers for Medicare & Medicaid Services 2023h).

Primary care physicians make up a disproportionately large share of A-APM bonus recipients, though they still constitute only a minority of bonus recipients. In the 2023 payment year, primary care physicians made up a quarter of the clinicians who qualified for a bonus, despite constituting only an eighth of clinicians who bill FFS Medicare. Primary care physicians' increased likelihood of receiving the bonus is likely because some of the larger A-APMs available to clinicians in the 2021 performance year were geared toward primary care providers and would have applied to large shares of their FFS Medicare patients (i.e., the Medicare Shared Savings Program, the Comprehensive Primary Care Plus Model, and the Primary Care First Model). Higher shares of oncologists and nephrologists also qualified for the bonus compared with other specialists in 2023, likely due to the availability of A-APMs tailored to these particular specialties (the Oncology Care Model and the Comprehensive ESRD Care Model) (Centers for Medicare & Medicaid Services 2022a).

Figure 1-3 (p. 18) shows the shares of clinicians of different specialties and types who qualified for the A-APM participation bonus, among those clinicians

who billed FFS Medicare. For example, 34 percent of family physicians and 13 percent of ophthalmologists who billed FFS Medicare qualified for the A-APM participation bonus in the 2023 payment year.

The size of the A-APM participation bonus varies based on a clinician's annual FFS Medicare payments for fee schedule services.<sup>13</sup> By our estimates, the median size of the A-APM participation bonus in 2023 (when it was set to be worth 5 percent of a clinician's fee schedule services) was \$1,287 (not shown) per clinician, but bonus amounts varied widely (Figure 1-4, p. 19). Among the 10 percent of clinicians who received the smallest bonuses, the median bonus was \$31; among the 10 percent of clinicians who received the largest bonuses, the median bonus was \$9,833. (We note that under "incident to" billing, physicians can bill for services furnished by advanced practice registered nurses (APRNs) such as nurse practitioners as well as physician assistants (PAs) and other types of clinicians with whom they work. Thus larger bonuses may reflect services provided by multiple clinicians.)

Specialists received larger A-APM participation bonuses than primary care physicians, APRNs and PAs, and other clinicians in 2023 (Figure 1-5, p. 20) because specialists tend to generate more annual Medicare payments than other types of clinicians. Among all clinicians who received the bonus, the median bonus was \$2,416 for specialists, \$1,712 for primary care physicians, \$529 for APRNs and PAs, and \$548 for other types of clinicians (not shown).

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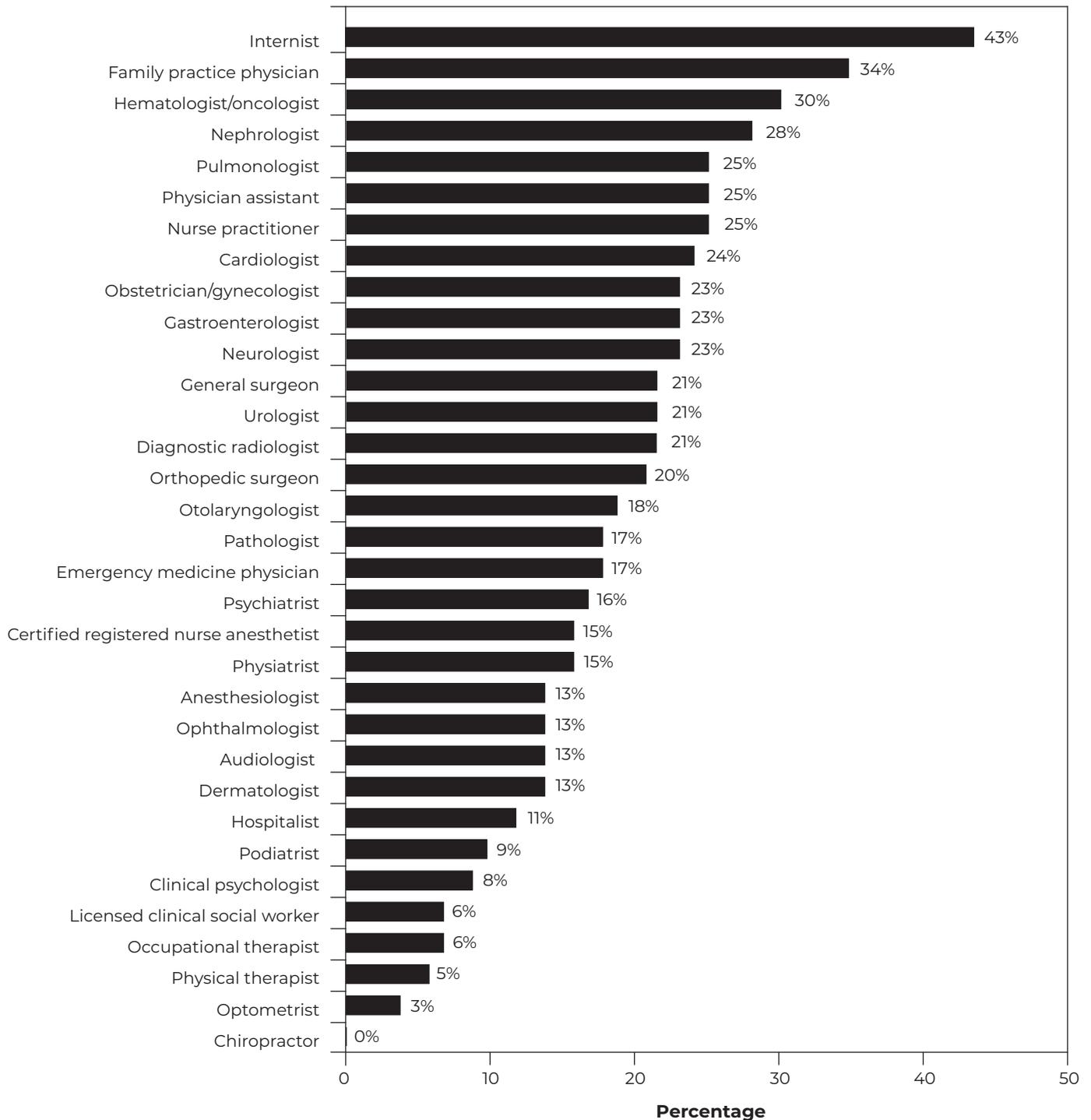
### **Historically, beneficiaries' access to clinician care has been comparable with that of privately insured individuals**

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Every year, the Commission assesses the adequacy of payments made under Medicare's PFS and releases the findings in our annual March report to the Congress. As part of that process, the Commission measures beneficiaries' access to care. For many years, the Commission has found that beneficiaries' access to care has been as good as, or better than, that of privately insured individuals; the share of clinicians who accept new Medicare patients has been comparable with the share who accept new privately insured patients; and

**FIGURE  
1-3**

**The shares of clinicians of different types and specialties who qualified for the A-APM participation bonus in 2023**

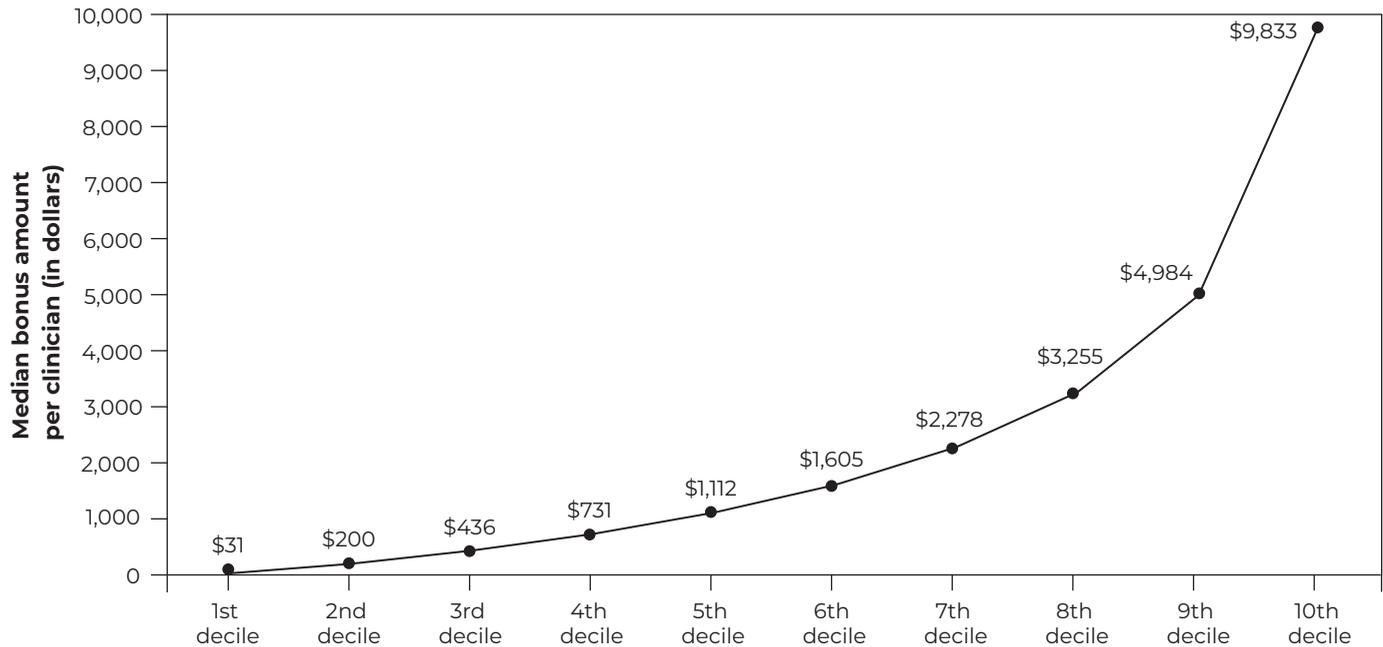


Note: A-APM (advanced alternative payment model). Figure reflects the share of clinicians who billed fee-for-service (FFS) Medicare who qualified for the bonus. Graph shows only the most common clinician types and specialties (that have at least 8,000 clinicians who billed FFS Medicare in 2021). "Hospitalist" includes physicians with specialties of internal medicine, family practice, geriatric medicine, or pediatric medicine whose claims data indicate that they primarily practice in the inpatient hospital setting. Numbers have been rounded to the nearest percentage point.

Source: MedPAC analysis of CMS data identifying the national provider identifiers of clinicians who qualified for the A-APM participation bonus in 2023 based on their 2021 A-APM participation, linked to 100 percent of Medicare physician fee schedule claims data for 2021.

**FIGURE  
1-4**

**The size of A-APM participation bonuses varied widely, 2023**



Note: A-APM (advanced alternative payment model). Figure shows our estimate of the median bonus amount at different deciles in the 2023 payment year. Bonuses were calculated based on A-APM participation from two years prior (2021) and Medicare payments from one year prior (2022). Bonuses totaled \$607 million in our analysis, which is lower than the \$644 million that CMS reported paying out in 2023 (Centers for Medicare & Medicaid Services 2023b). Our estimates are slight underestimates of bonus sizes primarily because, when calculating bonuses, we did not include supplemental service payments that clinicians receive through A-APMs (e.g., capitated care management fees).

Source: MedPAC analysis of CMS data identifying the national provider identifiers of clinicians who qualified for the A-APM participation bonus in 2023 (based on 2021 A-APM participation) linked to 100 percent of Medicare physician fee schedule claims for 2022.

the volume of and spending on fee schedule services per beneficiary has grown. Longer-term measures of access to care, such as applications to medical school and clinician incomes, have also remained positive.

### **Survey data suggest beneficiaries' access to care is comparable with that of the privately insured**

The Commission sponsors an annual survey of Medicare beneficiaries ages 65 and over and privately insured individuals ages 50 to 64. The goal of surveying these two groups is to identify whether any problems accessing care observed among the Medicare population are confined to that population (which could suggest issues with Medicare's payment rates)

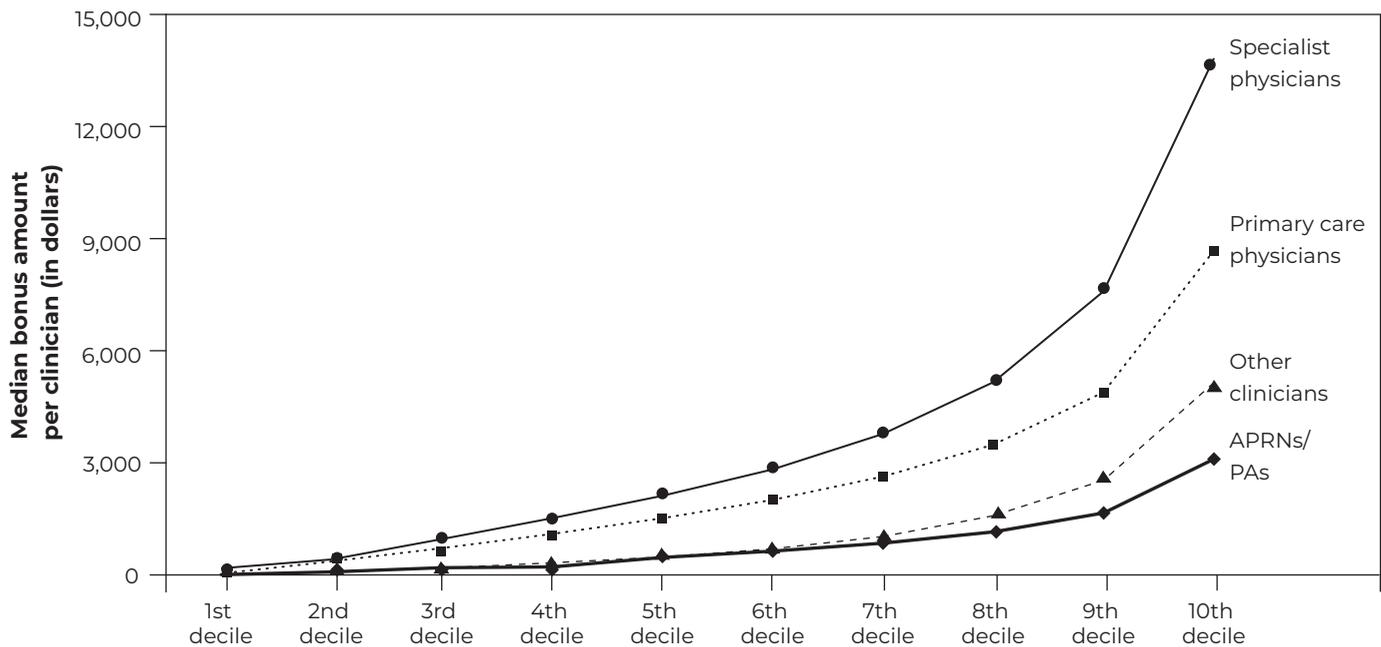
or are also experienced by other patients (which could suggest larger issues in the health care sector). Over nearly two decades, our survey has generally found that Medicare beneficiaries' access to care is comparable with, or better than, that of privately insured people.

The Commission also considers data from other surveys, which also tend to conclude that Medicare beneficiaries have good access to care. For example:

- CMS's 2021 Medicare Current Beneficiary Survey found that a relatively small share of beneficiaries (6 percent) reported experiencing trouble getting health care in the past year (Medicare Payment Advisory Commission 2024).

**FIGURE 1-5**

**The size of A-APM participation bonuses varied by clinician specialty and type, 2023**



Note: A-APM (advanced alternative payment model), APRN (advanced practice registered nurse), PA (physician assistant). Figure shows our estimate of the median bonus amount at different deciles for different types and specialties of clinicians in the 2023 payment year. Bonuses were calculated based on A-APM participation from two years prior (2021) and Medicare payments from one year prior (2022). "Other clinicians" are dentists, dietitians, audiologists, podiatrists, psychologists, licensed clinical social workers, speech language pathologists, occupational therapists, physical therapists, anesthesiology assistants, optometrists, and chiropractors. Bonuses totaled \$607 million in our analysis, which is lower than the \$644 million that CMS reported paying out in 2023 (Centers for Medicare & Medicaid Services 2023b). Our estimates are slight underestimates of bonus sizes primarily because, when calculating bonuses, we did not include supplemental service payments clinicians receive through A-APMs (e.g., capitated care management fees).

Source: MedPAC analysis of CMS data identifying the national provider identifiers of clinicians who qualified for the A-APM participation bonus in 2023 (based on 2021 A-APM participation) linked to 100 percent of Medicare physician fee schedule claims for 2022.

- The Medical Expenditure Panel Survey has found that around age 65, when most people gain eligibility for Medicare, there is a reduction in reports of being unable to get necessary care and being unable to get needed care because of cost (Jacobs 2021).
- The National Health Interview Survey has found that delaying or forgoing needed care due to cost was more common among adults under the age of 65 than adults over the age of 65 (National Center for Health Statistics 2021).
- The Behavioral Risk Factor Surveillance System survey has found that, compared with people with employer-sponsored or individually purchased

health insurance, Medicare beneficiaries are more likely to have a personal physician, less likely to have medical debt, and more likely to be very satisfied with their care (Wray et al. 2021).

### Clinicians accept Medicare at similar rates as commercial insurance

The Commission has found a substantial and growing difference between Medicare and commercial payment rates for clinician services. However, we have not found evidence that this payment differential impacts clinicians' willingness to accept new Medicare patients.

Using 2022 data from preferred provider organization (PPO) health plans that are part of a large national

insurer, the Commission found that PPO payment rates for clinician services averaged 136 percent of Medicare's payment rates (Medicare Payment Advisory Commission 2024). Other researchers have found similar ratios of Medicare and commercial payment rates for clinician services (Congressional Budget Office 2022). Further, over the last decade, the Commission has found that the difference between commercial and Medicare payment rates has widened. We found that, from 2011 to 2022, commercial PPO payment rates for clinician services increased from 122 percent of Medicare's payment rates to 136 percent of Medicare's rates (Medicare Payment Advisory Commission 2024).

Yet the share of clinicians who accept Medicare is comparable with the share who accept private health insurance. From 2014 to 2019, the share of nonpediatric office-based physicians who accepted Medicare was only 0 percentage points to 2 percentage points lower than the share who accepted private health insurance, according to the Centers for Disease Control and Prevention's National Electronic Health Records Survey (Ochieng et al. 2022). More recently, the 2021 National Ambulatory Medical Care Survey found that among the 94 percent of nonpediatric office-based physicians who reported accepting new patients, 89 percent said they accepted new Medicare patients and 88 percent said they accepted new privately insured patients (Schappert and Santo 2023).

A 2022 AMA survey of clinicians in a wider range of clinical settings found that among nonpediatric physicians accepting new patients, 96 percent accepted new Medicare patients and 98 percent accepted new commercial insurance patients (American Medical Association 2023d). The AMA survey found that acceptance of Medicare varied by clinical setting and medical specialty. Among those accepting new patients, larger shares of physicians in hospital-owned practices accepted Medicare (98.6 percent) compared with physicians in private practice (94.1 percent), although both shares were high. And among those accepting new patients, larger shares of specialists accepted Medicare (e.g., 99.6 percent of internal medicine subspecialists, 99.4 percent of general surgeons, 98.7 percent of radiologists) compared with family medicine physicians (94.0 percent)—but again, all rates were high. (One specialty with notably low acceptance of Medicare was psychiatry: Among those taking new

patients, only 80.7 percent of psychiatrists accepted new Medicare patients.)

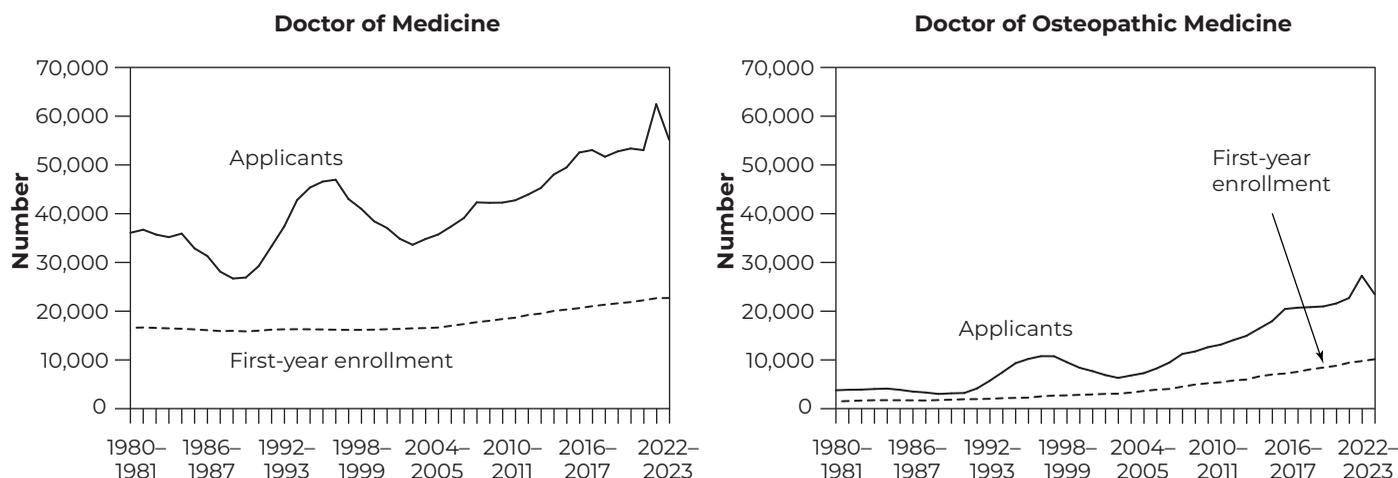
Clinicians may choose to accept Medicare, despite payment rates that are lower than commercial rates, for several reasons. For example, a large and increasing share of clinicians' patients are enrolled in Medicare, and Medicare beneficiaries are high utilizers of services. If clinicians opted to accept only commercially insured patients, they might be unable to fill their panel of patients and would therefore lose revenue due to having fewer patients. According to the National Health Expenditure Accounts, from 2000 to 2022, the share of national spending on physician services accounted for by Medicare increased from 23 percent to 35 percent (Centers for Medicare & Medicaid Services 2022d). In addition, physicians who are employed by hospitals or health plans may be required to accept Medicare as a condition of employment, and some hospitals may require physicians to participate in Medicare to receive admitting and clinical privileges. The administrative simplicity of billing FFS Medicare may also help offset the program's lower payment rates. Commercial insurers often impose burdensome requirements on clinicians that take time to complete, such as frequently requiring clinicians to appeal denied claims and complete prior authorizations (American Medical Association 2023a). In contrast, FFS Medicare generally requires no prior authorization for services and is known as a prompt payer since it is required by law to pay "clean" claims within 30 days and must pay providers interest on any late payments (42 USC 1395u (c)).

### **Volume and intensity of services delivered per beneficiary has increased**

Since 2000, the volume and intensity of clinician services furnished to beneficiaries—and the resulting payments that clinicians have received—have increased substantially. For example, from 2000 to 2017, the cumulative per beneficiary growth in volume and intensity of imaging services was 75 percent (Medicare Payment Advisory Commission 2019). The increase in volume and intensity of major procedures and E&M services over the period was somewhat lower but still considerable (47 percent and 45 percent, respectively). With the exception of a dip in utilization during the coronavirus pandemic, the volume of care that beneficiaries receive has continued to increase in more

**FIGURE  
1-6**

**The numbers of medical school applicants and first-year enrollment have increased over the last two decades**



Source: Association of American Medical Colleges and American Association of Colleges of Osteopathic Medicine.

recent years (Medicare Payment Advisory Commission 2024). Growth in volume and intensity suggests that beneficiaries have been able to continue accessing care.

### **Longer-term measures of access to care have remained positive**

In the long term, access to health care also depends on the supply of clinicians. While less directly related to PFS payment rates than our short-term measures of access, we review evidence on three measures of clinician supply—physician incomes, the number of applicants to medical school, and the number of clinicians who billed the fee schedule.

Physicians' incomes are an important long-term indicator because declining incomes (either nominally or in real, inflation-adjusted terms) could dissuade some college students from entering the medical profession. Also, since the Commission lacks data that would allow us to calculate clinicians' all-payer profit margins from delivering services, we use clinician compensation data as a rough proxy for profitability. Similarly, a decrease in the number of medical school applicants or the number of clinicians billing the fee

schedule could signal a declining interest in entering the medical field or treating Medicare beneficiaries, respectively.

Overall, our long-term measures of access to care are positive: Physician incomes have kept pace with (or exceeded) inflation, the number of applicants to medical schools has grown, and the number of clinicians billing the fee schedule has increased substantially. These data suggest that two decades of fee schedule updates below MEI growth have not hurt the long-term supply of clinicians.

- **Physicians' and other clinicians' incomes have kept pace with or increased faster than inflation.** One study that determined physicians' incomes using federal tax data found that, from 2005 to 2017, real physician incomes (after factoring in inflation, as measured by the Consumer Price Index for All Urban Consumers (CPI-U)) grew by about 1 percent per year (Gottlieb et al. 2023). More recent survey data suggest that physician incomes continue to keep pace with the CPI-U. However, the effects of recent inflation were substantial, with physician incomes growing more slowly (or declining) early in the

recent coronavirus pandemic and increasing more quickly in 2022 relative to growth in costs (Kelly 2022, Medicare Payment Advisory Commission 2024). The incomes of nurse practitioners and physician assistants also continue to grow at rates at or above inflation. For example, from 2013 to 2022, the average total income for PAs who worked in primary care increased from about \$88,000 to \$111,000, an average annual increase of 2.7 percent (National Commission on Certification of Physician Assistants 2022, National Commission on Certification of Physician Assistants 2014). This growth was similar to the average annual CPI-U growth over the same time. Similarly, one study found that NPs' incomes grew 5.5 percent faster than the CPI-U from 2010 to 2017 (Auerbach et al. 2020).

- **The number of applicants to medical schools has increased.** Physicians in the U.S. hold either a doctor of medicine (MD) or doctor of osteopathic medicine (DO) degree. Over more than two decades of fee schedule updates below MEI growth, the number of applicants and first-year enrollees at both MD-granting and DO-granting educational institutions has increased. For example, from the 2000–2001 academic year to the 2022–2023 academic year, the number of applicants to MD-granting institutions rose from 37,088 to 55,188, an increase of 49 percent, and the number of applicants to DO-granting institutions climbed from 7,708 to 23,488, an increase of 205 percent (American Association of Colleges of Osteopathic Medicine 2023, Association of American Medical Colleges 2022) (Figure 1-6). At other times (including times when Medicare's physician payment rate updates were higher), the numbers of applicants were flat or declined (e.g., during the 1980s). While a review of the causes of these trends is beyond the scope of this chapter, these data suggest that issues other than fee schedule updates (e.g., restrictions on the number of graduate medical education slots that Medicare pays for, resulting from a previous concern about the potential oversupply of physicians in the 1980s) have had more influence on medical school applicants and enrollees, and the level of fee schedule updates over the last two decades has not attenuated college students' interest in becoming physicians.<sup>14</sup>

- **The number of clinicians billing the PFS has increased.** The number of clinicians billing the fee schedule has increased substantially over time, and the number of clinicians who opt out of Medicare remains very low (Ochieng and Clerveau 2023).<sup>15</sup> From 2009 to 2021, patterns in the increasing number of clinicians who billed the fee schedule varied by clinician type. Over that period, the number of APRNs and PAs who billed the fee schedule increased by nearly 9 percent per year while the number of physicians billing the fee schedule grew by just over 1 percent per year (Medicare Payment Advisory Commission 2023b, Medicare Payment Advisory Commission 2013).<sup>16</sup>

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## Concerns about the adequacy of future payments to clinicians

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The Commission's past assessments have generally indicated that Medicare beneficiaries have relatively good access to care. However, we are concerned about whether beneficiaries will maintain adequate access to care in the future since growth in clinicians' costs is expected to exceed growth in FFS Medicare payment rates by a greater amount than over the past two decades. This larger gap could create incentives for clinicians to reduce the number of Medicare beneficiaries they treat or stop participating in Medicare entirely. In addition, the growing differential between payment rates for clinician services billed in freestanding clinician offices versus HOPDs could further encourage services to be billed in the higher-paid HOPD setting and spur additional vertical consolidation in the health care industry. At the same time, the sunset of the A-APM participation bonus, as specified in current law, could result in top-performing clinicians exiting A-APMs if MIPS becomes a more generous program in coming years.

## The impact of inflation on the future adequacy of PFS payment rates

MACRA has achieved one of its policy goals of stabilizing updates to fee schedule payment rates; since MACRA was enacted, rates have been higher and more predictable than what would have occurred under the SGR. But recent increases in the costs of running clinician practices and projections indicating higher inflation over the next several years compared with

the prepandemic period have led to concerns about the adequacy of current-law updates to fee schedule payment rates scheduled under MACRA. While MACRA was supported by physician groups like the AMA and was initially seen as an acceptable way of avoiding deep rate cuts called for by the previous SGR formula, stakeholders and others have increasingly called into question the law's framework of fixed updates (Boards of Trustees 2023, McAneny 2016, O'Reilly 2023).

### **The MEI measures annual changes in input costs for clinician services**

The MEI was originally used in the 1970s in Medicare's charge-based payment system for clinician services to limit year-to-year payment increases. While Medicare no longer uses the MEI to increase (or limit) PFS payment rates, CMS still maintains the index for various purposes.

The MEI measures the weighted average price change for various inputs involved in furnishing clinician services. Specifically, the MEI is a fixed-weight input price index comprised of two broad categories—clinician compensation and practice expenses. According to data used to calculate the MEI, on average, clinician compensation accounts for 47.5 percent of the cost of furnishing clinician services and includes wages and benefits of physicians and other clinicians who bill the PFS directly (e.g., NPs and PAs). Practice expenses account for the remaining 52.5 percent (Table 1-1). CMS determines the distribution of expenses largely based on the U.S. Census Bureau's Service Annual Survey (SAS), supplemented by several other data sources. The SAS provides annual nationwide estimates of revenue, expenses, and other measures for most traditional service industries (Census Bureau 2021).

The distribution of expenses is directly related to payments under the physician fee schedule. In the past, when CMS rebased the MEI (i.e., updated the base year data to establish the distribution of expenses), the agency rescaled the RVUs under the fee schedule to match the distribution of expenses under the MEI. In other words, in aggregate, 47.5 percent of the RVUs under the fee schedule should be associated with clinicians' work because the MEI suggests that 47.5 percent of the expenses associated with furnishing clinician services are associated with the costs of clinician compensation. But in 2022, CMS revised and

rebased the MEI using 2017 data but did not rescale the RVUs under the fee schedule. So, the distribution of RVUs under the fee schedule is currently based on data reflecting physicians' practice costs in 2006. The MEI based on 2006 data attributes 50.9 percent of the cost of furnishing clinician services to clinician compensation.

Once CMS establishes the distribution of expenses, the next step is to determine how the prices in each of the categories of expenses grow over time. To do so, CMS relies on a sample of commercial professional liability insurance carriers and three data sources from the U.S. Bureau of Labor Statistics to measure changes in the input costs of maintaining a physician office:

- the Employment Cost Index (ECI), which measures the change in the hourly labor cost to employers over time;
- the Producer Price Index (PPI), which measures the average change over time in the selling prices received by domestic producers for their output; and
- the Consumer Price Index (CPI), which measures the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

The decision about which price proxy to use is limited by available data and involves trade-offs. For example, in 2012, when considering the price proxy for clinician compensation, the Medicare Economic Index Technical Advisory Panel, established by the Secretary for Health and Human Services, sought an index that reflected a highly skilled occupational mix that was not heavily influenced by trends in actual physician wages that could create endogeneity or circularity concerns. The panel considered a broad index that included all private industry workers, for which the share of total employees who were physicians was only 0.6 percent. The panel also considered a slightly narrower index comprised of professional workers, for which the share of total employees who were physicians was slightly higher at 4.0 percent. The panel recommended the slightly narrower index because it better reflected a more highly skilled mix of occupations and was still only minimally influenced by the actual wages of physicians (Berndt 2012).

The price proxies used in the MEI are similar to what CMS uses for other market baskets. For example, for

**TABLE  
1-1**

**Medicare Economic Index expense categories and price proxies (based on 2017 data)**

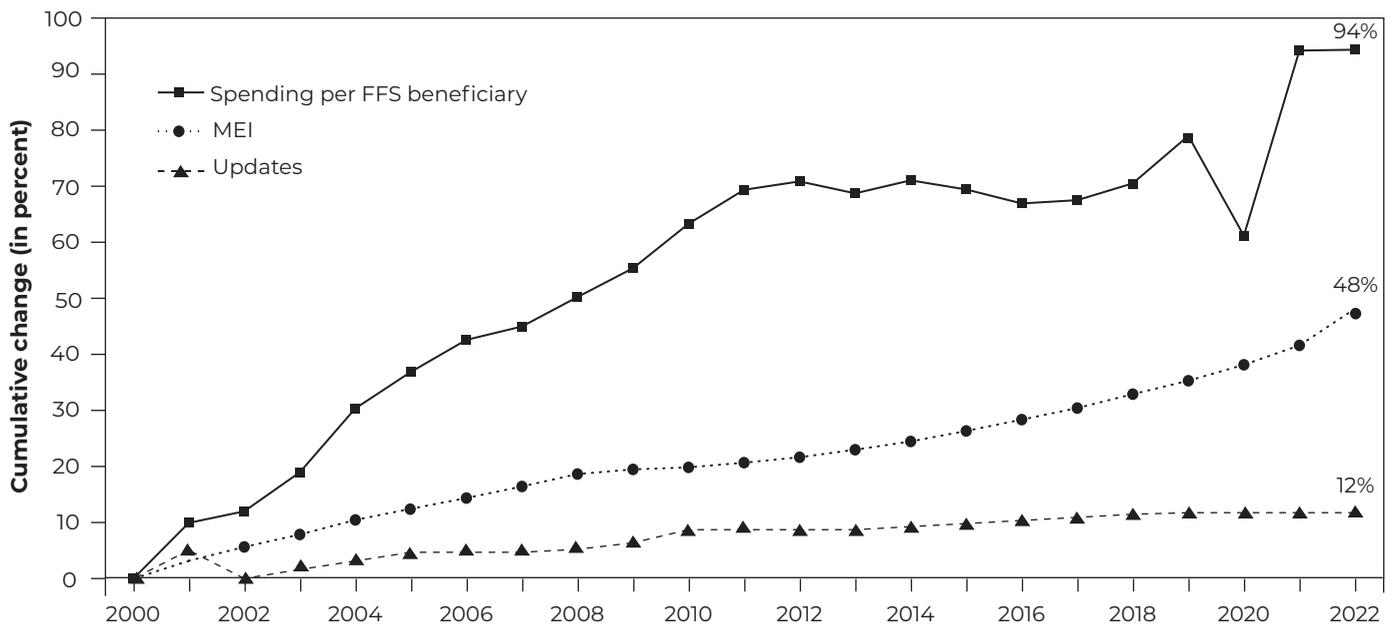
Expense category (weight)	Price proxy	Total expense weight	
<b>Clinician compensation</b>			
Wages and salaries (39.4%)	ECI for wages and salaries for professional and related occupations	<b>47.5%</b>	
Benefits (8.1%)	ECI for benefits for professional and related occupations		
<b>Practice expense</b>			
<b>Nonphysician compensation (25.5%)</b>			
Nonphysician wages (21.1%)			
Nonhealth, nonphysician wages (10.9%)			
Professional and related (1.3%)	ECI for wages and salaries for professional and related occupations	<b>52.5%</b>	
Management (2.1%)	ECI for wages and salaries for management, business, and financial		
Clerical (6.8%)	ECI for wages and salaries for office and administrative support		
Services (0.7%)	ECI for wages and salaries for service occupations		
Health-related, nonphysician wages (10.3%)	ECI for wages and salaries for hospital workers		
Nonphysician benefits (4.3%)	Composite ECI for nonphysician employee benefits		
<b>Other practice expense (27.0%)</b>			
Utilities (0.4%)	CPI for fuel and utilities		
All other products (2.0%)	PPI—final demand—finished goods less foods and energy		
Telephone (0.5%)	CPI for telephone services		
<b>All other professional services (13.4%)</b>			
Professional, scientific, and technical services (6.1%)	ECI for total compensation for professional, scientific, and technical services		
Administrative and waste services (2.3%)	ECI for total compensation for administrative, support, waste management, and remediation services		
All other services (5.0%)	ECI for compensation for service occupations		
<b>Capital (7.5%)</b>			
Fixed capital (e.g., rent and depreciation) (5.3%)	PPI for lessors of nonresidential buildings		
Movable capital (e.g., equipment) (2.1%)	PPI for machinery and equipment		
Professional liability insurance (1.3%)	Data collected by CMS from a sample of commercial insurance carriers		
Medical supplies (2.0%)	50/50 blend of the PPI for surgical appliances and the CPI for medical equipment and supplies		

Note: ECI (Employment Cost Index), CPI (Consumer Price Index), PPI (Producer Price Index). Information is from the Medicare Economic Index based on 2017 data. "Clinician compensation" includes physicians, nurse practitioners, physician assistants, and other practitioners who can bill the fee schedule independently. Subcategories might not sum to total categories because of rounding.

Source: MedPAC summary of CMS regulations.

**FIGURE  
1-7**

**Physician fee schedule spending per FFS beneficiary grew substantially faster than the MEI or fee schedule payment updates, 2000–2022**



Note: FFS (fee-for-service), MEI (Medicare Economic Index). The MEI measures the change in clinician input prices. MEI data are from the new version of the MEI (based on data from 2017) and include an adjustment for productivity growth. Spending per FFS beneficiary is based on incurred spending under the physician fee schedule. The graph shows increases to payment rates in nominal terms. Fee schedule updates do not include Merit-based Incentive Payment System adjustments, advanced alternative payment model participation bonuses, and payment increases of 3.75 percent in 2021 and 3.0 percent in 2022 because they are one-time payments not built into subsequent years' payment rates.

Source: MedPAC analysis of Medicare regulations and Trustees' reports.

the hospital market basket, CMS also uses data from the ECI, PPI, and CPI. However, the expense categories have different weights (e.g., the category of wages and salaries for hospital workers has a greater weight in the hospital inpatient market basket than in the MEI) and some categories do not overlap (e.g., the hospital market basket includes categories for blood products, pharmaceutical products, and food, whereas the MEI does not). Similar to other market baskets used by Medicare, the MEI is also reduced by the 10-year moving average of private nonfarm business (economy-wide) total factor productivity.

**MEI growth has outpaced statutory fee schedule updates**

MEI growth has consistently exceeded fee schedule payment rate updates. For the two decades from 2001

to 2020, MEI growth exceeded fee schedule updates by an average of just over 1 percentage point per year (1.6 percent annually vs. 0.6 percent).<sup>17</sup>

From 2000 to 2022, the cumulative increase in fee schedule updates totaled 12 percent compared with MEI growth of 48 percent (Figure 1-7). The growing gap between statutory fee schedule updates and MEI growth means that Medicare payments per service (unadjusted for increases in intensity) have declined substantially in inflation-adjusted terms over time.

But growth in Medicare spending per beneficiary on clinician services has significantly outpaced growth in the MEI, suggesting continued growth in clinicians' Medicare revenues above the level of inflation. As seen in Figure 1-7, Medicare's PFS payments per FFS beneficiary have grown twice as fast as MEI growth

over the last two decades. Specifically, from 2000 to 2022, Medicare fee schedule spending per FFS beneficiary grew by 94 percent compared with MEI growth of 48 percent. These data indicate that, even after adjusting for inflation, each Medicare beneficiary generated more revenue for clinicians in 2022 than they did in 2000. Because increases in volume and intensity generally increase costs (e.g., furnishing an additional service may require clinicians to purchase additional supplies, and a more intense service may require more clinician time), the growth in fee schedule spending per FFS beneficiary should not be interpreted as profit growth. Nonetheless, the substantial growth in fee schedule spending per FFS beneficiary suggests that simply comparing changes in fee schedule updates with MEI growth is insufficient to capture changes over time in clinicians' ability to provide services to Medicare beneficiaries.

Multiple factors drove the large increase in spending over this time. Two of the largest factors are increases in the number of services received per beneficiary and the increase in intensity of those services. As each beneficiary receives more services (e.g., more procedures) or more intense services (e.g., higher-level office visits), Medicare's payments to clinicians increase accordingly.

### **MEI growth is projected to exceed fee schedule updates by more in the future than it has in the past**

MEI growth was relatively low for two decades preceding the coronavirus pandemic, averaging 1.6 percent per year from 2001 to 2020. Beginning in 2021, MEI growth accelerated, reaching an annual rate of 4.6 percent in 2022. CMS expects MEI growth to slow in the coming years. Despite this moderation, MEI growth is still projected to remain somewhat above the levels experienced during much of the past two decades, averaging 2.3 percent per year from 2025 through 2033.

In comparison, over the same period, fee schedule payment rates are set to increase by 0 percent in 2025 and then by 0.75 percent per year for qualifying clinicians in A-APMs and 0.25 percent per year for clinicians not in A-APMs. As a result, the average difference between projected MEI growth and fee schedule updates from 2025 to 2033 is expected to be 1.7 percent annually for clinicians in A-APMs and

2.1 percent for clinicians not in A-APMs. Thus, MEI growth is projected to exceed fee schedule updates by more than it has over the last two decades.

### **Growing payment differentials for services billed in HOPDs versus freestanding clinician offices**

Medicare commonly pays more for the same service when billed in HOPDs versus freestanding clinician offices. Research suggests that these site-of-service payment differentials have contributed to vertical consolidation, though the effect may be modest and varies by clinician specialty or type of service, and other factors may also encourage vertical consolidation. Still, site-of-service payment differentials distort competition and, if allowed to worsen, could cause further vertical consolidation, not because such a model is the most efficient way to deliver high-quality care but because it generates higher revenues—at the expense of Medicare beneficiaries and taxpayers. Increased vertical consolidation could also result in providers negotiating higher payment rates from commercial payers, which would lead to higher premiums for privately insured enrollees.

### **Medicare generally pays more for the same service when billed in an HOPD versus a freestanding clinician office**

When a clinician bills a fee schedule service in a nonfacility setting (e.g., a freestanding clinician office), Medicare typically makes one payment through the physician fee schedule. This payment is designed to reflect the cost of the clinician's work, practice expenses (e.g., staff, supplies, and rent), and professional liability insurance. When a clinician bills the same service in an HOPD, the Medicare program usually makes two payments—one under the PFS and a second under the OPPS. In this case, the fee schedule payment generally covers the same costs associated with the clinician's work and professional liability insurance, but typically a smaller amount of practice expenses. The OPPS payment is intended to cover the costs that the hospital incurs as a result of the service being performed at the facility (i.e., a portion of the practice expense). The combination of these two payments is typically higher than the single fee schedule payment Medicare makes when the service is performed in a nonfacility setting. For example, in

**TABLE  
1-2**

**Medicare generally paid more for services when billed in a hospital outpatient department rather than a nonfacility setting, 2023**

	Office visit, 30–39 minutes	CT scan, abdomen and pelvis (with contrast)	IMRT treatment delivery	Vascular procedure
<b>Service billed in a nonfacility setting (e.g., a clinician office)</b>				
Physician fee schedule payment	\$128.43	\$322.61	\$364.97	\$1,230.78
Physician work	65.06	61.67	0.00	163.68
Nonfacility PE	58.62	256.86	363.61	1,043.73
Professional liability insurance	4.74	4.07	1.36	23.38
<b>Total payment</b>	<b>128.43</b>	<b>322.61</b>	<b>364.97</b>	<b>1,230.78</b>
<b>Service billed in an HOPD</b>				
Physician fee schedule payment	\$97.60	\$87.43	\$0.00	\$236.53
Physician work	65.06	61.67	0.00	163.68
Facility PE	27.79	22.37	0.00	49.48
Professional liability insurance	4.74	3.39	0.00	23.38
Hospital OPPS payment	120.86	368.43	572.47	5,215.40
<b>Total payment</b>	<b>218.46</b>	<b>455.86</b>	<b>572.47</b>	<b>5,451.93</b>
Percentage by which total payments are higher when billed in an HOPD versus a nonfacility setting	70%	41%	57%	343%

Note: CT (computed tomography), IMRT (intensity-modulated radiation therapy), PE (practice expense), HOPD (hospital outpatient department), OPPS (outpatient prospective payment system). Healthcare Common Procedure Coding System codes used in this table include 99214 (office visit), 74177 (CT scan), G6015 (IMRT), and 36902 (vascular procedure). All services in this example are assumed to have been performed in an on-campus HOPD or, for services other than HCPCS code 99214, an excepted off-campus HOPD. Payment rates do not account for greater packaging under the OPPS. Components may not sum to totals due to rounding.

Source: MedPAC analysis of CMS's RVU file and OPPS addenda.

2023, for an office visit lasting 30–39 minutes or with a moderate level of medical decision-making (HCPCS code 99214), Medicare's total payment was \$128 when billed in a freestanding clinician office but \$218 when billed in an HOPD (combining the fee schedule payment of \$98 and the OPPS payment of \$121) (Table 1-2).

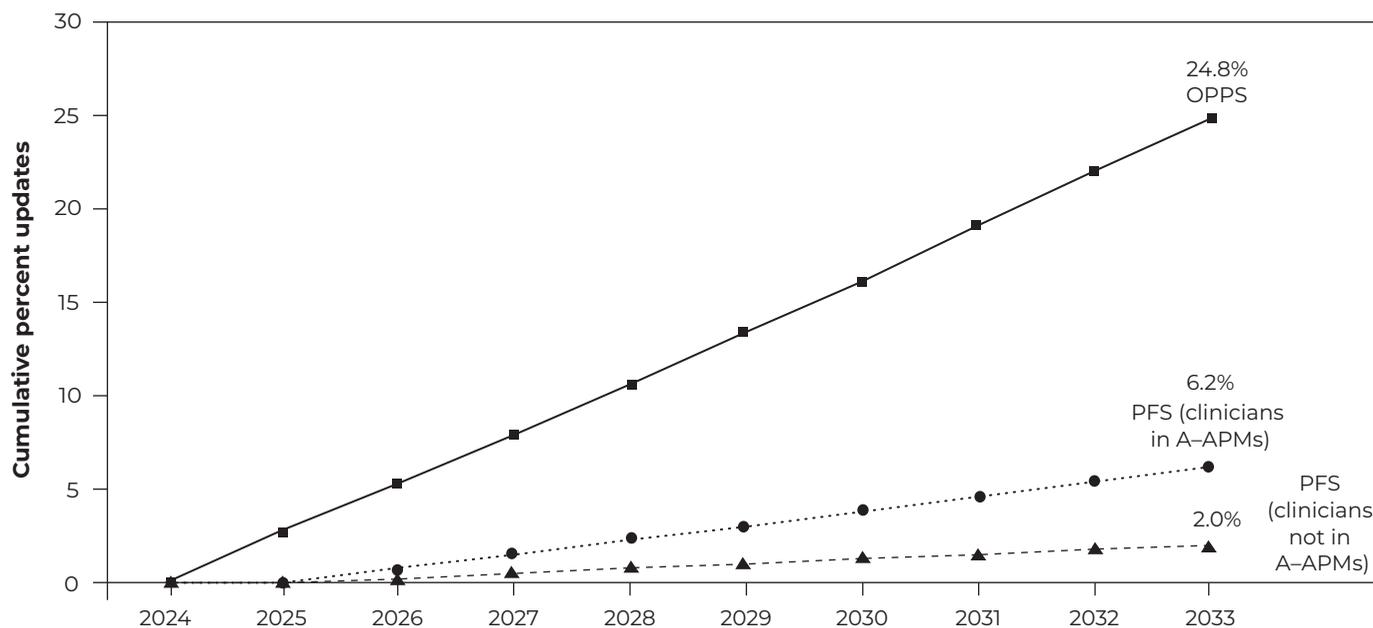
For other types of services, such as certain radiation therapy services, tests (e.g., skin, audiology, cardiology), and chemotherapy or intravenous injection services, Medicare makes a fee schedule payment only when the service is billed in a nonfacility setting. When such services are billed in the HOPD, they generate only an OPPS payment and no payment under the

physician fee schedule.<sup>18</sup> Nevertheless, Medicare's total payment for these services is often higher when billed in an HOPD compared with a nonfacility setting. For example, in 2023, Medicare's total payment for one type of radiation therapy service (HCPCS code G6015) was \$365 when billed in a nonfacility setting and \$572 when performed in an HOPD (Table 1-2).

As Table 1-2 illustrates, the size of site-of-service payment differentials varies, but Medicare generally pays more when services are billed in the HOPD. Another issue highlighted by Table 1-2 is that payment differentials are driven by differences in payments for practice expenses rather than work or professional

**FIGURE 1-8**

**Updates to hospital outpatient prospective payment system rates are projected to substantially exceed physician fee schedule updates**



Note: PFS (physician fee schedule), A-APM (advanced alternative payment model), OPPS (outpatient prospective payment system). Update projections exclude adjustments that are made to the PFS and/or the OPPS conversion factors, such as budget-neutrality adjustments.

Source: MedPAC calculations based on Medicare Access and CHIP Reauthorization Act of 2015 and Office of the Actuary projections of hospital market basket and productivity.

liability insurance.<sup>19</sup> For example, for a CT scan of the abdomen and pelvis with contrast in 2023, Medicare paid the same amount for clinicians' work (\$62) regardless of where the scan was billed, but the practice expense payment was much lower when billed in a nonfacility setting (\$257) compared with an HOPD (\$391).

All else equal, these payment differentials are set to widen over time because current law will require CMS to increase OPPS payment rates by the hospital market basket (minus an adjustment for productivity growth) and to increase fee schedule rates by much lower factors. From 2025 to 2033, the hospital market basket (adjusted for productivity growth) is projected to increase by an average of 2.5 percent per year compared with fee schedule rates that are set to increase by 0 percent in 2025 and then 0.25 percent or 0.75 percent per year thereafter. Over that period, fee

schedule rates are projected to experience cumulative growth of 2.0 percent for clinicians not in A-APMs and 6.2 percent for clinicians in A-APMs, while OPPS rates are projected to grow by 24.8 percent (Figure 1-8).

**Medicare site-of-service payment differentials likely contribute to growing vertical consolidation, but other factors may also be important**

Direct hospital employment of clinicians or hospital ownership of clinician practices is referred to as "vertical consolidation." Vertical consolidation among clinicians and hospitals has increased substantially over the last decade. According to an AMA survey, from 2012 to 2022, the share of physicians who were either directly employed by a hospital or part of a practice with hospital ownership increased from about 29 percent to 41 percent (Kane 2023).

The Commission is concerned that ongoing site-of-service payment differentials distort competition and encourage vertical consolidation. The result is that markets may gravitate toward a particular care delivery model (in this case, a vertically consolidated one) not because that model is the most efficient way to deliver high-quality care but because it generates higher Medicare payments.

While vertical consolidation may have benefits, it also can have several negative effects on beneficiaries and taxpayers. Vertical consolidation leads to services that could be billed in freestanding clinician offices being billed in HOPDs. Shifting from billing as a freestanding clinician office to an HOPD increases spending for the Medicare program and beneficiaries, and research has generally found that it does not result in improvements in quality (Post et al. 2018, Short and Ho 2019). In addition, increased vertical consolidation can create negative spillover effects in the commercial insurance market (e.g., clinicians in vertically consolidated practices can negotiate higher payment rates from commercial payers, which leads to higher premiums for privately insured enrollees) (Neprash et al. 2015).

In 2010, CMS began using new data to calculate practice expense RVUs. Using the new data resulted in substantial payment increases for some services but reductions for others, which led to payment increases or decreases for different specialties. For example, CMS estimated that payments to family medicine physicians would increase by 5 percent but decrease by 14 percent for radiologists after the payment changes were fully phased in (Centers for Medicare & Medicaid Services 2009). Because these payment changes applied to the fee schedule and not to OPPS payments, site-of-service payment differentials increased for services with reduced fee schedule payment rates.

Multiple studies used the payment changes in the fee schedule as an opportunity to study the effect of payment differentials on vertical consolidation. One study focused on three cardiac imaging services—myocardial perfusion imaging, echocardiograms, and electrocardiograms—that experienced large payment rate reductions as a result of the rebalancing of practice expense RVUs in 2010. That study found that the share of such imaging services billed in HOPDs for a sample of Medicare beneficiaries and commercially insured patients increased after fee schedule payments

were reduced for these services (Song et al. 2015). A descriptive study that looked at advanced imaging services—magnetic resonance imaging, computed tomography, and nuclear medicine—also noted a shift toward the HOPD over a similar period (Steinwald et al. 2021).<sup>20</sup>

Another study that primarily relied on a sample of physicians from private claims data found that Medicare's 2010 practice expense changes (and the resulting changes in payment rates) accounted for a 0.9 percentage point increase in vertical consolidation from 2009 to 2013, or about 20 percent of the increase in vertical consolidation over that period in the geographic areas covered by their sample (Dranove and Ody 2019). (Within the researchers' sample—which consisted of urban areas in states that cover about 8 percent of the U.S. population—vertical consolidation of physicians increased from about 9 percent in 2009 to nearly 14 percent in 2013.) The study also found that the 2010 changes led the share of Medicare services performed in a facility to increase by 0.88 percentage points from 2009 to 2013. The authors explored why the share of services performed in facilities increased—assessing whether it was due to services shifting from nonfacilities to facilities, a reduction in nonfacility volume (without an offsetting increase elsewhere), or other factors. The study concluded that under 20 percent of the increase in the Medicare facility share was driven by services shifting from nonfacility to facility settings (Dranove and Ody 2019).

Another study used a national sample of Medicare data to calculate payment differences when services were billed in freestanding clinician offices versus HOPDs over a longer period (2010 to 2016) and then examined whether those payment differentials were associated with vertical consolidation. The study found that payment differentials were large and growing (Post et al. 2021). However, the large payment differentials documented in this study were only modestly positively related to vertical consolidation between hospitals and physicians. Using models that estimated the association of payment differentials and vertical consolidation within physician specialties, the study found that an increase in payment differentials from the 25th percentile to the 75th percentile was associated with a 0.20 percentage point increase in the probability of vertical consolidation (Post et al.

2021). (In the study’s sample, vertical consolidation increased from about 23 percent of physicians in 2010 to 27 percent of physicians in 2016.) Additionally, the authors’ unadjusted cross-sectional analysis found little evidence that higher payment differentials were correlated with differences in vertical consolidation across specialties, suggesting that other factors might be just as or more important in driving consolidation. They found that some of the specialties with the highest differentials—urologists, gastroenterologists, and surgical specialties—had the lowest levels of vertical consolidation, while other specialties with lower differentials—such as diagnostic radiology and oncology—were more likely to be vertically consolidated (Post et al. 2021).

Further research also suggests that factors beyond Medicare payment differentials are important in terms of encouraging vertical consolidation. Some other factors that researchers and other stakeholders have cited include:

- a desire among physicians to enhance their negotiating leverage with private payers (Kane 2023);
- increasing horizontal hospital consolidation (Post et al. 2021);
- a desire by hospitals to ensure a steady stream of referrals (Medicare Payment Advisory Commission 2020);
- increasing prevalence of accountable care organizations (Kanter et al. 2019);
- a desire among physicians to get help complying with payers’ regulatory and administrative requirements (Kane 2023); and
- gaining access to 340B drug discounts (Desai and McWilliams 2018).

Regardless of the extent to which payment differentials across settings lead to vertical consolidation among physicians and hospitals, the Commission has long advocated for site-neutral payments (see text box on addressing payment differentials, p. 32).

### **Clinicians’ incentives to participate in A-APMs could diminish in the near future**

The Commission is concerned that current law will provide an insufficient incentive for clinicians to

choose A-APMs over MIPS in the late 2020s, which could cause many clinicians to exit A-APMs. The Commission maintains that A-APMs hold great promise and strongly favors A-APMs over MIPS, which is a pay-for-performance program that we have recommended repealing (Medicare Payment Advisory Commission 2022b, Medicare Payment Advisory Commission 2021b, Medicare Payment Advisory Commission 2018).

Although most A-APMs implemented to date have not generated net savings for Medicare, they often lead to changes in the mix and/or quantity of services delivered by clinicians and generate gross savings before model payments are taken into account (Congressional Budget Office 2023, Medicare Payment Advisory Commission 2021b). Many A-APMs have yielded sufficiently promising results or sufficiently actionable lessons learned that they have been refined and relaunched as successor models. In the absence of A-APMs, FFS payment approaches would likely have fewer incentives to promote efficiency.

In contrast, we have numerous concerns about the MIPS program, including the fact that it does not meaningfully differentiate among clinicians’ quality of care since clinicians report on different sets of measures. MIPS is burdensome due to complex reporting requirements and its payment adjustments have the potential to become large and arbitrary in the future, which could create financial uncertainty for clinicians (Medicare Payment Advisory Commission 2018).

When the clinicians in a practice or other provider organization assess whether to participate in an A-APM each year, there are a number of costs and benefits they must weigh. In addition to MACRA’s A-APM participation bonus, clinicians must also estimate the size and likelihood of receiving a positive or negative MIPS adjustment, which could apply to them if (1) they choose not to participate in an A-APM or (2) an insufficient share of their payments or patients are in A-APMs (since the A-APM participation bonus is only available to clinicians with at least a certain share of payments or patients in A-APMs).<sup>21</sup> To date, the A-APM participation bonuses available to clinicians have always been larger than the highest MIPS adjustments—clearly incentivizing participation in A-APMs over participation in MIPS. From 2019 to 2024, A-APM bonuses have been worth 5 percent of a

## Addressing payment differentials using site-neutral policies

The Commission has maintained that Medicare should base payment rates on the resources needed to treat patients in the most efficient setting. If the same service can be safely and appropriately provided in different settings, a prudent purchaser should not pay more for that service in one setting than in another. Paying more than is necessary for services increases financial burdens on beneficiaries (in the form of higher premiums and cost-sharing obligations) and taxpayers (in the form of higher Medicare spending). The Commission has published multiple reports analyzing and recommending site-neutral payment rates (Medicare Payment Advisory Commission 2023a, Medicare Payment Advisory Commission 2022b, Medicare Payment Advisory Commission 2012). (For more information on the Commission's most recent site-neutral recommendations, see the June 2023 report to the Congress.)

The Congress adopted site-neutral payment for some services in the Bipartisan Budget Act (BBA) of 2015. Section 603 of the BBA of 2015 established site-neutral payments for services performed at off-campus hospital outpatient departments (HOPDs) by reducing outpatient prospective payment system (OPPS) payment rates for services such that, in the aggregate, Medicare's total payment rate from the fee schedule and OPPS (when a service is performed in the HOPD) is equal to Medicare's payment rate from the fee schedule (when the service is

performed in a nonfacility setting). However, this provision applied only to new HOPDs, meaning that all current HOPDs were grandfathered (or "excepted") and continue to receive higher payment rates. Further, this provision does not lower payment rates for services performed at on-campus HOPDs.<sup>22</sup>

CMS has also taken regulatory action to reduce payment differentials across sites of service. In 2019, CMS reduced OPPS payment rates (in a non-budget-neutral manner) to equalize Medicare's total payment rates across settings for evaluation and management (E&M) office visits for all off-campus HOPDs (regardless of whether they were excepted under the BBA of 2015).

Despite progress made toward implementing site-neutral payments, Medicare still commonly pays more for services performed in HOPDs than in nonfacility settings. For example, CMS's site-neutral policy for E&M office visits applies only to off-campus HOPDs. In 2021, about 65 percent of all E&M office visits performed in HOPDs were performed in on-campus HOPDs, meaning Medicare still pays more for these services than if they were furnished in a nonfacility setting. In addition, for all other services, excepted off-campus HOPDs (and all on-campus HOPDs) continue to receive higher payments. ■

clinician's annual Medicare payments for fee schedule services; meanwhile, the largest MIPS adjustment has been 2.34 percent of a clinician's Medicare payments for fee schedule services (Centers for Medicare & Medicaid Services 2023h, Centers for Medicare & Medicaid Services 2022e, Centers for Medicare & Medicaid Services 2020a, Centers for Medicare & Medicaid Services 2020b, Centers for Medicare & Medicaid Services 2018). MIPS is made even less

attractive by the fact that the top adjustment is received by only a small minority of MIPS clinicians, since MIPS adjustments vary in size based on a clinician's score on MIPS performance measures.

When weighing whether to participate in an A-APM, clinicians must also estimate the size and likelihood of receiving additional payments and/or penalties in whatever A-APM they are contemplating participating in (e.g., shared savings or shared losses in an ACO

model). Estimates of the size and likelihood of receiving these payments and penalties are in turn influenced by a clinician's expected performance on the measures used in the A-APMs available to them.

Clinicians must also consider the costs they will incur to participate in an A-APM and/or MIPS—in the form of staff time spent learning what performance measures they will be judged on and complying with reporting requirements, clinician time spent delivering the new patient services that are paid for or incentivized, investments in infrastructure such as new software, and other costs (e.g., fees paid to outside companies that can help clinicians optimize their performance in an A-APM).

Under current law, the costs and benefits that clinicians weigh when deciding whether to participate in an A-APM versus MIPS will soon change.

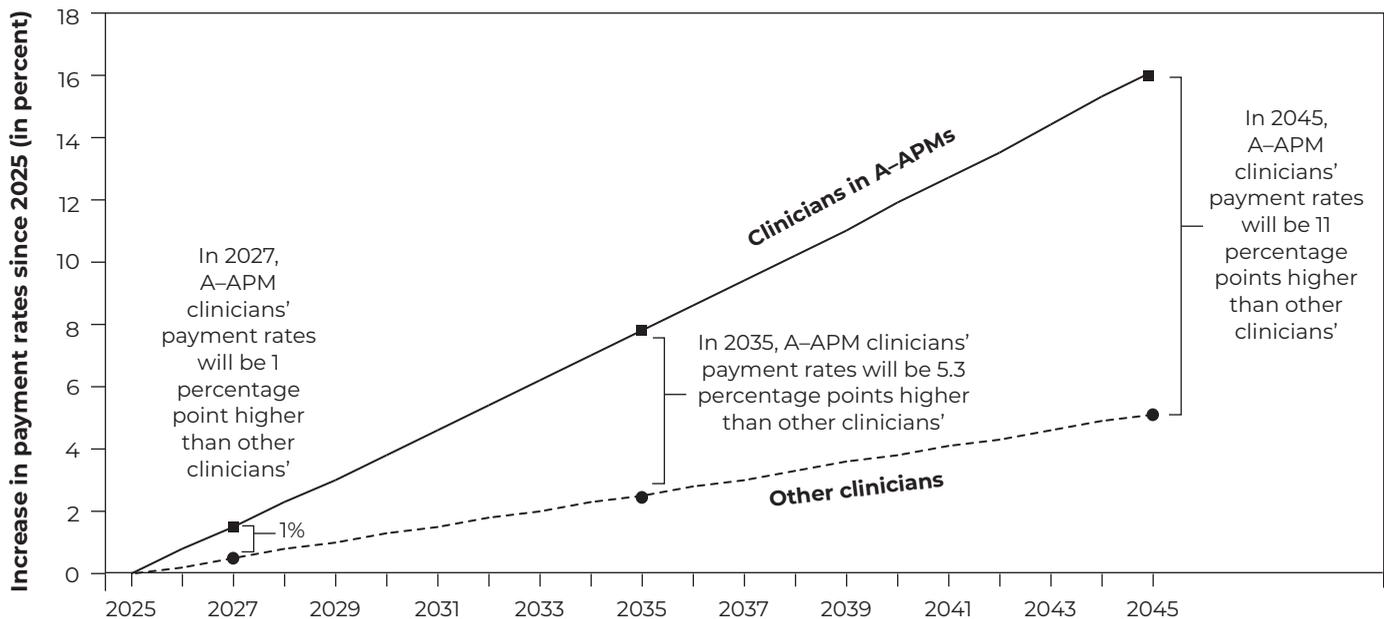
Some changes could result in A-APMs becoming the more attractive option for clinicians, even with the expiration of the A-APM participation bonus after 2026. Starting in the 2025 payment year, current law requires MIPS to change from being a program that pays out \$500 million more in positive adjustments than it collects in negative adjustments each year (which has buoyed the size of positive MIPS adjustments) to a budget-neutral program. All else being equal, this change will result in the top MIPS adjustment declining by multiple percentage points. For example, if MIPS were a budget-neutral program in the 2023 payment year, the top MIPS adjustment would have been 0.07 percent instead of 2.34 percent (Centers for Medicare & Medicaid Services 2023h). This change alone could vastly decrease the appeal of MIPS, since participating in MIPS could become less lucrative for top-performing clinicians than participating in an A-APM in coming years (since clinicians typically qualify for additional payments through an A-APM). For example, among Medicare Shared Savings Program ACOs that earned shared savings payments in 2022, the median shared savings payment per clinician was \$7,239 in 2022; no ACOs owed shared losses that year (Centers for Medicare & Medicaid Services 2022c).<sup>23</sup> And supplemental payments available to clinicians in the multipayer Comprehensive Primary Care Plus (CPC+) A-APM were worth \$44,000 or \$64,000 for the median clinician in 2020, depending on the model track (Swankoski et al. 2022).<sup>24</sup>

Yet other changes could result in MIPS becoming the more attractive option. MIPS adjustments can theoretically reach as high as 9 percent under current law, depending on CMS's implementation decisions—such as the selection of the performance threshold that determines whether a MIPS score yields a negative, neutral, or positive MIPS adjustment. So far, this score has been set at relatively low levels, which results in relatively few clinicians receiving negative MIPS adjustments and minimizes how large positive MIPS adjustments can reach.<sup>25</sup> Recently, CMS proposed increasing the MIPS performance threshold from 75 points to 82 points out of 100 for the 2026 payment year, which would have increased the maximum positive MIPS adjustment to 8.82 percent and would have resulted in 46 percent of MIPS clinicians earning a negative adjustment that year, according to CMS projections. After overwhelming opposition to this proposal, CMS ultimately finalized a policy that maintained the current performance threshold at 75 points, which it projects will result in a maximum MIPS adjustment of just 2.99 percent (and cause only 22 percent of MIPS clinicians to receive a negative adjustment in 2026). However, CMS has stated that it intends to revisit its MIPS performance threshold in the future (Centers for Medicare & Medicaid Services 2023f).

Another coming change is the shift in how A-APM participation is incentivized in the next few years—which could initially incentivize participation in MIPS over A-APMs and then incentivize A-APMs over MIPS. As noted earlier, the A-APM participation bonus will not be available after 2026; instead, starting in 2026, clinicians' payment rates will be updated at different rates depending on A-APM participation (Figure 1-9, p. 34). In the early years of this policy, differential updates will produce a relatively weak incentive to participate in A-APMs: In 2027, A-APM clinicians' payment rates will be only 1 percentage point higher than those of other clinicians. Top-performing clinicians might then prefer MIPS over A-APMs if MIPS adjustments rise closer to their maximum allowable amount. By the mid-2030s, differential updates will produce an incentive to participate in A-APMs that is comparable in size to the A-APM participation bonus available today: By 2035, A-APM clinicians' rates will be 5.3 percentage points higher than those of other clinicians. But differential updates will continue to grow

**FIGURE 1-9**

**Under current law, the difference between payment rates for clinicians in A-APMs and other clinicians will be small in the 2020s but large by the 2040s**



Note: A-APM (advanced alternative payment model). Figure does not show adjustments to payment rates prompted by budget-neutrality requirements, which take into account additions, deletions, or modifications of fee schedule billing codes and can result in payment updates that are larger or smaller than specified in statute. Graph also does not show (1) annual MIPS adjustments, which can increase or decrease payments to individual clinicians based on performance measures, or (2) annual A-APM participation bonuses available from 2019 through 2026 because these adjustments are one-time only and not built into subsequent years' payment rates. Graph also does not show the effects of the expiration of the 2 percent sequester that applies to payment rates through September 2032.

Source: MedPAC analysis of Medicare Access and CHIP Reauthorization Act of 2015 and subsequent laws.

and will produce a strong incentive to participate in A-APMs by the 2040s: In 2045, A-APM clinicians' rates will be 11 percentage points higher than those of other clinicians. An incentive this large could be untenable if many clinicians continue to have limited access to A-APMs due to their geographic location, medical specialty, or other circumstances.

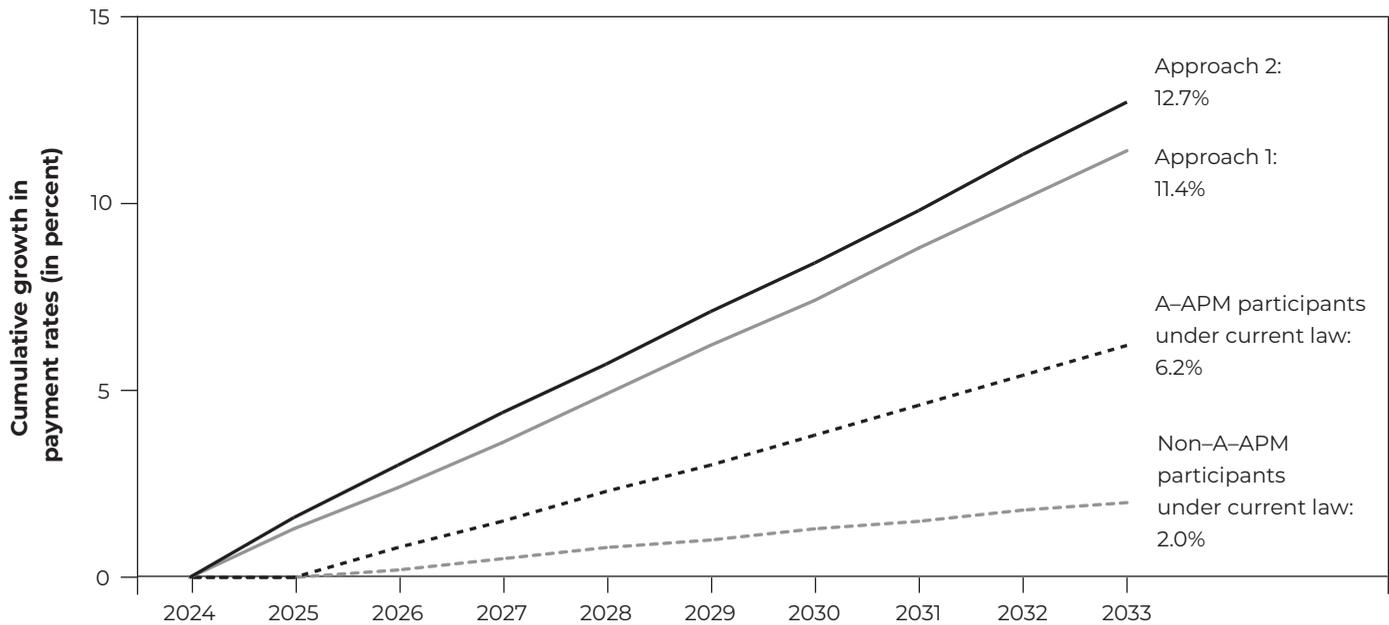
### Alternative approaches to updating clinician payment rates

In this section, we present two policy approaches for updating PFS payment rates based on a measure of inflation. Approach 1 would update the practice expense portion of fee schedule payment rates by

the hospital market basket, adjusted for productivity. Approach 2, which is the Commission's preference, would update total fee schedule payment rates by the MEI (which includes a productivity adjustment) minus 1 percentage point. Approach 2 also features a minimum update equal to half of MEI, to avoid updates that are very low or negative. As discussed below, Approach 2 deliberately would not increase fee schedule payments by the full MEI because evidence over a 20-year period has shown that updates of this magnitude have not been needed to maintain clinicians' willingness to participate in Medicare and provide care to Medicare patients. Indeed, the fact that beneficiary access-to-care measures have remained relatively positive even as fee schedule payment rates have increased more slowly than MEI

**FIGURE  
1-10**

**Cumulative growth in fee schedule payment rates under current law and alternative approaches, 2024–2033**



Note: A-APM (advanced alternative payment model). Approach 1 would increase the practice expense portion of payment rates by the hospital market basket minus productivity. Approach 2 would increase total payment rates by the Medicare Economic Index minus 1 percentage point. Cumulative growth for Approach 1 is a weighted average and assumes that the service mix and relative value units for each service remain constant. Graph does not show the effects of the expiration of the 2 percent sequester that applies to payment rates through September 2032.

Source: MedPAC calculations based on Office of the Actuary projections of hospital market basket, productivity, and MEI.

growth suggests that policymakers should be skeptical of claims that full-inflation updates are necessary to ensure beneficiary access to care. Instead of hindering access, historical payment rate updates appear to have served to slow spending growth related to increased volume and intensity.

Figure 1-10 shows our estimates of cumulative growth in payment rates from 2024 to 2033 under current law and the two update approaches we contemplate. As a point of reference, the bottom two lines in the figure show cumulative growth under current law; these lines show that by 2033, payment rates will be 6.2 percent higher for clinicians in A-APMs and 2.0 percent higher for clinicians not in A-APMs. Under Approach 1 (which would update PE RVUs by the hospital market basket minus productivity

and is shown in Figure 1-10), payment rates would increase by a weighted average of 11.4 percent by 2033, although the effects would vary by type of service. Under Approach 2 (which would update all RVUs by MEI minus 1 percentage point), payments would increase by 12.7 percent, which would be evenly distributed across services. As indicated in Figure 1-10, both of these approaches would result in a substantial increase in Medicare spending on PFS services in future years relative to current law.

Unlike current-law updates, neither of these approaches would provide higher updates for clinicians in A-APMs. Instead, to continue providing incentives for clinicians to participate in A-APMs, the A-APM participation bonus would likely need to be extended, as discussed later in the chapter.

**TABLE  
1-3**

**Illustrative example of how conversion factors would be calculated under Approach 1**

PE conversion factor		Work/PLI conversion factor	
Start with a given year's PE conversion factor	\$35.50	Start with a given year's work/PLI conversion factor	\$35.50
<b>Update this conversion factor by the next year's projected hospital market basket update minus productivity</b>	<b>+2.5%</b>	<b>This conversion factor not updated</b>	<b>+0%</b>
Arrive at PE conversion factor for next year	\$36.39	Arrive at work/PLI conversion factor for next year	\$35.50

Note: PE (practice expense), PLI (professional liability insurance).

Source: MedPAC calculations based on hypothetical example of Approach 1.

### Approach 1: Update practice expenses by the hospital market basket

The first update approach under consideration would update the practice expense (PE) portion of fee schedule payment rates by the hospital market basket index minus productivity. This approach would necessitate the creation of two conversion factors. The first conversion factor would apply to the PE portion of each service. The second conversion factor would apply to the work and professional liability insurance (PLI) portion of each service. In our modeling, the work and PLI conversion factor would not be updated annually, but additional policies could be included to automatically update this conversion factor at a different rate than PE, or the Congress could enact one-time updates to this other conversion factor.

Table 1-3 illustrates how Approach 1 would work in practice. In this illustrative example, both the PE and work/PLI conversion factors are \$35.50 in the starting year. The hospital market basket minus productivity for the upcoming year is forecast to be 2.5 percent. In this hypothetical scenario, the PE conversion factor increases by 2.5 percent to reflect the hospital market basket, resulting in a PE conversion factor of \$36.39 in the following year (higher than the prior year). Meanwhile, the work/PLI conversion factor is not updated to reflect changes in inflation, so the work/PLI conversion factor would remain at \$35.50.<sup>26</sup>

This approach would result in payment rates for different services increasing by different percentages, depending on what share of the service's total payment is for practice expenses. To help understand which types of services would see relatively large increases to their payment rates, we show the share of fee schedule spending associated with practice expense RVUs by type of service and site of service (Table 1-4, pp. 38–39). On the lower end, for behavioral health evaluation and management services (e.g., psychotherapy services), only 25 percent of allowed charges were associated with practice expenses; these services would therefore see relatively small increases in payment rates. On the higher end, for major vascular procedures, 93 percent of allowed charges were associated with practice expenses; these services would see relatively large increases in payment rates.

While there is substantial variation, relatively little fee schedule spending is associated with services with very high shares of practice expenses. For example, in 2022, only 13 percent of fee schedule spending in nonfacility settings was associated with services for which practice expenses represented 80 percent or more of the allowed charges (data not shown).

### Rationale for Approach 1

A motivation behind Approach 1 is to address disparities in updates between the PFS and the OPFS.

Fee schedule payments are updated by statutorily specified rates that are not linked to input cost growth, while OPSS rates are updated by the hospital market basket (a measure of growth in hospital input costs). When a service is billed in an HOPD, Medicare payments are usually much higher than when the same service is billed in a freestanding clinician office. These higher payments tend to increase program costs and beneficiary cost sharing.

Updating the PE portion of fee schedule payments by the same index used to update OPSS payments would ensure that payments for PE costs in the office setting are not falling relative to what is paid in the HOPD. The aggregate difference in Medicare payments for services billed in freestanding clinician offices and HOPDs would continue to grow because the work and PLI components of fee schedule payments would not increase, but alignment between how PE payments are updated in freestanding clinician offices and HOPDs could reduce the incentive for clinicians to consolidate with hospitals.

At a broader level, unlike other Medicare payment systems, the PFS differentiates between the costs of practice expenses, clinician work, and professional liability insurance. The different components measure different types of costs, and the inflationary factors that affect each of these costs may be different. The MEI reflects a weighted growth rate for all three fee schedule components, but conceptually, there is no reason why PE, work, and PLI need to be updated by the same growth rate. Instead, each cost component could be updated (or not updated) separately to achieve specific policy objectives. This approach would contrast with current and past ones, which have updated all three components by a uniform percentage.

Practice expenses have experienced increases that are higher than current-law updates and are projected to continue doing so in the future. If practice expenses rise too high relative to payment rates, it may motivate clinicians to sell their practice to buyers such as a hospital system or to reduce access for Medicare beneficiaries. Thus, Approach 1 envisions updating Medicare fee schedule payment rates in a way that is intended to reflect increases to practice expenses.

The work component of fee schedule payments can be viewed as more difficult to quantify and measure

than PE costs. Work RVUs are based on assessments of the time, technical skill, physical effort, judgment, and stress level involved in performing a given service. Although the RBRVS attempts to value the amount of work involved in delivering a service in an objective way, an alternative method for valuing the work component would be to determine the level of payment needed to secure clinician labor to perform the service. Evidence suggests that current payment rates are generally high enough to secure clinician labor to furnish fee schedule services. The number of people entering the medical profession continues to rise, and the Commission's annual assessment of payment adequacy indicates that beneficiaries have access to care that is comparable with that of privately insured individuals (Association of American Medical Colleges 2022, Medicare Payment Advisory Commission 2024). Given evidence that the current and future supply of clinicians does not appear to be negatively affected by rate increases that are less than inflation, Approach 1 is premised on the idea that increases in the work component of fee schedule payments are not currently needed to secure enough clinician labor to maintain beneficiary access, or that increasing payment for the work component could be addressed separately.

### **Impacts of Approach 1**

By applying an inflation-based update to only one type of fee schedule RVUs, the effects of Approach 1 would vary across types of services and clinician specialties. Services for which a large share of the total RVUs are PE RVUs would see larger updates compared with services for which a small share of their total RVUs are PE RVUs.

As an example of how the effects of Approach 1 would differ across services, consider two HCPCS codes: 36465, a code used to bill for treatment of varicose veins, and 90837, a code used to bill for 60 minutes of individual psychotherapy. For the vein procedure, the PE component accounts for 93 percent of the total payment when furnished in a nonfacility setting (e.g., a freestanding clinician office), while PE accounts for 19 percent of the total payment when furnished in a facility setting (e.g., an HOPD) (Table 1-5, p. 40). For the psychotherapy service, the PE component accounts for 22 percent of the total nonfacility payment and 11 percent of the total payment when furnished in a facility.

**TABLE  
1-4**

**Physician fee schedule services vary in the share of allowed charges associated with practice expenses, 2022** (cont. next page)

Type of service	Nonfacility settings		Facility settings	
	Allowed charges (in millions of dollars)	Share of allowed charges for practice expenses	Allowed charges (in millions of dollars)	Share of allowed charges for practice expenses
<b>Total</b>	<b>\$55,740</b>	<b>56%</b>	<b>\$31,671</b>	<b>29%</b>
Evaluation and management	29,644	45	17,683	27
Behavioral health services	1,429	25	382	13
Care management/coordination	725	46	42	29
Critical care services	1	38	1,318	22
Emergency department services	0	18	2,243	15
Home services	425	37	10	48
Hospital inpatient services	23	30	8,440	28
Nursing facility services	1,273	35	1,562	36
Observation care services	0	27	470	28
Office/outpatient services	23,742	46	3,177	29
Ophthalmological services	1,840	60	30	34
Imaging	5,435	77	3,196	25
CT scan	575	76	1,296	25
Imaging – miscellaneous	443	63	15	35
Magnetic resonance	717	76	385	26
Nuclear	336	85	142	24
Standard X-ray	1,542	77	710	26
Ultrasound	1,823	79	646	25
Major procedure	1,221	86	5,311	34
Breast	1	43	98	38
Cardiovascular	6	72	943	24
Digestive/gastrointestinal	1	39	564	31
Eye	6	53	288	50
Musculoskeletal	135	86	2,308	38
Other organ systems	5	52	668	33
Skin	179	55	160	41
Vascular	889	93	282	20
Other procedure	7,792	69	3,855	38
Breast	40	79	34	29
Cardiovascular	87	98	131	27
Digestive/gastrointestinal	120	74	877	33
Eye	823	60	992	51

**TABLE  
1-4**

**Physician fee schedule services vary in the share of allowed charges associated with practice expenses, 2022 (cont.)**

Type of service	Nonfacility settings		Facility settings	
	Allowed charges (in millions of dollars)	Share of allowed charges for practice expenses	Allowed charges (in millions of dollars)	Share of allowed charges for practice expenses
Musculoskeletal	1,297	63	794	40
Other organ systems	908	75	458	29
Skin	4,000	69	384	37
Vascular	515	86	182	25
Test	3,007	73	981	29
Anatomic pathology	1,369	70	588	30
Cardiography	870	76	209	26
General laboratory	65	95	17	26
Neurologic	425	74	120	30
Pulmonary	113	80	15	23
Test, miscellaneous	157	70	21	31
Treatment	8,336	55	589	31
Chemotherapy	376	88	1	26
Dialysis	775	32	103	29
Injections/infusions (nononcologic)	298	73	0	55
PT, OT, SLP	4,760	49	4	46
Radiation oncology	1,223	86	438	33
Spinal manipulation	691	39	3	26
Treatment, miscellaneous	214	83	39	23

Note: PT (physical therapy), OT (occupational therapy), SLP (speech language pathology). Table excludes services with no relative value units (RVUs), such as anesthesia and carrier-priced codes. Type of service categories are based on restructured BETOS classification system. Some categories with low allowed charges are not shown but are included in the summary calculations. Components may not add to totals due to rounding.

Source: MedPAC analysis of 100 percent of physician fee schedule claims data and RVU files from CMS.

Under Approach 1, the high-PE service would receive a larger update than the low-PE service. If the hospital market basket for an upcoming year is projected to be 2.5 percent, the total nonfacility payment for the procedure to treat varicose veins would increase by 2.33 percent (93 percent × 2.5 percent), whereas the nonfacility payment for the psychotherapy service would increase by only 0.55 percent (22 percent × 2.5 percent). Similarly, in the facility setting, the total

payment for the varicose veins procedure would increase by 0.48 percent (19 percent × 2.5 percent), whereas the payment for the psychotherapy would increase by only 0.28 percent (11 percent × 2.5 percent).

Since the size of updates would vary across services, Approach 1 would have different impacts on different clinicians, depending on what kinds of services they furnish and what settings they are furnished in. All else

**TABLE  
1-5**

**Illustrative example of updates for a high-PE and a low-PE service under Approach 1**

HCPCS code and setting	Total RVUs	PE RVUs	PE as percent of total RVUs	Work & PLI RVUs	Work & PLI as percent of total RVUs	Weighted update (assuming 2.5% increase to PE RVUs)
<b>36465 (treatment of varicose veins)</b>						
Nonfacility	38.22	35.41	93%	2.81	7%	2.33%
Facility	3.49	0.68	19	2.81	81	0.48
<b>90837 (60-minute psychotherapy session)</b>						
Nonfacility	4.57	1.01	22	3.56	78	0.55
Facility	4.00	0.44	11	3.56	89	0.28

Note: PE (practice expense), HCPCS (Healthcare Common Procedure Coding System), RVU (relative value unit), PLI (professional liability insurance).

Source: MedPAC calculations of hypothetical update under Approach 1 using CMS 2024 physician fee schedule relative value file.

equal, Medicare fee schedule payments would increase more for clinicians who furnish services where PE RVUs represent a high percentage of total RVUs and for clinicians whose services are furnished in a nonfacility setting. Conversely, fee schedule payment rates would increase less for clinicians who furnish services where PE RVUs are a relatively small share of total RVUs. Clinicians who often furnish services in facility settings would also see relatively small increases in fee schedule rates because payments for most PE costs are included in the facility payments (e.g., through the OPPI).

In Table 1-6 (pp. 42-43), we show the estimated impact of Approach 1 on fee schedule payments by clinician specialty. The average value of practice expenses (PE RVUs) as a share of total spending (total RVUs) is based on Medicare fee schedule claims data for 2022 and the RVUs in effect that year. The average cumulative update by 2033 reflects the impact for each specialty in 2033 if Approach 1 took effect in 2025. These percentages were generated by calculating the cumulative update for each service (using projections of the hospital market basket prepared by CMS's Office of the Actuary (OACT)) and weighting those updates for each specialty based on claims data from 2022. Our estimates assume that the billing patterns for each specialty do not change

between 2022 and 2033 and that the RVUs for each service are constant over the period.

We estimate that by 2033, the average increase in payment rates for all specialties would be 11.4 percent under Approach 1. Independent diagnostic testing facilities derive the highest portion of total revenue from payments for PE (91 percent), and by 2033 we expect that updates under Approach 1 would increase weighted payment rates for those clinicians by 22.5 percent—more than any other specialty. On the other end of the spectrum, PE makes up the lowest share of payments for licensed clinical social workers (20 percent), and we estimate that weighted payment rates for those clinicians would increase by just 4.9 percent by 2033.

Clinicians in specialties that tend to perform office-based procedures, such as vascular surgery and dermatology, would realize larger-than-average cumulative updates (16.3 percent and 15.5 percent, respectively). We estimate that cumulative updates for primary care specialties, such as internal medicine and family practice, would tend to fall just below average (10.8 and 11.2 percent, respectively). Behavioral health specialties (e.g., clinical psychology), along with specialties that furnish a large portion of services in a facility setting (e.g., cardiac surgery), would receive

below-average cumulative updates (5.5 percent and 8.1 percent, respectively).

We note that Approach 1 would disproportionately increase payments for some services that already receive payments that are overvalued relative to other services in the fee schedule (see text box on work RVUs, pp. 44–46). To limit the degree to which Approach 1 exacerbates inaccuracies in the fee schedule, it would be important to pair this approach with efforts to revalue fee schedule services—such as through improvements to the processes and data used to assign relative values to codes and by converting overvalued 10- and 90-day global surgical codes to 0-day codes. Efforts to improve fee schedule valuations could also be paired with Approach 2 or pursued on their own. Improving valuations could change the distributional effects shown in Table 1–6 (pp. 42–43), although the exact effects would depend on how valuations change. Even with improvements in valuations, however, Approach 1 is still likely to result in significant differences in how fee schedule revenue increases are distributed among different specialties.

Another effect of Approach 1 is that it would equalize growth in payments for PE costs between the nonfacility and HOPD setting. Ideally, this change would reduce incentives for clinicians to sell their practices to hospitals or shift services to the more costly HOPD. However, aggregate differences in total payments between the nonfacility and HOPD settings would continue to grow, so additional policies would be needed to address those differences in order to achieve site-neutral payments.

### **Pros and cons of Approach 1**

Approach 1 presents numerous pros and cons to consider.

#### **Pros:**

- Creating separate conversion factors for PE and work/PLI would allow policymakers to apply updates that more closely reflect inflationary factors for each type of cost or to achieve specific policy goals.
- Linking PE RVUs to a full measure of inflation would help ensure that payments for those costs keep pace with inflation. Doing so would be

especially meaningful for clinicians who furnish high-PE services in a freestanding clinician office.

- By using the hospital market basket to increase payment for PE, Approach 1 equalizes growth in payments for PE costs between the nonfacility and HOPD settings. This change may reduce incentives for clinicians to sell their practices to hospitals or shift services to the HOPD.

#### **Cons:**

- Approach 1 would result in smaller payment rate increases for primary care and mental/behavioral health clinicians compared with increases for many specialists. This disparity could exacerbate beneficiaries' existing problems accessing primary care providers and mental/behavioral health clinicians.
- Because this approach increases payments for PE year by year, Approach 1 subverts the resource-based relative value scale concept on which the fee schedule is based and would likely necessitate substantial operational changes in the way RVUs are set and updated over time. The share of payments going toward work and PLI would shrink over time, and payments for each type of RVU would become increasingly disconnected from what the RUC and CMS have determined to be the relative resources needed for each service. This result could undermine the process for setting service-level RVUs and the process for ensuring that aggregate RVUs reflect the distribution of costs of providing care in freestanding clinician offices.
- By not increasing payments for work costs, Approach 1 alone would likely not be sustainable over time. Update policies may need to be revisited within a few years to account for work costs, or the Congress may feel the need to make one-time adjustments.
- Although payment rates for PE costs in the nonfacility setting would increase at the same rate as payments to facilities like HOPDs, the differences in aggregate payments between those settings would continue to grow. Therefore, this approach may have a limited impact on incentives for clinicians and hospitals to consolidate.

**TABLE  
1-6****Estimated cumulative updates under Approach 1,  
by clinician specialty** (cont. next page)

<b>Clinician specialty</b>	<b>Average value of practice expenses as a share of total spending</b>	<b>Average cumulative update by 2033</b>
Independent diagnostic testing facility	91%	22.5%
Clinical laboratory	73	18.1
Allergy/immunology	68	16.8
Radiation oncology	68	16.8
Vascular surgery	66	16.3
Interventional radiology	64	15.9
Dermatology	62	15.5
Optometry	57	14.2
Otolaryngology	56	14.0
Podiatry	55	13.6
Ophthalmology	55	13.6
Rheumatology	53	13.0
Pain management	52	12.9
Hand surgery	52	12.8
Occupational therapy	51	12.7
Obstetrics/gynecology	51	12.6
Urology	50	12.4
Hematology/oncology	50	12.4
Cardiology	49	12.3
Medical oncology	49	12.1
Physical therapy	49	12.1
Sports medicine	48	12.0
Pathology	48	12.0
Plastic and reconstructive surgery	48	11.9
Interventional cardiology	47	11.6
Diagnostic radiology	47	11.6
Orthopedic surgery	46	11.4
General practice	46	11.3
Family practice	45	11.2
Neurology	44	11.0
Physician assistant	44	11.0
Endocrinology	44	10.8
Internal medicine	44	10.8
Physical medicine and rehabilitation	43	10.7
Colorectal surgery	42	10.5
Cardiac electrophysiology	42	10.4
Nurse practitioner	40	10.0
Geriatric medicine	40	9.9
Gynecologist/oncologist	40	9.8

**TABLE  
1-6**

**Estimated cumulative updates under Approach 1,  
by clinician specialty (cont.)**

Clinician specialty	Average value of practice expenses as a share of total spending	Average cumulative update by 2033
General surgery	40	9.8
Gastroenterology	40	9.8
Chiropractic	38	9.5
Pulmonary disease	37	9.3
Surgical oncology	36	9.0
Neurosurgery	36	8.9
Nephrology	36	8.8
Certified clinical nurse specialist	36	8.8
Advanced heart failure and transplant cardiology	35	8.5
Psychiatry	34	8.5
Thoracic surgery	33	8.3
Cardiac surgery	33	8.1
Infectious disease	32	8.0
Hospice and palliative care	31	7.7
Critical care	29	7.1
Hospital medicine	29	7.1
Clinical psychology	22	5.5
Emergency medicine	20	4.9
Licensed clinical social worker	20	4.9
<b>All specialties</b>	<b>46</b>	<b>11.4</b>

Note: These estimates assume that the service mix and relative value units for each service remain constant over the period. While most laboratory services are paid under the clinical laboratory fee schedule, laboratory services that involve physician work are paid under the physician fee schedule. Table does not include the effects of the expiration of the 2 percent sequester that applies to payment rates through September 2032.

Source: MedPAC calculations based on 100 percent of 2022 fee-for-service claims data and the 2022 physician fee schedule relative value file from CMS, and Office of the Actuary projections of hospital market basket and productivity.

- This approach could incentivize clinicians to increase utilization of high-PE services, especially to the extent that such services have low marginal costs or are mispriced. (See text box for problems with the data and methodology used to set billing codes' PE RVU values, pp. 48-49.)

**Approach 2: Update payment rates by the MEI minus 1 percentage point**

Approach 2 would base updates on a portion of the inflation index that is used to measure cost growth in clinician offices—the MEI. An annual update of MEI

minus 1 percentage point would be applied to a single conversion factor for all three RVU components, consistent with current practice. To prevent updates from being too low, and potentially negative in times of low inflation, this approach would include a “floor” for annual updates of no less than half of MEI.

For example, if the MEI in a given year is projected to grow by 4 percent, the update would be set at 3 percent (4 percent minus 1 percentage point). The update floor for this year would be 2 percent (half of 4 percent), so the actual update would be the higher of the two—3 percent.

## Some billing codes' work relative value units are too high

Studies that compare the number of minutes that the fee schedule assumes are needed to deliver a service and the number of minutes actually spent delivering a service find mismatches that suggest that some billing codes are overvalued. In addition, researchers have found that the number of postoperative visits paid for through the fee schedule's 10- and 90-day global surgical codes do not match the number that are actually provided. As we describe below, CMS could improve the accuracy of billing codes' work relative value units (RVUs) in the near term by converting 10- and 90-day global surgical codes (which make up half the codes in the fee schedule) to 0-day global codes and paying for postoperative visits on a fee-for-service basis. We have also recommended improving the overall process and data used to set work RVUs, which would be a longer-term project. Because changes to the values of particular billing codes must be made on a budget-neutral basis, reducing the work RVUs for inflated billing codes would result in a net increase to payment rates for all other billing codes.

### Work RVUs are set based on clinicians' estimates

Work RVUs are meant to pay for the labor of the practitioner (e.g., physician, nurse practitioner, physical therapist) who delivers a service. The amount of work RVUs assigned to a billing code is primarily based on values proposed to CMS by the American Medical Association (AMA)/Specialty Society Relative Value Scale Update Committee (the RUC); these values are based on clinicians' estimates of the amount of work (including the amount of time) involved in delivering a service (Government Accountability Office 2015, Laugesen 2016). (Although work RVUs are meant to capture time, mental effort and judgment, technical skill and physical effort, and stress, we have previously found that time explains most of the variation in work RVUs across billing codes (Medicare Payment Advisory Commission 2011b).)

### Studies have found that many billing codes have inflated work RVUs

Studies have found substantial differences between the amount of time that clinicians estimate they will need to deliver a service ("fee schedule time") and the amount of time they actually spend delivering a service ("actual time worked") for some billing codes. One study compared fee schedule time with actual time worked (according to time-stamped electronic health record data and direct observation) and found that 42 out of 60 codes had fee schedule times that were at least 10 percent higher than the actual time worked; imaging and the interpretation of certain tests were especially overvalued, with fee schedule times that were sometimes multiple times higher than actual time worked (Zuckerman et al. 2016). Another 8 of the 60 codes had fee schedule times that were at least 10 percent lower than actual time worked; examples of these undervalued codes include procedures that involve the removal of the small intestine and part or all of the colon (Zuckerman et al. 2016). A second study surveyed physicians and found that for 20 out of 26 services, the amount of time assumed in the fee schedule was higher than the median amount of time clinicians reported spending to deliver these services; cardiologists and radiologists reported the largest mismatches (Merrell et al. 2014). And a third study found that according to time-based anesthesia claims for 1,349 types of procedures, clinicians took an average of 27 percent less time to deliver these procedures than billing codes assumed were needed (Crespin et al. 2022). Examples of overvalued services included procedures performed by gastroenterologists (e.g., colonoscopies) and ophthalmologists (e.g., cataract surgeries). Although all specialties studied spent less time delivering procedures than the fee schedule assumed on net, this generalization was not true for some particular procedures (e.g., total hip and knee arthroplasties, some procedures performed by cardiac and thoracic surgeons) (Crespin et al. 2022). Other studies have also found discrepancies between fee schedule

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## Some billing codes' work relative value units are too high (cont.)

times and actual time worked (Cromwell et al. 2010, McCall et al. 2006, Urwin et al. 2019).

Studies have also found large differences between the number of postoperative visits that the fee schedule assumes clinicians will deliver after a surgical procedure and the number they actually deliver. This discrepancy is relevant because postoperative visits are paid for as part of “global” surgical codes, which are billed by the clinician who performs a procedure and meant to pay for the procedure plus all pre- and postoperative care during a specified period.<sup>27</sup> A landmark study by RAND found that, at most, only 17 percent of the postoperative visits assumed in 10-day global surgical codes were actually provided, and only 47 percent of postoperative visits assumed in 90-day global surgical codes were provided (Crespin et al. 2021).<sup>28</sup>

### Strategies to improve the accuracy of work RVUs

To improve the accuracy of payment rates for surgical procedures, RAND researchers have suggested that the RUC use time data from anesthesia claims to revalue time assumptions (and payment rates) for procedures that involve the use of anesthesia (Crespin et al. 2022). CMS could also stop paying for postoperative visits that do not occur by converting 10- and 90-day global surgical codes to 0-day global codes—meaning the clinician who performed a surgical procedure would receive a lump-sum payment for all services provided on the day of a procedure (including pre- and postoperative visits provided that day) but all pre- and postoperative visits provided on other days would be billed on a fee-for-service basis (Medicare Payment Advisory Commission 2014).<sup>29</sup> We previously suggested that CMS could shift to 0-day global codes by backing out work RVUs for postoperative visits from global codes' total work RVU values, but the AMA has argued that this action would result in inappropriate work RVU values for

some procedures, with nearly half of minor and major surgical procedures having work RVUs that reflect a low intensity (American Medical Association 2015). Given this concern, an alternative approach would be for CMS to ask the RUC to propose new values for 0-day global codes in tranches—for example, prioritizing those 10- and 90-day codes that generate the largest amount of spending and/or are billed most frequently. (About 300 global codes account for 94 percent of spending on 10-day global codes and 72 percent of spending on 90-day global codes (Crespin et al. 2021).)

Surgeons and other proceduralists have raised other concerns with converting 10- and 90-day global surgical codes to 0-day codes (American Academy of Facial Plastic and Reconstructive Surgery et al. 2022). One risk is that cost-conscious patients may not show up to postoperative visits if they have to pay a separate copay for such visits. (Currently, beneficiaries pay a single cost-sharing bill covering all of the care that is expected to be provided by the clinician who furnishes their procedure during a global period, so beneficiaries cannot currently lower their cost-sharing liability by skipping a postoperative visit offered by that clinician.) Proceduralists also contend that paying for postoperative visits on a fee-for-service basis would result in underpayment for these visits since billing codes for standard office visits do not include payment for cleaning wounds or changing bandages, nor do they reflect the specific professional liability insurance premiums of the types of clinicians who tend to provide particular procedures. They also note that shifting to 0-day global codes would be disruptive to Medicare's claims processing operations and require educating clinicians about the new codes.

These risks are likely outweighed by the benefits of converting 10- and 90-day global surgical codes to 0-day codes. An advantage of this policy for beneficiaries is that their cost-sharing liability would decrease in most cases because they would

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## Some billing codes' work relative value units are too high (cont.)

pay for fewer postoperative visits than they are currently billed for under 10- and 90-day global surgical codes. Clinicians other than proceduralists would also benefit from this policy: If billing codes for procedures were revalued to no longer pay for postoperative visits that are not being provided, RAND has estimated that total fee schedule spending would decrease by 2.7 percent and the fee schedule's conversion factor would increase by an offsetting amount, since changes to the relative values of individual codes are required to be budget neutral (Mulcahy et al. 2019). As a result, the accuracy of the fee schedule would increase and the compensation gap between specialists and primary care providers would shrink.

More generally, CMS could improve the accuracy of the fee schedule by improving the processes and data used to set relative values for billing codes. The Commission has recommended that CMS establish a standing panel of experts to help the agency identify overvalued services and review the billing code values proposed by the RUC (Medicare Payment Advisory Commission 2006b). We have also recommended that CMS collect data from a cohort of efficient practices on clinician work time, service volume, and practice expenses and use those data to help establish more accurate values for overvalued services (Medicare Payment Advisory Commission 2011a). ■

In contrast, in a year in which the MEI is projected to grow by 1 percent, the MEI minus 1 percentage point calculation would result in an update of 0 percent, but the floor would set the actual update at 0.5 percent.

### Rationale for Approach 2

Approach 2 presumes that both PE costs and work costs increase over time, so Medicare's payments for both types of costs should increase. The MEI is a measure specifically designed to track weighted input cost trends (including work and practice expenses) in physician offices, so it is a good indicator of how those costs are increasing. OACT projects that the MEI will increase by 2.2 percent to 2.6 percent annually for the next decade, with those costs roughly split between clinician work and practice expenses.

This approach also reflects the fact that PFS updates have averaged around MEI minus 1 percentage point for the past two decades. Despite updates that have been about 1 percentage point less than inflation, fee schedule payments per beneficiary have increased steadily over time (due to growth in the volume and intensity of services delivered to beneficiaries), clinician participation in the program has been comparable with clinicians' participation in private insurance, and the Commission has consistently found that beneficiary access to care has been comparable

with that of privately insured people. Over the 20-year period, longer-term access measures were also relatively positive: Clinician incomes continued to grow slightly faster than inflation, the number of medical school applicants continued to grow (and outpaced the number of available slots), and the number of clinicians billing the PFS increased substantially. Approach 2's floor on updates would ensure that updates do not fall too far below historical trends during times of low inflation, which could endanger access and prompt the Congress to enact one-time updates. Although we have described an approach that would keep updates at 1 percentage point below MEI, substantial changes in inflation, changes in measures of beneficiary access to care, concerns about growth in program spending and beneficiary cost-sharing, or other factors could indicate a need for updates that are higher or lower.

### Pros and cons of Approach 2

Approach 2 presents numerous pros and cons to consider.

#### Pros:

- This approach maintains the “relative value” concept of the PFS by applying a consistent update percentage to all three types of RVUs.

- Payment rate updates would be broadly and evenly distributed across services (and therefore clinician specialties). All billing codes would increase by the same percentage.
- This approach would not exacerbate differences in revenue across specialists and primary care physicians and mental health clinicians that may be contributing to a decline in the supply of primary care physicians and to beneficiaries' difficulties finding mental health clinicians willing to treat them.
- Policymakers would not need to revisit fee schedule update policy in the future to provide separate increases to the work portion of fee schedule payments.

**Cons:**

- Measures of clinician supply have generally been positive, suggesting that payments for clinician work are sufficient and broad-based updates for work may not be currently needed.
- The approach does slightly less than Approach 1 to reduce the growth in differences in payments across settings. These payment differences can result in incentives for vertical consolidation. Policymakers may still wish to consider site-neutral payments for certain services furnished in both HOPDs and other ambulatory settings.
- Additional policies may be needed to address low PE payments for certain services and to discourage vertical consolidation (see text box on improving the accuracy of PE payments, pp. 52–53).

**Comparing the impacts of Approach 1 and Approach 2**

Since the Commission is concerned about the relationship between updates and inflation, it is worth comparing how Approach 1 and Approach 2 would update rates under different inflation scenarios.

Figure 1-11 (p. 50) shows projected cumulative updates over the 2024 to 2033 period for both approaches, using three different assumptions about future inflation:

- baseline inflation (defined below);

- baseline inflation plus 1 percentage point (high inflation); and
- baseline inflation minus 1 percentage point (low inflation).

All three projections of Approach 1 use OACT's baseline forecasts of the hospital market basket (minus productivity), and projections of Approach 2 use OACT's forecasts of MEI (which includes a productivity adjustment). Over the 2025 to 2033 period, OACT's projections of the hospital market basket (minus all-factor productivity) range from 2.3 percent to 2.8 percent per year; its projection of MEI ranges from 2.2 percent to 2.6 percent. It is worth noting that under Approach 1, the impact of updates on payment rates for each service would vary depending on the portion of the payment that is for PE. The numbers presented in Figure 1-11 (p. 50) for Approach 1 are weighted averages and provide a sense of how aggregate payment rates would increase under different inflation scenarios.

Under baseline inflation projections, the impacts of Approach 1 and Approach 2 are similar. Payment rates under Approach 1 (which would update PE RVUs by the hospital market basket update) would be 11.4 percent higher in 2033 than they were in 2024, on average, while payment rates under Approach 2 (which would update all RVUs by a portion of MEI) would be 12.7 percent higher by 2033.

Impacts are also fairly similar under the low-inflation scenario: The average cumulative increase under Approach 1 would be 6.6 percent, and the cumulative increase under Approach 2 would be 6.2 percent. But looking at the high-inflation scenario, we see very different impacts: The cumulative increase in payment rates for Approach 1 would be 16.7 percent, while the average cumulative increase under Approach 2 would be 23.1 percent. This difference reflects the fact that during times of high inflation, Approach 2 increases aggregate payment rates by a larger portion of inflation than Approach 1.

Another goal that can be pursued through reformed fee schedule updates is to reduce the payment differential when the same services are billed in different settings. When services are furnished in an HOPD, total Medicare payments are typically higher than when they are billed in a freestanding clinician office. As discussed earlier, this site-of-service payment differential can

## Practice expense relative value units use old data and flawed assumptions

There are a number of problems with the data and methodology used to set practice expense (PE) relative value units (RVUs) for billing codes in the fee schedule. In response to these concerns, CMS recently contracted with RAND to identify potential refinements (Burgette et al. 2021, Burgette et al. 2020, Burgette et al. 2018) and solicited input from the public on this matter. CMS has stated that it intends to move to a more standardized and routine approach for setting PE RVUs, but it has not yet finalized specific plans (Centers for Medicare & Medicaid Services 2023f).

### Problems with the data and methods used to calculate PE RVUs

One problem with how PE RVUs are set is that none of the data sources used in this process are regularly updated. When CMS does update these data sources, it does so at infrequent, irregular, and uncoordinated intervals. Because these updates have been so infrequent, they have at times caused large shifts in billing codes' PE RVU values that CMS has opted to phase in over a four-year period.

Due to concerns about out-of-date data, the Commission has previously called on CMS to set a reasonable schedule for periodically updating the data it uses in its PE RVU-setting methodology; we have also recommended using objective data collected on a recurring basis from a cohort of

efficient practices to determine the practice expenses used to provide different types of services (Medicare Payment Advisory Commission 2022a, Medicare Payment Advisory Commission 2021a, Medicare Payment Advisory Commission 2011a, Medicare Payment Advisory Commission 2011b, Medicare Payment Advisory Commission 2007, Medicare Payment Advisory Commission 2006a).<sup>30</sup> Researchers from RAND have also recommended collecting new data on a recurring basis (Burgette et al. 2021, Burgette et al. 2018).

There are also problems with the approach used to set indirect PE RVUs (which pay for overhead costs). (Indirect PE RVUs are set using a top-down method extrapolating from practice-level survey data for different physician specialties. This method is in contrast to direct PE RVUs, which are set using a more granular, specialty-blind, bottom-up method based on estimated amounts and prices of clinical support staff and equipment and supplies needed to deliver a service.) The current formula for calculating indirect PE RVUs rewards specialties with high overhead costs as part of their practice expenses (e.g., high rent) since the number of indirect PE RVUs allocated to a billing code is based in part on the overhead costs per hour reported by clinicians in different specialties. A specialty whose practitioners tend to locate in affluent areas where rent is high will be rewarded with higher indirect PE RVUs (Burgette et al. 2018). RAND has suggested

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incentivize clinicians to vertically consolidate with hospitals. We therefore look at the effect Approach 1 and Approach 2 would have on the site-of-service payment differential for a sample service (Figure 1-12, p. 51).

In this example, we examine payments for HCPCS code 17004 (removal of 15 or more skin lesions), which corresponds with ambulatory payment classification

(APC) 5052 (Level II skin procedure) when furnished in an HOPD. HCPCS code 17004 is a high-PE service, with payment for PE accounting for about 70 percent of the total payment for the service when delivered in a freestanding clinician office. In 2024, when this service is furnished in a freestanding office, the payment is \$165.<sup>31</sup> When furnished in an HOPD, total payment for the service is \$404 (\$97 under the PFS plus \$307 under the OPFS (data not shown)).<sup>32</sup> Therefore, before

## Practice expense relative value units use old data and flawed assumptions (cont.)

that this problem could be ameliorated if CMS grouped together similar specialties when producing the metric for indirect practice expenses per hour. Doing so would also allow a much smaller sample of clinicians to be surveyed when collecting data about practices' expenses (Burgette et al. 2018).

CMS's PE RVU formula also assumes that if two services both take 30 minutes to deliver but one involves more intense work and/or more direct expenses (which refer to clinical support staff and medical equipment and supplies), the more-intense service will also require more overhead costs. But the overhead costs for these two 30-minute services (e.g., office rent, receptionists' wages) are more likely to be the same. RAND has studied this issue and found that many types of indirect practice expenses have only weak positive (or even negative) correlations with direct practice expenses and work RVUs (Burgette et al. 2018). As a result, services with low work RVUs and low direct PE RVUs are allocated low indirect PE RVUs, which may affect certain clinicians' ability to pay their overhead costs (Burgette et al. 2018).

Other problems with how indirect PE RVUs are calculated likely result in services being allocated too many indirect PE RVUs when they are delivered in facilities. When a service is delivered in a facility,

Medicare includes indirect PE RVUs that are meant to pay for overhead costs involved in maintaining a practice outside of that facility. This allocation is based on the assumption that clinicians who provide services in facilities also maintain an office in the community that sits idle while a clinician delivers a facility service. Yet RAND has found that many clinicians practice exclusively or nearly exclusively in a facility—which is true, for example, for majorities of clinicians specializing in emergency medicine, hospice and palliative care, diagnostic or interventional radiology, critical care, and infectious disease (Burgette et al. 2018). Even among clinicians who do maintain a separate office, it seems unlikely that their office space and administrative staff sit idle when a clinician delivers a service in a facility since other clinicians in the practice likely deliver services during this time that can subsidize the overhead costs (Burgette et al. 2021).

Another problem with indirect PE RVUs for services delivered in a facility is that hospital-owned practices have lower indirect practice expenses than independently owned practices (Burgette et al. 2018).<sup>33</sup> To improve the accuracy of PE RVUs, RAND researchers have suggested using different indirect PE RVU formulas for services delivered in facilities versus nonfacility settings (Burgette et al. 2021). ■

either of the two update approaches would take effect, the total payment for this procedure is \$238 higher when furnished in an HOPD than when furnished in a freestanding office.

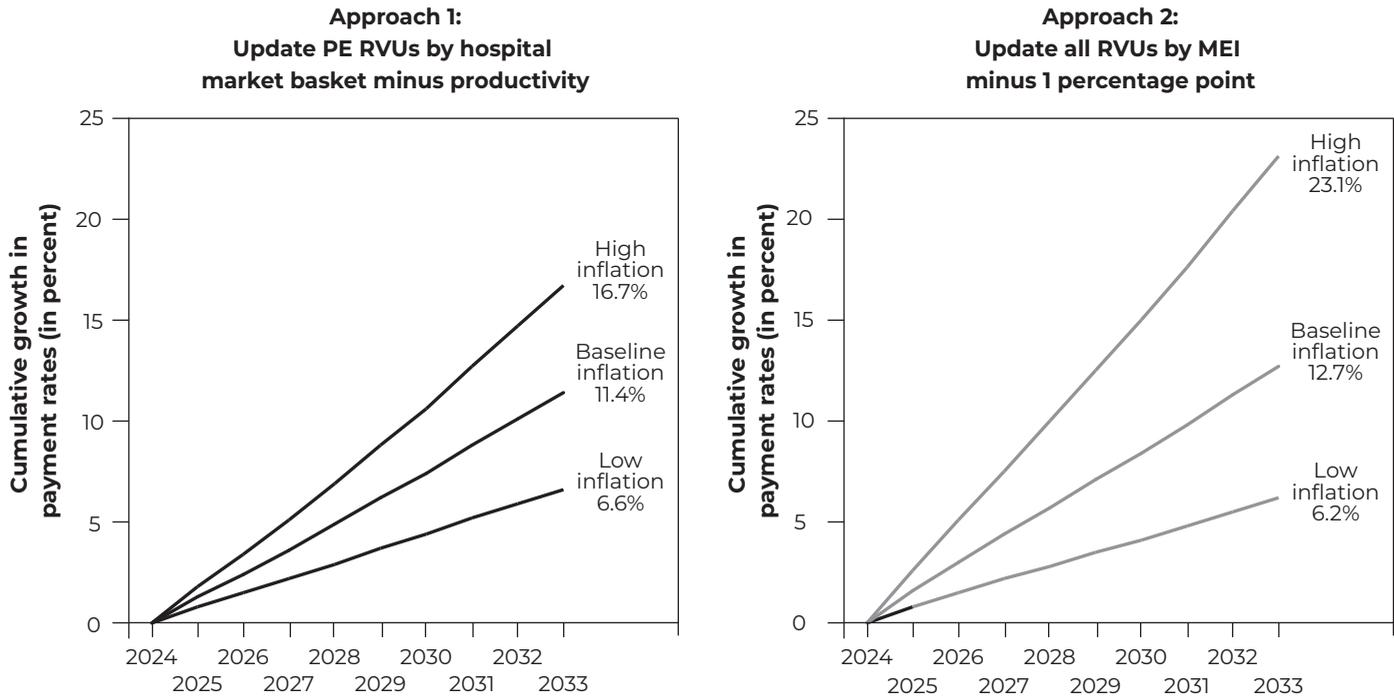
Figure 1-12 (p. 51) shows how Medicare payments are projected to grow over the next decade under the two update approaches contemplated here. The difference in payments between the freestanding office and HOPD continues to grow under both approaches: By 2033, we estimate that the site-of-service payment differential would be \$298 under Approach 1, which is only \$8 less

than the \$306 payment differential under Approach 2. This figure demonstrates that while Approach 1 is intended to slow the shift in services from the office setting to the HOPD setting by slowing growth in total payment differentials between those two settings, the size of payment differentials under Approach 1 and Approach 2 are projected to be very similar.

As a point of reference, if clinician payment rates were updated at the rates specified under current law, we project that the site-of-service payment differential would be \$310 for a clinician in an A-APM and \$313

**FIGURE 1-11**

**Cumulative updates under Approach 1 and Approach 2 in different inflation scenarios, 2024–2033**



Note: PE (practice expense), RVU (relative value unit), MEI (Medicare Economic Index). “High inflation” scenarios are based on baseline projections of hospital market basket and MEI plus 1 percentage point. “Low inflation” scenarios are based on baseline projections of hospital market basket and MEI minus 1 percentage point. Growth rates shown for Approach 1 are the weighted average change in payment rates for all services; growth in payment rates for particular services would vary. Graph does not show the effects of the expiration of the 2 percent sequester that applies to payment rates through September 2032.

Source: MedPAC calculations based on Office of the Actuary projections of hospital market basket and MEI.

for a clinician not in an A-APM (data not shown). Thus, compared to current law, both Approach 1 and Approach 2 would do more to limit the growth of the site-of-service payment differential. But the fact that large differentials would remain under both approaches highlights the importance of implementing site-neutral payments regardless of the approach chosen to update PFS rates.

Approach 1 would require substantial operational changes in the way payment rates are set and updated over time. It would also tend to result in smaller payment rate increases for primary care and behavioral health clinicians compared with increases for many specialists, which could exacerbate beneficiaries’ existing problems accessing primary care providers

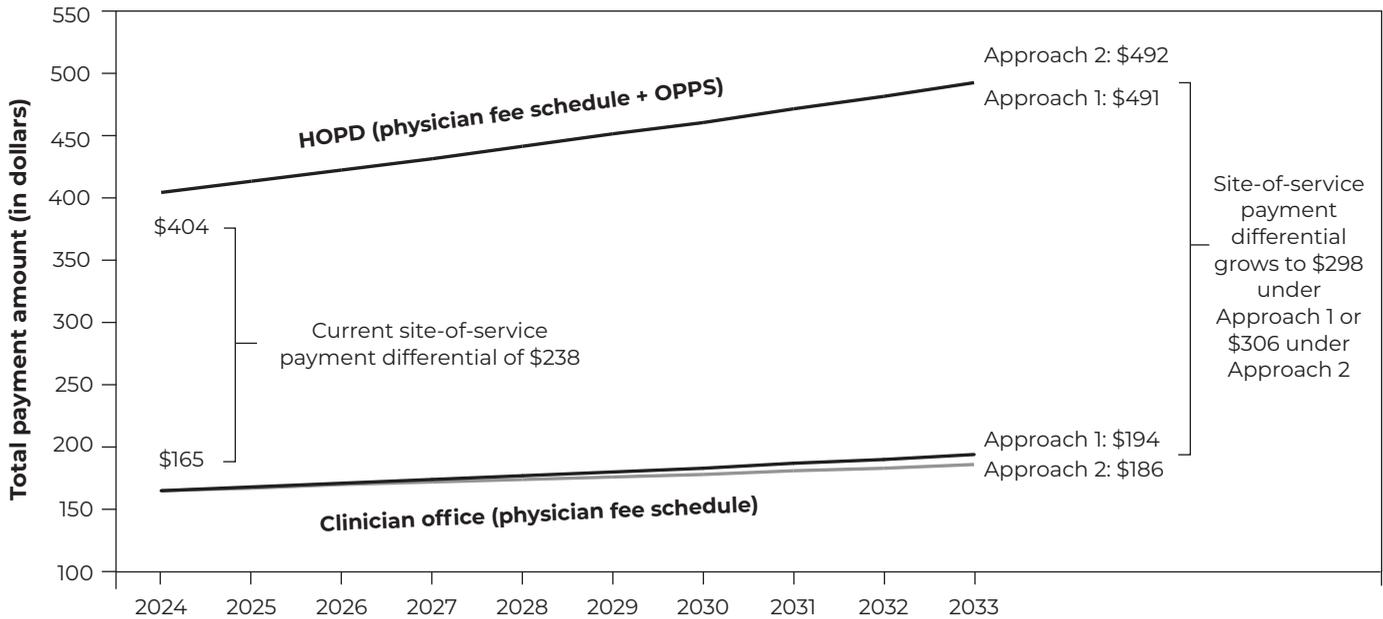
and behavioral health clinicians. Approach 2 would be simpler to implement, would not lead to different rate increases among clinicians in different specialties, and would reduce or eliminate the need for policymakers to revisit fee schedule update policy in the future to provide separate increases to the work portion of fee schedule payments. The Commission finds the features of Approach 2 more desirable and will continue to develop this option in the future.

**Incentivizing participation in A-APMs**

The two update approaches discussed above would replace the differential updates that are scheduled to

**FIGURE 1-12**

**Comparison of total payments in freestanding clinician office and HOPD settings for an example high-PE service (removal of skin lesions)**



Note: HOPD (hospital outpatient department), PE (practice expense), OPPS (outpatient prospective payment system). Assumes that physician fee schedule relative value units and OPPS payment weights are constant throughout the period. Graph does not show the effects of the expiration of the 2 percent sequester that applies to payment rates through September 2032. Components may not sum to totals due to rounding.

Source: CMS 2017–2024 payment files for OPPS and physician fee schedule. MedPAC calculations of future payment rates based on Office of the Actuary projections of hospital market basket, productivity, and Medicare Economic Index.

start in 2026 under current law since these differential updates may not be the optimal way to incentivize participation in A-APMs over MIPS. As we described earlier, these differential updates will produce a relatively weak incentive in the late 2020s (as shown earlier in Figure 1-9, p. 34) and will then produce a potentially untenably large incentive to participate in A-APMs in the 2040s (also shown in Figure 1-9). One way to ensure that clinicians do not have an incentive to prefer MIPS over A-APM participation would be to repeal MIPS, as the Commission has previously recommended (Medicare Payment Advisory Commission 2018). But if MIPS is retained, an alternative way to incentivize A-APM participation would be to temporarily extend the current A-APM participation bonus.

Extending the A-APM participation bonus for a few more years (e.g., two or three years—through 2028 or 2029) would help maintain clinician participation in A-APMs in the late 2020s, given uncertainty about the attractiveness of MIPS to top-performing clinicians in the coming years (since, as we describe earlier, there is uncertainty about the size of future payment adjustments under MIPS). Once the future direction of MIPS becomes clearer, a reassessment of the need for the A-APM participation bonus could be undertaken.

If the top MIPS adjustment falls to a relatively low level (e.g., 0.07 percent), it may not be necessary to continue to offer an A-APM participation bonus to maintain clinician interest in A-APMs because payments available through A-APMs (e.g., capitated payments per beneficiary, shared savings payments) may be

## Improving accuracy of the fee schedule's practice expense payments

A key attribute of Approach 2 is that it would update each fee schedule service by an equal amount. This approach means that updates under the policy would not have differential effects across services or specialties, but it also would not directly address concerns about the accuracy of payments for practice expenses or differences in payment rates between the office and hospital outpatient department (HOPD) settings. One approach to address these concerns would be to couple Approach 2 with additional policies aimed at increasing the accuracy of the fee schedule's relative value units (RVUs) to increase payments for practice expenses and reducing practice expense (PE) payments when a service is furnished in an HOPD.

### Rescale relative value units to reflect updated MEI data

CMS periodically rebases the Medicare Economic Index (MEI), which entails updating the base year data used to establish the distribution of costs associated with furnishing clinician services. For example, CMS rebased the MEI in 1998 (moving the base year from 1992 to 1996), 2004 (moving the base year from 1996 to 2000), and 2011 (moving the base year from 2000 to 2006). In 2022, CMS again rebased the MEI (moving the base year from 2006 to 2017), which resulted in an increase in the share of

expenses attributed to PE and a decrease for work and professional liability insurance (PLI):

- PE increased from 44.8 percent to 51.1 percent.
- Work decreased from 50.9 percent to 47.5 percent.
- PLI decreased from 4.3 percent to 1.3 percent.

After CMS rebases the MEI, the agency usually rescales the RVUs under the fee schedule to match the distribution of expenses under the MEI. However, CMS has indefinitely delayed rescaling fee schedule RVUs to reflect the most recent rebasing (Centers for Medicare & Medicaid Services 2023f, Centers for Medicare & Medicaid Services 2022b). The agency delayed rescaling in light of the American Medical Association's current efforts to collect more up-to-date practice expense data and to promote stability and predictability within the fee schedule when data sources are updated.<sup>34</sup> As such, CMS is still using the old MEI shares, which are based on data from 2006, to scale the aggregate RVUs.

Rescaling the RVUs to reflect the updated MEI cost weights would incorporate more recent and likely more accurate data. The process would increase payments for PE-heavy services but reduce payments for PLI-heavy services and work-heavy

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larger than the modest MIPS adjustments available to clinicians.

But if the top MIPS adjustment rises to a relatively high level (e.g., 8.82 percent), it may be necessary to continue to offer an A-APM participation bonus or pursue other policies that encourage clinicians to participate in A-APMs, to prevent top-performing clinicians from exiting A-APMs. For example, the Congress could reduce the maximum possible MIPS adjustment in statute from 9 percent to some lower percentage.

### Rationale

If top-performing clinicians opt not to participate in A-APMs and instead choose to participate in MIPS, the health care provider organizations that remain in A-APMs might have a harder time succeeding. This is because A-APMs usually measure clinicians' performance as a group, at the practice or ACO level—so the loss of top-performing clinicians from a practice or ACO could jeopardize that practice or ACO's ability to meet performance targets. If fewer provider organizations earn performance-based payments in

## Improving accuracy of the fee schedule's practice expense payments (cont.)

services. CMS estimates that if this change were implemented, fee schedule spending on services furnished in the office setting would increase by 4 percentage points, while spending on services in facility settings would decrease by 3 percentage points (Centers for Medicare & Medicaid Services 2022b). The effects would also differ by specialty: total payments for physicians specializing in internal medicine would increase by 3 percentage points, vascular surgery would increase by 1 percentage point, psychology would decrease by 4 percentage points, and cardiac surgery would decrease by 8 percentage points. The Commission could act to improve payment accuracy and increase PE RVUs by recommending that CMS rescale RVUs to reflect the current MEI cost weights.

### **Increase payments for office-based services by reducing indirect practice expenses when certain services are furnished in a facility**

As discussed in the text box on site-neutral payments (p. 32), when a service is performed in a facility setting such as an HOPD, the physician fee schedule payment often includes some payment for

indirect practice expenses related to maintaining a freestanding office (e.g., rent, utilities, and administrative staff).

Including indirect practice expenses in the fee schedule payment when a service is performed at a hospital assumes that clinicians are maintaining freestanding offices that are independent of the hospital. However, studies have found that many clinicians are employed exclusively or nearly exclusively by hospitals (Burgette et al. 2021). In these cases, Medicare is paying the clinician for practice expenses that may not exist if the clinician is not financing or maintaining a separate freestanding office.

The Commission could explore a policy that would reduce or eliminate indirect practice expenses when a service is furnished in a facility setting. Any reduction in PE RVUs resulting from this policy would be redistributed on a budget-neutral basis under the fee schedule's existing budget-neutrality rules, which would have the effect of increasing payments for clinicians who practice in freestanding offices. ■

A-APMs, interest in A-APMs could then wane, resulting in missed opportunities to achieve better-quality care more efficiently. (We theorize that clinicians in A-APMs are able to earn relatively high MIPS adjustments because among clinicians in APMs who participated in MIPS in the 2023 payment year, their average MIPS score was 97.5 points out of 100, which is higher than the overall average among all clinicians of 89 points out of 100 (Centers for Medicare & Medicaid Services 2023a).)

### **What size bonus?**

A key question for policymakers is the optimal size for an extended A-APM participation bonus. Financial incentives for joining and remaining in an A-APM

will be strongest if the payments a clinician receives through their A-APM plus the extended A-APM participation bonus exceed the value of the MIPS adjustment they would otherwise receive. But it is difficult to estimate what size the A-APM participation bonus should be to attract clinicians into A-APMs because, in any given year, each clinician in the U.S. can receive:

- different-size MIPS adjustments (based on their score on MIPS performance measures and implementation decisions CMS makes each year that determine the size of the highest MIPS adjustment);

- different-size payments in A-APMs themselves (due to differences in the payment models and differences in clinicians' performance on the measures used to determine the size of performance bonuses in A-APMs); and
- different-size A-APM participation bonuses (since they are calculated as a share of the payments a clinician is paid by FFS Medicare).

The effectiveness of the A-APM participation bonus could be maximized if set equal to the top MIPS adjustment in a given year—but doing so could result in the bonus reaching as high as 9 percent, which could be costly for the Medicare program and the taxpayers who support it (and could be untenable if access to A-APMs continues to be more limited for certain clinicians). A smaller-sized bonus would be less costly to the Medicare program and less inequitable to clinicians who cannot participate in A-APMs, but it might not be big enough to incentivize clinician participation in A-APMs.

### Pros and cons

A bonus extension presents pros and cons to consider.

#### Pros:

- Extending the A-APM participation bonus could maintain or increase the number of clinicians participating in A-APMs, including top-performing clinicians, which in turn could maximize the chances of A-APMs generating net savings for the Medicare program.

#### Cons:

- Extending the A-APM participation bonus might not maintain or increase the number of clinicians participating in A-APMs if the participation bonus plus payments available through A-APMs (e.g., shared savings payments) are lower than the highest MIPS adjustment available (which can reach as high as 9 percent under current law).
- Extending the participation bonus could be viewed as inequitable by clinicians who are unable to participate in A-APMs (due to limited availability of A-APMs in their geographic area, limited availability of A-APMs designed for their specialty, a clinician's inability to find a local ACO that wishes to partner with them, etc.).

- The current structure of the A-APM participation bonus gives clinicians an incentive to maximize the volume and intensity of services they deliver to FFS Medicare beneficiaries.
- Continuing to pay A-APM participation bonuses would make it difficult to determine if CMS's A-APMs are generating net savings for Medicare, since the participation bonuses essentially function as off-the-books A-APM payments that are not counted when evaluators assess whether an A-APM generated net savings for Medicare.
- Extending the A-APM participation bonus would increase Medicare spending relative to current law.

### Restructure the bonus and eliminate participation thresholds

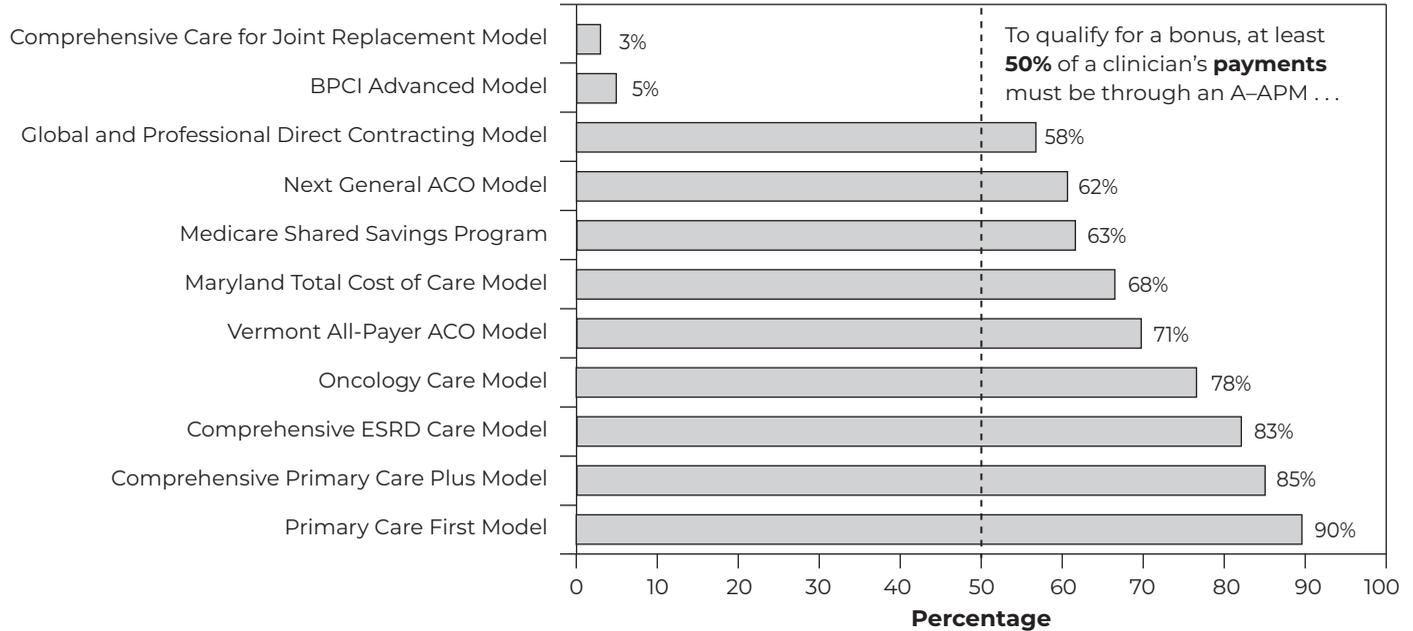
If the A-APM participation bonus is extended, the bonus could be restructured as a percentage of a clinician's Medicare payments for fee schedule services for FFS Medicare beneficiaries in A-APMs (instead of a percentage of a clinician's payments for all FFS Medicare beneficiaries, including beneficiaries not in A-APMs). This restructured bonus could be coupled with eliminating the requirement that a certain percentage of a clinician's payments or patients be in an A-APM to qualify for the bonus. (Currently, at least 50 percent of a clinician's FFS Medicare or multipayer payments must be associated with an A-APM or at least 35 percent of a clinician's FFS Medicare or multipayer patients must be participating in an A-APM (42 CFR 414.1430).)

Restructuring the bonus in this way would allow bonus payments for clinicians who currently participate in A-APMs but fail to qualify for the bonus. As noted earlier, 62,000 clinicians participated in A-APMs in the 2023 payment year but did not qualify for the A-APM participation bonus due to an insufficient share of their payments or patients being in A-APMs (Centers for Medicare & Medicaid Services 2023a, Centers for Medicare & Medicaid Services 2023h). Clinicians in episode-based payment models would likely benefit the most from dropping the current payment and patient participation thresholds since the average clinician in CMS's two flagship episode-based payment models has shares of payments and patients in A-APMs that are far below the minimum thresholds needed to qualify for the bonus (shown in Figure 1-13). Possibly the discrete

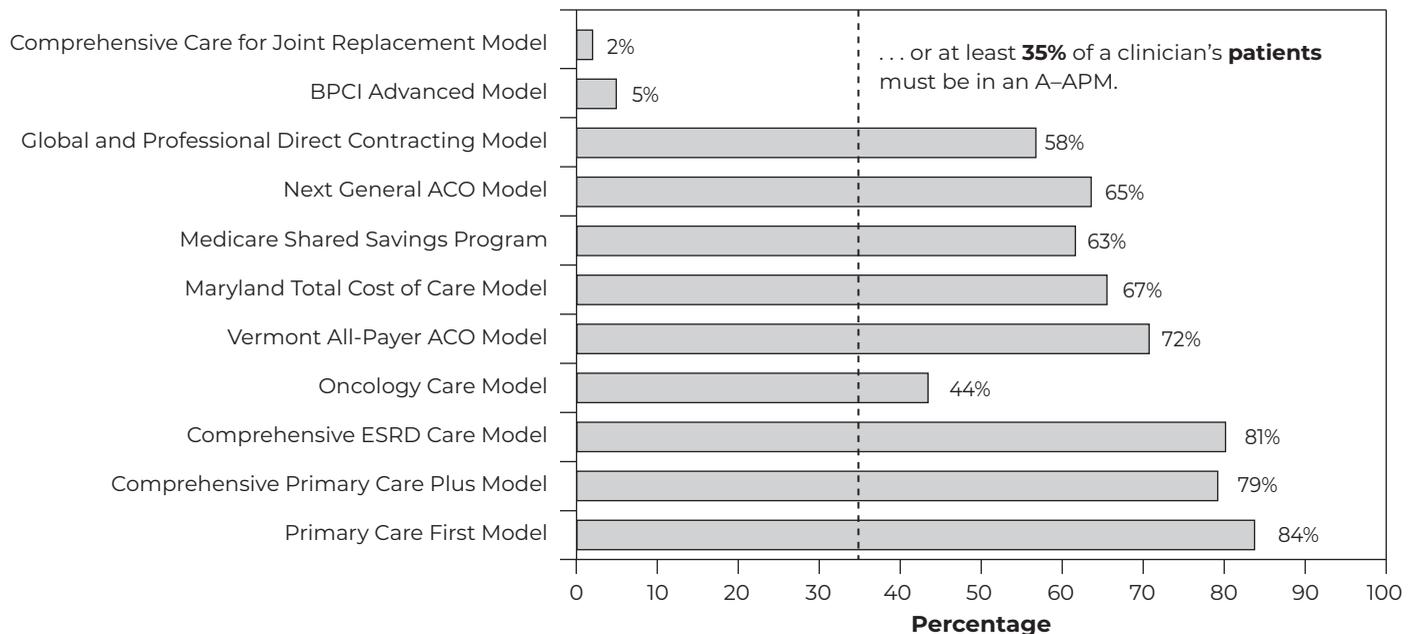
**FIGURE 1-13**

**Shares of payments and patients in A-APMs for the average clinician participating in an A-APM**

**Figure 1-13a: Average participating clinician's share of payments in A-APMs**



**Figure 1-13b: Average participating clinician's share of patients in A-APMs**



Note: A-APM (advanced alternative payment model), BPCI (Bundled Payments for Care Improvement), ACO (accountable care organization), ESRD (end-stage renal disease). Figures show data for the 2021 performance year, which corresponds to the 2023 bonus payment year.

Source: CMS's 2021 Quality Payment Program Experience Report, <https://qpp-cm-prod-content.s3.amazonaws.com/uploads/2433/2021%20QPP%20Experience%20Report.pdf>.

procedures or conditions targeted by episode-based payment models (e.g., hip and knee replacements) make up only a small share of the types of care that a clinician provides.

Many clinicians in ACOs would also benefit if the bonus were restructured this way. Under current law, the share of payments that must be in an A-APM is set to increase from 50 percent to 75 percent in 2027, and CMS will have the freedom to raise the share of patients that must be in an A-APM (currently set at 35 percent) starting in 2027. If the payment threshold is increased from 50 percent to 75 percent, the average clinician in Medicare's ACO models would fail to meet the new, higher payment threshold, since less than 75 percent of the average clinician's payments are in A-APMs in each of CMS's ACO models (shown in Figure 1-13a, p. 55). Similarly, if the patient threshold were increased, some clinicians might no longer qualify to receive the bonus.

The pros and cons of restructuring the bonus and eliminating the payment and patient participation thresholds are as follows:

**Pros:**

- Eliminating the payment and patient participation thresholds would mean more clinicians in episode-based payment models would qualify for the A-APM participation bonus. It would also prevent

many clinicians in ACOs from losing access to the bonus in coming years. In turn, these models' ability to attract top-performing clinicians and generate net savings for the Medicare program could increase.

- Clinicians would have an incentive to increase the number of their FFS Medicare patients in A-APMs.
- Clinicians could not leverage Medicare payments for non-A-APM beneficiaries to influence the size of their A-APM participation bonus.

**Cons:**

- Basing the bonus on a share of a clinician's payments would give clinicians an incentive to increase the amount of spending they generate per FFS Medicare beneficiary in an A-APM.
- Changing the basis for the calculation of the A-APM participation bonus would make it difficult for clinicians to compare their expected A-APM participation bonus with their expected MIPS adjustment. (Currently, both the bonus and MIPS adjustments are worth a percentage of a clinician's Medicare payments for fee schedule services for all of their FFS Medicare beneficiaries.)
- Increasing the number of clinicians who qualify for the bonus could increase Medicare spending relative to current law. ■

## Endnotes

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- 1 Throughout this chapter, we use publicly available MEI data from CMS (Centers for Medicare & Medicaid Services 2023e). For projections, we use MEI data as of the third quarter of 2023, which was the most recent data available at the time we conducted our analyses. Projected MEI growth rates are subject to change. MEI growth data included in this chapter reflect the growth that occurred or is projected to occur in a given calendar year.
- 2 The Congress eliminated the annual update to allowable charges that would have occurred in July 1984 and froze payment rates through May 1986 for physicians who agreed to take Medicare's allowed payment for all Medicare beneficiaries and through December 1986 for other physicians.
- 3 For simplicity, we refer to both Current Procedural Terminology (CPT) codes and Healthcare Common Procedure Coding System (HCPCS) codes as HCPCS codes.
- 4 The comparison of the VPS growth rate with actual spending effectively had a two-year lag due to the time it took for claims to be submitted and processed.
- 5 The SGR had one conversion factor for all types of medical services, except for anesthesia. Anesthesia is priced using a time-based methodology that differs from other services and therefore has its own conversion factor; the anesthesia conversion factor was updated each year by the same rate called for by the SGR formula during this period.
- 6 For example, by requiring clinicians to pay shared losses to Medicare if their attributed beneficiaries' spending exceeds a spending target.
- 7 CMS has defined "more than nominal" as meaning that the total amount an APM entity (e.g., a practice, an ACO) potentially owes a payer or forgoes under a payment arrangement must be at least 8 percent of the revenue from the payer to all providers and other entities under the payment arrangement, or 3 percent of the expected expenditures for which an APM entity is responsible under the payment arrangement (42 CFR 414.1415 (c) and 42 CFR 414.1420 (d)). (Theoretically, Medicaid beneficiaries in a "medical home" payment model that meets criteria comparable to a medical home model that has been expanded by the CMS Innovation Center are considered to be in an A-APM even if such a model does not require more than nominal financial risk, but no such models currently exist.)
- 8 Only certain tracks of the Medicare Shared Savings Program qualify as an A-APM: Basic Level Track E and the Enhanced Track (Centers for Medicare & Medicaid Services 2023d).
- 9 In addition to the A-APM participation bonus and higher payment rate updates, clinicians in A-APMs are also eligible for other payments through A-APMs themselves, such as shared savings bonuses.
- 10 MIPS adjustments to PFS payment rates are based on a clinician's performance two years prior on measures of quality, cost, electronic health record use, and participation in quality improvement activities.
- 11 The A-APM participation bonus and MIPS adjustments to payment rates apply for one year only and are not built into clinicians' payment rates in subsequent years.
- 12 Whenever the payment rate for a particular billing code in the PFS is changed or services are added or dropped through administrative action, the changes are required by law to be budget neutral. Budget neutrality is typically achieved by increasing or decreasing the fee schedule's conversion factor.
- 13 The A-APM participation bonus is calculated as a share of Medicare payments for PFS services, Method II critical access hospital payments, and A-APM supplemental service payments. Payments that are excluded from this calculation are payments for services furnished in rural health clinics or federally qualified health centers; health professional shortage area bonuses; A-APM financial risk payments; A-APM cash flow mechanism payments; and beneficiaries' cost-sharing obligations (Centers for Medicare & Medicaid Services 2023g).
- 14 Our conclusion that interest in becoming a physician remained strong over the last two decades does not change after adjusting for total population change in the U.S. Combining the number of applicants to MD- and DO-granting institutions, the number of applicants per 100,000 population increased from 15.9 to 23.6 from the 2000–2001 academic year to the 2022–2023 academic year, an increase of 48 percent. Similarly, first-year enrollment at MD- and DO-granting institutions over the same period also increased by 44 percent per capita.
- 15 In addition, almost all clinicians who treat FFS Medicare beneficiaries accept the PFS's payment rates as payment in full, despite having the option to balance-bill beneficiaries for higher amounts as a "nonparticipating" provider (Medicare Payment Advisory Commission 2024).

- 16 There are four categories of APRNs: nurse practitioners, certified registered nurse anesthetists, clinical nurse specialists, and certified nurse midwives. Growth rates are calculated based on clinicians who billed services for more than 15 beneficiaries in a given year.
- 17 From 2021 to 2023, MEI growth exceeded statutory updates, but the Congress implemented one-time payment increases that reduced the gap between payment updates and MEI growth.
- 18 Physical, occupational, and speech–language pathology services also generate only one claim regardless of whether they are performed in a facility or nonfacility setting. However, unlike the other services mentioned, Medicare pays the fee schedule rate for physical, occupational, and speech–language pathology services in all settings, except for critical access hospitals.
- 19 There are some differences in payments across settings for professional liability insurance, but these differences are small.
- 20 The study also noted that, in addition to reductions due to the rebalancing of PE RVUs in 2010, the Congress and CMS implemented a series of targeted payment reductions for advanced imaging services in response to rapid growth in advanced imaging use in clinician offices in the 2000s (e.g., increasing the equipment utilization rate assumption) (Steinwald et al. 2021). Increasing the utilization rate assumption lowers the payment rate per service because CMS assumes the fixed price of an imaging machine can be spread out over a higher number of scans.
- 21 The A–APM participation bonus is paid to a clinician’s tax identification number(s) (42 CFR 414.1450 (c)), which typically refers to the practice or provider organization that accepts payment on behalf of a clinician.
- 22 In general, a hospital campus is defined as the physical area immediately adjacent to the provider’s main buildings; other areas and structures that are not strictly contiguous with the main buildings but are located within 250 yards of the main buildings; and any other areas determined by the CMS regional office, on an individual case basis, to be part of the provider’s campus (42 CFR 413.65).
- 23 We calculated this dollar amount by dividing each ACO’s shared savings payment by the total number of primary care physicians, specialists, nurse practitioners, physician assistants, and clinical nurse specialists in the ACO. In reality, ACOs may choose to distribute larger shared savings payments to clinicians serving as primary care providers, clinicians who perform better on internal performance measures, and/or clinicians who meet other ACO-specific criteria.
- 24 These amounts include payments from all payers participating in CPC+. Medicare paid for about 69 percent of these payments (Swankoski et al. 2022).
- 25 Current law allows CMS to specify the performance threshold as the mean or median MIPS score from any prior period. For the 2024 performance year / 2026 payment year, CMS has opted to use the mean MIPS score from the first year of MIPS (the 2017 performance year / 2019 payment year) (Centers for Medicare & Medicaid Services 2023f).
- 26 Payments for anesthesia services, which account for about 2.8 percent of total fee schedule payments, are time based and not priced using the traditional RVU approach. As such, anesthesia services have been excluded from our analysis of Approach 1. A method for updating payment rates for anesthesia services would need to be considered at some point.
- 27 There are three types of global surgical codes: “0-day global codes” pay for services provided on the day of a procedure; “10-day global codes” pay for services provided on the day of a procedure plus 10 days afterward; and “90-day global codes” pay for services provided on the day of a procedure plus 1 day prior and 90 days afterward.
- 28 We report results of a sensitivity analysis by RAND that was restricted to the subset of clinicians who billed for any postoperative visits during 90-day global periods. We report these results, rather than RAND’s main results, because some specialty societies contend that the reason some clinicians did not bill for any postoperative visits was that their billing system did not allow them to submit the 99024 no-pay billing code that was used by RAND to identify postoperative visits (American Academy of Facial Plastic and Reconstructive Surgery et al. 2022). However, we caution that it is also possible that some clinicians did not report any postoperative visits because they did not provide any. The results we report should therefore be interpreted as conservative and possibly overrepresenting how many postoperative visits were provided.
- 29 In 2014, CMS announced that it planned to convert 10-day global surgical codes to 0-day global codes in 2017 and to convert 90-day global surgical codes to 0-day global codes in 2018 (Centers for Medicare & Medicaid Services 2014). The Congress subsequently blocked this policy in MACRA and directed CMS to collect empirical data quantifying the number of postoperative visits being provided during global periods.
- 30 For example, PE data could be used from surveyed clinicians whose reported costs are at the 25th percentile of all respondents’ costs.

- 31 Amounts have been rounded to the nearest dollar.
- 32 The total OPPS payment rate for APC 5052 is \$380, but that amount includes ancillary services that have been packaged in the payment amount that are not included in PFS payments for HCPCS 17004. To compare payments for HCPCS 17004 and APC 5052, we have removed payments for ancillary services, which we estimate to be about 20 percent of the OPPS payment rate for APC 5052.
- 33 For example, hospital-owned practices pay less per physician for building and occupancy costs, furniture and equipment costs, and information technology costs, which may reflect health systems' ability to negotiate lower prices on goods and services that they bulk-purchase compared with what single practices pay for smaller quantities of these items (Burgette et al. 2018).
- 34 In addition to rebasing the MEI, CMS substantially revised the data used to establish the distribution.

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CHAPTER

2

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**Provider networks and  
prior authorization in  
Medicare Advantage**

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# Provider networks and prior authorization in Medicare Advantage

## Chapter summary

The Medicare Advantage (MA) program allows Medicare beneficiaries who are enrolled in both Part A and Part B to receive benefits from private plans rather than from the traditional fee-for-service (FFS) program. The Commission has long held that MA presents opportunities to achieve higher-quality care at lower cost. Beneficiaries who enroll in MA accept provider networks and utilization management tools such as prior authorization in exchange for additional benefits such as reduced cost sharing, limits on out-of-pocket spending, and other benefits that MA plans can provide. On the one hand, these tools have the potential to promote more efficient care, including better quality outcomes. On the other hand, misapplication of these tools could lead to beneficiaries struggling with delays or denials of needed care. CMS currently regulates certain aspects of both of these tools, but limitations persist in current data collection and enforcement mechanisms.

This chapter details MA plans' use of provider networks and prior authorization, CMS's regulation of the use of these tools, and the data that MA plans currently report in these areas. In future work, the Commission will explore the implications of provider networks and utilization management tools such as prior authorization on beneficiaries' access to care, quality of care, and cost.

## In this chapter

- MA plans' provider networks
- Prior authorization in MA

## Provider networks in MA

One key distinction between MA and FFS Medicare is that MA beneficiaries trade the free choice of any provider participating in Medicare for a more managed set of relationships with providers in an MA plan's network. Being "in network" means that a provider has agreed to furnish covered services to plan members at specified payment rates. Networks can have positive implications for both cost and quality, such as filtering out low-performing providers. However, it is important to ensure that plans provide adequate access to the full range of statutorily defined Medicare benefits.

CMS has network adequacy standards for MA contracts that consist of minimum numbers of providers, maximum travel time and distance to providers, and maximum wait times. Some of the standards vary by rurality. For example, beginning in contract year 2021, CMS reduced the percentage of beneficiaries who must reside within the maximum time and distance thresholds in non-urban counties. Lowering thresholds for network adequacy in rural areas may decrease barriers for MA plans to enter new markets, but the reductions likely result in access discrepancies between rural and urban beneficiaries.

Using a three-year review cycle, CMS verifies that Medicare Advantage organizations are compliant with network adequacy criteria at the contract level. Audits can also be triggered under special circumstances, including when an enrollee files an access complaint, and all new contracts and service area expansions must demonstrate network adequacy as part of the application process. When gaps in a network are identified, CMS notifies plans of their noncompliance and provides a list of suitable providers with whom to contract; MA organizations must then either expand their network of providers or seek an exception to the network adequacy criteria. CMS denies a majority of these exception requests. CMS has the authority to impose sanctions for noncompliance with network adequacy standards but has never done so. However, new applications have been denied on this basis.

For CMS to be able to assess network adequacy, plans' provider directories must be accurate. Accurate provider directories are also crucial for beneficiaries, who rely on them to make informed decisions about enrolling in a plan and to find new providers once they are enrolled. However, maintaining an accurate record of contracted providers can be administratively burdensome for both plans and providers. Because of the logistical challenges

associated with keeping provider directories up to date and the potential adverse consequences of not doing so, CMS has proposed maintaining a national provider directory.

## **Prior authorization in MA**

MA plans can require enrollees to obtain prior authorization to access certain services, a practice that is not used to the same degree in FFS Medicare. Plans most often require prior authorization for relatively expensive services, such as certain Part B drugs, skilled nursing facility stays, and inpatient hospital stays (e.g., certain surgeries). A recent study found that the use of prior authorizations by MA plans increased from 2009 to 2019 for most service categories. In 2023, nearly all MA enrollees were in plans that required prior authorization for some categories of services; those requirements varied across MA plans. Because prior authorization requirements vary by service type and by plan, they can impact beneficiaries with certain conditions and some provider types and specialties more than others.

We analyzed the most recently available prior authorization determinations data that MA organizations report to CMS. In 2021, MA plans made about 37.5 million prior authorization determinations, or about 1.5 determinations per enrollee. Overall, we found that 95 percent of prior authorization requests had fully favorable decisions. The percentage of adverse prior authorization decisions varied across the largest MA organizations, with negative determination rates ranging from 3 percent to 12 percent. Providers or beneficiaries requested that MA plans redetermine 11 percent of negative prior authorization decisions in 2021. Eighty percent of those requests had fully favorable decisions. For those requests that had an unfavorable decision, an independent review entity upheld the MA plan's decision most of the time.

Prior authorization has been identified as a major source of administrative burden for many providers and can become a health risk for patients if policies affect the treatments that clinicians offer (e.g., step therapy requirements), inefficiencies in the process cause needed care to be delayed or abandoned, or poor decisions cause necessary care to be denied. Although only a small share of prior authorization requests have been denied, Office of Inspector General audits suggest that many denied requests should have been approved. CMS has recently finalized several regulatory changes

to address concerns about prior authorizations, such as requiring more transparency around MA organizations' internal coverage criteria and better communication of rationales for denied prior authorization requests. ■

The Commission has long held that Medicare Advantage (MA) presents opportunities to achieve higher-quality care at lower cost and to provide beneficiaries with choices to best meet their health care needs. Unlike traditional fee-for-service (FFS) Medicare, MA plans can use utilization management tools to contain spending and prevent beneficiaries from receiving unnecessary or low-value services. MA plans also have the ability to negotiate with individual providers to minimize cost and maximize quality. Beneficiaries who enroll in MA accept provider networks and utilization management tools such as prior authorization in exchange for additional benefits such as reduced cost sharing, limits on out-of-pocket spending, and other benefits that MA plans can provide.

However, aspects of the MA program need to be improved (Medicare Payment Advisory Commission 2024). Among other issues, the Commission has found that Medicare consistently spends more for beneficiaries enrolled in MA than the program would if the same beneficiaries were in FFS Medicare, by an estimated 22 percent in 2024 (Medicare Payment Advisory Commission 2024, Medicare Payment Advisory Commission 2023). The Commission has made several recommendations to improve the program, including:

- replacing the quality bonus program with a value incentive program that is budget neutral and evaluates MA organization performance at a local market level (Medicare Payment Advisory Commission 2020);
- addressing systematic differences between MA and FFS in the diagnostic coding on which the risk-adjustment model is based (Medicare Payment Advisory Commission 2016); and
- improving the accuracy and completeness of encounter data, which in their current state cannot be used to evaluate plan performance on multiple dimensions (Medicare Payment Advisory Commission 2019).

Managed care is premised on the idea that plans can both reduce low-value care and improve outcomes through increased oversight and coordination, selective negotiation with providers, and utilization and care management. To promote efficient care delivery,

plans can use value-based purchasing arrangements, shared savings, and quality bonuses for providers. Plans can also offer enrollees rewards and incentives (e.g., gift cards for receiving a flu shot, a breast cancer screening, or a health risk assessment) to encourage healthy behavior, improve health outcomes, and reduce costs. MA plans use utilization and network management tools to control service use, thereby controlling costs.

Yet stakeholders have increasingly voiced concerns about access to care in MA, specifically with respect to network adequacy and prior authorization. Beneficiaries can struggle with barriers to access, including insufficient provider networks and inaccurate information about in-network providers and their availability to see new patients, especially in specialties such as behavioral health. Prior authorization has been identified as a major source of administrative burden for many providers and can become a health risk for patients if policies affect the treatments that clinicians offer (e.g., step therapy requirements), inefficiencies in the process cause needed care to be delayed or abandoned, or poor decisions cause necessary care to be denied.

The Commission has not yet conducted a focused review of these topics. This chapter details MA plans' use of provider networks and prior authorization, CMS's regulation of the use of these tools, and the data that MA plans currently report in these areas. In future work, the Commission will explore the implications of MA provider networks and utilization management tools like prior authorization on beneficiaries' access to care, quality of care, and cost.

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## **MA plans' provider networks**

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Medicare Advantage organizations (MAOs) administer the Medicare benefit on behalf of CMS, through contracts that can span multiple states and market areas, some of which are noncontiguous. In each of these areas, they must negotiate with provider organizations to secure health care services for their enrollees. In our annual MA status reports, the Commission analyzes trends in MA (enrollment, plan availability, payments, risk coding practices, etc.) by plan type. Like the March status reports, this chapter focuses on the two most widely available plan

types—health maintenance organizations (HMOs) and preferred provider organizations (PPOs).<sup>1</sup> MA HMO networks tend to include a smaller set of physicians than PPOs, but they also tend to have lower cost sharing (Jacobson et al. 2017). MAOs can be strategic about the providers they decide to contract with, and these decisions can be consequential for enrollees.

While Medicare beneficiaries consistently rate choice of provider as an important factor in their health care coverage, many are willing to trade some degree of choice in exchange for reduced cost sharing, limits on out-of-pocket spending, or other benefits that MA plans can provide, such as dental and vision coverage. In our annual focus groups, beneficiaries report that a key factor when picking among plans is whether their doctor is “in-network” (Campanella et al. 2023).<sup>2</sup> Problems can arise when major network changes occur. When MA enrollees face difficulties finding an in-network provider, they may seek to disenroll from MA. In one of our focus groups, a beneficiary living in a rural area noted, “Some of the medical providers do not accept the Advantage plan. And so I went back to traditional Medicare because that was more acceptable in this area.”

Networks can have positive implications for both cost and quality, such as filtering out low-performing providers, but they are also complex entities, and access to health care is multifaceted. Thus, it can be difficult to ensure that plans provide adequate access to the full range of statutorily defined Medicare benefits. In this section, we provide background on network types in MA and discuss network adequacy and the accuracy of provider directories.

### **Payment responsibility and cost sharing across MA network types**

MA plan types are permitted to have varying network designs and may apply different rules for seeking out-of-network care. HMOs, which in March 2024 enrolled 11.7 million of the 33.2 million MA enrollees nationwide, generally do not reimburse enrollees for care delivered by out-of-network (OON) providers.<sup>3</sup> They often require that enrollees select an in-network primary care provider (PCP), who manages referrals to specialists. However, HMO point-of-service (HMO-POS) plans allow their 6.8 million enrollees to seek care without a PCP referral or from an OON provider

in certain circumstances, but these plans generally require higher cost sharing when enrollees pursue care via those routes. MA PPOs, which enrolled 14.6 million beneficiaries in March 2024, provide more flexibility for enrollees by not requiring a named PCP and allowing enrollees to see both in- and out-of-network specialists without a referral.<sup>4</sup> However, these plans generally have both higher premiums than HMOs and higher cost sharing for OON providers compared with in-network providers.

Unlike FFS beneficiaries, beneficiaries enrolled in MA have a cap on their out-of-pocket spending. In 2023, the average out-of-pocket maximum was \$4,835 for in-network services across all plans and \$8,659 across both in-network and OON services for PPO enrollees (Ochieng et al. 2023).

When an enrollee goes out of network for a service, beneficiary and plan liability vary by plan type. Table 2-1 summarizes the OON enrollee cost sharing and plan liability in different plan types for different scenarios. In the event that an in-network provider cannot be identified for a medically necessary service for an MA enrollee, CMS requires that the plan (whether HMO or PPO) allow the enrollee to pay in-network cost sharing to receive the service from a noncontracted provider.<sup>5,6</sup> The use of OON sources of care (especially by HMO enrollees) could be an important indicator of network adequacy.

### **Network adequacy**

Statutorily, MA plans may use their discretion to specify the providers from whom their enrollees must receive services, provided that the network is sufficient for enrollees to reasonably access all Medicare-covered services (and contracted extra benefits).<sup>7</sup> What this discretion means in practice, however, is difficult to specify. A plan’s network adequacy can be determined in a number of ways. For instance, standards can be defined in terms of:

- minimum provider numbers to meet the needs of a population
- maximum travel time and/or distance between enrollees and providers
- maximum wait times for receipt of services

**TABLE  
2-1**

**Out-of-network coverage by plan type**

	<b>Scenario</b>	<b>Enrollee liability</b>	<b>Plan liability</b>
HMO	Medically necessary service or provider unavailable in network	In-network cost-sharing amount	At least FFS amount, less enrollee cost sharing
	Enrollee chooses to go out of network for any other reason	Full liability for provider charge (not to exceed 100% of FFS amount)	None
HMO-POS	Enrollee chooses to go out of network for a prespecified service or provider type	Fixed copay or coinsurance, usually higher than in-network amount	At least FFS amount, less enrollee cost sharing
	Enrollee chooses to go out of network for any other reason	Full liability for provider charge (not to exceed 100% of FFS amount)	None
PPO	Enrollee chooses to go out of network for any reason	Fixed copay or coinsurance, usually higher than in-network amount	At least FFS amount, less enrollee cost sharing

Note: HMO (health maintenance organization), FFS (fee-for-service), HMO-POS (HMO point of service), PPO (preferred provider organization).

Source: Centers for Medicare & Medicaid Services 2016a; Centers for Medicare & Medicaid Services 2015.

- cultural, linguistic, and other competencies of providers
- inclusion of essential community providers

CMS has network adequacy standards for 13 facility types and 29 provider types, which are evaluated at the contract level rather than the plan level (Centers for Medicare & Medicaid Services 2023d).<sup>8,9,10</sup> (Unlike qualified health plans on the individual market, MA plans are not required to contract with a minimum number of “essential community providers” who serve primarily low-income and medically underserved populations (e.g., federally qualified health centers, critical access hospitals) (Kaiser Family Foundation 2022).) However, contracts must demonstrate network adequacy in each county in which they operate. CMS

requires MAOs to contract with a minimum number of each type of provider and facility and requires that those providers and facilities be accessible to beneficiaries within maximum travel time and distance standards that vary by geographic designation (Counties with Extreme Access Considerations (CEAC), rural, micropolitan, metropolitan, large metropolitan). Generally speaking, longer times and distances between enrollees and providers are allowable in increasingly rural locations. Beginning in 2024, plans are also expected to demonstrate adequacy on the timeliness and communication competencies of providers.

**Minimum number of providers**

The minimum number of providers required to meet the standard in a service area is determined by the

product of the *minimum ratio* and the *number of beneficiaries required to cover*. The *minimum ratio* is the number of providers or beds required per 1,000 beneficiaries. Minimum ratios are developed for each provider specialty type and are based on several data sources, including FFS claims, association-led workforce and productivity surveys, U.S. Census Bureau data, and published literature. The *number of beneficiaries required to cover* is an estimate of potential enrollment in a plan. It represents the minimum population that a plan's network should be able to serve, such that:

<b>Number of beneficiaries required to cover</b>	=	95th percentile base population ratio	×	total Medicare beneficiaries residing in county
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The 95th percentile base population ratio represents the share of beneficiaries enrolled in the plan with the 95th percentile of enrollment in the county (that is, 95 percent of plans in that county have fewer enrollees). In 2024, plan networks must be sufficient to serve at least 7.9 percent of beneficiaries in large metropolitan counties and at least 13.3 percent of enrollees in CEAC.

The minimum provider-to-beneficiary ratio is established nationally and varies by both specialty type and geographic designation.<sup>11</sup> Minimum ratios range from 0.01 per 1,000 beneficiaries for cardiothoracic surgeons in all areas to 1.67 for PCPs in urban areas, resulting in minimum numbers of 1 for most provider types in most areas. Minimum-number standards for primary care and for metropolitan areas are generally larger than for other providers and areas. For instance, the average minimum number of PCPs in large metropolitan counties is 29.4, compared with 8.4 PCPs in metropolitan counties and 1.2 in rural counties. By contrast, plans in large metropolitan counties must contract with at least 2.6 gastroenterologists on average, whereas in all other areas the minimum standard is 1.

Across all areas, CMS sets a minimum standard of at least 12.2 beds at contracted acute inpatient hospitals for every 1,000 Medicare beneficiaries.<sup>12</sup> No other facility types have a minimum number standard, but they do have maximum travel time and distance standards. By default, the lack of a minimum number

standard means that the 12 other named facility types have a minimum number threshold of 1.

### Maximum travel time and distance standards

Maximum travel time and distance standards vary by facility type and range from 20 minutes/10 miles in large metropolitan areas to 155 minutes/140 miles for some facility types in CEACs. To satisfy the time and distance standards, at least 90 percent of enrollees residing in metropolitan or large metropolitan counties must be able to access at least one in-network provider and facility of each type within the time and distance standards. Beginning in contract year 2021, CMS reduced the percentage of beneficiaries who must reside within the maximum time and distance standards from 90 percent to 85 percent in non-urban counties (CEAC, rural, and micropolitan). For example, 85 percent of the beneficiaries in a standard rural county would have to be within 40 minutes of a primary care provider and within 75 minutes of a skilled nursing facility (Centers for Medicare & Medicaid Services 2023d, Centers for Medicare & Medicaid Services 2020). In a CEAC, the same percentage of beneficiaries would have to be within 70 minutes for primary care and 95 minutes for skilled nursing facilities.

The 2021 revised standards also provide two routes for plans to receive “credit” toward meeting travel time and distance standards: (1) plans can receive a 10 percentage point credit toward the percentage of beneficiaries within time and distance standards by contracting with telehealth providers in 12 specialties (out of 29 specialties),<sup>13</sup> and (2) they can receive an additional 10 percentage points for affected provider and facility types in states that have certificate-of-need (CON) laws or other anticompetitive measures that restrict the number of providers or facilities in the state. These credits, along with the reduction in the percentage of beneficiaries needed to meet the rural threshold, are additive. For example, to satisfy network adequacy requirements for dermatology in a rural county in a CON law state, an MA plan that contracts with a telehealth dermatologist would only need to demonstrate that 65 percent of beneficiaries in that county would be able to reach an in-person dermatologist within the maximum travel time and distance. This reduced standard means that 65 percent of the beneficiaries in a typical rural county would have to be within 75 minutes of an in-network dermatologist (110 minutes in a CEAC).

These reductions in the thresholds to meet network adequacy standards reflect an effort by CMS to encourage the entry of new MA plans into rural areas (Centers for Medicare & Medicaid Services 2020). However, it is incumbent upon the Medicare program to ensure that MA plans can provide access to all services covered under the Medicare benefit. In cases where a medically necessary provider is not available in network (e.g., a subspecialist), plans must arrange for the enrollee to get those services on an ad hoc basis, with in-network cost sharing. Further analysis is needed to determine whether the “credited” standards are sufficient to support adequate access to care for rural enrollees.

### **Recent changes to CMS network adequacy requirements**

Beginning in 2024, plans have one further opportunity to receive “credit” toward network adequacy requirements. Contracts applying for new or expanded service areas receive a 10 percentage point reduction in the required number of beneficiaries (potential enrollees) within travel time and distance standards in the provisional service area. New plans may use letters of intent (LOIs) cosigned by the MAO and provider organizations with whom they intend to negotiate contracts, in lieu of signed contracts, to demonstrate network adequacy. By the beginning of the applicable contract year, LOIs are no longer an acceptable means of meeting the network standards, and MAOs must have signed contracts with providers to comply with the standard.

Beyond these changes, CMS directs plans to establish standards for the timeliness of primary care services and to communicate these standards to contracting providers. For instance, plans may stipulate that urgently needed or emergency services must be accessible “immediately”; services that are not urgently needed but require medical attention must be rendered within 7 business days; and routine and preventive care must be accessible within 30 business days. As of this year, these standards have been codified and extended to behavioral health care services, meaning that this expectation is uniform across plans and providers. CMS has not proposed any new monitoring or enforcement mechanisms alongside these changes to adequacy standards. The agency has announced that it will continue to conduct triennial audits of network

adequacy (discussed below) and to monitor complaints as indicators of potential access problems.

### **Network adequacy audits**

MA plans are expected to maintain and monitor their networks for adequacy on an ongoing basis and to submit documentation demonstrating compliance when requested. Historically, MAOs were only required to attest to the adequacy of their networks once, at the application stage. A 2015 Government Accountability Office (GAO) report found that, from 2013 through 2015, CMS reviewed less than 1 percent of all MA networks (Government Accountability Office 2015). Since that time, CMS instituted a three-year review cycle (also known as the triennial audit) to verify that plans are compliant with the network adequacy criteria. Annually, CMS selects a subset of contracts for review, generally those with the longest time since the previous audit. Plans enter their provider network information into a web application, which generates an automated evaluation of their compliance with the standards. If they are found to be out of compliance at this stage, plans must either find additional providers with whom to contract or request exceptions to the criteria, for which they must submit additional supporting documentation.

In addition to the routine network adequacy audit conducted every three years, audits can be triggered under certain circumstances:

- An MAO applies to offer a new contract or expand the service area of an existing contract.
- A “significant” contract between an MAO and provider or facility is terminated.<sup>14</sup>
- CMS receives a network access complaint from or on behalf of an enrollee.
- An MAO identifies a network gap and discloses to CMS that their network is out of compliance.

In 2021, CMS audited about 25 percent of MA contracts (183 contracts) for network adequacy, covering about three-fourths of all U.S. counties (2,297 counties) across 49 states, Puerto Rico, and the District of Columbia.<sup>15</sup> MAOs were required to submit evidence of each contract’s relationships with providers and facilities, which were evaluated against minimum number and

travel time and distance standards using the web application mentioned above. For cases in which the documented relationships were insufficient to meet standards, MAOs could either bring themselves into compliance by negotiating with additional providers and resubmit their information or they could request an exception to the criteria. Facility exception requests were submitted by 33 contracts, and provider exception requests were submitted by 64 contracts. In total, 448 exception requests were submitted. Table 2-2 summarizes the outcomes of exception requests by geographic designation, specialty type, and plan type.

In 2021, 259 out of the 448 requests for exceptions to the network adequacy requirements were denied (58 percent). Requests were fairly evenly distributed across geographic designations and specialty types (Table 2-2). For instance, the specialty for which plans requested exceptions most frequently, ophthalmology, comprised only 7 percent of requests, or 32 requests nationally. The volume of requests and their outcomes differed by plan type, however, with nearly 3 times as many requests from HMOs as PPOs (311 vs. 131, respectively). Further, a full two-thirds of requests by HMOs were denied, whereas only 35 percent of requests by PPOs were denied.<sup>16</sup>

The most commonly cited reason for denial of a network adequacy exception request was: “CMS identified provider(s)/facility(ies) located within CMS network adequacy criteria that [the MAO] failed to include on Exception Request and/or HSD [health service delivery] table(s).” In such cases, CMS supplied the names and addresses of said providers to the MAO alongside the denial. CMS has the authority to impose intermediate sanctions or civil monetary penalties for noncompliance with network adequacy standards, but it has never done so. However, new applications have been denied on this basis.

### **MA plans’ provider directories and accuracy of plans’ network information**

Accurate information about the providers included in an MA plan’s network is crucial for beneficiaries because it enables them to make informed decisions about, first, enrolling in a plan and, subsequently, seeking health care services. As described above, MA enrollees incur higher cost sharing when seeking care outside their plan’s provider network. CMS requires

MAOs to disclose information to enrollees about a plan’s service area and contracted providers in the form of a provider directory at the time of enrollment and at least annually thereafter. This directory must also be made available through the Medicare.gov Plan Finder tool.

### **CMS network disclosure requirements**

MA plan provider directories must include the names, specialties, addresses, and phone numbers of in-network providers, as well as indications of providers accepting new patients, providers offering medications for opioid use disorder, any restrictions on access to certain providers (e.g., providers that require a referral from a PCP), and, beginning in 2024, the language and cultural competencies of those providers (whether those are provided directly or through an interpreter). Plans must disclose the extent to which enrollees may choose their providers, including OON and POS coverage, procedures for enrollees to secure in-network cost sharing when a covered service cannot be accessed through a contracted provider, and provisions for emergency and urgently needed services.

MAOs must notify enrollees of changes in a provider network resulting from the termination—with or without cause—of a contract with a provider organization. For primary care or behavioral health provider changes, notice must be given at least 45 days prior to the termination of the contract. For specialist providers, this notice must be given at least 30 days prior to the termination effective date.<sup>17</sup> Enrollees who are impacted by provider terminations may contact 1-800-MEDICARE to request consideration for a special election period to switch to another MA plan or FFS Medicare (depending on the enrollee’s circumstances and state of residence, they may not be eligible to purchase a Medigap policy or it may cost them more). Throughout the course of network transitions or disruptions, plans are responsible for ensuring network adequacy, which may entail allowing enrollees to incur in-network cost sharing for care from OON providers when a suitable provider is not accessible in network.

### **Challenges maintaining MA provider directories**

Changes to provider networks happen routinely; annual negotiations between MAOs and providers in a local

**TABLE  
2-2**

**CMS denied more than half of the requests for network adequacy exceptions received in 2021**

	Request approved		Request denied		Review not needed <sup>a</sup>		Total requests	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
County designation								
Large metropolitan	18	20%	69	75%	5	5%	92	21%
Metropolitan	40	26	76	49	40	26	156	35
Micropolitan	36	36	53	54	10	10	99	22
Rural	22	28	48	61	9	11	79	18
CEAC	8	36	13	59	1	5	22	5
Top 5 specialties <sup>b</sup>								
Ophthalmology	9	28%	15	47%	8	25%	32	7%
Cardiac surgery	9	35	16	62	1	4	26	6
Gastroenterology	9	39	10	44	4	17	23	5
Cardiothoracic surgery	9	41	11	50	2	9	22	5
Allergy & immunology	10	48	11	52	0	0	21	5
Plan type								
HMO/HMO-POS	53	17%	209	67%	49	16%	311	69%
PPO	71	54	46	35	14	11	131	29
Unidentified <sup>c</sup>	0	0	4	67	2	33	6	2
<b>Total</b>	<b>124</b>	<b>28%</b>	<b>259</b>	<b>58%</b>	<b>65</b>	<b>15%</b>	<b>448</b>	<b>100%</b>

Note: CEAC (Counties with Extreme Access Considerations), HMO (health maintenance organization), HMO-POS (HMO point of service), PPO (preferred provider network). Percentages may not sum to 100 due to rounding. Percentages are row-wise, except for "total requests," which are within each tranche (county designation, specialty, plan type).

<sup>a</sup>MA organizations proactively send in exception requests. "Review not needed" signifies that CMS has reviewed the submission but has determined that it was not necessary to request an exception in the particular case.

<sup>b</sup>"Top 5 specialties" refers to the specialties for which plans most frequently requested a network adequacy exception.

<sup>c</sup>Plans that made 6 out of 448 exception requests did not have an identifiable plan type in the enrollment file. This absence could indicate a new application that did not materialize.

Source: MedPAC analysis of CMS reviews of 2021 requests for network adequacy exceptions and 2022 enrollment data.

area may lead to different contracting decisions, with the inclusion of new providers and/or the exclusion of some that were previously in network. Individual clinicians may move offices, retire, switch jobs, or change names over the course of the year. However, the current system for generating and maintaining provider directories is costly and inefficient. Plans maintain their own directories, and provider groups must submit their information to every plan they

contract with. Practices must submit directory data to, on average, 20 separate payers.

Yet plans have little recourse if providers do not update their information regularly. Many plans rely on third-party vendors to validate the data that providers submit, but inaccuracies are rampant. In a 2018 evaluation of the accuracy of MAOs' online directories, CMS found that roughly half of directories had at least one inaccuracy, and inaccurate listings

comprised up to 93 percent of one directory (Centers for Medicare & Medicaid Services 2018). In 2021, CMS began publicly reporting the names and national provider identifiers of providers whose contact information was incomplete or out of date. However, Butala and colleagues found that the reporting requirements alone have been insufficient to remedy the inaccuracies of provider information (Butala 2023). They found that, by the second half of 2022, 81 percent of directory entries (covering nearly 500,000 physicians) still contained inaccuracies.

### **Accuracy of provider directories and network adequacy**

The accuracy of provider directories is not fully separable from the issue of network adequacy. In a 2022 report, GAO highlighted a health insurance phenomenon—which stakeholders termed a “ghost network”—in which mental health care providers might be listed in a directory but on further investigation were found to be either out of network or not taking new patients (Government Accountability Office 2022). This discrepancy resulted in enrollees being functionally unable to access behavioral health services. This finding, for both MA and other insurance markets, has been replicated in academic studies (Burman and Haeder 2022, Busch and Kyanko 2020, Haeder et al. 2016, Zhu et al. 2022). The problem of widespread inaccuracies leading to inaccessible service lines has been observed in dermatology as well (Resneck et al. 2014).

Some academics advocate for more proactive monitoring on the part of CMS and—more importantly—stiffer enforcement mechanisms and penalties for noncompliance (Burman and Haeder 2021). The compliance actions issued to MAOs as a result of the 2018 CMS directory accuracy report were, in order of increasing severity, 22 notices of noncompliance, 19 warning letters, and 12 warning letters with a request for a business plan (Centers for Medicare & Medicaid Services 2018). Potential opportunities to address these concerns and logistical challenges include establishing a national provider directory, as discussed in a 2022 CMS request for information (Centers for Medicare & Medicaid Services 2022c), or allowing beneficiaries to search by provider in the Medicare.gov Plan Finder, to ensure that they are able to make informed plan choices.

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## **Prior authorization in MA**

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Utilization management tools are another way health plans can coordinate and manage care and control service use. Prior authorization (also called “precertification” and “preservice determination”) is an example of a utilization management process by which a provider requests approval from a payer before performing a service, providing a medical item, or prescribing a drug. Prior authorization is designed to help health plans determine the medical necessity of services and minimize unnecessary services, thereby helping to contain costs and protect patients from receiving unnecessary care. Prior authorization policies can also deter providers from offering low-value care.

MA plans can require enrollees to obtain prior authorization to access certain services, a practice that is not used to the same degree in FFS Medicare.<sup>18,19</sup> Nearly all MA enrollees are in plans that require prior authorization for some categories of services, and those requirements can vary across MA plans. In 2021, MA plans fully approved the vast majority of prior authorization requests they reviewed. When a provider or beneficiary asked the MA plan to reconsider an unfavorable decision, MA plans approved the majority of those reconsiderations. For those reconsiderations that had an unfavorable decision, an independent review entity upheld the MA plan’s decision most of the time. Prior authorization has been identified as a major source of administrative burden for providers and can become a health risk for patients if policies affect the treatments clinicians offer (e.g., step therapy requirements), inefficiencies in the process cause needed care to be delayed or abandoned, or poor decisions cause necessary care to be denied. Because MA plan prior authorization requirements vary by service type, they can impact beneficiaries with certain conditions and some provider types/specialties more than others.

### **Medicare coverage requirements for MA plans**

The Medicare program covers a wide range of health care services when they are medically necessary for beneficiaries.<sup>20</sup> MA plans are required to provide the same set of benefits that are available under FFS Medicare, except that FFS Medicare covers hospice care and certain services associated with clinical trials under Medicare’s Clinical Trials Policy for MA enrollees.

MA plans must follow Medicare's national and local coverage policies. When Medicare coverage criteria are not fully established, MA organizations may create publicly accessible internal coverage criteria that are based on current evidence in widely used treatment guidelines or clinical literature (Centers for Medicare & Medicaid Services 2023e, Centers for Medicare & Medicaid Services 2016a). MA plan clinical criteria are typically more detailed than Medicare coverage rules and are intended to assist with clinical decision-making. MA plans must provide beneficiaries with an annual Evidence of Coverage document that gives an overview of coverage requirements and beneficiary cost sharing. MA plans are also required to make available their coverage criteria on a publicly accessible website. (Some of these requirements are recent changes; see below (p. 84).)

### **The MA prior authorization determinations and appeals process**

The MA prior authorization and appeals process is complex and involves multiple levels (Figure 2-1, p. 80). MA determination and appeal procedures apply to all benefits offered under an MA plan, including optional extra benefits. MA plans must establish procedures for making decisions about whether to approve or deny prior authorization requests (Centers for Medicare & Medicaid Services 2022b). MA plans' clinical staff review prior authorization requests to determine whether items and services are medically necessary and reasonable for the beneficiary and whether they meet Medicare and MA plan coverage rules. Typically, the process begins when a provider submits to an MA plan a request for prior authorization for an enrollee to receive a health care service or item (e.g., durable medical equipment). Once the request is received, the MA plan must decide as expeditiously as the enrollee's health condition requires. An MA plan must provide notice of its prior authorization determination within 72 hours after receiving an expedited request or 14 days after receiving a standard request. If the enrollee or their provider believes that waiting 14 days could seriously harm the enrollee's life, health, or ability to regain maximum function, they can request an expedited decision.

If the MA plan's prior authorization review results in a determination that is adverse to the enrollee's request, the enrollee has several options. They might elect not

to receive the service, elect to receive the service and pay for it out of pocket, or request a reconsideration from the plan. Plans are required to send a written denial notice that informs enrollees of their right to file a reconsideration request and their right to be represented by a relative, attorney, or other party. The reconsideration must be requested within 60 days of the coverage determination. A reconsideration consists of a review of an adverse initial determination, the evidence and finding on which it was based, and any other evidence that the parties submit or that is obtained by the plan. If the initial denial was based on a lack of medical necessity, then the reconsideration review must be performed by a physician with expertise in the appropriate field of medicine for the item or service in question.

If the MA plan upholds the adverse decision after reconsideration, the MA plan must automatically forward the case file and its decision to an independent review entity (IRE), which is an outside organization under contract with CMS. The IRE is required to issue a reconsideration decision notice that contains specific reasons for the entity's decision and, in the case of an adverse decision, information for the enrollee regarding their right to proceed to an administrative law judge (ALJ) if the claim (e.g., cost of the service) exceeds the amount in controversy (AIC) threshold.<sup>21</sup> If the enrollee remains dissatisfied and their case involves an amount that meets a predetermined AIC threshold (\$180 in 2024), they may appeal to an ALJ. The enrollee must file a request for a hearing within 60 calendar days of the written notice of a reconsideration.

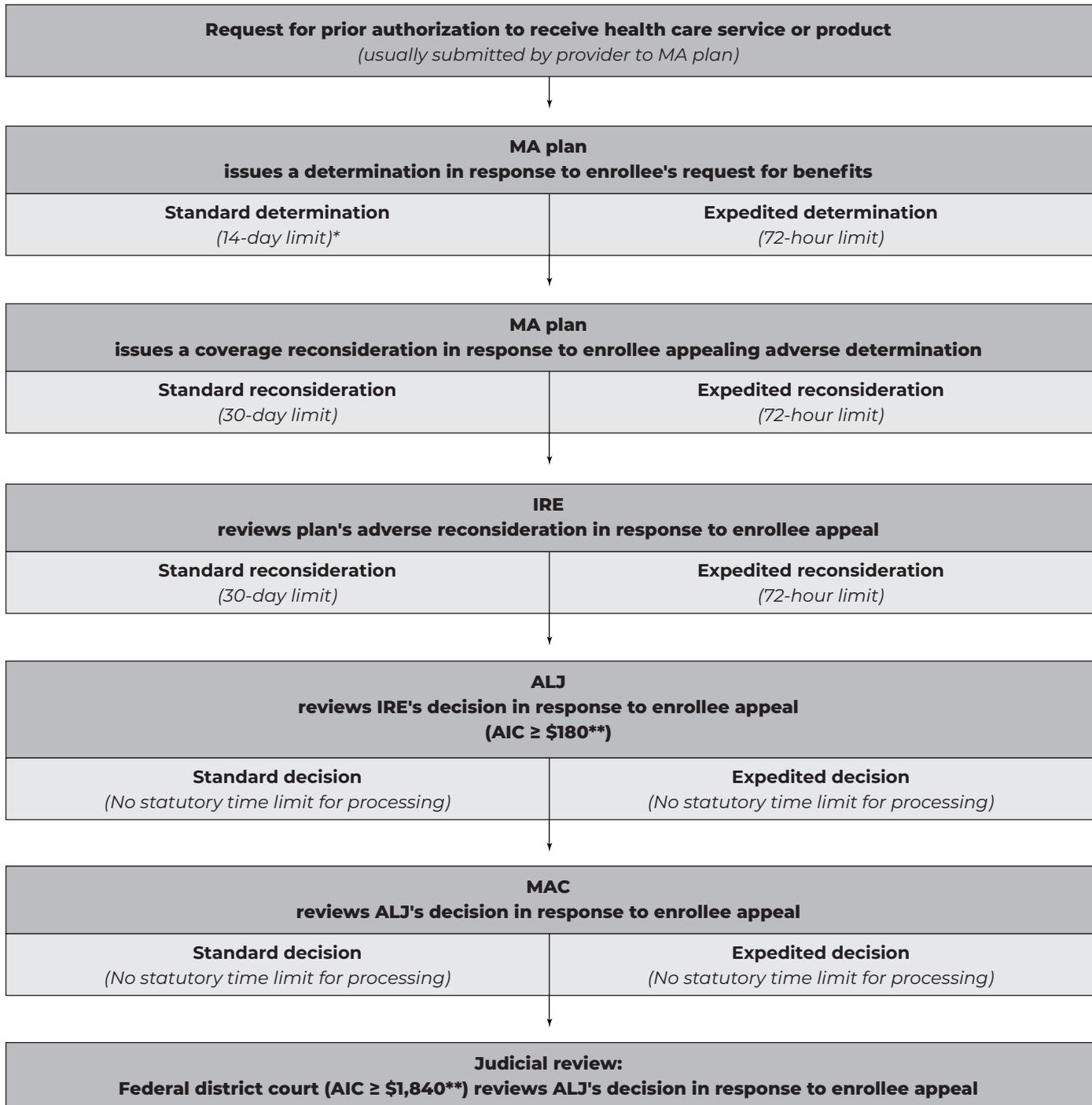
The next phase of the appeals process is the Medicare Appeals Council (MAC), an independent review board that issues final decisions for CMS. There is no set amount in question required to proceed to this level of appeal. A request for a review from a MAC must also be filed within 60 calendar days of the receipt of the ALJ's written decision notice. Finally, the enrollee may take the claim to federal district court, as long as the AIC exceeds the specified dollar threshold (\$1,840 in 2024). The case must be initiated in the judicial district in which the enrollee lives or the MAO is located.

### **CMS oversight of MA plan prior authorizations**

CMS has several tools to oversee MA plans' use of prior authorization. First, each year, CMS audits a sample

**FIGURE  
2-1**

**Medicare Advantage prior authorization and appeals process**



Note: MA (Medicare Advantage), IRE (independent review entity), ALJ (administrative law judge), AIC (amount in controversy), MAC (Medicare Appeals Council). A request for a coverage determination or an appeal can be submitted by an enrollee, the enrollee's prescribing physician, or the enrollee's authorized representative. The time periods in parentheses are the amount of time the entity has to make its decision. If, at any level of the appeals process, a decision is fully favorable (i.e., service fully approved for coverage and payment), then the appeals process for that request ends.

\*Beginning in 2026, MA plans will have seven days to respond to standard determination requests.

\*\*AICs shown are for 2024.

Source: CMS managed care appeals flow chart (Centers for Medicare & Medicaid Services 2022b).

of MAOs in several program areas, including coverage determinations and appeals, to measure compliance with the terms of its contract with CMS. During the audits, CMS reviews a sample of MA plan denials to determine whether they were appropriate, but CMS does not calculate a rate of inappropriate denials. CMS requires MAOs to implement corrective action plans to address any audit violations and to demonstrate that they have substantially corrected deficiencies before the audit is officially closed. CMS may impose civil monetary penalties and sanctions for serious violations identified through audits.

Second, as described in more detail below, MA contracts are required to report the number of determinations and reconsiderations for services requested by enrollees and the outcomes of the reviews. CMS can use these data to oversee MA contracts' overall denial and appeal rates. Third, CMS collects and publicly reports on Medicare.gov's Plan Finder two administrative measures of the decisions in the IRE step of the appeals process: (1) whether a health plan makes timely decisions about appeals (how fast a plan sends information for independent review) and (2) the fairness of the health plan's appeal decisions as assessed by an independent reviewer (how often the independent reviewer found the health plan's decision to deny coverage to be reasonable) (Centers for Medicare & Medicaid Services 2022a). These measure results are used in calculating the star ratings and are assigned the highest weight when calculating the ratings.

### **Use of prior authorization and appeals in MA**

MA contracts are required to report to CMS what categories of health care services require prior authorization. MA contracts must also report the aggregate number of determinations and reconsiderations for services requested by enrollees or providers, as well as the outcomes of the reviews.<sup>22</sup> CMS also reports on the decisions in the IRE step of the appeals process. However, there are several gaps in the information that CMS currently collects from MA insurers. For example, MA contract-level reporting does not allow us to compare rates of prior authorization and outcomes by plan type (e.g., HMO and HMO-POS, which can be governed under the same contract). Also, because MA contracts are required to

report aggregate data, we are unable to report prior authorization requests or outcomes by service type, specialty, or beneficiary characteristic.

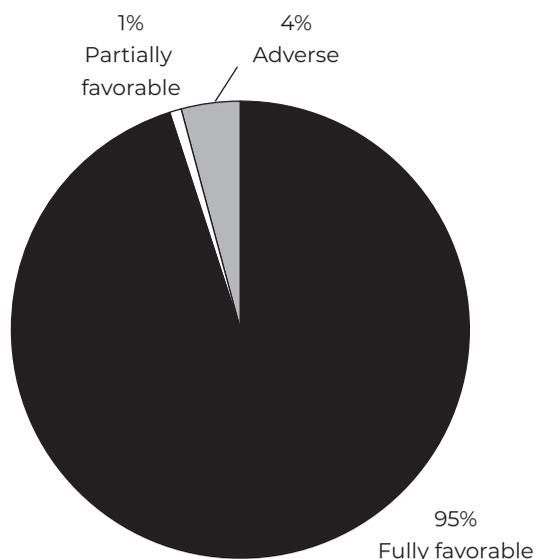
A recent study found that the use of prior authorizations by MA plans increased from 2009 to 2019 for the majority of service categories (Neprash et al. 2024). In 2023, nearly all MA enrollees (99 percent) were in plans that required prior authorization for some categories of services (Ochieng et al. 2023). Prior authorization is most often required for relatively expensive services, such as certain Part B drugs, skilled nursing facility stays, and inpatient hospital stays (e.g., certain surgeries), and is rarely required for preventive services. Prior authorization is also required for the majority of enrollees for some extra benefits (in plans that offer these benefits), including comprehensive dental services, hearing and eye exams, and transportation.

Relative to FFS, a large number of the services sought by MA enrollees (or by providers on their behalf) may be subject to prior authorization. In a recent study, Schwartz and colleagues studied the scope of prior authorization by applying a private insurer's MA prior authorization rules to the medical services provided to FFS Medicare beneficiaries under Medicare Part B (Schwartz et al. 2021). They identified medical services that would be subject to prior authorization, but not the outcome of the prior authorization (i.e., approval or denial). They found that 41 percent of FFS beneficiaries in their sample received at least one service per year that would have been subject to prior authorization under an MA plan's prior authorization requirements. Part B drugs/injectables accounted for the largest share of prior authorization services, followed by radiology services, then musculoskeletal services. Physician specialties varied widely in rates of services that required prior authorization, with the highest rates among radiation oncologists (97 percent), cardiologists (93 percent), and radiologists (91 percent) and lowest rates among pathologists (2 percent) and psychiatrists (4 percent). Thus, beneficiaries with certain conditions and certain physician specialties are more subject to prior authorization policies than others. Researchers also applied to Medicare FFS claims prior authorization policies for five insurers that service most of the beneficiaries covered by MA plans and found similar findings (Gupta et al. 2024). They also concluded that

**FIGURE  
2-2**

**Vast majority of MA prior authorization determinations were fully approved, 2021**

Total = 37.5 million MA prior authorization determinations



Note: MA (Medicare Advantage). MA organizations submit the required data at the contract level to CMS, and CMS performs a data validation check. There are three types of determinations resulting from an MA plan's prior authorization review: (1) fully favorable (i.e., service fully approved for coverage and payment), (2) partially favorable (i.e., coverage and payment for service approved at a reduced level or another service altogether is approved, such as 5 therapy visits approved instead of the 10 visits requested); or (3) adverse (i.e., denial of coverage and payment).

Source: MedPAC analysis of determinations and reconsiderations—Part C data from the CMS Part C and Part D reporting requirements public use file, 2021.

prior authorization policies varied substantially across insurers, suggesting little consensus on what specific services require prior authorization.

MA plans made about 37.5 million prior authorization determinations in 2021, which is about 1.5 determinations per enrollee.<sup>23</sup> The number of prior authorization determinations varied across the five largest MAOs, from 0.3 determinations per enrollee to 2.8 determinations per enrollee.

In the CMS-collected data, there are three types of determinations resulting from an MA plan's prior authorization review: (1) fully favorable (i.e., service fully approved for coverage and payment);

(2) partially favorable (i.e., coverage and payment for service approved at a reduced level or another service altogether is approved, such as 5 therapy visits approved instead of the 10 visits requested); or (3) adverse (i.e., denial of coverage and payment). Though a substantial number of services may be subject to prior authorization, overall we found that 95 percent of prior authorization requests in 2021 had fully favorable decisions. Just 1 percent of prior authorization requests had partially favorable decisions, and 4 percent had adverse decisions (5 percent partially or fully negative) (Figure 2-2). However, the percentage of negative prior authorization decisions varied across the largest MAOs, with negative determination rates ranging from 3 percent to 12 percent (data not shown).

As described above, enrollees and providers can appeal negative prior authorization determinations if they disagree with the MA plan's coverage decision. In 2021, MA plans reconsidered about 229,000 initial determinations, or 11 percent of initial partially favorable and adverse prior authorization decisions (Figure 2-3). Eighty percent of the reconsideration requests had fully favorable decisions, 1 percent had partially favorable decisions, and 18 percent had adverse decisions. The share of initial partially favorable and adverse prior authorization decisions that were appealed and subsequently reconsidered varied across MA organizations, from 2 percent to 21 percent of negative decisions reconsidered.

As noted above, if the MA plan upholds the adverse decision after reconsideration, the case file must be forwarded to the IRE. The appeals data that the IRE reports to CMS are structured differently from the reconsideration data that MA plans report, so we cannot clearly identify how many of the adverse MA prior authorization reconsiderations are reviewed by the IRE.<sup>24</sup> We can report that cases reviewed by the IRE mostly upheld MA plan determinations. In 2021, 96 percent (or about 50,000) of the expedited and preservice cases reviewed were decided unfavorably by the IRE (i.e., the IRE upheld the MA plan's determination) (Centers for Medicare & Medicaid Services 2023c). CMS also publishes short summaries of the IREs' decisions on all Part C appeals (Centers for Medicare & Medicaid Services 2023b). We reviewed and categorized the summaries of the appeals for a snapshot of time. We found that about half of the upheld IRE decisions were requests to preapprove

acute inpatient rehabilitation facility admissions and services, 20 percent were for durable medical equipment, and 10 percent were for acute inpatient surgeries. Again, beneficiaries with certain conditions and certain providers may be more affected by prior authorization policies.

### Concerns about MA prior authorization

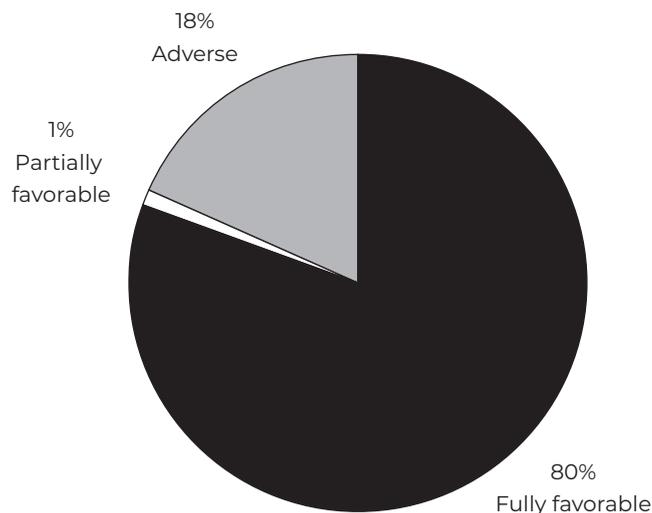
Over the years, stakeholders have increasingly voiced concerns about MA prior authorization requirements and processes: specifically, that MA plans are inappropriately denying prior authorization requests; that providers find prior authorization to be an increasing burden; and that prior authorizations may cause enrollees to delay care, abandon care, or pay out of pocket (American Medical Association 2023, Office of Inspector General 2022).

Although only a small share of prior authorization requests are denied, CMS audits suggest that many denied requests should actually have been approved (Office of Inspector General 2018). The Office of Inspector General (OIG) found that CMS cited about half of audited MA contracts in 2015 for inappropriately denying prior authorization requests, for sending insufficient denial letters, and for missing required information such as why the request was denied or how to appeal. OIG also found that 75 percent of denial appeals were fully or partially successful, raising concerns that MA plans were denying services and payments that should have been approved initially. A 2022 follow-up OIG report examined a subset of denied prior authorization requests to assess the extent to which the denied requests met Medicare coverage rules and thus would likely have been allowed in FFS Medicare (Office of Inspector General 2022). OIG's case file review found that among the prior authorization requests that MA plans denied, 13 percent met Medicare coverage rules: In other words, these services likely would have been covered for these beneficiaries under FFS Medicare. OIG identified two common causes of these denials. First, MA plans used clinical criteria that are not contained in Medicare coverage rules (e.g., requiring an X-ray before approving more advanced imaging), which led the plans to deny requests for services that OIG physician reviewers determined were medically necessary. (Note that beginning in 2024, CMS prohibits MA plans from applying clinical criteria that are not

**FIGURE 2-3**

### Majority of MA prior authorization reconsiderations were fully approved, 2021

Total = 229,000 MA prior authorization reconsiderations



Note: MA (Medicare Advantage). MA organizations submit the required data at the contract level to CMS and CMS performs a data validation check. There are three types of determinations resulting from an MA plan's prior authorization review: (1) fully favorable (i.e., service fully approved for coverage and payment), (2) partially favorable (i.e., coverage and payment for service approved at a reduced level or another service altogether approved, such as 5 therapy visits approved instead of the 10 visits requested), or (3) adverse (i.e., denial of coverage and payment). Components do not sum to 100 percent due to rounding.

Source: MedPAC analysis of determinations and reconsiderations, Part C data from the CMS Part C and D reporting requirements public use file for contract year 2021.

contained in traditional Medicare coverage policies (Centers for Medicare & Medicaid Services 2023a, Centers for Medicare & Medicaid Services 2023e). These changes to regulations are further discussed later in the chapter.) Second, MA plans indicated that some prior authorization requests did not have enough documentation to support approval, yet OIG reviewers found that the beneficiary medical records that were already in the case file were sufficient to support the medical necessity of the services.

Providers find prior authorization to be an increasing burden. Some providers and physician specialties may face the weight of prior authorization policies more than others. In the Commission’s annual focus groups with physicians, nurse practitioners, and physician assistants, many clinicians brought up, without prompting, the negative effects of prior authorizations (Campanella et al. 2023). Many clinicians expressed frustration with the number of prior authorizations from insurance companies generally, with several noting that their practices have hired dedicated staff members to manage this administrative burden. In a focus group conducted in 2023, one physician said:

For the past year to two years, we went from a manageable amount of prior authorizations or denials to an absurd amount of denials right off the bat, which is really impacting. . . . We’ve had to hire staff just to deal with [authorizations] and denials. Most of the time, it’s coming from these Advantage plans that flat out deny, and you can’t appeal until you essentially get on a peer-to-peer [phone call], and oftentimes that’s not easily accessible during the course of the day, either.<sup>25</sup>

Some insurers are taking steps to reduce the administrative burden on providers, but it is too soon to determine the effects of these actions. As an example, one of the largest MAOs recently implemented a two-phase approach to eliminate the prior authorization requirement for many procedure codes (United Healthcare 2023). They estimate that these code removals account for nearly 20 percent of the organization’s prior authorization volume. As another example, some commercial insurers are increasingly using “gold carding,” which selectively waives or reduces prior authorization requirements for high-performing providers. In a survey of commercial health insurers, the majority of plans reported that gold carding worked better for some services than others, such as when there are clear and consistent clinical standards of care (e.g., high-tech imaging) (America’s Health Insurance Plans 2023). While varying by specialty and geography, common criteria for accepting providers in gold-card programs included low prior authorization denial rate and participation in a risk-based contract. Insurers reported mixed reviews of the programs: Some cited improved provider satisfaction but also said that the program was administratively difficult to implement and reduced quality/patient safety.

Another physician in our focus groups said that the “red tape” of prior authorizations from MA plans can cause inordinate delays in care and tension between patients and their doctors, noting:

[The patient] had a lung mass that I needed to biopsy, and I had to do the robotic navigational protocols. And she showed up to get her scan, and she was very nervous. And then [the scan provider] said, “Your insurance actually denied it.” And so, she was lost to follow-up for me for eight months, because she was so frustrated that she worked up the courage to go for the scan, and then they said, “Sorry, it’s not worked out yet with your insurance.” Eight-month delay in her care.

### **Recent regulations governing use of MA prior authorization**

In April 2023, CMS finalized several regulatory changes to address concerns about MAOs’ use of prior authorizations and its effect on beneficiary access to care (Centers for Medicare & Medicaid Services 2023e). The rules took effect in 2024. First, CMS requires that MA plan prior authorization policies be used only to confirm the presence of diagnoses or other medical criteria and/or ensure that an item or service is medically necessary. Second, MA plans must comply with national and local coverage determinations and with general coverage and benefit conditions included in FFS Medicare statutes and regulations, as interpreted by CMS. MA plans cannot deny coverage of a Medicare-covered item or service based on internal, proprietary, or external clinical criteria not found in traditional Medicare coverage policies. When there are no applicable coverage criteria in Medicare statute, regulation, or national and local coverage determinations, MAOs may create internal coverage criteria that are based on current evidence in widely used treatment guidelines or clinical literature that is made publicly available to CMS, enrollees, and providers. Third, prior authorization approval given by an MA plan is required to be valid for as long as necessary to avoid disruptions in care, in accordance with applicable coverage criteria, the patient’s medical history, and the treating provider’s recommendation. Fourth, MA plans must establish a utilization management committee to review policies annually and ensure consistency with FFS Medicare’s national and local coverage decisions and guidelines.

In January 2024, CMS finalized a number of changes that apply to MA plans and other federal programs, including Medicaid managed care plans, that are meant to make prior authorization processes more efficient and transparent (Centers for Medicare & Medicaid Services 2024). CMS will require MA plans to build and maintain an open-source interface that would automate the process for providers to determine whether a prior authorization is required, identify prior authorization information and documentation requirements, and facilitate the exchange of prior authorization requests and decisions from electronic health records or practice management systems. This automation requirement will be implemented on January 1, 2027, and has the potential to reduce

the administrative burdens of prior authorization for providers. Beginning in 2026, MA plans will be required to include a specific reason when they deny a prior authorization request, regardless of the method used to send the prior authorization decision, to facilitate both better communication and understanding between the provider and payer and, if necessary, a successful resubmission of the prior authorization request. Also beginning in 2026, MA plans will be required to send prior authorization decisions within 7 calendar days for standard (i.e., non-urgent) requests, instead of the current 14-day requirement. Finally, MA plans are required to publicly report prior authorization metrics on their websites beginning in 2026. ■

## Endnotes

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- 1 We do not focus here on plans that are available only to certain subsets of beneficiaries: private FFS plans, which are offered in an increasingly small fraction of counties; Medicare Savings Account plans, which are offered only in some states, and for which dual Medicare–Medicaid beneficiaries are ineligible; special needs plans, which are tailored to specific populations; or employer group plans.
- 2 We annually conduct focus groups with beneficiaries and clinicians in different parts of the country to provide more qualitative descriptions of beneficiary and clinician experiences with the Medicare program. During these discussions, we hear from beneficiaries and providers about variation in experiences accessing care. In summer 2023, we conducted four focus groups with Medicare beneficiaries in each of three urban markets. Two of the groups in each market were composed of beneficiaries dually eligible for Medicare and Medicaid. We also conducted three virtual focus groups with beneficiaries residing in rural areas. We also conducted three clinician focus groups in each of the three urban markets, with primary care physicians, specialist physicians, and primary care nurse practitioners and physician assistants.
- 3 All MAOs, including HMOs, are financially responsible for emergency and urgently needed services, regardless of the network status of the provider of those services (Centers for Medicare & Medicaid Services 2016a).
- 4 Enrollment figures reflect the fact that our analysis of CMS enrollment files excluded enrollment in cost plans, employer group plans, Medicare Savings Account plans, and Program of All-Inclusive Care for the Elderly plans.
- 5 During the coronavirus public health emergency that expired on May 11, 2023, MA plans were responsible for covering all medically necessary, Medicare-covered services, and plans were to charge enrollees no more than in-network cost sharing.
- 6 Medicare participating providers “accept assignment,” meaning they accept Medicare rates for services provided to Medicare beneficiaries. Participating providers are prohibited from balance billing either beneficiaries or plans, and they agree to accept the FFS rate for a service as payment in full when a contract is not in place. A very small number of clinicians (about 2 percent) do not accept assignment; in the rare circumstances in which they provide services to a Medicare beneficiary, these providers collect up to 109.25 percent of FFS rates (Medicare Payment Advisory Commission 2024). An even smaller number of providers (about 1 percent) opt out of Medicare entirely. When a beneficiary receives a service from an opt-out provider, they enter into a private contract with that provider, and there is no limit to the amount the provider can charge. In all cases, providers must disclose payment liability before providing services.
- 7 CMS uses the term “provider” in this context to refer to individual clinicians and “facility” to refer to organizations or physical entities.
- 8 Required facility types are acute inpatient hospitals; cardiac surgery programs; cardiac catheterization services; critical care services/intensive care units; surgical services (outpatient or ambulatory surgery center); skilled nursing facilities; diagnostic radiology; mammography; physical therapy; occupational therapy; speech therapy; inpatient psychiatric facility services; and outpatient infusion/chemotherapy.
- 9 Required provider types are allergy and immunology; cardiology; cardiothoracic surgery; chiropractic services; clinical psychology; clinical social work; dermatology; endocrinology; ear, nose, throat/otolaryngology; gastroenterology; general surgery; gynecology/obstetrics; infectious disease; nephrology; neurology; oncology, medical/surgical; oncology, radiation; ophthalmology; orthopedic surgery; physiatry/rehabilitation medicine; plastic surgery; podiatry; primary care; psychiatry; pulmonology; rheumatology; urology; and vascular surgery.
- 10 Beginning in 2025, a new facility-specialty type will be added: Outpatient Behavioral Health. This hybrid designation will include a range of providers, such as marriage and family therapists, mental health counselors, opioid treatment program providers, and community mental health centers or other behavioral health and addiction medicine specialists and facilities, including addiction medicine physicians.
- 11 The most recent reference file for network adequacy standards can be found at <https://www.cms.gov/files/document/2024-hsd-reference-file-updated-10182023.xlsx>.
- 12 MA organizations report in the Network Management Module (NMM) the number of Medicare-certified beds per 1,000 for critical care services, skilled nursing facilities, and inpatient psychiatric facilities in addition to acute inpatient hospital beds. However, the minimum criteria for number of beds (12.2 per 1,000) is applied only at the acute inpatient level.
- 13 The 12 specialties are allergy and immunology; cardiology; dermatology; endocrinology; gynecology/obstetrics;

infectious diseases; nephrology; neurology; ophthalmology; otolaryngology; primary care; and psychiatry.

- 14 “Significant” changes are considered changes that affect or potentially affect large groups of enrollees, such as changes that result in terminated relationships with multispecialty group practices. MAOs must notify CMS of a significant termination at least 90 days prior to the effective date.
- 15 There were 730 contracts for HMO, HMO-POS, and PPO plans in 2021. No contracts audited in 2021 covered the state of Alaska.
- 16 Pearson’s chi-squared tests showed that differences for each of the three dimensions we analyzed (county designation, specialty type, and plan type) were statistically significant at  $p < 0.001$ .
- 17 Only enrollees who are affected by the change must be proactively notified. All enrollees assigned to a particular PCP and any enrollees who have received services from that PCP within the past three years must be notified of any changes in that provider’s status. Concerning behavioral health, any enrollees who have received services from the PCP or behavioral health provider within the last three years must be notified. Concerning specialists, enrollees who currently receive care or have received care from the provider within the past three months must be notified.
- 18 MA prescription drug plans and stand-alone Part D plans can also use prior authorization before covering Part D drugs, but in this chapter, we focus on prior authorization for health care services. More information about Part D exceptions and appeals can be found in the Commission’s March 2018 report to the Congress (Medicare Payment Advisory Commission 2018b).
- 19 FFS Medicare has adopted prior authorization to reduce the unnecessary use of certain types of durable medical equipment (Medicare Payment Advisory Commission 2018a). CMS has tested the use of prior authorization to reduce unnecessary use of hyperbaric oxygen therapy in FFS Medicare; however, it has not been widely adopted by FFS Medicare (Centers for Medicare & Medicaid Services 2016b). Prior authorization for repetitive, scheduled nonemergent ambulance transport (RSNAT) is voluntary; however, if an ambulance supplier elects to bypass prior authorization, applicable RSNAT claims are subject to prepayment medical review (Centers for Medicare & Medicaid Services 2023f).
- 20 Medicare coverage rules are outlined in national coverage determinations, local coverage determinations in the geographic area in which the MA plan operates, the Medicare Benefit Policy Manual, the Medicare Managed Care Manual, legislative changes in benefits applied through notice-and-comment rulemaking, and other coverage guidelines and instructions issued by CMS. The Commission’s June 2018 report to the Congress includes more detail on Medicare coverage policy (Medicare Payment Advisory Commission 2018a).
- 21 The Office of Medicare Hearings and Appeals (OMHA), a staff division within the Office of the Secretary of the U.S. Department of Health and Human Services, administers the nationwide administrative law judge hearing program. OMHA seeks to ensure that Medicare beneficiaries and the providers and suppliers that furnish items or services to the beneficiaries and MAOs have a fair and impartial forum to address disagreements with Medicare coverage and payment.
- 22 MA plans are also required to report data on organization determinations and reconsiderations for claims (retrospective cases); our focus is on prior authorization (preservice requests). For preservice requests, MA plans are also required to report the aggregate number of determinations (and their outcomes) requested by (1) enrollee/representative or provider on behalf of the enrollee and (2) noncontract providers.
- 23 We analyzed data from the CMS Part C and Part D reporting requirements public use file, 2021. CMS has since removed the data files from its website and is currently reevaluating their policy for making these data available to researchers and the public.
- 24 For example, IREs report counts of decisions by priority, which includes expedited, preservice, and retrospective, compared with MA plan reporting of determinations for services (prospective) and claims (retrospective).
- 25 The insurance peer-to-peer review is a scheduled phone conversation during which an ordering physician discusses the need for a service with the insurance company’s medical director to obtain a prior authorization approval or appeal a previously denied prior authorization.

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CHAPTER

# 3

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**Assessing data sources  
for measuring health care  
utilization by Medicare  
Advantage enrollees:  
Encounter data and  
other sources**

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# Assessing data sources for measuring health care utilization by Medicare Advantage enrollees: Encounter data and other sources

## Chapter summary

Since 2012, Medicare Advantage (MA) plans have been required to submit to Medicare a record of each encounter that MA enrollees have with a health care provider. The Commission has long been interested in using MA encounter data to better understand plan practices and the services used by MA enrollees. Complete and accurate encounter data could also be used to provide more rigorous oversight of Medicare’s payments to MA plans—which reached \$455 billion in 2023—and to ensure that the Medicare beneficiaries enrolled in an MA plan (now more than half of eligible beneficiaries) receive the full Medicare benefit. Lessons learned from MA encounter data could inform improvements to MA payment policy, facilitate comparison with traditional (fee-for-service) Medicare, and generate new policy ideas that could be applied across the entire Medicare program. If validated for such purposes, encounter data could replace several of the data summarization and submission tasks that are currently conducted by MA plans, improving the consistency of the data used to administer the MA program.

However, in previous assessments, the Commission has found that MA encounter data do not include records of all items or services provided to MA enrollees. In 2019, the Commission recommended that the Congress direct the Secretary to (1) establish thresholds for the completeness and

## In this chapter

- Background
- Comparisons of MA encounter data and independent sources show the data to be incomplete
- MA encounter data are inconsistent with other plan-reported information
- The Commission’s 2019 recommendation would address the shortcomings of MA encounter data

accuracy of MA encounter data; (2) evaluate MA plans' submitted data and provide feedback to organizations, including comparisons to external data sources; and (3) apply a withhold to plan payments that would be refunded to MA organizations that meet the established thresholds. The Commission also recommended instituting a mechanism for direct submission of provider claims to Medicare administrative contractors as a voluntary option for MA organizations that prefer this method, for MA organizations that fail to meet completeness thresholds, and for all MA organizations if program-wide thresholds are not achieved.

In this chapter, we update our assessment of the relative completeness of MA encounter data and other data sources that contain information about MA enrollees' use of services. Our findings continue to demonstrate the need for policy action to improve the encounter data. We find that the data's completeness in 2020 and 2021 incrementally improved since 2017 for some services but that the data generally remain incomplete. In addition, other data sources that contain information about MA enrollees' use of services also appear to be incomplete: In each of the data comparisons we conducted, we found records of services provided to MA enrollees that were missing from the comparator source.

We also assessed variation in the completeness of data across and within MA contracts. We found that the share of contracts reporting at least one encounter in all six service categories has improved since the early years of encounter data collection, rising from 80 percent of contracts in 2015 to 96 percent of contracts in 2020. Within MA contracts, we found wide ranges of completeness across service sectors, even among contracts with relatively greater completeness for any one sector. In other words, a contract's relatively high completeness with respect to one service category is not a marker of consistently complete data across all service categories. Given these findings, we urge policymakers and researchers to carefully consider the potential impact of missing data when using encounter data to examine MA utilization, particularly when comparing changes in utilization over time or variation in utilization across plans or differences in utilization between MA and FFS Medicare. Using a combination of MA encounter data and other independent sources is one way to reduce the impact of missing data on findings, but it may not fully resolve the problems that can stem from incomplete data.

Because nationally representative independent data sources with which to compare the encounter data are limited, we are not able to assess the accuracy

and completeness of encounter data for important service categories such as physician or outpatient services. In the absence of an independent data source with which to compare the data, the next best available alternative is to compare encounter data with other plan-reported sources, such as plan quality and bid data. Comparing MA encounter data with other plan-generated data sources does not provide an independent validation of data completeness and accuracy, but the comparison can be used to assess the consistency of the information that plans submit to CMS. In this chapter, we also explore whether such comparisons can provide insights regarding the relative completeness of encounter data.

Our findings suggest that the information plans submit to CMS through separate reporting processes is not internally consistent and that there are technical factors that limit our ability to use the data to identify underreporting of encounter data. In our comparison of encounter and Healthcare Effectiveness Data and Information Set<sup>®</sup> (HEDIS<sup>®</sup>) data, we found that HEDIS hospitalization data differed substantially from encounter data and that HEDIS was the main cause of this inconsistency. Often, hospital stays that should have been excluded under the instructions for processing HEDIS data were nonetheless reported in HEDIS, but the data were missing a considerable number of hospital stays and hospital users identified through the encounter data. When we limited our analysis to beneficiaries found in both data sources, we found that encounter data included 11 percent more hospitalizations and 19 percent more readmissions than HEDIS data did. This finding suggests that the encounter data are a more complete source for hospital utilization measures than HEDIS data.

Our analysis of bid data and encounter data also showed discrepancies between the two sources. The bid data that MA organizations submit annually to CMS include plan-calculated utilization rates that can be compared with rates calculated from encounter data. We found that, among bids that could be compared with encounter data, utilization rates based on encounter data were within 5 percent of the rates reported in plan bids for less than 40 percent of bids, comprising less than half of enrollees in the analysis. Encounter-based rates for inpatient and skilled nursing facility services were more than 5 percent below the bid-based rate for roughly one-third of bids analyzed (about 20 percent to 30 percent of enrollees in our analysis), suggesting that encounter data remain incomplete, particularly for some organizations.

In conducting the comparisons, we identified a series of factors that would limit the usefulness of bid data and HEDIS data for identifying underreporting of encounter data. For example, because HEDIS specifications (instructions for processing the data) exclude a significant fraction of hospitalizations, HEDIS person-level data cannot be used to assess the completeness of MA encounter data. In comparing bid data and encounter data, we found that less than half of bids (encompassing less than half of enrollees in the analysis) met the criteria needed to conduct the comparison, demonstrating that bid data can, at best, be used to assess only a fraction of plan-reported data. Further analysis is needed to more fully consider the utility of comparing encounter data with bid data.

The encounter data have the potential to be a valuable tool for policymakers seeking to monitor, learn from, and improve the MA program. However, incomplete reporting of the data continues to limit their utility. The Commission will continue to consider approaches for working with the data in their current state, additional methods for validating the data, and policy options for improving the accuracy and completeness of the data. ■

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## Background

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Since 2012, Medicare Advantage (MA) plans have been required to submit to Medicare a record of each encounter that MA enrollees have with a health care provider.<sup>1</sup> The Commission has long been interested in using MA encounter data to better understand plan practices and the services used by MA enrollees. Complete and accurate encounter data would be the best vehicle for learning about the care provided to MA enrollees.<sup>2</sup> The information could also be used to provide more rigorous oversight of Medicare's payments to MA plans—which reached \$455 billion in 2023—and to ensure that the Medicare beneficiaries enrolled in MA plans (now more than half of eligible beneficiaries) receive the full Medicare benefit. Lessons learned from MA encounter data could inform improvements of MA payment policy, facilitate comparison with traditional Medicare, and generate new policy ideas that could be applied across the entire Medicare program. If validated for such purposes, encounter data could replace several of the data summarization and submission tasks that are currently conducted by MA plans, increasing consistency in the preparation of the data used to administer the MA program.

However, in reports and presentations since 2019, the Commission has assessed the accuracy and completeness of MA encounter data and found that the data do not include records of all items or services provided to MA enrollees. (The text box on comparing MA encounter data with other data sources gives an overview of the information Medicare collects about MA enrollees' use of services and describes our methods for assessing the relative completeness of the data sources (pp. 98–102)). In our previously published analysis of encounter records for 2014 through 2019, we assessed data for inpatient hospital, home health, skilled nursing facility, and dialysis services and found evidence of missing encounter records for each type of service; we also found evidence of missing data in the non-encounter data sources we used in the comparisons (i.e., records were present in the encounter data but not in the comparator data) (Medicare Payment Advisory Commission 2022, Medicare Payment Advisory Commission 2020, Medicare Payment Advisory Commission 2019).

To improve the completeness and accuracy of MA encounter data, the Commission recommended in 2019 that the Congress direct the Secretary to (1) establish thresholds for the completeness and accuracy of MA encounter data; (2) evaluate MA plans' submitted data and provide feedback to organizations, including comparisons to external data sources; and (3) apply a withhold to plan payments, which would be refunded to MA organizations that meet those thresholds. The Commission also recommended instituting a mechanism for direct submission of provider claims to Medicare administrative contractors as a voluntary option for all MA organizations that prefer this method, for MA organizations that fail to meet completeness thresholds, or for all MA organizations if program-wide thresholds are not achieved. These recommendations have not been adopted.

In this chapter, we first use 2020 and 2021 data to update our assessment of the relative completeness of MA encounter data and other data sources that contain information about MA enrollees' use of services. Because nationally representative independent data sources with which to compare the encounter data are limited, we are not able to assess the completeness of encounter data for important service categories such as physician or outpatient services. In the absence of an independent data source with which to compare the data, the next best available approach is to compare encounter data with other plan-reported sources. In the second half of the chapter, we examine two such sources: HEDIS quality data and plan bid data. Specifically, we assess whether the information that plans submit to CMS in these data sources is consistent with the information in the encounter data. We also evaluate whether such comparisons can provide insights regarding the relative completeness of either data source.

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## Comparisons of MA encounter data and independent sources show the data to be incomplete

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We assessed the relative completeness of MA encounter data and several independent (i.e., not plan-generated) sources and found that the data were generally incomplete. For the four service categories

## Comparing Medicare Advantage encounter data with other data sources

One way to assess the accuracy and completeness of Medicare Advantage (MA) encounter data is to compare the data with other sources of information that Medicare collects regarding MA enrollees' use of services. CMS collects and processes a large amount of information from MA plans and health care providers that can be used for such comparisons. Figure 3-1 illustrates the general flow of information from providers and plans to CMS.<sup>3</sup>

### **There are limited independent sources with which to validate the completeness and accuracy of Medicare Advantage encounter data**

When serving Medicare beneficiaries who are enrolled in Medicare Advantage (MA), providers submit claims to the enrollee's MA plan, and the plan adjudicates payment. CMS, and therefore researchers, do not typically have access to MA claims data as they do for fee-for-service (FFS) claims.<sup>4</sup> In lieu of collecting MA claims data, CMS requires MA organizations to submit encounter records for the health care items and services provided to their enrollees. For a few service categories, however, CMS collects information about MA enrollees directly from health care providers (with no involvement of the MA plan) and formats the information as data files available to researchers. Like the encounter data, each of these data sources contains records of services that were provided to MA enrollees. Given CMS's data submission requirements for MA plans and providers, we expect to find records of these services in both data sources (encounter data and others) if data are complete.<sup>5</sup> Records that exist in one source but not the other are evidence that the data source missing the record is incomplete. If encounters are not present in the data files, we are unable to tell whether the absence results from the plan not submitting or the system not accepting the record.<sup>6</sup> We assess the relative completeness of MA encounter data and these independent data sources of information about MA enrollees' use of services:

- **Medicare Provider Analysis and Review (MedPAR) file (for inpatient stays):** For inpatient claims, CMS collects an "information-only" facsimile of the claim the provider submitted to the MA plan. MA and FFS hospitalization data are combined in the MedPAR file, which is used to calculate DSH and graduate medical education payments for certain hospitals.
- **Dialysis risk-adjustment indicator (for dialysis services):** Nephrologists and dialysis facilities submit a medical evidence form to CMS when a patient with end-stage renal disease begins dialysis. Submission of the form triggers an indicator in the risk-adjustment system signaling that the beneficiary has begun dialysis and therefore should have the risk-adjustment model for beneficiaries with ESRD applied (which is a separate risk-adjustment model from the one applied to beneficiaries without ESRD). As a result of this process, CMS risk-adjustment files include an indicator to identify beneficiaries receiving dialysis.
- **Minimum Data Set (MDS) (for skilled nursing stays):** SNFs are required to collect patient assessment data using the MDS for all residents of Medicare- or Medicaid-certified facilities. CMS uses the data to determine FFS payments to facilities under the SNF prospective payment system.
- **Outcome and Assessment Information Set (OASIS) (for home health services):** OASIS assessment data are collected for all Medicare beneficiaries receiving home health services and submitted to CMS by home health agencies at the start of a home health episode and at several points afterward. CMS uses the data to determine FFS payments to home health agencies under the home health care services prospective payment system.

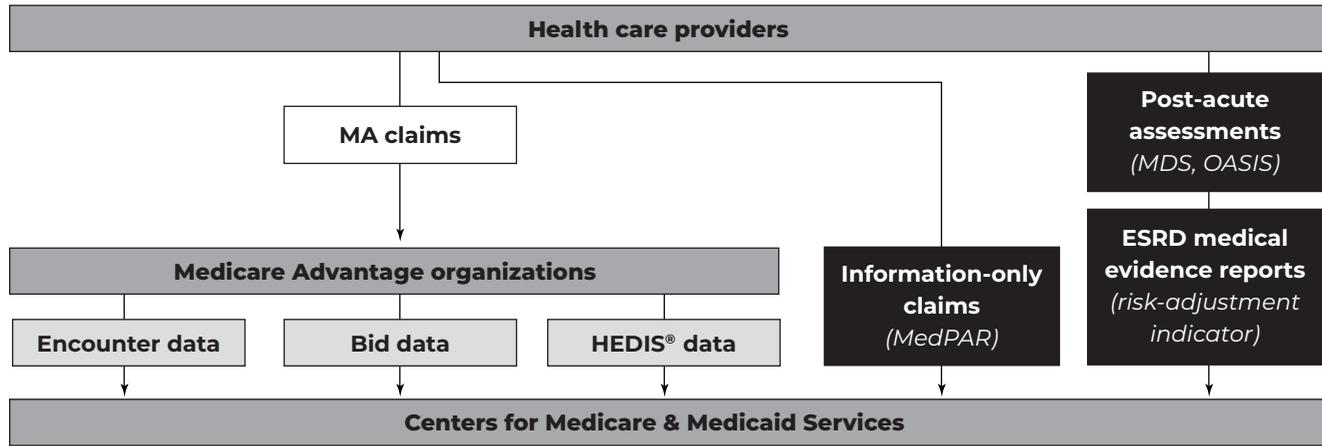
We have previously found that each of these data sources are themselves missing records for MA

*(continued next page)*

# Comparing Medicare Advantage encounter data with other data sources (cont.)

**FIGURE 3-1**

**Medicare collects a large amount of information from plans and providers about MA enrollees' use of services**



	Information	Data file or field	Description
<b>Provider submitted</b>	Information-only claims	MedPAR	Providers submit hospital and SNF claims for MA enrollees to the enrollee's MA plan. An "information-only" copy of the claim is generated and submitted directly to CMS. CMS combines the information-only claims with FFS data to create the MedPAR file.
	Post-acute assessments	MDS, OASIS	Providers submit assessments of post-acute care patients to CMS.
	ESRD medical evidence reports	Risk-adjustment indicator	Nephrologists and dialysis facilities submit medical evidence reports to CMS. The information is stored as an indicator variable in the risk-adjustment data.
<b>Plan submitted</b>	Items and services provided to MA enrollees	Encounter data	MA organizations submit encounter records and chart-review records to CMS via the Encounter Data Processing System.
	MA plan quality measures	HEDIS	NCQA collects HEDIS summary-level data on behalf of CMS, and MA plans report HEDIS person-level data to CMS.
	MA plan bids	MA bid pricing data	MA plans submit bids to CMS. Utilization and pricing information is submitted via the Bid Pricing Tool.

Note: MA (Medicare Advantage), MDS (Minimum Data Set), OASIS (Outcome and Assessment Information Set), ESRD (end-stage renal disease), MedPAR (Medicare Provider Analysis and Review), HEDIS® (Healthcare Effectiveness Data and Information Set®), SNF (skilled nursing facility), FFS (fee-for-service), NCQA (National Committee for Quality Assurance). The figure shows only those provider-submitted data sources analyzed in this chapter. HEDIS is a registered trademark of the NCQA.

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## Comparing Medicare Advantage encounter data with other data sources (cont.)

enrollees for whom an encounter record was submitted, suggesting that these data sources may be incomplete and limited in the extent to which they can be used to comprehensively assess the completeness of MA encounter data. Where possible, in reporting our results in this chapter we present the share of records that appear in both the encounter data and the independent data source, as well as the share appearing in one source but not the other. For example, we can identify inpatient hospital records that appear in the MedPAR data and should be included in the inpatient encounter data but are not, and we can find inpatient records that are included in the encounter data but not in the MedPAR data, suggesting that both the MedPAR and encounter data are missing records for some inpatient hospital stays. It is possible that some MA enrollee utilization may be missing from both the encounter and comparison data. As a result, we are unable to determine whether encounter data or comparison data are 100 percent complete.

For each of the service categories for which an independent data source is available, we assessed (1) the number of MA enrollees who had a record in both the encounter data and the corresponding comparison data during the calendar year and (2) the number who appeared in only one of the two sources. For inpatient services, we also evaluated the extent to which specific hospital stays—identified by dates of service—were reported in both the MedPAR and encounter data. For all data sources, we used monthly Medicare enrollment data to restrict our analyses to services rendered to MA plan enrollees in health maintenance organization (HMO) or preferred provider organization (PPO) plans. We excluded chart reviews from our analysis of encounter data because those records might not contain complete information about a health care encounter or might not be linked to any specific health care encounter. We also processed “void” or “replacement” records to avoid counting records for the same service more than once.<sup>7</sup> We then removed any remaining duplicate records.<sup>8</sup>

### **In the absence of an independent data source, encounter data can be compared with other information that plans submit to Medicare**

One challenge with assessing the completeness of encounter data is the paucity of nationally representative independent (i.e., not plan-generated) sources with which to compare the data. Provider-submitted data containing records for MA enrollees are available for inpatient and post-acute care services but are less readily available for other service categories such as physician and outpatient services.

In the absence of an independent data source, encounter data can be compared with other information that plans submit to CMS, such as quality data and data submitted for plan bids. Comparing MA encounter data with other plan-generated data sources does not provide an independent assessment of data completeness and accuracy, but these comparisons may be useful for identifying potential underreporting and assessing whether a plan’s data processing is internally consistent.

### **Medicare Advantage HEDIS data**

The Healthcare Effectiveness Data and Information Set<sup>®</sup> (HEDIS<sup>®</sup>) is a set of quality measures that has been developed by the National Committee for Quality Assurance (NCQA) to evaluate health plans.<sup>9</sup> CMS requires MA plans to collect and report data annually for a subset of HEDIS measures. Plans are required to report HEDIS summary-level data to NCQA, and those results are used to calculate the MA star ratings, which contribute to an MA contract’s quality bonus rating and the level of rebate dollars received by a plan when it bids below its payment benchmark.

CMS requires MA plans to report the person-level data that are used for the HEDIS summary-level data.<sup>10</sup> Thus, CMS considers the person-level HEDIS data equivalent to the data that contribute to

*(continued next page)*

## Comparing Medicare Advantage encounter data with other data sources (cont.)

quality bonus payments and the level of plan rebates (Centers for Medicare & Medicaid Services 2022b, Centers for Medicare & Medicaid Services 2022c). (We found the person-level and summary-level HEDIS data to be largely identical in the number of hospitalizations reported.<sup>11</sup>) The person-level HEDIS data have both beneficiary and plan identifiers, which we can use to match with encounter data. The person-level data includes results for the HEDIS plan all-cause readmissions (PCR) measure, which identifies each beneficiary's unique qualifying hospital discharge, making the measure suitable for comparison with MA encounter data records that also contain discharge-level data for MA enrollees.<sup>12</sup> For the HEDIS PCR measure, CMS requires plans to submit beneficiary and plan identifiers, admission and discharge dates, and a 30-day readmissions indicator for all qualifying index hospitalizations and observation stays.

In this chapter, we examine a subset of quality measurement data that MA plans report in HEDIS, assessing the consistency of person-level HEDIS hospital stay data that are used to calculate the PCR measure with encounter hospital stay data for dates of service in 2021 (the most recent available) among HMOs and PPOs that were in both data sources.<sup>13</sup> This comparison builds on the Commission's prior work. We previously assessed the extent to which beneficiaries with a record in person-level HEDIS data also had a record in the encounter data, and we found large differences in the utilization counts reported through HEDIS and encounter data for inpatient, emergency department, and physician visits (Medicare Payment Advisory Commission 2019). Other researchers have also found discrepancies between the encounter data and publicly available contract-level summary HEDIS data for these services (Jung et al. 2022b, Research Data Assistance Center 2022, Tabak et al. 2020).

For the HEDIS comparison in this chapter, we applied 2021 HEDIS PCR specifications to the inpatient and outpatient encounter data. We verified that the PCR specification changes between 2021

and 2022 were both minimal and negligible for our comparisons (National Committee for Quality Assurance 2022). HEDIS PCR specifications identify index hospitalizations (including observation stays reported in outpatient data) through measurement year 2021 "value sets" that contain procedure, revenue center, principal diagnosis, and bill type codes. We excluded discharges that occurred after December 1, and we used value set codes to identify other stay-level exclusions (nonacute inpatient, pregnancy, and perinatal stays). While HEDIS allows plans to identify PCR index hospitalizations through electronic medical records, we would expect plans to identify all hospitalizations through administrative claims data or through encounter data submissions. To ensure the robustness of HEDIS exclusions of nonacute hospitalizations, we also excluded long-term care hospitalizations (which we identified through provider taxonomy codes and claim value codes applicable to a long-term care stay), which were identified only in the HEDIS electronic medical record codes. Moreover, both HEDIS and encounter data allow denied claims to be submitted for inclusion. We would expect MA plans to apply the same criteria for denied claims when submitting records for both data sources. Further, we used HEDIS specifications to identify beneficiary-level exclusions. We excluded beneficiaries who were not "continually enrolled" in the same parent organization (i.e., 365 days prior to the discharge date and 30 days after the discharge date), died during the hospitalization, were discharged on the same day they were admitted, met the HEDIS definition of excluded "outliers" (i.e., four or more index hospitalizations from the same parent organization during the year), or used hospice at any point in the year (identified through Medicare FFS claims data).<sup>14</sup> When identifying a hospitalization as a readmission, we applied additional exclusions (e.g., value set codes for potentially planned stays) that HEDIS specifies.

When counting unique hospitalizations in the encounter data, we applied HEDIS specifications (including counting encounters separated by one

*(continued next page)*

## Comparing Medicare Advantage encounter data with other data sources (cont.)

or fewer days as the same stay), identified hospital transfers through the encounter data patient discharge status code, excluded long-term care, removed encounters with duplicate claim-from or claim-through dates, and removed encounters that occurred during longer encounter stays.<sup>15</sup> After these adjustments, we counted the number of days between hospitalizations and included the stay as a 30-day readmission if it did not meet the HEDIS definition as a potentially planned stay.

### Medicare Advantage bid data

MA plans submit a bid that is an estimate of how much the plan will spend to provide Medicare services to their enrollees in the next calendar year. This spending projection relies on the plan's spending data from the prior year and a projection factor. Aggregated utilization data for the prior year are also included in plans' bids. Because the bid data are required to be actuarially certified and are subject to review and audit by CMS, they may be a

reliable source of information about the aggregate level of service use by MA enrollees. The relationship between utilization rates calculated from encounter data and utilization rates reported in plan bids could be a useful way to identify possible underreporting of utilization data. This approach to assessing data completeness has not been widely explored. As a first step in considering the feasibility of this approach, we compare utilization rates for inpatient, SNF, and home health care reported in MA bid data with utilization rates calculated from the encounter data. For our initial comparison of encounter and bid data, we limited our analysis to these services because they are the ones for which we have an independent, provider-submitted data source so that we could assess whether the comparison provides meaningful information about the completeness of each data source. If the comparison produces meaningful information, we plan to compare bid and encounter data for other services, such as physician and outpatient services. ■

we assessed (inpatient hospital use, dialysis, skilled nursing care for non-dual-eligible enrollees, and home health services), we found records for MA enrollees in each data source (the encounter data and the comparison data source) that were not present in the other source. For each service category, most beneficiaries with a record in the independent data source also had an encounter record submitted for that service category during the year. However, in all four service categories, we continued to find that some beneficiaries have records reported in the independent sources that are not reflected in the encounter data and vice versa, suggesting that both sources remain incomplete. These findings are consistent with the trends we have previously observed in our assessments of the MA encounter data (Medicare Payment Advisory Commission 2022, Medicare Payment Advisory Commission 2020).<sup>16</sup> The share of MA enrollees with an inpatient hospital record in both data sources and

the share with both a dialysis encounter record and the dialysis indicator in risk-adjustment data has been relatively constant since 2017. In the skilled nursing and home health data, the share of MA enrollees appearing in both the encounter data and the comparator data has improved since 2017.

Our findings have implications for researchers studying MA enrollees' use of services: Studies that rely exclusively on either the MA encounter data or one of the other data sources we assessed will likely be affected by missing data. Some researchers have used encounter data to measure MA utilization rates (Mulcahy et al. 2019), and some have compared utilization rates between MA and fee-for-service (FFS) Medicare (Anderson et al. 2021, Beckman et al. 2023, Jung et al. 2023, Jung et al. 2022a, Jung et al. 2022b, Kozłowski et al. 2023, Xu et al. 2023). For many years, researchers have also used the other sources we

assessed to measure utilization in MA and compare the use of services in MA with that in FFS (see Table 3A-1, pp. 124–125, in the appendix to this chapter, for a list of such studies).<sup>17</sup> Our results show that several of the provider-submitted data sources are missing records for MA enrollees. We encourage researchers to consider the possible effects of missing data when assessing MA utilization using the encounter data or the other sources we examine below. For studying these service categories, using both the encounter data and the provider-submitted data is one way to reduce missing data's impact on the findings, although even this approach might not capture all service use.

### **Inpatient hospital users: Comparison with MedPAR data**

Hospitals that are paid under the inpatient prospective payment systems and treat a disproportionate share of certain low-income patients receive additional payments from Medicare. Disproportionate share hospital (DSH) payments provide a percentage increase in FFS Medicare payment for hospitals that qualify under formulas designed to identify hospitals that serve a disproportionate share of low-income patients. One criterion used to determine eligibility for DSH payments is based on counts of the total number of inpatient days of care provided to Medicare patients entitled to Supplemental Security Income benefits. CMS incorporates the number of hospital days for both MA enrollees and FFS beneficiaries in its calculation. The number of hospital days for MA enrollees is based on information-only claims that hospitals submit to CMS for each MA-enrolled inpatient.<sup>18</sup>

CMS also uses information-only claims to make indirect medical education (IME) payments to teaching hospitals paid under the inpatient prospective payment systems. IME payments to hospitals are made on a per stay basis with an amount added to Medicare's payment for every FFS discharge. To make IME payments for MA hospital patients, in most cases CMS calculates the aggregate IME amount for MA discharges (using the information-only claims) and then makes a lump sum payment directly to the hospital based on the number of MA patients treated. Medicare also makes a payment to teaching hospitals for their direct costs of graduate medical education that is affected by MA patient stay data. The information-only inpatient claims are included in the Medicare Provider Analysis and Review

(MedPAR) file, which consolidates inpatient hospital and SNF claims data into stay-level records.

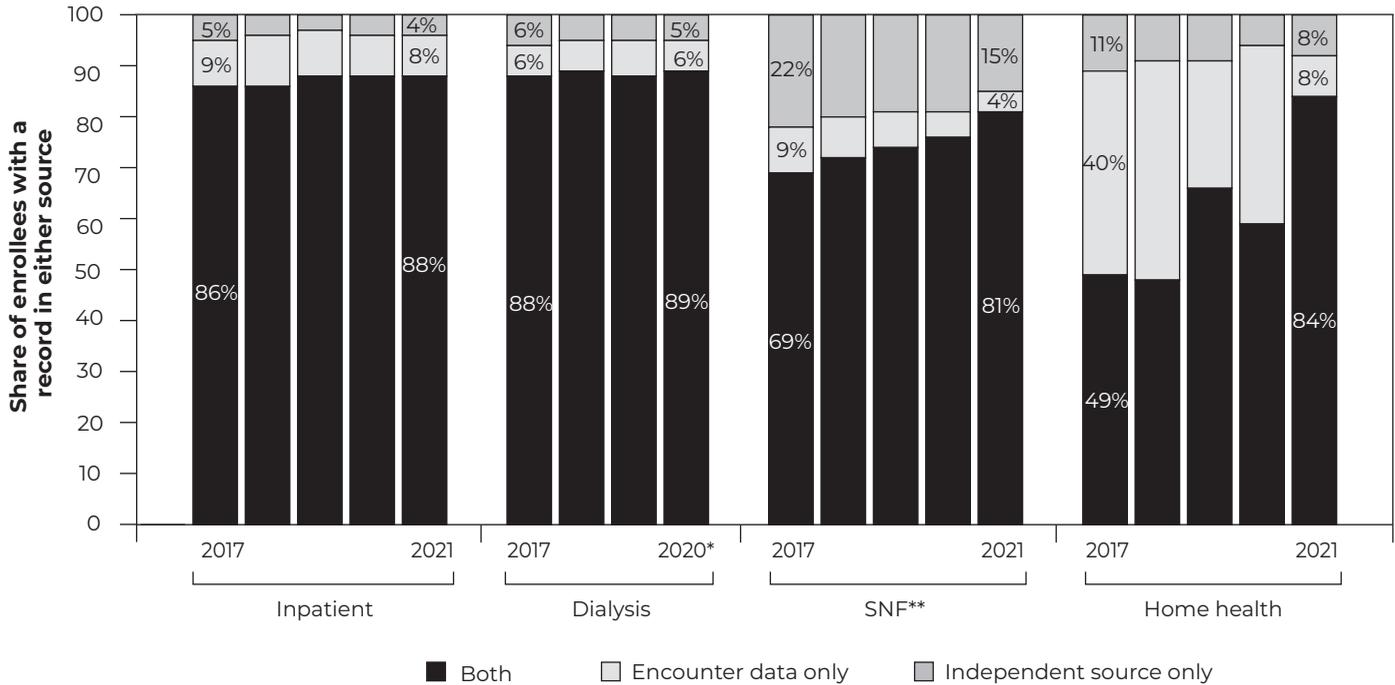
We compared data for MA enrollees who had a record in the MedPAR file with data for MA enrollees with an inpatient encounter record during the calendar year (Figure 3-2, p. 104; MedPAR is the “independent source” for inpatient data). We first assessed only whether a beneficiary's identification number was found in both data sources for the year. In 2021, most MA beneficiaries with at least one inpatient stay that was reported in the MedPAR data also had an inpatient encounter claim during the year. Of all beneficiaries with an inpatient stay reported in either the MedPAR data or the encounter data, 88 percent appeared in both sources. This share was slightly higher than the share in 2017 (86 percent). Some beneficiaries appeared in only the encounter data or the MedPAR data, with a larger share appearing only in the encounter data. These findings suggest that both sources are missing data for some MA enrollees. The presence of records in the encounter data for beneficiaries who had no corresponding record in the MedPAR data is unsurprising given that nonteaching hospitals and hospitals that do not receive DSH payments have little incentive to submit information-only claims to CMS for any MA enrollees they treat.<sup>19</sup>

### **Dialysis service users: Comparison with the dialysis risk-adjustment indicator**

Nephrologists and dialysis facilities submit a medical evidence form to CMS when a patient with ESRD begins dialysis. Submission of the form for an MA enrollee changes how CMS calculates the amount paid to the MA plan for that enrollee (payments for MA enrollees receiving dialysis are based on a separate risk-adjustment model from the one used for other enrollees). As a result of this process, CMS risk-adjustment files include an indicator to identify beneficiaries receiving dialysis. We compared the data for MA enrollees who had the dialysis indicator during the year with data for MA enrollees with an outpatient dialysis encounter record during the calendar year.<sup>20</sup> This analysis assesses only whether a beneficiary's identification number was found in both data sources for the year. Figure 3-2 (p. 104; the dialysis risk-adjustment indicator is the “independent source” for outpatient dialysis data) shows that 89 percent of MA enrollees receiving dialysis (i.e., enrollees with either a

**FIGURE  
3-2**

**Encounter data and independent sources are missing information for some MA enrollees, 2017-2021**



Service category	Independent source
Inpatient	MedPAR
Dialysis	Dialysis risk-adjustment indicator
Skilled nursing facility	MDS
Home health	OASIS

Note: MA (Medicare Advantage), SNF (skilled nursing facility), MedPAR (Medicare Provider Analysis and Review), MDS (Minimum Data Set), OASIS (Outcome and Assessment Information Set). Includes only data for health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts.

\*Outpatient encounter data for 2021 were not available at the time of analysis.

\*\*Excludes MA enrollees who were also eligible for full Medicaid benefits during the calendar year.

Source: MedPAC analysis of MA encounter data and MedPAR, risk-adjustment, MDS, and OASIS data.

dialysis medical evidence form submitted to CMS (i.e., a dialysis indicator) or a dialysis encounter record) were present in both files in 2020 (the most recent year of data available). The share was relatively consistent from 2017 to 2020.

**Skilled nursing service users: Comparison with MDS**

An MDS assessment is required for all residents in Medicare- or Medicaid-certified nursing facilities.<sup>21</sup> We compared data for MA enrollees who had any MDS assessment during the calendar year with data for

enrollees who had a SNF encounter record during the year to determine whether a beneficiary's identification number was found in both data sources. We excluded MA enrollees who were eligible for full Medicaid benefits to avoid including MDS assessments for non-Medicare-covered long-term stays.<sup>22</sup>

Given the MDS requirement for all residents, we would expect MA enrollees to have both a SNF encounter record and an MDS assessment. However, we found that the MDS contains records for more MA enrollees than do the encounter data (Figure 3-3, p. 106; the MDS is the “independent source” for SNF stays). We also found that the encounter data include records for MA enrollees who did not have MDS records, although there were fewer of these cases than cases in which the beneficiary appeared only in the MDS.<sup>23</sup> The share of MA enrollees appearing in both files appears to be improving over time: In 2021, 81 percent of beneficiaries with records in either source had records in both files, compared with 69 percent in 2017 (Figure 3-2, p. 104).

Fifteen percent of MA enrollees with a record in either source were identifiable only in the MDS assessment data in 2021. While this finding may indicate missing encounter data records, it is also possible that our method failed to remove some assessments of MA enrollees who were receiving services not covered under Medicare, for which an encounter record would not be submitted. If such records were included, then our assessment of agreement between the two sources would be too low. We are continuing to refine our methods to compare SNF assessments with encounter records of SNF services.

A similar study—using 2015 encounter data—assessed the extent to which MA enrollees had a record in both the MDS and MA encounter data, but the research did not restrict the analysis to non-dual-eligible enrollees (Tabak et al. 2020). That study also found incomplete overlap between the MDS data and MA encounter data: Roughly half of MA contracts had match rates between 60 percent and 80 percent, and less than a quarter of contracts had match rates above 80 percent.

### **Home health service users: Comparison with OASIS**

Home health agencies are required to submit an OASIS assessment for all Medicare beneficiaries at

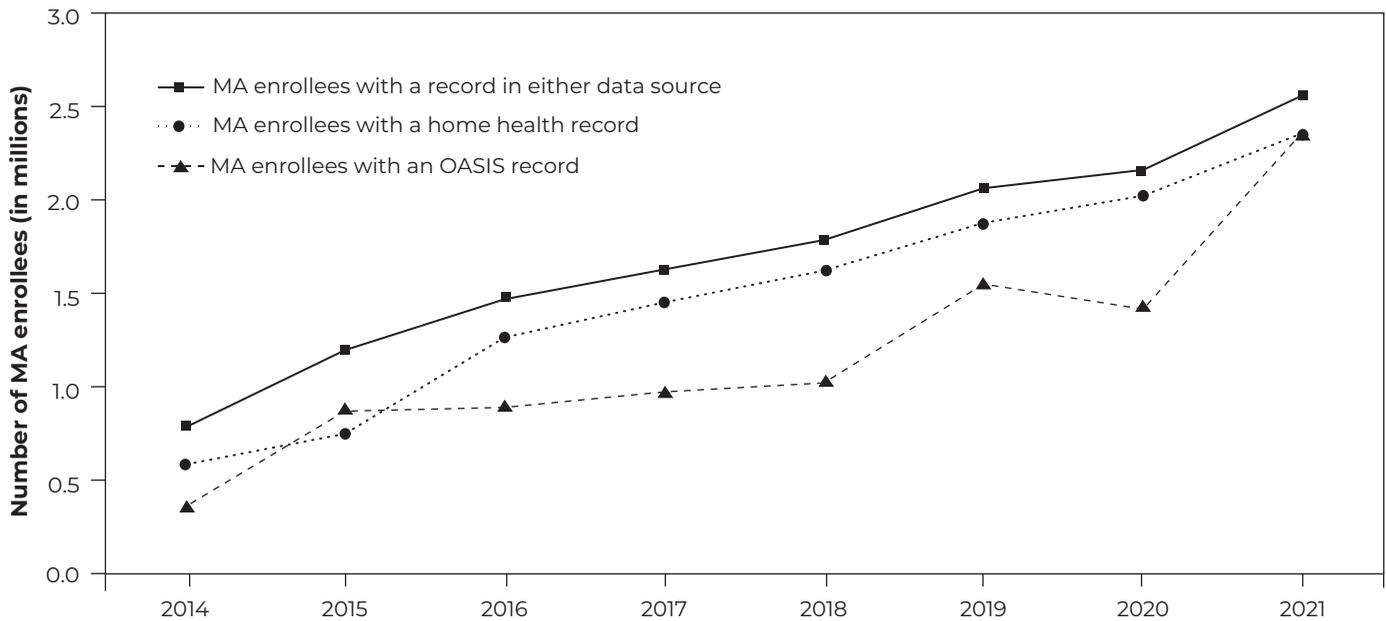
the start of a home health episode and at several points thereafter. Providers must submit an OASIS assessment to CMS for FFS payment, but submission for MA enrollees generally does not affect the provider's payment from the MA plan or the payment rate that Medicare pays the provider for services under FFS Medicare (in contrast to inpatient hospitals, where Medicare makes payments on behalf of MA enrollees). We compared data for MA enrollees who had OASIS assessments with data for MA enrollees who had home health encounter records during the calendar year. This analysis assesses only whether a beneficiary's identification number was found in both data sources for the year. Figure 3-2 (the OASIS is the “independent source” for home health services) shows that most MA beneficiaries with an OASIS assessment in 2021 were also identified in home health encounter data for the year. From 2017 to 2020, many beneficiaries appeared in the home health encounter records but were missing from the OASIS data. However, the share of MA enrollees appearing in both sources improved significantly in 2021, increasing from 49 percent to 84 percent of all beneficiaries appearing in either source.<sup>24</sup> Figure 3-3 (p. 106) shows that this change appears to have been driven by an increase in the number of beneficiaries with an OASIS assessment record. The number of MA enrollees with an OASIS assessment record fluctuated between 2018 and 2021, while the number of MA enrollees with a home health encounter record increased more steadily.

We assessed only whether MA enrollees had at least one record in each data source, not whether all home health visits were reported in each source. Nevertheless, because records for some beneficiaries can be found in the OASIS data but not in the encounter data and vice versa, we can conclude that both sources are incomplete. As a result, studies of home health service use in MA that rely exclusively on OASIS data or encounter data may be affected by missing data.

A similar study of 2015 encounter data also assessed the extent to which MA enrollees had a record in both the OASIS and MA encounter data (Tabak et al. 2020). That study found that a plurality of MA contracts had match rates between 70 percent and 80 percent.

**FIGURE  
3-3**

**The number of MA enrollees with an OASIS record was generally lower and more variable than the number with a home health encounter record, 2014–2021**



Note: MA (Medicare Advantage), OASIS (Outcome and Assessment Information Set). Includes data only for health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts.

Source: MedPAC analysis of MA encounter and OASIS data.

### Data sources are missing information about MA enrollees' use of inpatient hospital services

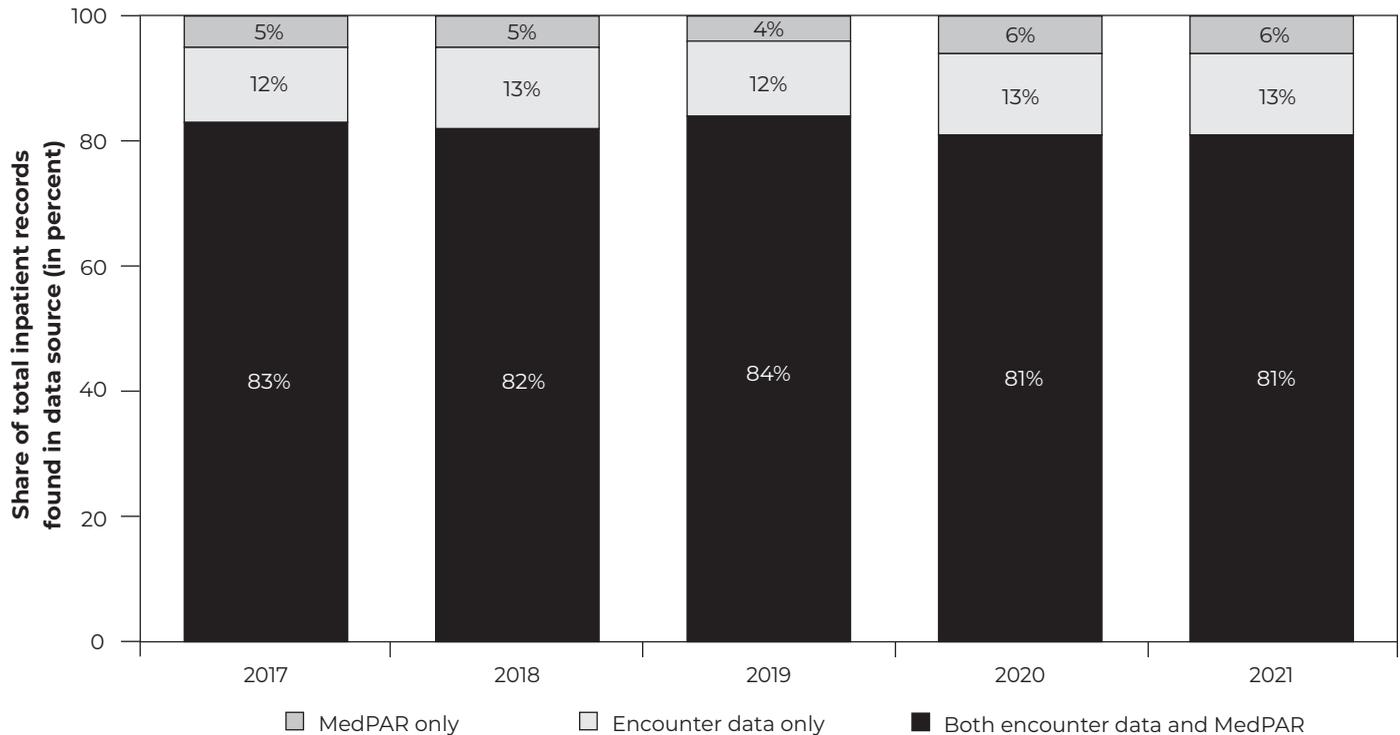
In addition to assessing whether records for MA enrollees were present in both data sources, we also assessed the extent to which the MedPAR and inpatient encounter data contain records for the same hospital stay by matching records based on the beneficiary identifier and discharge date listed on the record. To complete the comparison, we began by identifying unique hospitalizations in the encounter data.<sup>25</sup> We also removed chart reviews so as not to double-count the same hospital stay found in both encounter records and chart reviews. In that match, we found that 81 percent of 2021 hospital stays recorded in either MedPAR or the encounter data had a record in both files (Figure 3-4). In 2021, 13 percent of hospitalizations appeared only in the encounter data—suggesting that some records are missing from MedPAR—and 6 percent

of hospitalizations appeared only in MedPAR—suggesting some records are missing from encounter data.

We conducted sensitivity tests to determine the extent to which our findings were affected by our matching criteria and found that roughly one-fifth of hospitalizations that appeared in only the encounter data in our initial match (using beneficiary identifier and discharge date) had overlapping dates of service with a MedPAR record that was initially unmatched (equivalent to approximately 3 percent of total records). Roughly one-quarter of unmatched encounter records (26 percent) were for MA enrollees who had at least one record in MedPAR (regardless of service dates). We plan to continue refining how we link specific services across the two data sources. However, given our finding that not all beneficiaries had records reported in both files, it is unlikely that improving our method

**FIGURE  
3-4**

**Roughly 80 percent of MA inpatient hospital stays were reported in both the MedPAR and inpatient encounter data, 2017-2021**



Note: MA (Medicare Advantage), MedPAR (Medicare Provider Analysis and Review). Includes only data for health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts.

Source: MedPAC analysis of MA encounter and MedPAR data.

will demonstrate that either file is complete. For now, we can conclude that both the MedPAR and encounter data appear to have missing records for some MA enrollees' hospitalizations and that combining the two sources is likely the most comprehensive approach to identifying MA enrollees' hospital use.

Our findings are comparable with the results of a recent thorough review of the MedPAR and inpatient encounter data (Cotterill 2023). That study was limited to hospitals paid under the inpatient prospective payment systems between 2016 and 2019. The analysis found that 83 percent of hospital stays identified in either data source in 2019 were present in both sources (and that 10 percent were present only in the encounter data and 7 percent were present only in the MedPAR data).

**Encounter data completeness varies across and within MA contracts**

We also assessed variation in the completeness of data across and within MA contracts. We found that the share of contracts reporting at least one encounter in all six service categories has improved since the early years of encounter data collection, rising from 80 percent of contracts in 2015 to 96 percent of contracts in 2020. Within MA contracts, we found wide ranges of completeness across service sectors, even among contracts with relatively better completeness for any one sector. In other words, relatively high completeness with respect to one service category is not a marker of consistently complete data across all service categories. Given these findings, we urge policymakers and researchers to carefully consider the

**TABLE  
3-1**

**The share of contracts submitting at least one record for all service categories increased from 80 percent in 2015 to 96 percent in 2020**

Encounter data file	Share of contracts with at least one data record	
	2015	2020
Physician	99%	100%
Inpatient	98	100
Outpatient	98	100
Skilled nursing facility	95	98
Home health	82	98
Durable medical equipment	96	99
<b>In all six settings</b>	<b>80</b>	<b>96</b>

Note: Includes only health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts. Contracts with 10 or fewer enrollees are excluded.

Source: MedPAC analysis of MA encounter data and CMS enrollment data..

possible effects of missing data when using encounter data to examine MA utilization; using a combination of MA encounter data and provider-submitted data (such as those examined above) is one way to reduce the impact of missing data on findings, but it may not fully resolve the issue.

**The share of contracts successfully submitting encounter data has increased**

To assess variation in MA plans’ submission of encounter data, we checked whether MA contracts successfully submitted any records for each type of service: inpatient hospital, outpatient hospital, physician/supplier Part B, skilled nursing facility, home health, and durable medical equipment.

When plans submit encounter data, CMS’s encounter data system performs automated front-end checks before accepting each record. Errors or problems cause the system to reject the submission, which means no record will appear in the encounter data files unless the plan resubmits corrected data. In other words, if encounter records are not present in the data files, we are unable to tell whether that is a result of the plan not submitting or the system not accepting the record.

The share of contracts reporting at least one encounter record all six service categories has improved since the early years of encounter data collection, rising from 80 percent of contracts in 2015 to 96 percent of contracts in 2020 (Table 3-1).

All contracts submitted at least one record for physician, inpatient, and outpatient services. Diagnoses identified during hospital inpatient, hospital outpatient, and physician services are used to calculate MA risk scores, which determine payments to MA plans. Because encounter data are used as the source of diagnostic information, MA plans have a strong incentive to ensure that they are submitting complete encounter records for those settings, which likely contributes to the higher share of contracts submitting encounter records for those services (Pope et al. 2004). The share of contracts submitting encounter records for the other service categories has improved significantly since 2015: In 2020 only a small share of contracts, representing an extremely small share of enrollment (less than 0.5 percent of enrollees in HMO and PPO contracts), did not submit at least one SNF, home health, or DME encounter record. We are unable to tell whether these contracts did not submit

**TABLE  
3-2**

**Encounter data completeness varied within and across MA contracts, 2020**

Share of MedPAR records with a matching encounter record*	Share of records in comparison data set with a matching encounter record			
	Inpatient stays (MedPAR)	Home health users (OASIS)**	Skilled nursing users (MDS)	Dialysis users (risk indicator)
	Mean (minimum–maximum)			
<b>Higher than 90 percent</b> <i>311 contracts</i>	97% (90%–99.5%)	88% (1%–99%)	84% (1%–100%)	94% (66%–100%)
<b>80–90 percent</b> <i>15 contracts</i>	85% (80%–90%)	85% (64%–98%)	69% (12%–98%)	93% (77%–100%)
<b>Less than 80 percent</b> <i>28 contracts</i>	21% (1%–79%)	85% (60%–98%)	75% (15%–100%)	94% (79%–100%)

Note: MA (Medicare Advantage), MedPAR (Medicare Provider Analysis and Review), OASIS (Outcome and Assessment Information Set), MDS (Minimum Data Set). Includes only health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts. Contracts with fewer than 2,500 enrollees and fewer than 10 records in any of the service categories are excluded. \*Matching is based on the number of hospital stays with matching service end dates for the same beneficiary. \*\*2020 is the most recent year for which data were available across all service categories. Match rates between OASIS and encounter data improved significantly from 2020 to 2021. Match rates between the MDS and encounter data also improved in 2021, but to a lesser degree.

Source: MedPAC analysis of MA encounter data, OASIS, MDS, risk-adjustment, MedPAR, and CMS enrollment data.

encounter records because their enrollees did not use those services or because their reporting does not reflect all services that were provided.

**Variation in data completeness across MA contracts**

We also assessed whether the completeness of encounter data varied across service categories within each contract. To assess such variation, we summarized how each MA contract performed on the comparisons with independent data sources discussed earlier in this chapter. Table 3-2 shows that data completeness varied across the service categories we measured, even among plans with a high degree of completeness in one category. For example, we found an average encounter-MedPAR match rate of 97 percent among the subset of MA contracts for which at least 90 percent of their MedPAR inpatient stays in 2020 had a corresponding encounter record. However, the average encounter-OASIS match rate for contracts in this group was

88 percent when comparing beneficiaries with an OASIS record and a home health encounter record.

Out of 354 HMO and PPO contracts enrolling at least 2,500 enrollees in July 2020 and having at least 10 records for each service category (a sample that includes over 98 percent of all HMO and PPO enrollees), we found 311 contracts that had inpatient encounter records matching at least 90 percent of MedPAR records for their enrollees.<sup>26</sup> These contracts had an average encounter match rate of 97 percent for inpatient services based on MedPAR records; however, we found that those contracts had lower encounter data completeness for other services, with an average encounter match rate of 88 percent for home health, 84 percent for skilled nursing, and 94 percent for dialysis service users. Also, some of the 311 contracts with relatively high MedPAR match rates reported very low encounter match rates—as low as 1 percent—for home health and skilled nursing service

users. Finally, we found that of the 311 contracts that had encounter records matching at least 90 percent of MedPAR records, only 66 contracts (covering 4.2 million enrollees, or roughly 17 percent of all MA enrollees) had encounter records matching at least 90 percent of beneficiaries with a record in the comparison data set for all three other comparison sources (OASIS, MDS, dialysis risk-adjustment indicator) (data not shown).

This analysis used an approach similar to a method proposed by Jung and colleagues that has been used by researchers to account for missing data when analyzing MA encounter data (Beckman et al. 2023, Jung et al. 2023, Jung et al. 2022a, Jung et al. 2022b, Xu et al. 2023). The method attempts to limit the influence of incomplete encounter data by restricting the analysis to records from MA contracts that achieved a certain level of agreement with other data sets. Among contracts that are required to submit encounter data for all Medicare items and services provided to their enrollees, and contracts with at least 2,500 enrollees, the researchers selected those for which:

- less than 10 percent of inpatient stays were missing from the encounter data (measured as the number of encounter records divided by the total number of inpatient stays reported in either the encounter or the MedPAR data);
- there was a less than 10 percent difference (in either direction) between the number of ambulatory visits reported in the encounter data and Healthcare Effectiveness Data and Information Set® (HEDIS®) data; and
- there was a less than 10 percent difference (in either direction) between the number of emergency department visits reported in the encounter data and HEDIS data (Jung et al. 2022a).

We found wide ranges of encounter data completeness across service sectors when comparing with independent data sources (HEDIS data are generated by MA plans), even among contracts with relatively better completeness relative to MedPAR. It is therefore important to consider the possible influence of incomplete encounter data when interpreting the results of analyses using the encounter data to examine service use in MA, including those using Jung and colleagues' list of "relatively complete submitting

contracts." Such studies could be affected by the persistence of incomplete data among contracts meeting the inclusion criteria. In data for 2018, for example, Jung and colleagues found that the contracts they listed as "relatively complete" were missing 3.2 percent of all hospital stays—lower than the 6.7 percent observed across all contracts, but potentially large enough to meaningfully affect the interpretation of the results of some studies. Applying the criteria may reduce the influence of missing data but is not sufficient to resolve the issue entirely. Our results also demonstrate that relatively high completeness in one service category is not a marker of consistently complete data across all service categories. This issue is particularly important for studies using encounter data from multiple service categories, some of which do not have a viable independent data source with which to validate the completeness of the data (Beckman et al. 2023, Jung et al. 2023). In such cases, it is even more difficult to rule out the possibility that missing data are affecting the results.

Finally, we also encourage researchers to consider the possible effects of missing data when examining MA utilization using other sources of data such as the provider-submitted data sources we examined above—particularly when attempting to draw conclusions about small differences in patterns of service use in MA and FFS. Our results show that several of the provider-submitted data sources are missing records for MA enrollees. For studying these service categories, using both the encounter data and the provider-submitted data is one way to reduce the impact of missing data on the findings (although this approach might not fully resolve the issue).

The fact that encounter data and other sources are missing records for some items and services provided to MA enrollees, although concerning, does not entirely preclude the use of the data, but researchers should consider how the missing data, and any patterns in the missing data, would influence the results of a study. For example, if encounter records are systematically missing for certain types of plans, providers, or beneficiaries, careful use of exclusion criteria may reduce the influence of missing data but could also reduce the generalizability of any findings. But if encounter records are missing at random, the data might produce reliable information about the

relative distribution of services but could produce underestimates of utilization rates (though perfect randomness is unlikely). Studies that compare service use of MA and FFS enrollees and rely on data sources that are comparatively less complete for MA enrollees than for FFS beneficiaries will be biased toward finding lower service use among MA enrollees.

Overall, the fact the encounter data continue to be an incomplete source of information about MA enrollees' use of services, despite some incremental progress, is a barrier to monitoring, learning from, and improving the MA program. Policymakers and researchers must keep in mind the implications of incomplete data for assessments of the MA program and MA enrollees' use of services. The Commission is eager for MA encounter data to achieve sufficient completeness to evaluate MA care delivery and service use relative to FFS Medicare, to facilitate quality comparisons between MA plans and across MA and FFS Medicare, and to inform policy options to improve the Medicare program.

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### **MA encounter data are inconsistent with other plan-reported information**

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Our comparison of MA encounter data with the independent, provider-submitted data sources (described above) was limited to inpatient, post-acute, and dialysis services. However, MA plans also submit encounter data for outpatient hospital services, physician/supplier Part B services, and durable medical equipment. For most of these services, a nationally representative independent data source (i.e., one submitted by an entity other than the MA plan) is not available. In the absence of an independent source, encounter data can be compared with other information that plans submit to CMS. Comparing MA encounter data with other plan-generated data sources does not provide an independent assessment of data completeness and accuracy. However, these comparisons can be used to assess whether the data that plans report to CMS are internally consistent, and the comparisons may be useful for flagging potential underreporting of data (in either the encounter data or comparator source). To assess the consistency of plan-reported data and to explore the use of the data for these other purposes, we compared encounter data with two other plan-reported sources. In the

first comparison, we examined a subset of quality measurement data that MA plans report in HEDIS. In the second, we compared utilization rates reported in MA bid data with utilization rates calculated from the encounter data. We limited our analysis to these services because they are the ones for which we have an independent, provider-submitted data source with which to assess and contextualize the completeness of the encounter data.

Our findings suggest that the information that plans submit to CMS through separate reporting processes is not internally consistent and that there are technical factors that would limit our ability to use the data to identify underreporting of data. In our comparison of encounter and HEDIS data, we found that HEDIS hospitalization data differed significantly from encounter hospitalization data and that HEDIS was the main cause of this inconsistency. HEDIS data often included hospital stays that were required to be excluded under the instructions for processing the data; at the same time, HEDIS data were missing a considerable number of hospital stays and hospital users identified through the encounter data that should have been included. When we limited our analysis to beneficiaries found in both data sources, we found that encounter data included 11 percent more hospitalizations and 19 percent more readmissions than HEDIS data. Thus, the encounter data are a more complete source for hospital utilization measures than HEDIS data.

Our analysis of bid data and encounter data also showed discrepancies between the two sources. Utilization rates based on encounter data were within 5 percent of the rates reported in plan bids for less than 40 percent of bids we analyzed, comprising less than half of enrollees in the analysis. Encounter-based rates for inpatient and skilled nursing facility services were more than 5 percent below the bid-based rate for roughly one-third of analyzed bids (roughly 20 percent to 30 percent of enrollees in our analysis), suggesting that encounter data remain incomplete, particularly for some organizations. Variation in how plans report home health data in their bids limited our ability to assess those data's relationship with the encounter data.

In conducting the comparisons, we identified a series of factors that would limit the utility of the data for identifying underreporting of data. For example, we

found that HEDIS specifications (instructions for processing the data) exclude a significant fraction of hospitalizations. These exclusions limit the utility of HEDIS person-level data as a source with which to assess the completeness of MA encounter data. Nevertheless, our findings demonstrate that comparisons of plan-reported sources can reveal useful information about the consistency and completeness of the data that plans submit to CMS. In comparing bid data and encounter data, we found that less than half of bids (encompassing less than half of enrollees in the analysis) met the criteria needed to conduct the comparison. This limitation shows that bid data can, at best, be used to assess only a fraction of plan-reported data. Further analysis is needed to more fully consider the usefulness of comparing encounter data with bid data.

### **Misreporting of hospitalizations in MA HEDIS results in inconsistencies with MA encounter data**

We examined a subset of quality measurement data that MA plans report in HEDIS. We assessed the consistency of person-level HEDIS hospital stay data that are used for the plan all-cause readmission (PCR) measure with hospital-stay encounter data for dates of service in 2021 (the most recent available) among HMOs and PPOs that were in both data sources. We applied the HEDIS PCR specifications to all hospital inpatient and outpatient records in the encounter data.

HEDIS PCR measure specifications result in the exclusion of a substantial share of hospitalizations from the calculation of the measure. In particular, HEDIS specifies that plans exclude stays for beneficiaries who enrolled in hospice at any point during the year, had four or more index hospitalizations during the year, or were not continually enrolled in the same parent organization (a year before the discharge date through a month after the discharge date) (National Committee for Quality Assurance 2022). When applied to encounter data, the HEDIS specifications excluded 45 percent of index hospitalizations and 71 percent of readmissions. Thus, HEDIS person-level data is limited in its ability to be used as a source to assess the completeness of MA encounter data.<sup>27</sup>

Despite this limitation, we can assess the consistency between HEDIS PCR data and MA encounter data

by applying HEDIS specifications to encounter-data hospitalizations. (The text box on comparing MA encounter data with other data sources describes our methods for assessing the consistency between the two data sources (pp. 98–102)). While MA plans have a much longer time frame for submitting encounter data than HEDIS data, we would not expect these time frames to materially impact our comparison.<sup>28</sup> We would expect all HEDIS hospitalizations to be in the encounter data and nearly all encounter hospitalizations to be in the HEDIS data.<sup>29</sup>

We found that, even when the HEDIS PCR specifications were applied to encounter data, HEDIS hospitalization data were inconsistent with encounter hospitalization data. HEDIS PCR data often included hospital stays that, according to HEDIS specifications, should have been excluded (e.g., hospitalizations for beneficiaries that did not meet continuous enrollment criteria). When we relaxed (i.e., did not apply) these exclusions in the encounter data, only 4 percent of HEDIS stays and 1 percent of HEDIS beneficiaries were not found in the encounter data. Perhaps more concerning, we identified a considerable number of qualifying hospital stays and hospital users through the encounter data that were not reported in HEDIS. In addition, when we limited our analysis to beneficiaries found in both data sources, we found that encounter data included 11 percent more hospitalizations and 19 percent more readmissions than HEDIS data did. Thus, HEDIS was the main cause of this inconsistency between the two data sets, such that the encounter data would be a more complete source for hospital utilization measures. Further investigation would be needed to assess the extent to which quality bonus payments and rebates would change if encounter data were used as the source for some measures in MA star ratings.<sup>30</sup>

### **MA plans inconsistently applied HEDIS exclusions in hospital data**

As an initial comparison of consistency between HEDIS and the encounter data, we examined the extent to which the 3.1 million HEDIS hospitalizations (as measured by unique beneficiary, MA contract, and discharge date) were in the encounter data in 2021. We would expect that effectively all HEDIS hospitalizations would be in the encounter data. We applied HEDIS specifications to the encounter data. We found that

**TABLE  
3-3**

**Inconsistent treatment of exclusions in 2021 MA HEDIS® data led to inconsistencies with MA encounter data**

**HEDIS hospitalizations found in encounter data (in percent)**

Encounter-data population	Percentile					
	Overall	10th	25th	50th	75th	90th
Applying HEDIS exclusions	85%	64%	75%	84%	89%	95%
Relaxing HEDIS exclusions	96	79	94	98	99	100
HEDIS exclusions:						
Hospice	4	1	1	3	5	13
Continuous enrollment	3	1	2	3	7	87
Outlier	4	1	2	4	6	17

Note: MA (Medicare Advantage), HEDIS® (Healthcare Effectiveness Data and Information Set®), PCR (plan all-cause readmissions). Hospitalizations were matched by beneficiary, MA contract, and discharge date. Distribution by percentile is at the MA contract level and excludes private fee-for-service plans and MA contracts with fewer than 30 index hospitalizations. HEDIS hospitalizations come from HEDIS PCR patient-level data, which include observation stays. HEDIS specifications were applied to MA encounter data. “Continuous enrollment” is measured as an enrollee being in the same parent organization for the 365 days prior to the discharge date and 30 days after the discharge date. HEDIS defines outliers as those beneficiaries with four or more index hospitalizations from the same parent organization during the year.

Source: MedPAC analysis of MA encounter data, HEDIS patient-level hospital discharge data, and Medicare enrollment data, 2021.

85 percent of HEDIS hospitalizations were in the encounter data (Table 3-3), which accounted for 90 percent of HEDIS hospital users (data not shown). However, only a small part of this discrepancy was due to encounter data missing HEDIS hospitalizations. Instead, we found that the difference was mainly due to HEDIS hospitalizations that matched HEDIS exclusions for beneficiaries who elected hospice (4 percent of HEDIS hospitalizations), beneficiaries who were not continually enrolled in the plan’s parent organization (3 percent of HEDIS hospitalizations), and “outlier” beneficiaries with at least four index hospitalizations within the plan’s parent organization during the year (4 percent of HEDIS hospitalizations).<sup>31,32</sup> After relaxing all HEDIS exclusions, we found that 96 percent of HEDIS hospitalizations were in the encounter data, which accounted for 99 percent of HEDIS hospital users. Nearly all 549 MA contracts included 1 or more stays that met the HEDIS exclusion criteria. Some MA contracts may have misreported beneficiaries

who did not meet hospice criteria because the MA contract lacked enrollment information about the beneficiary for the entire year. In 2022, NCQA clarified that enrollees who were in hospice at any point in the year should be excluded. In addition, some MA contracts may have misreported beneficiaries who did not meet continuous enrollment criteria because the MA contract lacked complete enrollment data for those beneficiaries. Further, some contracts may have included outlier beneficiaries because the contract did not report all of a beneficiary’s index admissions. Even so, our results suggest that HEDIS specifications are not applied consistently across MA plans.

**HEDIS omitted a notable share of hospitalizations found in encounter data**

After applying the HEDIS specifications to the encounter data, we examined the extent to which 3.6 million encounter-data hospitalizations (as measured by unique beneficiary, MA contract, and discharge

**TABLE  
3-4**

**A substantial share of 2021 hospitalizations in encounter data were not found in HEDIS® data**

**Encounter-data hospitalizations that were also found in HEDIS data (in percent)**

Overall	Inpatient	Observation stays
73%	86%	40%

Note: HEDIS® (Healthcare Effectiveness Data and Information Set®). Hospitalizations were matched by beneficiary, Medicare Advantage (MA) contract, and discharge date. Excludes private fee-for-service plans. HEDIS hospitalizations come from HEDIS plan all-cause readmissions patient-level data, which include observation stays. HEDIS specifications were applied to MA encounter data.

Source: MedPAC analysis of MA encounter data, HEDIS patient-level hospital discharge data, and Medicare enrollment data, 2021.

date) were included in the HEDIS data. A small share of encounter-data hospitalizations may be unknown to plans when they submit HEDIS data (about 7 months after the data collection period) because the time frame for encounter-data submissions provides much more time (about 13 additional months) for claims maturity. However, because 99 percent of hospital claims are submitted within seven months in FFS Medicare, we would expect that nearly all encounter-data hospitalizations would be in the HEDIS data too (Chronic Condition Warehouse 2017). However, we found that just 73 percent of encounter-data hospitalizations were in the HEDIS data (Table 3-4), which accounted for 78 percent of encounter-data hospital users (data not shown). The hospitalization match rate was 90 percent or better for only 14 percent of MA contracts that submitted HEDIS data in 2021 (data not shown). In addition, a much larger share of inpatient encounters (86 percent) was found in HEDIS data compared with observation stays found in HEDIS data (40 percent). It is unclear why such a substantial share of encounter-data hospitalizations were not reported in HEDIS—in particular for observation stays. While HEDIS data are submitted and audited by entities approved through NCQA, it is not clear whether the data are validated against other sources of discharge-level data for the same MA contract, whether different data systems affect the results produced by software algorithms, whether the specifications are consistently applied between entities, and whether audits conduct parallel coding with an MA contract’s source data and compare discharge-level results.

Because some required HEDIS exclusions are applied inconsistently (e.g., continuous enrollment), it is difficult to estimate how many unique hospitalizations and readmissions would have been added to HEDIS if it fully reflected encounter data.<sup>33</sup> As an alternative, we calculated the differences in the total number of index hospitalizations and readmissions among 2.3 million beneficiaries who were in both the encounter data and HEDIS. We found that the number of encounter-data index hospitalizations was 11 percent higher than index hospitalizations in HEDIS, and the number of encounter-data readmissions was 19 percent higher than readmissions in HEDIS (data not shown). This finding is consistent with prior research that also found underreporting in HEDIS of hospitalizations and readmissions (Kim et al. 2020, Panagiotou et al. 2019). This result does not suggest that readmission rates would have been higher if encounter data were the source used for the PCR measure because the number of index hospitalizations can alter whether a beneficiary meets the HEDIS outlier exclusion threshold. However, the larger number of hospitalizations in the encounter data provides further evidence that these data would be a more complete source for the PCR measure than HEDIS. Further investigation would be needed to determine whether the encounter data would be a more complete source of information for other quality measures and the extent to which using encounter data would alter quality bonus payments and plan rebates. In addition, our findings on the inconsistency of HEDIS reporting

for the PCR measure conform with prior research that found large inconsistencies in the reporting of HEDIS measures (Jung et al. 2022b, Kim et al. 2020, Medicare Payment Advisory Commission 2019, Panagiotou et al. 2019, Research Data Assistance Center 2022). These findings raise questions about whether HEDIS data are a reliable tool for identifying contracts with complete encounter data.

### **MA bid data include utilization rates that can be compared with MA encounter data**

In addition to HEDIS data, we also compared MA encounter data with information that MA organizations submit annually in their bids to provide MA plans. The MA bidding cycle unfolds primarily during the year preceding a contract year. Plans submit bids to CMS by the first Monday of June using a form called the Bid Pricing Tool (BPT) (Centers for Medicare & Medicaid Services 2023b).<sup>34</sup> The bids include information about each plan's members' use of services and plan spending for those services during the preceding year (i.e., the year two years prior to the contract year, referred to as the "base period"). Plans also submit projection assumptions that, when applied to the data describing the base period, equal the plan's estimated costs for the upcoming contract year.<sup>35</sup> Those projections, along with a set of other factors, determine the plan's bid for the contract year.<sup>36</sup> As an example, for contract year 2023, plans submitted bids in June of 2022 that included information about their members' service use in 2021.

The base-period data in the bids include utilization rates, along with information about plan and beneficiary spending. MA plans use data from claims submitted to the plan by providers to generate information about the base period. Those claims data are not submitted to CMS as part of the regular bidding process and are not publicly available. Data for bids that were accepted or approved by CMS are generally made publicly available after four years (42 CFR 422.272(b)).

Plans' bid data must be certified by an actuary, are subject to review and audit by CMS, and CMS requires that the base-period data match the MA organization's audited financial statements (Centers for Medicare & Medicaid Services 2023b).<sup>37</sup> Because financial statements generally do not contain information about service use, the utilization rates reported in the data

might not receive the same scrutiny and may not be as reliable as the fields describing payments. We interviewed actuaries who prepare MA bids to learn more about the preparation of the data and gather their perspectives about the reliability of the data. They generally supported the view that the utilization rates reported in the bid data are a reasonable source of information about a plan's base-period experience because they are typically derived from the same claims data that are used to populate the payment fields; however, actuaries noted that there is more than one reasonable way to summarize the utilization data for inclusion in plans' bids.

### **MA bid data: How plans calculate utilization rates**

MA plans submit base-period utilization rates (measured as a rate per 1,000 enrollees) for 11 Medicare-covered service categories in their bids. Plans can choose the unit of measure they use to report the data from a list of CMS-provided options. For example, in bids for 2023 (reflecting utilization for 2021), 90 percent of bids reported the number of days of inpatient care for their members, while 10 percent reported the number of inpatient admissions. For SNF care, 98 percent of bids reported the number of days of care; for home health, 99 percent of bids reported the number of visits (Table 3A-2, p. 126, in the appendix to this chapter, presents the units used to report other categories of services). We included bids that used the most common unit for each category: days for inpatient and skilled nursing facility services, visits for home health care.

### **MA encounter data: Calculating utilization rates**

We calculated utilization rates for inpatient, SNF, and home health services using MA encounter data and other administrative data sources. Our method was designed to approximate, as closely as possible, the methods used to prepare MA bids. To inform our approach, we consulted with actuaries who have experience preparing MA bids. We used administrative data to exclude records for enrollees who were in hospice status as of the first of the month and to assign the plan in which the beneficiary was enrolled at the time of the service; we used risk-adjustment data to exclude records for services provided in a month in which a beneficiary was in ESRD status.

## Differences between encounter data and bid data will affect the comparison of utilization rates

Both the encounter data and bid data describe services delivered to Medicare Advantage (MA) enrollees in a year. As such, utilization rates calculated from encounter data should generally be consistent with the information submitted in plan bids. However, there are reasons to expect that the former (“encounter-based rates”) would be at least slightly different from the latter (“bid-based rates”):

- **Incomplete encounter data:** As described earlier in this chapter, the Commission has found that the encounter data are incomplete. Missing encounter data could lead our estimate of utilization to be lower than what plans report in their bids.
- **Payment denials:** MA organizations (MAOs) are required to submit encounter data for all items and services provided to their members, including those for which the MA plan denied payment to the provider (e.g., out-of-network care or instances in which the plan acted as a secondary payer) (Centers for Medicare & Medicaid Services 2022a). In contrast, MA bids reflect only the items and services for which the MA plan made payment. The encounter data do not include a reliable way to identify denied claims (Office of Inspector General 2023).<sup>38</sup> As a result, utilization rates calculated from the encounter data may

include some services that are excluded from the bid data, which would cause the utilization rates we calculated to be higher than what plans report in their bids.

- **Variation in encounter submissions and claims processing methods:** CMS provides limited guidance about how plans should calculate the utilization rates reported in their bids. Without consistent guidelines from CMS, plans do not have a standardized method for calculating utilization rates, and methods vary across plans. Additionally, although MAOs must use standardized claim formats to submit encounter records, MAOs may differ in how they populate the records for certain services (Centers for Medicare & Medicaid Services 2022a). For example, some plans might submit encounters that conform to claims-submission requirements used for fee-for-service claims, while others might use somewhat different standards. These sources of variation could result in differences between encounter-based and bid-based utilization rates.

Additional differences could arise if plans categorized services differently when preparing the two sources. The Bid Pricing Tool (BPT) requires plans to group data for Medicare-covered services into 11 categories (see Table 3A-2, p. 126, in

*(continued next page)*

We then calculated total days of inpatient and SNF care occurring during the base period for each plan (calculated at the segment level).<sup>39</sup> To calculate the number of home health visits, we counted the number of home health revenue codes listed on the encounter record.<sup>40</sup>

### Comparing utilization rates calculated from encounter data with rates reported in bids

We compared utilization rates for plan year 2021 using the 2021 encounter data and the 2023 bid data

(for which the base period was 2021) for HMO and PPO plans that reported base-period experience data, covered enrollees with Part A and Part B, and did not participate in the MA value-based insurance design (VBID) model.<sup>41</sup> Just over half of all MA bids and slightly less than half of all enrollment represented in MA bids met these criteria (see Table 3-A3 (p. 127), in the appendix to this chapter, for a summary of our exclusion criteria). We then checked whether the enrollment information submitted in the bids matched the enrollment information in our administrative

## Differences between encounter data and bid data will affect the comparison of utilization rates (cont.)

the appendix to this chapter, for the list of service categories). CMS provides minimal guidance as to which types of claims should be included in each category. Plans may apply discretion as to how to categorize certain types of claims. Differences between bid data and encounter data could arise if plans categorize services in their bids differently than we did when calculating utilization rates with the encounter data.

- **Differences between plans' internal data and CMS enrollment data:** Utilization rates reported in plan bids are aggregated from the experience of members enrolled in plans that were active in the base period, which can include multiple predecessor plans. MAOs report the identification numbers of the plans that were used to develop the base-period utilization rates for each bid, but only a single, aggregate utilization rate is reported for each service category for each bid.<sup>42,43</sup> Plans must exclude any utilization by enrollees who were in end-stage renal disease or hospice status when reporting utilization rates for Medicare-covered services.<sup>44</sup> Plans use their internal data, along with the enrollment data they submit to CMS, to identify the enrollees and claims to include in their bids. In contrast, we used enrollment data from CMS to identify encounter records for inclusion or exclusion. We

found that the enrollment information that plans submitted in their bids was not always consistent with the enrollment data we used. To account for these differences, we omitted any bids for which the difference between the enrollment reported in the bid and in the administrative sources was more than 5 percent. The remaining difference between the enrollment information that plans used to prepare their bids and the data we used to process encounter data could contribute to small differences in rates calculated from the two sources.<sup>45</sup>

Altogether, differences between the encounter data and the claims data underlying plan bids could cause the encounter-based utilization rates we measured to be higher or lower than the rates reported in the bids. The overall direction of the difference depends on which factor is larger for a particular bid, a factor that is likely to vary across service categories and plans. For plans submitting relatively complete encounter data, the utilization rates we calculate are likely to be higher than what the plan reports in its bid due to factors like the inclusion of encounter records for denied claims; for plans submitting incomplete encounter data, the missing data could put downward pressure on the calculated rate, moving it closer to or below the reported rate. ■

data sources. For all comparisons with the bid data, we omitted any bids for which the difference between the enrollment reported in the bid and in the administrative sources differed by more than 5 percent. Roughly one-third of all bids, encompassing approximately half of enrollees, met these criteria. After the exclusion, the average difference in enrollment between the two sources was less than 1.5 percent. We then merged our encounter-based utilization rates with the list of plans that contributed to each bid. We omitted any bids for which we did

not find encounters for all of the plans corresponding to the bid. In total, approximately 30 percent of bids (encompassing roughly 40 percent of enrollment) met our inclusion criteria. We then aggregated the utilization rates to the bid level using the enrollment of each contributing plan.

Table 3-5 (p. 118) illustrates the calculation using a hypothetical 2023 bid. This plan's bid was based on the experience of three fictitious plans serving members in 2021; the plan reported an aggregate utilization

**TABLE  
3-5**

**Illustrative example of comparing bid data with encounter-based utilization rates**

MA 2023 bid number*	Bid data		Calculated from administrative and MA encounter data	
	Member months	Utilization rate (per 1,000 enrollees)	Member months (administrative data)	Encounter-based utilization rate (per 1,000 enrollees)
H####-###-001	100,000	1,245 inpatient days		1,295 inpatient days
<b>2021 bid numbers for plans used to develop the 2023 bid above</b>				
	<b>Plans used by MAO to develop base-period utilization rate</b>			
H####-###-001	75,000 (75%)		75,500 (76%)	1,180
H####-###-002	15,000 (15%)		14,750 (<15%)	1,580
H####-###-003	10,000 (10%)		9,750 (<10%)	1,750

Note: MA (Medicare Advantage), MAO (Medicare Advantage organization). All data are illustrative.  
\*Contract-plan segment number.

Source: Illustrative example based on MedPAC analysis of 2023 MA bids, CMS 2021 enrollment data, and 2021 MA encounter data.

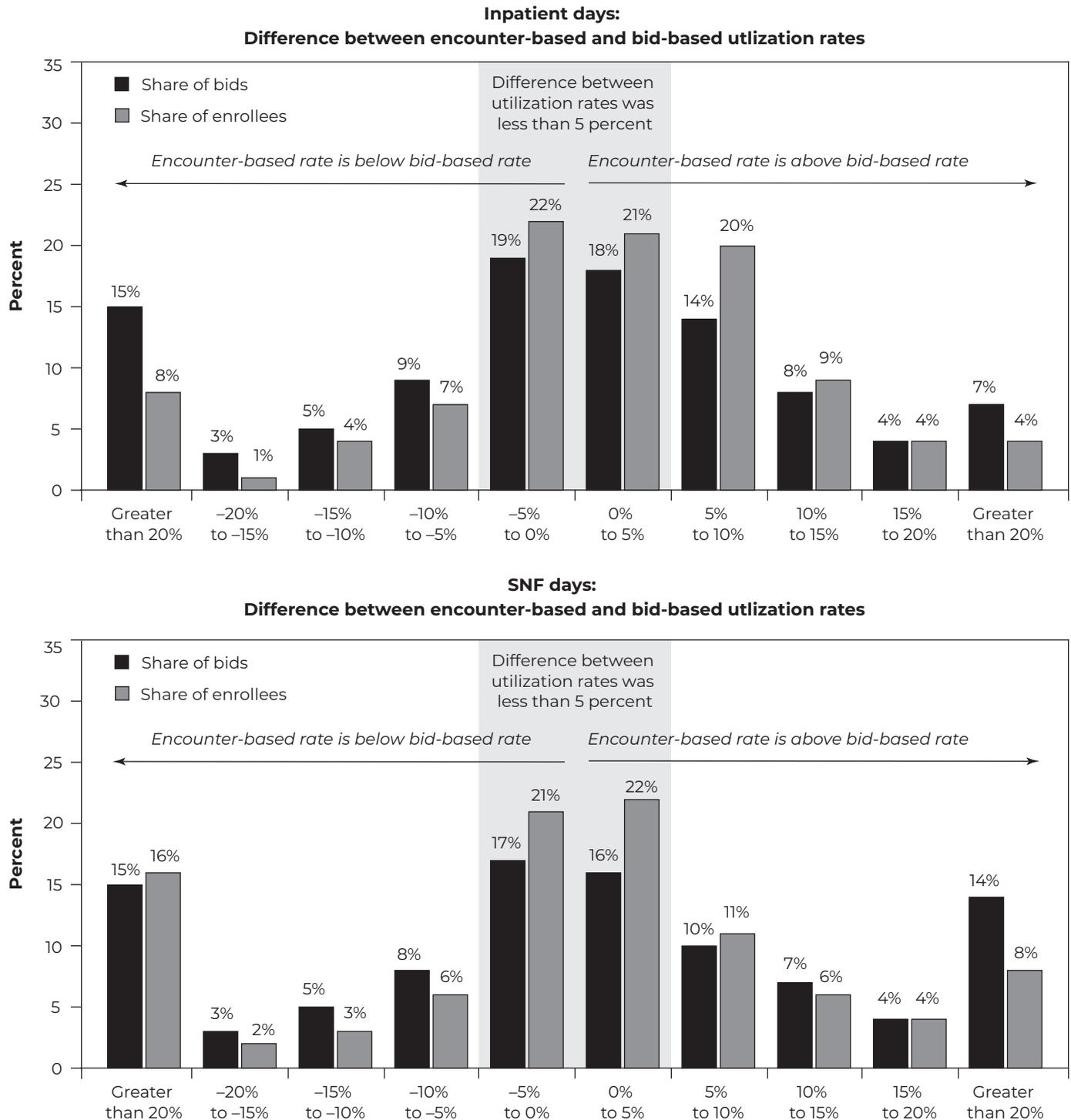
rate of 1,245 days of inpatient care per 1,000 enrollees. That rate was based on the experience of three plan segments operating in 2021: The largest (001) contributed approximately 75,000 member months to the bid (roughly 75 percent); 2 smaller segments (002 and 003) made up the rest. In the example, the enrollment for these three plans was similar in our administrative enrollment data, though segment 001 made up a slightly larger share of the total in the administrative data (76 percent). From the encounter data, we would calculate utilization rates for the three contributing plans; for this example, we show inpatient utilization rates ranging from 1,180 to 1,750 days per 1,000 enrollees. Because bid data do not include utilization rates for each contributing plan, we cannot directly compare the utilization for each contributing segment. Combining the administrative enrollment data with the encounter-based utilization rates, we would calculate an aggregate rate of 1,295 inpatient days per 1,000 enrollees—roughly 4 percent higher than the hypothetical rate for the bid. We conducted a similar comparison for all 2023 bids that met our inclusion criteria; for each bid, we compared inpatient days of care, skilled nursing days of care, and home health visits.

**Utilization rates calculated from encounter data are not consistently above or below those reported in plan bids**

We found that between 30 percent and 40 percent of bids meeting our inclusion criteria—comprising roughly 43 percent of enrollees in our analysis—reported inpatient and SNF utilization rates in their bids that were within 5 percent (in either direction) of the encounter-based rates we calculated (Figure 3-5). The share of bids reporting rates within 10 percent of the calculated rate was higher—between 50 percent and 60 percent of bids meeting the inclusion criteria, or 60 percent to 70 percent of enrollment. For inpatient days, the encounter-based rates ranged from more than 500 percent above the bid-based rate to 99 percent below the bid-based rate; the enrollment-weighted average rate across all bids was within 1 percent of the bid-based rate, but just over 20 percent of bids that met the inclusion criteria (accounting for 12 percent of enrollees) had rates that differed by more than 20 percent (in either direction). For skilled nursing facility days of care, the range was wider (from 2,700 percent above to more than 99 percent below the bid-based rate), and the rates for nearly 30 percent of bids that met the inclusion criteria (accounting for roughly a

**FIGURE 3-5**

**Inpatient and SNF days: Wide variation in the relationship between encounter-based and bid-based utilization rates, 2021**



Note: SNF (skilled nursing facility). Includes bids for health maintenance organizations and preferred provider organizations that reported base-period days of inpatient or SNF care based on experience from no more than eight plans. Plans reporting base-period enrollment that differed from CMS enrollment data by more than 5 percent were excluded.

Source: MedPAC analysis of 2023 MA bids, CMS 2021 enrollment data, and 2021 MA encounter data.

quarter of enrollees) differed by more than 20 percent (in either direction).

Our initial exploration of using bid data to assess encounter data shows the limitations of such an approach. Due to data limitations, we excluded a significant number of bids from the analysis and were able to assess only a fraction of total bids. Additional data limitations such as the inability to exclude encounters for denied claims limit the precision of the comparison. Nevertheless, the finding that encounter-based rates and bid-based rates were well correlated for a large number of bids suggests that comparing MA encounter data with MA plan bid data could be useful for identifying underreporting of encounters for some plans. We found that encounter-based rates were more than 5 percent below the rate reported in the bid data for roughly one-third of bids that met the criteria for inclusion in our analysis (comprising roughly 20 percent to 30 percent of enrollees), a potential indicator of incomplete encounter data for the plans submitting those bids. Further analysis—such as assessing the correlation between the bid data and the match rates we calculated when comparing encounter data with independent data sources—is needed to more fully assess whether the bid data can be used for such purposes.

A similar analysis of bid and encounter data, conducted by researchers at RAND Health Care as part of an evaluation of the MA VBID model, also found that utilization rates calculated from encounter data vary significantly from rates reported in plan bids (Eibner et al. 2023a). That study analyzed data for nonsegmented plans from 2017 through 2020 and found that less than 20 percent of beneficiaries included in the analysis were enrolled in plans for which the encounter-based utilization rate was within 10 percentage points of the rate reported in the bid. In our analysis of 2021 data, which included some segmented plans, we found greater agreement between the encounter-based rates and bid-reported rates: Roughly 70 percent of the enrollees in our analysis were enrolled in plans for which the encounter-based inpatient rate was within 10 percent of the rate reported in the plan's bid.<sup>46</sup> The RAND study found that encounter-based rates of inpatient utilization were, on average, 17 percent higher than bid-based rates (Eibner et al. 2023a).<sup>47</sup> We also observed that encounter-based rates frequently

exceeded the rate reported in the bid (roughly half of bids we analyzed reported bid-based rates below the encounter-based rate), but we found that the average difference across all bids was less than 1 percent (i.e., encounter-based rates were approximately evenly distributed above and below the bid-based rates).

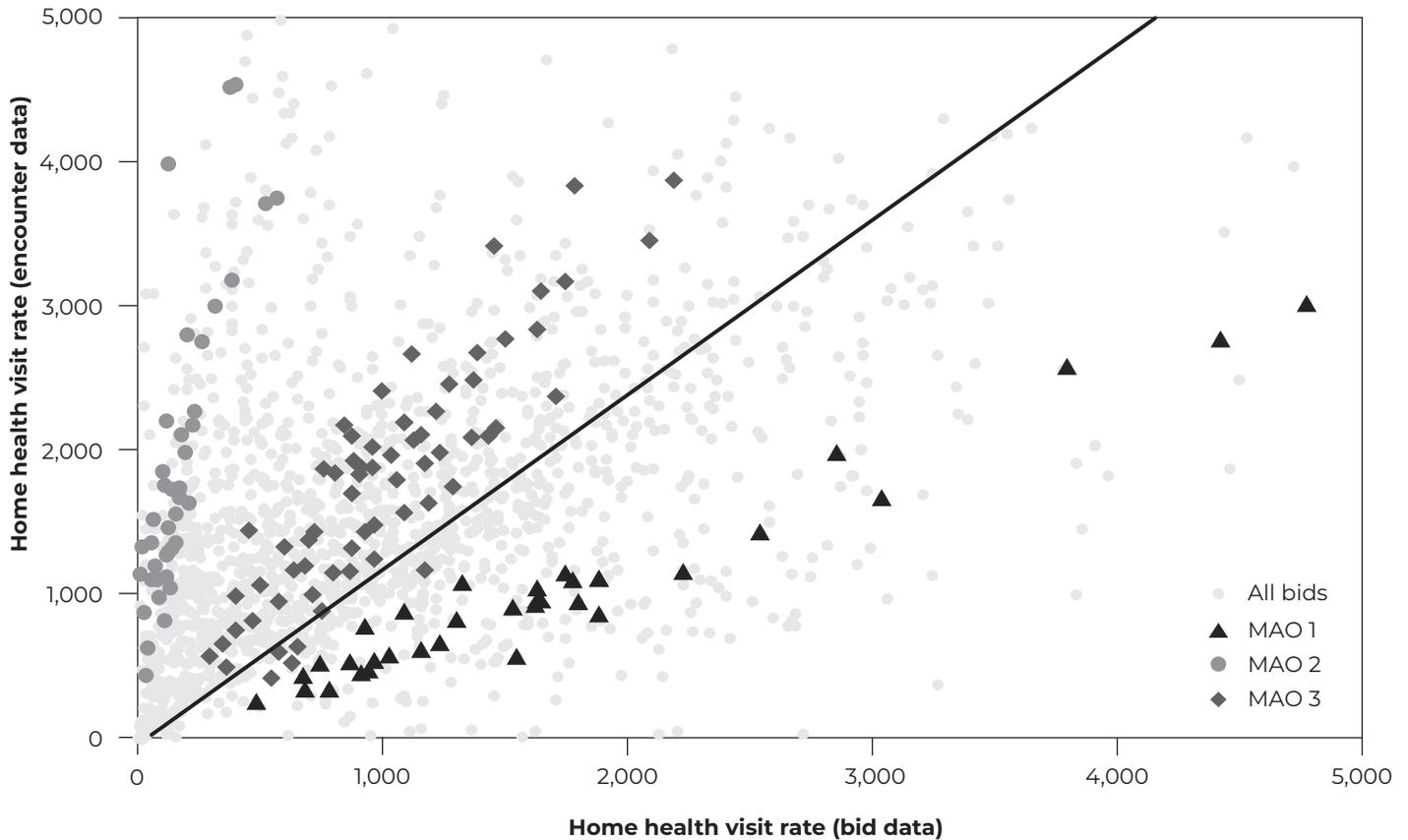
### **Inconsistencies in how plans report home health visits limits our ability to compare bid data with encounter data**

Inconsistencies between encounter-based rates and bid-based rates for home health service use demonstrate that the flexibility allowed under the current system would be a barrier to using the bid data to assess encounter-data completeness. Using the encounter data, we calculated the number of home health visits provided by each plan segment. Figure 3-6 shows the relationship between the encounter-based rates (plotted on the vertical axis) and the bid-based rates (plotted on the horizontal axis). The diagonal line shows the point at which the two rates are equal: Points along this line represent bids for which the encounter-based rate is equal to the bid-based rate. Points below the line represent bids for which the encounter-based rate was less than the bid-based rate, and points above the line represent bids for which the encounter-based rate was greater than the bid-based rate. Each point represents the comparison for one bid. For many bids, the two rates were well correlated. However, we found that the relationship between the two rates varied systematically depending on the MAO or contract associated with the bid. Bids for three example contracts are highlighted in the figure.

All three of the MAOs shown in the figure indicated in the BPT that they report home health utilization using a “visit” as the reporting unit. Example 1 (triangles) shows the bids for an MAO for which the encounter-based rate was significantly lower than the bid-based rate for that MAO. Examples 2 and 3 show the bids of MAOs for which the encounter-based rate was significantly above the bid-based rate. For all three examples (and for many other bids), there is a clear linear relationship between the two rates. This relationship suggests that MAOs are using a consistent method to summarize home health visits for each bid within a contract, but that the method can vary from contract to contract. Due to this variation, we are unable to draw

**FIGURE  
3-6**

**Home health visits: Comparison of encounter data and bid data suggests that plans use different definitions when reporting home health visits**



Note: MAO (Medicare Advantage organization). "Visit rate" is the number of visits per 1,000 enrollees. Includes bids for health maintenance organizations and preferred provider organizations that reported base-period home health visits based on experience from no more than eight plans. Plans reporting base-period enrollment that differed from CMS enrollment data by more than 5 percent were excluded. Data for outliers (visit rates exceeding 5,000 visits per 1,000 enrollees) are not shown.

Source: MedPAC analysis of 2023 MA bids, CMS 2021 enrollment data, and 2021 MA encounter data.

a representative conclusion about the relationship between encounter-based and bid-based utilization rates.

This variation would be a barrier to using plan bid data to evaluate MA encounter data: CMS would need to develop instructions to standardize how MAOs report base-period utilization in the bids to ensure that methodological and reporting differences are not distorting comparisons with the encounter data.

### **The Commission's 2019 recommendation would address the shortcomings of MA encounter data**

Complete and accurate encounter data are imperative for learning about the care provided to MA enrollees and would be a valuable tool for providing more rigorous oversight of the \$455 billion paid to MA plans in 2023. However, our comparisons of MA encounter

data and independent sources of information about MA enrollees continue to show that the data do not include records of all items or services provided to MA enrollees and that validating the data is an ongoing challenge.

The Commission's standing recommendation to improve the completeness and accuracy of the encounter data would address the problem of incomplete records by establishing clear thresholds for measuring data completeness and by providing plans with a financial incentive to report complete data (Medicare Payment Advisory Commission 2019). We found that encounter data for inpatient services tended to be more complete than the data for other service categories, suggesting that MA organizations are capable of achieving higher levels of data completeness, particularly when data submission is linked to payment (e.g., via risk scores, as in the case of inpatient encounter data).

In addition to finding evidence that the data are incomplete, our analysis of encounter data and other plan-reported sources suggests that the information MA plans submit to CMS is not consistent across sources, likely due in part to missing encounter records. Our comparison of HEDIS data found that the encounter data are likely more complete than the plan-reported quality data, meaning that those data are unlikely to be useful for assessing encounter-data completeness. Further investigation is needed to determine whether using the encounter data to

calculate certain quality measures would alter MA star ratings, quality bonus payments, and plan rebates. Our assessment of plans' bids shows that while bid data may offer a way to identify underreporting of encounter data for service categories for which no independent source exists, there are limitations that would significantly constrict the value of that potential approach, including inconsistencies in how data are reported (as in the case of home health visits), a lack of standardized claims processing instructions from CMS, the inability to identify encounter records for denied claims, and the complexity of aggregating base-period data to the bid level (the level at which plans are required to report utilization rates). Nevertheless, assessing the distribution of the relationship between encounter-based rates and bid-based rates may still be informative for some service categories. We plan to continue assessing whether the data can be used for such purposes.

The encounter data could be a valuable tool for policymakers seeking to monitor, learn from, and improve the MA program. However, incomplete reporting of the data significantly limits the data's utility. The Commission is eager for MA encounter data to achieve sufficient completeness to evaluate MA care delivery and service use. We will continue to consider approaches for working with the data in their current state, additional methods for validating the data, and policy options for improving the accuracy and completeness of the data. ■

# 3 — A

APPENDIX

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## **Supplemental tables for Chapter 3**

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**TABLE  
3A-1**

**Studies using the independent data sources we used in our assessment of MA encounter data**

Reference	Data source(s)
Differences in nursing home quality between Medicare Advantage and traditional Medicare patients (Chang et al. 2016)	MDS
Less intense postacute care, better outcomes for enrollees in Medicare Advantage than those in fee-for-service (Huckfeldt et al. 2017)	MedPAR
Hospital readmission rates in Medicare Advantage and traditional Medicare: A retrospective population-based analysis (Panagiotou et al. 2019)	MedPAR
Racial disparities in avoidable hospitalizations in traditional Medicare and Medicare Advantage (Park et al. 2021)	MedPAR
Racial disparities in readmission rates among patients discharged to skilled nursing facilities (Rivera-Hernandez et al. 2019)	MDS
Site of death, place of care, and health care transitions among U.S. Medicare beneficiaries, 2000–2015 (Teno et al. 2018)	MDS
Comparison of the quality of hospitals that admit Medicare Advantage patients vs. traditional Medicare patients (Meyers et al. 2020)	MedPAR
Analysis of drivers of disenrollment and plan switching among Medicare Advantage beneficiaries (Meyers et al. 2019)	MedPAR, MDS, OASIS
Medicare Advantage enrollees more likely to enter lower-quality nursing homes compared to fee-for-service enrollees (Meyers et al. 2018)	MDS
Comparison of the use of top-ranked cancer hospitals between Medicare Advantage and traditional Medicare (Kim et al. 2021)	MedPAR
Comparing post-acute rehabilitation use, length of stay, and outcomes experienced by Medicare fee-for-service and Medicare Advantage beneficiaries with hip fracture in the United States: A secondary analysis of administrative data (Kumar et al. 2018)	MedPAR
Comparing receipt of prescribed post-acute home health care between Medicare Advantage and traditional Medicare beneficiaries: An observational study (Loomer et al. 2021)	MedPAR, OASIS
Effects of Medicare advantage on patterns of end-of-life care among Medicare decedents (Park et al. 2022)	MedPAR, MDS, OASIS
Quality of home health agencies serving traditional Medicare vs Medicare Advantage beneficiaries (Schwartz et al. 2019)	OASIS
Home health and post-acute care use in Medicare Advantage and traditional Medicare (Skopec et al. 2020a)	MedPAR, MDS, OASIS
Home health use in Medicare Advantage compared to use in traditional Medicare (Skopec et al. 2020b)	OASIS
Dying with dementia in Medicare Advantage, accountable care organizations, or traditional Medicare (Teno et al. 2021)	MDS
Home health use following a cancer diagnosis among patients enrolled in Medicare Advantage and traditional Medicare: Findings from the newly linked SEER-Medicare and home health OASIS data (Thomas et al. 2020)	OASIS
Does Medicare Advantage enrollment affect home healthcare use? (Waxman et al. 2016)	OASIS
Ambulatory care sensitive condition admission rates in younger and older traditional Medicare and Medicare Advantage populations, 2011–2019 (Weeks et al. 2022)	MedPAR

**TABLE  
3A-1****Studies using the independent data sources we  
used in our assessment of MA encounter data (cont.)**

<b>Reference</b>	<b>Data source(s)</b>
Changes in home health care use in Medicare Advantage compared to traditional Medicare, 2011–2016 (Zuckerman et al. 2020)	OASIS
Association of Medicare Advantage vs. traditional Medicare with 30-day mortality among patients with acute myocardial infarction (Landon et al. 2022)	MedPAR
Medicare Advantage enrollment and disenrollment among persons with Alzheimer disease and related dementias (James et al. 2023)	MedPAR, MDS, OASIS
Post-acute care for Medicare Advantage enrollees who switched to traditional Medicare compared with those who remained in Medicare Advantage (Huckfeldt et al. 2024)	MedPAR

Note: MA (Medicare Advantage), MDS (Minimum Data Set), MedPAR (Medicare Provider Analysis and Review), OASIS (Outcome and Assessment Information Set), SNF (skilled nursing facility).

Source: MedPAC review of articles identified in a recent review of the literature (Ochieng and Fuglesten Biniek 2022) and additional articles.

**TABLE  
3A-2**

**Units used by MA plans to report base-period utilization in bids**

Service category	Unit	Bids using unit	
		Number	Percentage
Inpatient facility	Days	5,071	90%
	Admissions	589	10
Skilled nursing facility	Days	5,567	98
	Admissions	93	2
Home health	Visits	5,607	99
	Procedures	53	1
Ambulance	Trips	5,539	98
	Procedures	121	2
DME/prosthetics/diabetes	Other	4,739	84
	Procedures	921	16
Outpatient facility: Emergency	Visits	5,591	99
	Procedures	69	1
Outpatient facility: Surgery	Visits	5,455	96
	Procedures	205	4
Outpatient facility: Other	Visits	3,059	54
	Other	1,918	34
	Procedures	683	12
Professional	Visits	3,943	70
	Procedures	1,717	30
Part B: Drugs	Scripts	3,882	69
	Other	1,778	31
Part B: Other	Scripts	3,098	55
	Other	1,846	33
	Procedures	716	12

Note: MA (Medicare Advantage), DME (durable medical equipment). Includes only health maintenance organization (HMO)/HMO point of service, local preferred provider organization (PPO), and regional PPO contracts. Contracts with 10 or fewer enrollees are excluded.

Source: MedPAC analysis of MA encounter data and CMS enrollment data.

**TABLE  
3A-3**

**Exclusion criteria used for analysis of bid data**

<b>Criteria</b>	<b>Number of bids remaining in sample</b>	<b>Share of bids remaining in sample</b>	<b>Share of enrollment remaining in sample</b>
All bids	5,660	100%	100%
Bids for HMO/PPO plans, covering Part A and Part B enrollees,* and not participating in the value-based insurance design model**	4,611	81	73
Bids reporting any base-period experience	3,112	55	73
Bids with no more than eight contributing contracts	3,110	55	73
Bids reporting base-period enrollment within 5 percent of administrative sources	1,805	32	50
Bids for which we found encounters for all base-period plans			
Inpatient	1,799	32	44
Skilled nursing facility	1,688	30	42
Home health	1,782	31	44
Bids using most common unit			
Inpatient	1,594	28	39
Skilled nursing facility	1,673	30	42
Home health	1,755	31	44

Note: HMO (health maintenance organization), PPO (preferred provider organization). Includes HMO/HMO point of service, local PPO, regional PPO contracts, and private fee-for-service plans. Employer group plans do not submit bids.

\*Medicare beneficiaries are generally required to be covered under Part A and Part B to enroll in a Medicare Advantage (MA) plan. However, some beneficiaries who were enrolled in a Section 1876 cost plan as of December 31, 1998, may enroll. MA organizations providing coverage to such enrollees submit separate bids for that coverage (Centers for Medicare & Medicaid Services 2023b).

\*\*Medicare Advantage organizations were allowed to include the Medicare hospice benefit in their benefit package for plan years 2021 through 2024 under the CMS MA value-based insurance design model (Centers for Medicare & Medicaid Services 2023a). Base-period data for Medicare-covered services excludes experience for enrollees in hospice status, and we excluded encounter records for enrollees in hospice status in our calculation of utilization rates.

Source: MedPAC analysis of 2023 MA bid data.

## Endnotes

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- 1 Our June 2019 report to the Congress gives greater detail about the encounter data submission and screening process, feedback provided to plans about submitted data, potential uses of encounter data, and our assessment of encounter data completeness and accuracy (Medicare Payment Advisory Commission 2019).
- 2 CMS currently uses encounter data as a source of diagnostic information for risk adjustment and calculation of Medicare disproportionate share percentages. CMS has started to use the data to support or evaluate other Medicare program activities and to conduct quality review and improvement activities, though the agency could expand the uses of these data. For example, CMS recently announced that it will use encounter data in addition to fee-for-service claims data to learn how frequently providers perform certain procedures and will make the data available to states to support the administration of Medicaid programs and to improve care coordination for dually eligible individuals (Centers for Medicare & Medicaid Services 2024, Centers for Medicare & Medicaid Services 2023e). CMS has also identified other potential uses for encounter data, such as estimating risk-adjustment models and informing Medicare coverage determinations.
- 3 Providers and plans also submit other data to CMS, state Medicaid agencies, disease registries, and (in certain cases) to private or state-managed claims databases. Some private claims-processing companies also aggregate claims data for MA enrollees. For our analysis, we selected data sources that are readily available to CMS and researchers and that are likely to have data that are as complete as possible for all MA enrollees. Figure 3-1 (p. 99) shows only the data sources discussed in this chapter.
- 4 When serving Medicare beneficiaries under the fee-for-service (FFS) program, providers submit claims (i.e., billing information) to Medicare in order to receive payment. These claims provide detailed insight into the services beneficiaries receive and the payments that Medicare makes for the services. Because claim submission is required for payment in FFS Medicare, providers have a strong incentive to submit claims and provide the information necessary for payment. Once FFS claims are adjudicated for payment, they are formatted as data files available to researchers. These FFS claims data are generally considered a complete record of the number of Medicare-covered services provided to beneficiaries covered under FFS (except for services for which the claim was denied) and of the payments that Medicare has made to providers for those services.
- 5 Encounter data can include records for services for which the claim was denied because plans are required to submit records for all items and services provided to their enrollees. In addition, encounter data might not include services provided out of a plan's network if the plan did not receive a claim, but records of such services might be included in other data sources.
- 6 When CMS receives encounter data, it performs automated front-end checks to verify data quality (identifying missing elements, incorrect format, and inconsistent values, for instance) and provides plans with feedback about which encounter records were accepted or the reason for rejecting an encounter record. However, there is no formal assessment of whether encounter data include a record for every item and service provided to MA enrollees, or whether rejected encounter records are corrected, resubmitted, and accepted by CMS.
- 7 MA organizations may void and/or replace previously submitted encounter records by submitting to CMS a new encounter record that includes information identifying the original record and how it is to be processed. Processing these encounter records ensures that services are not counted more than once across the original and subsequent records.
- 8 We removed duplicate inpatient and skilled nursing facility encounter records using the five-key edit recommended by CMS (Chronic Condition Warehouse 2023).
- 9 HEDIS is a registered trademark of the National Committee for Quality Assurance.
- 10 CMS reduces contracts' HEDIS measure ratings to 1 star if the patient-level data files are not successfully submitted and validated by the submission deadline. Also, if the HEDIS summary-level data value varies substantially from the value in the patient-level data, the measure is reduced to a rating of 1 star (Centers for Medicare & Medicaid Services 2023d).
- 11 For the 529 HMO and PPO contracts in both data sets in 2021, we tested the consistency of the HEDIS patient-level data and the HEDIS summary data for plan all-cause readmissions. We restricted our comparison to contracts with at least 30 index admissions in the HEDIS summary-level data. We found that the patient-level and summary data were largely identical. Total index admissions were nearly the same amount (3.1 million), and the HEDIS summary-level total was 99.9 percent of the HEDIS patient-level total. At the contract level, 515 (97 percent) of 529 contracts had summary-level

total index admissions within 0.5 percentage points of the patient-level total; these contracts represented 99 percent of total index admissions. In addition, 493 (93 percent) of 529 contracts had the same total number of index admissions in both data sets. Further, 522 (99 percent) of 529 contracts had the same total number of readmissions in both data sets.

- 12 The following describes HEDIS specifications for PCRs: “For members 18 years of age and older, the number of acute inpatient and observation stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days and the predicted probability of an acute readmission.”
- 13 The HEDIS plan all-cause readmissions (PCR) measure is an outcome measure used to determine a plan’s MA star rating (and quality bonus payment). The PCR measure went through recent technical changes and was temporarily removed from the calculation of the star rating. However, for MA payments in 2025, the PCR measure will be reinstated in the star rating calculations.
- 14 We applied the most conservative definition of continuous enrollment by calculating it at the parent organization level and accounting for contract consolidations. Applying a more strict definition of continuous enrollment (e.g., contract-level enrollment) would have resulted in a greater number of inconsistencies between the encounter data and HEDIS.
- 15 We found that the patient discharge status code reliably identified hospital transfers. Transfers identified through the patient discharge status code nearly always contained a subsequent encounter with a claim-from date that matched the discharge date on the hospital transfer encounter. In addition, HEDIS data submissions generally did not conflict with our identification of a hospital transfer. Only 0.2 percent of HEDIS hospitalizations had a discharge date that matched a transfer discharge date in the encounter data.
- 16 Our analysis of MA encounter data differs from some of our previous assessments by excluding chart review records and using a slightly different method for defining unique inpatient hospital stays. The denominator we use to describe the match rate between data sources also differs: The denominator in this analysis is the total number of MA enrollees with records in either data source.
- 17 Researchers have also used survey data such as the Medicare Current Beneficiary Survey or Medicare Expenditure Panel Survey to examine differences between MA and FFS. Survey data do not provide the detail available in claims data, and they require researchers to use statistical techniques to estimate utilization, which limits the potential uses of the data. Claims data are available for prescriptions filled by both MA and FFS enrollees under Medicare Part D, but they do not contain information about the use of other health care services. We have considered whether prescription drug event data could be used to assess the completeness of MA encounter data. There are technical limitations to doing so, and it is not clear that the exercise would provide a meaningful measure of data completeness. Insurers and providers have, in certain instances, given researchers access to claims data for MA enrollees. The Commission does not have access to such data. Findings from studies that use specific providers’ or insurers’ claims data may not be generalizable to other providers, insurers, or the program as a whole.
- 18 Facilities submit information-only claims to CMS for MA enrollees in order to support the calculation of DSH, indirect medical education, and graduate medical education payments to facilities. Before the collection of encounter data, the agency generally did not receive information on individual services provided to MA enrollees, in contrast to FFS beneficiaries. DSH-related information is one such exception.
- 19 One study comparing the MedPAR and encounter data found that data completeness varied according to whether the hospital was a teaching hospital and/or received DSH payments (Cotterill 2023).
- 20 Starting in 2017, Medicare began paying for renal dialysis services provided to Medicare beneficiaries with acute kidney injury (AKI). Because the dialysis risk-adjustment indicator is specifically for dialysis patients with ESRD (and not AKI), we excluded encounter records for AKI dialysis treatments.
- 21 The MDS is completed for all residents in Medicare- or Medicaid-certified nursing homes and residents receiving SNF care at a non-critical access hospital that has a Medicare swing bed agreement. The schedule for MDS administration depends on the payer, the duration of the stay, and changes in the resident’s condition (Centers for Medicare & Medicaid Services 2023c).
- 22 By excluding MA enrollees who are eligible for full Medicaid benefits from the analysis, we could be reasonably certain that non-Medicaid MA enrollees with an MDS assessment would also have a SNF encounter record. However, MDS assessments of MA enrollees for non-Medicare-covered long-term stays (for which we would not expect there to be an encounter record) may be included in the comparison.
- 23 Finding an encounter record but no MDS assessment could reflect beneficiaries treated in a critical access hospital (CAH) swing bed, for which an MDS assessment is not required. CAH swing bed use is very low overall but represents a larger share of SNF use in some areas.

- 24 The decrease in OASIS assessments for MA enrollees in 2020 coincides with a period during which CMS exempted home health agencies from certain reporting requirements (October 2019 through June 2020) due to the COVID-19 public health emergency (Centers for Medicare & Medicaid Services 2020).
- 25 MedPAR is a stay-level file, meaning that there is generally only one observation per hospitalization; in contrast, MA plans may submit more than one encounter record over the course of a single hospitalization for a beneficiary. We joined multiple encounter records with the same beneficiary and provider and with overlapping dates of services and then selected only one record per discharge date for each beneficiary. This step affected less than 1 percent of records.
- 26 PACE (the Program of All-Inclusive Care for the Elderly) plans are required to submit encounter data records only for Medicare-covered items and services for which the organization collects claims. Cost plans are required to submit encounter data records for all Medicare-covered items and services included in their CMS cost reports.
- 27 For effectiveness of care measures, HEDIS specifications give plans the option of excluding beneficiaries who died after discharge and had not elected hospice (National Committee for Quality Assurance 2022).
- 28 MA plans are typically required to submit encounter data within 13 months of the end of the plan year. The timeline was extended during the COVID-19 public health emergency such that MA plans were allowed to submit 2021 MA encounter data through July 2023. In contrast, MA plans were required to submit patient-level HEDIS data in mid-June 2022.
- 29 CMS estimates that 98 percent to 99 percent of FFS claims are complete with a three-month runout at the end of a given year (Centers for Medicare & Medicaid Services 2022d). Inpatient and outpatient hospital claims are received more quickly relative to other service types. Thus, we would expect that MA plans would have received nearly all hospital claims by the date they submit patient-level HEDIS data.
- 30 Further investigation would need to assess the appropriateness of HEDIS specification exclusions and the time frames used for encounter data submission.
- 31 Less than 0.5 percent of HEDIS stays corresponded to a required HEDIS exclusion related to a hospital transfer date, a hospitalization with the same admission and discharge date, or a nonacute stay.
- 32 Prior to applying any exclusions, beneficiaries who elected hospice represented 12 percent of encounter-data hospitalizations, beneficiaries who were not continually enrolled in the plan's parent organization represented 27 percent of encounter-data hospitalizations, and "outlier" beneficiaries represented 17 percent of encounter-data hospitalizations.
- 33 We excluded 3 million hospitalizations because they were part of HEDIS specification exclusions. Among these HEDIS-specified exclusions, we found that 11 percent were in the HEDIS patient-level data.
- 34 Medicare Advantage organizations (MAOs) must submit bids for MA plans, Medical Savings Account (MSA) plans, and end-stage renal disease-only special needs plans. MAOs do not submit bids for cost plans, Program of All-Inclusive Care for the Elderly plans, Medicare-Medicaid plans, or employer group plans (Centers for Medicare & Medicaid Services 2023b).
- 35 Projection assumptions may account for projected changes in members' service use (including anticipated effects of changes in the application of utilization management tools), changes in the plan's benefit package, changes in the demographic composition of the covered population, and other factors (Centers for Medicare & Medicaid Services 2023b).
- 36 Other factors can include sales and marketing expenses, administrative costs, reinsurance costs, and profit margin (Centers for Medicare & Medicaid Services 2023b).
- 37 In addition to the data collected through the BPT, MAOs are also required to submit documentation justifying how the base-period data were prepared, along with documentation reconciling the base-period data with the MAO's "auditable material such as corporate financials and bid-level operational data" (Centers for Medicare & Medicaid Services 2023b).
- 38 MA encounter data do not include an indicator for identifying payment denials, and no standardized algorithm exists for identifying such claims (Office of Inspector General 2023). The data also do not include an indication of whether a service was provided outside a plan's network. MA plans might not receive claims for items or services provided to their enrollees outside of the plan's network and thus might not submit encounters for such services. Work is ongoing to identify payment denials and out-of-network care in the encounter data.

- 39 MAOs bid to provide coverage in service areas that include one or more counties. Plans may subdivide their service area into “segments” consisting of one or more counties. MAOs must submit separate bids for each nonsegmented plan or each segment of a segmented plan (Centers for Medicare & Medicaid Services 2023b).
- 40 We counted each instance of a revenue code reported on an encounter record to identify the number of home health visits. We included revenue codes 042x, 043x, 044x, 055x, 056x, and 057x, following the revenue codes used in FFS home health claims (Centers for Medicare & Medicaid Services 2023f).
- 41 Medicare beneficiaries generally must have Part A and Part B to enroll in an MA plan. However, some beneficiaries who were enrolled in a Section 1876 cost plan as of December 31, 1998, may enroll. MAOs providing coverage to such enrollees submit separate bids for that coverage (Centers for Medicare & Medicaid Services 2023b). MAOs were allowed to include the Medicare hospice benefit in their benefit package for plan years 2021 through 2024 under CMS’s MA-VBID model (Eibner et al. 2023b). Base-period data for Medicare-covered services exclude services for enrollees in hospice status, and we excluded encounter records for enrollees in hospice status in our calculation of utilization rates.
- 42 MA organizations can add to, discontinue, or reorganize the plans they offer in a given service area each year. To accommodate these yearly changes, plans may (within statutory guidelines) move enrollees from one plan to another of the same type, a form of passive enrollment known as crosswalking. For example, an MAO combining two or more plans from a previous year into a single plan in the next year would use a crosswalk to move enrollees from the previous plan(s) into the consolidated plan.
- 43 The Bid Pricing Tool provides space to list up to eight plans. Approximately three-quarters of bids were based on just one contributing plan, and less than 1 percent of bids were based on more than eight plans. We excluded bids based on more than eight plans from our analysis because we cannot determine which plans were used to calculate the utilization rate.
- 44 Utilization by members in end-stage renal disease or hospice status is excluded from the Medicare-covered services reported in the bid. Plans have the option to include hospice experience when reporting utilization of non-Medicare services because plans are required to continue offering supplemental benefits to enrollees in hospice status (Centers for Medicare & Medicaid Services 2023b). Hospice status is defined as of the first day of a month of service use.
- 45 Other minor technical differences between the data sources may also exist. For example, MAOs are required to submit encounter data on (at minimum) a weekly, biweekly, or monthly basis but are encouraged to submit data daily. Plans are generally allowed to make adjustments to their submissions for up to 13 months following the end of a plan year (42 CFR 422.310(g)(2)(ii)) (Centers for Medicare & Medicaid Services 2022a). There is comparatively less time between the end of the base period and the submission of bids. CMS instructs plans to report base-period data using claims incurred in the base year and at least 30 days of paid claims run-out (Centers for Medicare & Medicaid Services 2023b). Plans use a multiplicative “completion factor” to account for claims that have been received but not paid as of the time of analysis. Small differences between the encounter data and bid data may arise due to differences in how claims and encounters are ultimately adjudicated. We do not anticipate that such differences have a material impact on our estimates.
- 46 Our analysis used different inclusion criteria than were used in the RAND study: Our analysis used data for services delivered in 2021, included data for some segmented plans (those for which the enrollment reported in the bid data was within 5 percent of CMS enrollment data), and was limited to bids for HMO/PPO plans covering Part A and Part B enrollees that reported base-period utilization data for no more than eight predecessor plans and did not participate in the CMS value-based insurance design (VBID) model. In contrast, RAND’s analysis included VBID plans and plans that would have been eligible to participate in the VBID model (although the hospice component of the VBID model was not active in the years they assessed) (Eibner et al. 2023b). Additionally, RAND did not make exclusions based on discordant enrollment data.
- 47 The study also assessed the rate of emergency department visits and found that encounter-based rates were, on average, 3 percent lower than the bid-reported rate (Eibner et al. 2023a).

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CHAPTER

# 4

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**Paying for software  
technologies in Medicare**

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# Paying for software technologies in Medicare

## Chapter summary

Software is increasingly important and pervasive in health care, driven by the availability of a multitude of technology platforms (e.g., personal computers, smartphones, network servers) and the growing ease of access and distribution (e.g., internet, cloud). Many types of clinical software, which include decision support intervention software, clinical risk modeling, and computer-aided detection (CAD), are increasingly available to providers. These technologies often perform data analysis of patients' diagnostic images. In addition, some software products incorporate artificial intelligence (AI), which uses algorithms or models to perform tasks and exhibits behaviors such as learning, making decisions, and making predictions. A subset of AI known as machine learning uses computer algorithms to learn through data to perform a task without being explicitly programmed; this type of AI has become an important part of a growing number of medical devices. While many of these technologies are new, certain types of clinical software, particularly CAD, have been used to aid or augment clinical decision-making for decades.

In this chapter, we discuss Medicare coverage of and payment for certain types of medical software that receive approval or clearance by the Food and Drug Administration (FDA), which the FDA has classified as software as a medical device (SaMD). We review the FDA's process for clearing

## In this chapter

- The FDA's process for clearing and approving medical software
- Medicare's coverage process
- How Medicare pays for software technologies
- Obtaining good value for Medicare

SaMD, examine Medicare's current coverage process and payments for SaMD under the payment systems for Part A and Part B services, and discuss issues that policymakers should keep in mind when considering paying for medical software in fee-for-service (FFS) Medicare.

The software that we discuss usually stands alone from hardware such as the machines used for MRI, computed tomography, and ultrasound scans, because the software performs functions that often categorize it as a medical device—software that is used for one or more medical purposes that diagnose or treat an illness or injury without being part of a hardware medical device. Even though the FDA classifies these technologies as SaMDs, for the purposes of this chapter we classify them into distinct categories:

- Software as a service (SaaS), which is algorithm-driven software that is either cleared or approved by the FDA to help practitioners make clinical assessments, including decision support intervention software, clinical risk modeling, and CAD. These technologies often rely on complex algorithms or statistical predictive modeling to aid in the diagnosis or treatment of a patient's condition. Examples of Medicare-covered SaaS include LumineticsCore, which detects diabetic retinopathy, and fractional flow reserve derived from computed tomography, which is used to diagnose and manage coronary artery disease.
- Prescription digital therapeutics (PDTs), which are software products that (1) receive market authorization (i.e., are either cleared or approved) by the FDA to manage or treat an injury or disease; (2) are prescribed by clinicians; (3) are typically administered by patients on a mobile phone, tablet, smartwatch, or similar technologies; and (4) primarily use software to diagnose or treat an illness or injury. Examples of PDTs include Parallel, which provides cognitive behavioral therapy on a patient's mobile phone or tablet to treat irritable bowel syndrome, and NightWare, a digital therapeutic that uses a smartwatch in the treatment of sleep disturbances.

We do not include remote monitoring technologies, health and wellness applications (apps), and health information technology systems in our definition of SaaS or PDT technologies.

The development of SaaS and PDTs is relatively new and evolving, and terminology that is used to refer to such technologies is generally not well established. In this chapter, we use the terms *SaaS* and *PDT* when discussing issues related to Medicare's coverage and payment because CMS, other

policyholders, and stakeholders often use this terminology when discussing such issues.

Before manufacturers of SaaS or PDT items can market a new product and seek Medicare coverage, they must comply with the requirements of the FDA, which applies the approval process for medical devices to the software products. The FDA uses three pathways to clear or approve SaaS or PDT items: premarket notification (PMN, also referred to as 510(k) clearance), De Novo classification, and premarket approval (PMA). Under the 510(k) pathway, the FDA clears a low- to moderate-risk device that a manufacturer demonstrates is “substantially equivalent,” meaning that it is as safe and effective as another, similar device that is already on the market, referred to as the “predicate device.” Under the De Novo pathway, the FDA clears a low- to moderate-risk medical device for which there is no previously FDA-approved predicate device. The PMA pathway is the most stringent FDA process of scientific and regulatory review. The FDA approves devices under the PMA pathway if there are sufficient clinical data to demonstrate that the device is safe and effective.

After receiving clearance or approval from the FDA, a manufacturer of a SaaS or PDT item can seek Medicare coverage for its product. Medicare covers items and services under Part A or Part B that are:

- included in a Medicare benefit category, such as inpatient hospital services and hospice care under Part A, and durable medical equipment (DME), immunosuppressive drugs, and outpatient services under Part B;
- not statutorily excluded (excluded services and supplies are, for instance, deemed medically unreasonable and unnecessary);
- reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member, as indicated under the Social Security Act; and
- approved or cleared by the FDA, which is specific to Part B drugs, devices, and certain laboratory tests.

All items and services covered under Part A or Part B must also be covered in Part C of Medicare (Medicare Advantage (MA) except for hospice care and kidney acquisition costs, which are carved out of MA. In addition, all items and services (including SaaS and PDT items) that are covered under FFS Medicare are either separately payable (meaning that there is a distinct payment for the item or service) or packaged (meaning that the item or service is part of a larger payment bundle). The Medicare payment systems that cover SaaS and

PDT items include the outpatient prospective payment system (OPPS), the Medicare physician fee schedule, the inpatient prospective payment systems, the DME fee schedule, and the end-stage renal disease prospective payment system (PPS).

CMS has been deliberate in deciding whether to cover SaaS and PDT items that have FDA clearance or approval. Since 2018, FFS Medicare has covered and paid for SaaS in inpatient and outpatient hospital settings and in clinician offices. However, FFS Medicare generally does not cover PDTs because the Medicare statute lacks a separate benefit category for PDTs and the technology is not consistent with FFS Medicare's definition of DME, the Medicare benefit category that covers medical equipment and supplies used to treat beneficiaries' illness or injury in their residence. As of 2022, providers' use of the medical software that Medicare does cover has been relatively low.

A key issue facing FFS Medicare is how the program should pay for medical software that is generally separate from the medical device. Paying appropriately for medical software will mean finding a balance between promoting access to new technologies that meaningfully improve the diagnosis or treatment of beneficiaries and ensuring affordability for the Medicare program and the beneficiaries and taxpayers who finance it. For the hospital inpatient and outpatient PPSs and the end-stage renal disease PPS, the Commission has long supported larger payment bundles because they give providers opportunities to be flexible in the provision of care and incentives to use the most cost-efficient methods. By contrast, paying separately for software technologies can limit the competitive forces that generate price reductions among like services and can lead to overuse, which could have significant fiscal implications for FFS Medicare as the FDA clears or approves more and more such technologies over time. Unfortunately, for the various FFS Medicare fee schedules (e.g., physician fee schedule, DME fee schedule), in which the program generally pays for each service furnished, Medicare currently has few pricing tools that would help strike a balance between maintaining incentives for innovation and ensuring affordability for beneficiaries and taxpayers. The Commission will continue to deliberate on appropriate payment for software technologies under FFS Medicare. ■

Software is becoming increasingly important and pervasive in health care, driven by the availability of several technology platforms—such as personal computers, smartphones, and network servers—coupled with the ease of access and distribution using the internet or cloud. Many types of clinical software, which include decision support intervention (DSI) software, clinical risk modeling, and computer-aided detection (CAD), have become more and more available to providers. These technologies often perform data analysis of diagnostic images, especially MRI and computed tomography (CT) scans. In addition, some software products incorporate artificial intelligence (AI), which uses algorithms or models to perform tasks and to exhibit behaviors such as learning, making decisions, and making predictions. A subset of AI known as machine learning (ML) uses computer algorithms to learn through data to perform a task without being explicitly programmed; this type of AI has become an important part of an increasing number of medical devices (Food and Drug Administration 2022a). While many of these technologies are new, certain types of clinical software, particularly CAD, have been used to aid or augment clinical decision-making for decades (Centers for Medicare & Medicaid Services 2022b).

In this chapter, we discuss medical software that usually stands alone from hardware when it performs functions, such that the Food and Drug Administration (FDA) categorizes it as a medical device—software that clinicians use for one or more medical purposes that diagnose or treat an illness or injury without being part of a hardware medical device. We provide an overview of the FDA’s process for clearing medical software; examine Medicare’s current coverage process and payments for medical software under the payment systems for outpatient hospital services, acute inpatient hospital services, physicians and other health professionals, durable medical equipment (DME), and outpatient dialysis services; and enumerate issues that policymakers should consider in regard to Medicare payment for medical software.

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## Background

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The FDA uses the term *software as a medical device* (SaMD) for the medical software that we discuss in this

chapter. For the purposes of this chapter, we found it useful to separate SaMD into two broad categories:

- **Software as a service:** CMS refers to algorithm-driven software that is either cleared or approved by the FDA to help practitioners make clinical assessments (including DSI, clinical risk modeling, and CAD) as “software as a service” (SaaS). Some of these technologies rely on complex algorithms or statistical predictive modeling to aid in the diagnosis or treatment of a patient’s condition (Centers for Medicare & Medicaid Services 2022b). Many of these technologies have been designed to augment medical imaging. Table 4-1 (pp. 142–144) provides examples of Medicare-covered SaaS.
- **Prescription digital therapeutics:** The definition of prescription digital therapeutics (PDTs) varies across manufacturers, payers, and other entities.<sup>1</sup> In this chapter, PDTs include software products that (1) receive market authorization (i.e., they are either cleared or approved) by the FDA to manage or treat an injury or disease; (2) are prescribed by clinicians; (3) are typically administered by patients on a mobile phone, tablet, smartwatch, or other similar technologies; and (4) primarily use software to diagnose or treat an illness or injury. Table 4-2 (p. 145) provides examples of PDTs.

Our discussion excludes medical software that does not fit the definition of SaaS or PDTs, such as remote monitoring technologies, health and wellness applications (apps), health information technology systems (such as patient portals and electronic health records), and telemedicine.<sup>2</sup>

The development of SaaS and PDTs is relatively new and evolving, and terminology that is used to refer to such technologies is generally not well established. SaaS is a term that CMS first defined in the calendar year 2023 outpatient prospective payment system (OPPS) rulemaking to pay for clinical decision software and algorithm-driven services that assist practitioners in making clinical assessments—particularly to perform data analysis of diagnostic images—under the OPPS. Stakeholders often use the term PDT to refer to prescription software applications that are generally furnished to a patient on a mobile device or internet application (Centers for Medicare & Medicaid Services 2022b, Digital Therapeutics Alliance 2023). Consequently, in this chapter, we use the terms SaaS and PDT when

**TABLE  
4-1**

**Examples of Medicare-covered software as a service that received market authorization from the FDA for use in the outpatient setting** (cont. next page)

Name (manufacturer)	Description	FDA device type and approval	How device is paid under OPPS/PFS	OPPS/ PFS payment rate, 2024
Fractional flow reserve derived from computed tomography (FFRCT) (also referred to as Heart Flow) (HeartFlow Inc.)	Postprocessing software for the clinical analysis of previously acquired CT data for patients with coronary artery disease; it provides FFRCT—a mathematically derived quantity, computed from simulated pressure—velocity, and blood flow information obtained from a 3-D computer model generated from static coronary CT images	De Novo approval of a Class II AI/ML device	OPPS payment began in CY 2018. Since then, device is paid separately (not packaged) (CPT 75580).  Under the PFS, the device is paid separately. Prior to CY 2023, item was carrier priced.* In CY 2023, CMS established (nationwide) RVUs for device.	\$997 under OPPS; \$903 under PFS*
EyeBox (Oculogica)	A device that measures and analyzes eye movements to help diagnose concussion within one week of head injury in conjunction with a standard neurological assessment of concussion; may be a stand-alone device or implemented as a software app on a smartphone or tablet	De Novo approval of a Class II AI/ML device	OPPS payment began in CY 2020. Prior to CY 2023, item was packaged into payment with any separately payable service provided during the same visit. Since CY 2023, item is paid separately (CPT 0615T).  Under the PFS, device is separately paid and carrier priced.**	\$122 under OPPS; carrier priced under PFS**
LumineticsCore (formerly known as IDx-DR) (Digital Diagnostics)	A device that incorporates an adaptive algorithm to evaluate ophthalmic images to identify retinal diseases or conditions	De Novo approval of a Class II AI/ML device (Breakthrough)***	OPPS payment began in 2018 (“bridge payment”) with status indicator Q1 (packaged into payment with any separately payable service provided during the same visit). Since CY 2021, item is paid separately (CPT 92229).  Under the PFS, device is separately paid. Prior to CY 2022, device was carrier priced.** In CY 2022, CMS established (nationwide) RVUs for device.	\$58 under OPPS; \$41 under PFS

discussing issues related to Medicare’s coverage and payment because CMS, other policymakers, and stakeholders often use this terminology when discussing such issues. By contrast, we use the FDA-defined term SaMD when discussing the FDA’s process to clear and approve both types of technologies.

**The FDA’s process for clearing and approving medical software**

Before medical software manufacturers can market a new product and seek Medicare coverage, they must comply with the requirements of the FDA, which is

**TABLE  
4-1**

**Examples of Medicare-covered software as a service that received market authorization from the FDA for use in the outpatient setting** *(cont. next page)*

Name (manufacturer)	Description	FDA device type and approval	How device is paid under OPSP/PFS	OPPS/ PFS payment rate, 2024
LiverMultiScan (Perspectum)	An MR diagnostic device software application for noninvasive liver evaluation that enables the generation, display, and review of 2-D MR medical image data and pixel maps for MR relaxation times; the software then sends the provider a quantitative metric report of the patient's liver fibrosis and inflammation	510(k) approval of an AI/ML Class II device	OPPS payment began in CY 2021. Prior to CY 2023, device was packaged when provided with MRI. Device paid separately since CY 2023: CPT 0648T (device not provided with diagnostic MRI), CPT 0649T (device provided with diagnostic MRI).  Under the PFS, device is separately paid and carrier priced.**	\$950 for CPT 0648T and 0649T under OPSP; carrier priced under PFS**
Virtual Nodule Clinic (referred to by CMS as "LCP" (lung cancer prediction)) (Optellum)	A device that applies an algorithm to a patient's CT scan to produce a raw risk score for a patient's pulmonary nodule; the physician uses the risk score to quantify the risk of lung cancer and help determine whether to refer the patient to a pulmonologist	510(k) approval of an AI/ML Class II device	OPPS payment began in CY 2022; during that year, the device was packaged when provided with CT scan. Beginning CY 2023, device paid separately: CPT 0721T (device not provided with CT scan), CPT 0722T (device provided with CT scan).  Under the PFS, device is separately paid and carrier priced.**	\$650 for CPT 0721T and 0722T under OPSP; carrier priced under PFS**
Quantitative magnetic resonance cholangiopancreatography (Perspectum)	A device that performs quantitative assessments of the biliary tree and gallbladder using a proprietary algorithm that produces a 3-D reconstruction of the biliary tree and pancreatic duct and provides precise quantitative information on biliary tree volume and duct metrics	510(k) approval of an AI/ML Class II device	OPPS payment began in CY 2022; during that year, the device was packaged when provided with MRI. Beginning CY 2023, device paid separately: CPT 0723T (device not provided with MRI), CPT 0724T (device provided with MRI).  Under the PFS, device is carrier priced.**	\$950 for CPT 0723T and 0724T under OPSP; carrier priced under PFS**
Cleerly Labs (Cleerly Inc.)	Postprocessing web-based software application that analyzes coronary images acquired from CT angiographic scans to help determine treatment for patients suspected of having coronary artery disease; the software output includes visual images of coronary arteries and distance and volume measurements of the lumen wall, vessel wall, and plaque	510(k) approval of an AI/ML Class II device	OPPS payment began in 2022. Since 2022, device paid separately (CPT 0625T).**  Under the PFS, device is separately paid and carrier priced.**	\$950 under OPSP; carrier priced under PFS**

**TABLE  
4-1**

**Examples of Medicare-covered software as a service that received market authorization from the FDA for use in the outpatient setting (cont.)**

Name (manufacturer)	Description	FDA device type and approval	How device is paid under OPPS/PFS	OPPS/ PFS payment rate, 2024
XV Lung Ventilation Analysis Software (4DMedical)	Provides detailed information on regional lung function using CT images; this technology quantifies regional lung ventilation and ventilation heterogeneity	510(k) approval of an AI/ML Class II device	OPPS payment began in 2024 and device is separately paid: CPT 0807T (device not provided with CT), CPT 0808T (device provided with CT).  Under the PFS, device is separately paid and carrier priced.**	\$299 for CPT 0807T and 0808T under OPPS; carrier priced under PFS**
Icobrain (Icometrix)	Quantitative MRI analysis of the brain with comparison to prior MR studies, including lesion identification, characterization, and quantification, with brain volume(s) quantification and/or severity score (when performed), data preparation and transmission, interpretation, and report	510(k) approval of an AI/ML Class II device	OPPS payment began in 2024 and device is separately paid: CPT 0865T (service not provided with MRI), CPT 0866T (service provided with MRI).  Under the PFS, device is separately paid and carrier priced.**	\$234 for CPT 0865T and 0866T under OPPS; carrier priced under PFS**
EchoGo Heart Failure (Ultramics)	Postprocessing of echocardiography that uses AI to detect heart failure with preserved ejection fraction	510(k) approval of an AI/ML Class II device (Breakthrough)***	OPPS payment began in 2024 and device is separately paid (HCPCS C9786).	\$285 under OPPS; no billing code assigned to device under PFS

Note: FDA (Food and Drug Administration), OPPS (outpatient prospective payment system), PFS (physician fee schedule), AI/ML (artificial intelligence/machine learning), CY (calendar year), CT (computed tomography), CPT (Current Procedural Terminology), 3-D (three-dimensional), RVU (relative value unit), MR (magnetic resonance), MRI (magnetic resonance imaging), 2-D (two-dimensional), HCPCS (Healthcare Common Procedure Coding System). PFS payment rate reflects the rate that CMS implemented as of March 9, 2024.

\*CMS uses different methods for setting payment rates under the OPPS and the PFS, resulting in different payment rates for the same service under these two payment systems.

\*\*CMS has not established RVUs for service/item under the PFS. Instead, carriers (Medicare administrative contractors) establish payment amounts for this service, generally on an individual case basis.

\*\*\*To qualify for the FDA's Breakthrough designation, a device must provide more effective treatment or diagnosis of a life-threatening or irreversibly debilitating disease or condition and meet one of the following criteria: The device must represent a breakthrough technology, there must be no approved or cleared alternatives, the device must offer significant advantages over existing approved or cleared alternatives, or the availability of the device is in the best interest of patients.

Source: MedPAC analysis of CMS's final rules for physician services and OPPS, 2018–2024, and the FDA's Medical Devices 510(k) and De Novo databases.

responsible for regulating medical devices. The FDA clears or approves medical software with one or more device functions and generally refers to them as “software as a medical device” (SaMD), which includes SaaS technologies and PDTs.<sup>3</sup> (Another type of medical software with a device function—software in a medical device—is outside the scope of this chapter. The text

box (p. 146) explains key differences between software as a medical device and software in a medical device.)

The FDA uses a risk-based regulatory system (created by the 1976 Medical Device Amendments) to classify devices as Class I, Class II, or Class III based on the level of control needed to assure their safety and effectiveness at a high level (Food and Drug

**TABLE  
4-2**

**Examples of prescription digital therapeutics that have been granted market authorization by the FDA**

Software name	Function	Device type	Approval pathway
BlueStar and BlueStar Rx	Analyzes and reports glucose test results for individuals with diabetes and supports medication adherence	Class II	510(k)
NightWare	Reduces sleep disturbances related to nightmare disorders or nightmares from post-traumatic stress disorder	Class II Breakthrough*	De Novo
Parallel (also called Mahana IBS)	Delivers CBT for the treatment of irritable bowel syndrome	Class II	510(k)
reSET	Delivers CBT for the treatment of substance use disorder (substance use disorder)	Class II	De Novo
reSET-O	Delivers CBT in the treatment of substance use disorder (opioid use disorder)	Class II Breakthrough*	510(k)
Somryst	Delivers CBT in the treatment of chronic insomnia	Class II	510(k)

Note: FDA (Food and Drug Administration), CBT (cognitive behavioral therapy).  
 \*To qualify for the FDA's Breakthrough designation, a device must provide more effective treatment or diagnosis of a life-threatening or irreversibly debilitating disease or condition and meet one of the following criteria: the device must represent a breakthrough technology, there must be no approved or cleared alternatives, the device must offer significant advantages over existing approved or cleared alternatives, or the availability of the device is in the best interest of patients.

Source: MedPAC analysis of FDA's Medical Devices 510(k), De Novo, and Breakthrough databases.

Administration 2018b). The higher the class, the more risk a device poses to the consumer. The riskier a device is, the more stringent the regulatory pathway for market authorization.

**The FDA's regulatory pathways for medical devices**

Under its authorities in the Federal Food, Drug, and Cosmetic Act of 1938 (FFDCA), the FDA regulates the safety and effectiveness of medical devices. The FFDCA defines a medical device as “an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including any component, part, or accessory, which is . . . intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals.” In

general, the FDA regulates SaaS technologies and PDTs (with certain exceptions) as medical devices.<sup>4</sup>

The FDA uses a three-tier system to categorize medical devices by risk.

- Devices in Class I, which is the lowest tier in the FDA's system, are low risk. Examples include bandages, handheld surgical instruments, and nonelectric wheelchairs. Class I devices are not intended for use in supporting or sustaining life or to be of substantial importance in preventing impairment to human health, and they must not present a potential unreasonable risk of illness or injury (Food and Drug Administration 2018a).
- Class II devices are those that pose a moderate risk and are subject to special controls (which might include performance standards, postmarket

## SaMD versus SiMD: What is the difference?

Software as a medical device, or SaMD, differs from what the Food and Drug Administration (FDA) considers software in a medical device, or SiMD, which is defined as software that is integral to the function of a hardware medical device.<sup>5</sup> Examples of SiMD include software that controls the inflation and deflation of a blood pressure cuff and software used in a closed-loop control of a pacemaker (Schroeder 2023).

The main distinction between SiMD and SaMD is that SiMD must be necessary for a hardware medical device to achieve its intended use, whereas SaMD does not have to be necessary for a hardware device to achieve its intended use. Both SaMD and SiMD may be deployed on a mobile platform, which the FDA refers to as a “mobile medical app” and for which the agency has released specific guidance (Food and Drug Administration 2022d). ■

surveillance, and patient registries, among others) (Food and Drug Administration 2018b). Examples of Class II medical devices include CT scanners and infusion pumps for intravenous medications.

- Medical devices in Class III, the most stringent regulatory class, pose the highest risk. These devices are intended to support or sustain human life or prevent health impairment, or are devices that might present an unreasonable risk of illness or injury for which general and special controls are insufficient to provide reasonable assurance of the device’s safety and effectiveness (Food and Drug Administration 2018b). Examples include pacemakers and deep-brain stimulators.

The FDA uses the following pathways to clear or approve medical devices: premarket notification (PMN, also referred to as 510(k) clearance), De Novo classification, and premarket approval (PMA) (Food and Drug Administration 2018d).

- Under the 510(k) pathway, the FDA clears a low- to moderate-risk medical device that a manufacturer demonstrates is “substantially equivalent,” meaning that it is as safe and effective as another, similar device that is already on the market, which is referred to as the “predicate device” (Food and Drug Administration 2022e, Food and Drug Administration 2021). Devices cleared through the 510(k) pathway are not required to conduct clinical trials.

- Under the De Novo pathway, the FDA clears low- to moderate-risk medical devices for which there is no FDA-approved predicate device. The sponsor may need to furnish clinical data to demonstrate that the benefits of the device outweigh the risks (Food and Drug Administration 2022c).
- The PMA pathway is the most stringent FDA process of scientific and regulatory review and is required for Class III devices. The FDA approves devices if there are sufficient clinical data to demonstrate that the device is safe and effective (Food and Drug Administration 2019).

### FDA approval of software technologies

As technology has advanced, software has become increasingly important to medical devices, to the point where software alone can be considered a medical device. The FDA defines SaMD as “software intended to be used for one or more medical purposes that perform these purposes without being part of a hardware medical device” (Food and Drug Administration 2024b). The industry has also referred to SaMD as “stand-alone software,” “medical device software,” and/or “health software” (Food and Drug Administration 2018c). While SaMD is sometimes embedded in medical hardware, the software itself performs the function and is not dependent on the hardware. This software may work on general-purpose (nonmedical) computing platforms; may be used in combination with other products, including medical devices; and may interface

## Coverage of services in Medicare Advantage

Under Part C, Medicare Advantage (MA) plans are required to provide the same set of benefits that are available under fee-for-service (FFS) Medicare except hospice and kidney acquisition costs, which are carved out of MA and covered under FFS Medicare (exclusive of plans in the CMS Innovation Center’s MA Value-Based Insurance Design Model) and certain services

associated with clinical trials under Medicare’s Clinical Trials Policy for MA enrollees. However, MA plans are permitted to furnish extra benefits (such as prescription digital therapeutics not covered by FFS Medicare) that FFS enrollees cannot access without purchasing additional health insurance coverage or paying for such services out of pocket. ■

with other medical devices or other general-purpose hardware and software that provide input to SaaS. That is, SaMD can be used across a range of technology platforms, including mobile medical apps, commercial “off the shelf” platforms, and virtual networks. The FDA released its first guidance on premarket submission for SaMD in 2005 and released updated guidance in 2023 based on its experience evaluating the safety and effectiveness of medical software (Food and Drug Administration 2023, Food and Drug Administration 2005). Recent years have seen an increase in the number of AI/ML-enabled software devices that the FDA has reviewed predominantly through 510(k) and De Novo pathways as Class II devices (Food and Drug Administration 2022a).

The software technologies listed in Table 4-1 (pp. 142–144), which include AI/ML-enabled software and DSI software,<sup>6</sup> and the PDTs listed in Table 4-2 (p. 145) are examples of FDA-approved SaMD.<sup>7</sup> The FDA generally clears both types of technology as Class II devices (meaning that they are low to moderate risk) under either the 510(k) or De Novo pathways (Table 4-1, pp. 142–144, and Table 4-2, p. 145).

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### Medicare’s coverage process

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Medicare covers a broad range of health care services under its Part A, Part B, Part C, and Part D programs, included in Title XVIII of the Social Security Act. For Part A and Part B services furnished in FFS

Medicare, the statute requires that the program cover items and services that are included in a Medicare benefit category, are not statutorily excluded, and are “reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.” Although the statute sets forth the broad categories of benefits covered by Medicare, neither the statute nor the regulations provide an all-inclusive list of the specific items and services that are reasonable and necessary.

Medicare coverage decisions for most Part A and Part B services are made at both the national level (by CMS) and local level (by Medicare administrative contractors, or MACs). However, many services do not require an explicit coverage determination, such as services paid through CMS’s prospective payment mechanisms. Medicare is not required to consider comparative clinical effectiveness evidence in the coverage process, and the program lacks explicit statutory authority to consider a service’s cost-effectiveness or value when making coverage decisions. Under Part C of Medicare, Medicare Advantage plans are required to cover the same items and services covered under Part A and Part B of Medicare with the exception of hospice care and kidney acquisition costs (see text box on coverage of services in Medicare Advantage).

Neither SaaS nor PDT technologies are explicit Medicare benefit categories in the statute. To date, Medicare has covered SaaS technologies when the services met Medicare’s coverage criteria. However, PDTs have generally not been covered by Medicare

**TABLE  
4-3**

**Overview of Medicare’s coverage process for Part A and Part B items and services**

	Type of coverage policy	Who develops the policy	Where the policy applies
Existing billing code or bundled payment system	Explicit policy may not be necessary if service is in existing code or bundle	CMS	Nationwide (binding on all contractors)
NCD	Explicit	CMS	Nationwide (binding on all contractors)
Program memos and manuals	Explicit	CMS	Nationwide (binding on all contractors)
LCD	Explicit policy that can apply to an item or service that existing NCDs do not address or policy that further defines an NCD	Medicare's contractors (medical directors)	Contractor's regional jurisdiction; policy for a given service can vary across regions
Claim-by-claim adjudication (i.e., no LCD or NCD)	Explicit	Medicare's contractors (medical directors)	Contractor's regional jurisdiction; policy for a given service can vary across regions

Note: NCD (national coverage determination), LCD (local coverage determination).

Source: MedPAC analysis of Title XVIII of the Social Security Act and CMS program manuals and guidance.

because they do not meet coverage criteria (i.e., because such technologies are not consistent with FFS Medicare’s definition of durable medical equipment, the Medicare benefit category that covers medical equipment and supplies used to treat beneficiaries’ illness or injury in their residence).

**Medicare coverage for Part A and Part B items and services**

According to regulation and statute, Medicare covers Part A and Part B items and services that meet the following requirements:

- They must be included in a Medicare benefit category, such as inpatient hospital services and hospice care under Part A and durable medical equipment, immunosuppressive drugs, and outpatient services under Part B (services in hospital outpatient departments, physician offices,

and other sites of ambulatory care).<sup>8</sup> Over time, Medicare’s benefit categories have been expanded. For example, beginning in 2008, the Medicare Improvements for Patients and Providers Act of 2008 gave Medicare the authority to cover selected new preventive services.

- They must not be statutorily excluded, such as services and supplies that are medically unreasonable and unnecessary or that are denied because they are bundled or included in another service’s basic allowance (Centers for Medicare & Medicaid Services 2022a).
- They must be “reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member” (Social Security Administration 2023). CMS considers a service reasonable and necessary

if the service is safe and effective, not experimental or investigational, and appropriate for beneficiaries.

- They must be approved or cleared by the FDA, specific to Part B drugs, devices, and certain laboratory tests.<sup>9</sup>

There are several ways for items and services to be covered under FFS Medicare (Table 4-3). For many Part A and Part B items and services, Medicare coverage occurs without the need for an explicit coverage policy. If an item or service falls under a Medicare benefit category and can be reimbursed on the basis of an existing billing code or a bundled payment system (e.g., the inpatient prospective payment systems), Medicare might cover it without an explicit coverage policy.

An initial step toward coverage of new items and services (particularly items and services seeking separately billable payment rather than inclusion under a bundled payment system) is generally to receive a billing code. Codes are assigned by two entities and used by Medicare and other payers' committees (see text box, p. 150, for additional information about assigning billing codes to medical services). CMS decides whether items and services that have been assigned a new billing code are among the types of health care benefits described in the Medicare statute and are reasonable and necessary for a beneficiary's treatment and therefore eligible for Medicare payment.<sup>10</sup>

When an explicit coverage determination is required, CMS and MACs develop policies at the national and regional level, respectively, to determine whether a service meets one of the covered benefit categories and is reasonable and necessary, in which case it is covered. MACs develop the majority of explicit coverage policies. These policies, referred to as "local coverage determinations" (LCDs), determine coverage of specific medical services that apply only in the contractor's regional jurisdiction. LCDs must be consistent with the statute, regulations, and national policies for coverage, payment, and coding.

In addition to the LCD process, CMS develops coverage determinations for specific medical services that apply nationwide through the national coverage determination (NCD) process.<sup>11</sup> The process of developing both LCDs (that are new or have undergone major revision) and NCDs provides

opportunities for public comment, and both types of coverage determinations are available in the Medicare Coverage Database on CMS's website. Outcomes of the coverage process include (1) Medicare coverage of an item or service with no restrictions, (2) coverage for beneficiaries with certain clinical conditions or when furnished by certain providers or facilities, (3) leaving the coverage determination to the discretion of the MACs, or (4) Medicare not covering the service.

The national and local processes are not the only means by which Medicare develops and publishes coverage policies. Medicare's provider manuals and program memoranda include policies that affect the coverage of services. CMS develops these policies, which apply nationwide to all contractors.

### **Coverage of software technologies**

Based on statutory and regulatory text, Medicare coverage for new technologies requires that the technology:

- has received marketing authorization from the FDA;
- fits into a covered Medicare benefit category (e.g., inpatient care, outpatient services, DME, diagnostic tests); and
- meets other statutory requirements in Section 1862 of the Social Security Act, including being reasonable and necessary for the treatment of an illness or injury and not being statutorily excluded from coverage.

Although neither SaaS technologies nor PDTs are explicit Medicare benefit categories in the statute, Medicare covers such services under two circumstances:

- Medicare will generally cover and pay for a service that can be reimbursed on the basis of an existing billing code or a bundled payment system (e.g., through the inpatient prospective payment systems), unless existing local or national coverage determinations define or restrict when Medicare will pay for providing the service.
- For a service assigned a new billing code, Medicare will determine whether the service is included in a Medicare benefit category (described in the Medicare statute) and therefore eligible

## Assigning billing codes to medical services

Medicare's payment systems for claims are highly automated and rely on billing codes for beneficiaries' diagnoses and treatments to identify the medical services that clinicians furnish. Medical services, including procedures, drugs, and devices, are identified on the basis of five-digit billing codes that are assigned by two entities. The American Medical Association (AMA) assigns and maintains Level I of the Healthcare Common Procedure Coding System (HCPCS), referred to as the CPT (Current Procedural Terminology), codes that are used primarily to identify medical services and procedures furnished by physicians and other health care professionals. CMS assigns and maintains HCPCS Level II codes for drugs, biologicals, nondrug and nonbiological items,

supplies, and other services that are not included in the Level I CPT codes.

Recently, the AMA's CPT Editorial Panel provided guidance on how they classify various artificial intelligence/machine learning software applications into one of three categories: assistive, augmentative, or autonomous (American Medical Association 2024). The categorization is based on the service provided to the patient and the work performed by the software on behalf of the clinician. These categories differ with respect to what the service does (e.g., detect clinically relevant data vs. interpret such data) and the extent of direct clinician involvement (Table 4-4). ■

**TABLE**  
**4-4**

**Overview of the AMA's categorization of software applications**

Service characteristic	Service classification		
	Assistive	Augmentative	Autonomous
Function of service	Detects clinically relevant data	Analyzes and/or quantifies data to yield clinically meaningful output	Interprets data and independently generates clinically meaningful conclusions
Whether the service provides independent diagnosis and/or management decision	No	No	Yes
Whether the service analyzes data	No	Yes	Yes
Whether the service requires clinician interpretation and report	Yes	Yes	No

Note: AMA (American Medical Association).

Source: Adapted from the AMA Current Procedural Terminology Appendix S: Artificial Intelligence Taxonomy for Medical Services & Procedures.

for Medicare payment (as long as the service is reasonable and necessary for a beneficiary's treatment). This process may or may not require an explicit coverage determination (Government Accountability Office 2003).

The SaaS items listed in Table 4-1 (pp. 142-144) have each been assigned their own billing code and fit into an existing benefit category; thus, Medicare covers them. For example, the American Medical Association issued two new Healthcare Common Procedure Coding System (HCPCS) codes for quantitative magnetic

resonance cholangiopancreatography, a SaaS item that performs quantitative assessment of the biliary tree and gallbladder. This service is paid for in outpatient settings; Medicare has not issued either a local or national coverage determination for this service.<sup>12</sup>

By contrast, the PDTs listed in Table 4-2 (p. 145) are generally not covered by Medicare because (1) such technology is not consistent with Medicare's definition of DME (the Medicare benefit category that covers medical equipment needed at home to treat a beneficiary's illness or injury) and (2) the statute lacks a benefit category for prescription medical software.

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## How Medicare pays for software technologies

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Medicare uses three methods to pay for SaaS that meets Medicare's coverage criteria under Part A or Part B:

- separate payment under an existing billing code (i.e., a shared billing code that includes more than one product);
- separate payment under a billing code unique to the product;
- payment under a broader bundled payment. Under certain bundled payment systems (e.g., inpatient and end-stage renal disease prospective payment systems (PPSs)), Medicare uses a temporary new technology payment policy for qualifying technologies, typically for a two- to three-year period, and then includes them in a bundled payment.

FFS Medicare payment for SaaS technology began in 2018 with coverage of fractional flow reserve derived from CT (FFRCT), which clinicians use in outpatient settings to analyze data from CT angiography scans. Since then, Medicare has covered and paid for other SaaS technologies in clinicians' offices and hospital outpatient departments (HOPDs). However, stakeholders have expressed concern that Medicare's payment systems do not yet account for most of the medical devices that involve AI/ML technology. Stakeholders have also noted the differences between the physician fee schedule (PFS) and outpatient prospective payment system (OPPS) in Medicare

payment policies for SaaS items (Frank et al. 2023). CMS has not created national payment rates under the PFS for most SaaS items, and payment is "carrier priced," meaning payment is determined by MACs, generally case by case. In contrast, there are specific payment rates for each SaaS item covered under the OPPS. For hospital inpatient care, FFS Medicare also covers and pays for software as part of the broader bundled payment made for each hospital stay. In a few cases, software products have received new technology add-on payments.

In this section, we provide an overview of payment for medical software under the payment systems for hospital outpatient services, acute care hospital inpatient services, physician and other health professional services, DME, and outpatient dialysis services.

### Payment for medical software under Medicare's hospital outpatient prospective payment system

SaaS items are a small part of hospital outpatient care for FFS Medicare beneficiaries, but their presence in HOPDs is growing. In the rulemaking that set 2023 payment rates in the OPPS, the payment system for most services provided in HOPDs, CMS devoted much discussion to coverage of and payment for SaaS items under the OPPS (Centers for Medicare & Medicaid Services 2022b). Because SaaS items are becoming more important in this setting, how CMS sets OPPS payment rates for SaaS items is an increasingly relevant issue.

Under the OPPS, CMS classifies each service as either separately payable or packaged; for most services covered under the OPPS, the decision is clear cut. Separately payable services are generally major items that are relatively costly or are the focal point of the HOPD visit, such as a CT scan, chemotherapy administration, or insertion of a device. By contrast, packaged services are those that CMS considers ancillary, supportive, dependent, or adjunctive to a separately payable service, such as injection of a low-cost drug during an emergency department visit. For separately payable services, the OPPS provides a single payment for a bundle that includes the separately payable service and the packaged services and ancillary items that are provided with that separately payable service. That is, there is an explicit payment

for the separately payable service, but this payment also includes an implicit payment for the packaged services and packaged ancillary items. The OPSS has several categories of packaged services. One of these categories is “add-on” codes, which are for services that, when provided, always occur in conjunction with a separately payable service.<sup>13</sup> Examples of services with add-on codes are debridement of subcutaneous tissue beyond 20 square centimeters and tissue transfer for each 30 square centimeters beyond the initial 60 square centimeters.

The first SaaS item covered under the OPSS was FFRCT, which has the trade name HeartFlow; clinicians use it to measure coronary artery disease using data from CT angiography scans. CMS added FFRCT as a covered OPSS service in 2018. Since then, CMS has granted covered OPSS status to several SaaS items (Table 4-1, pp. 142–144).

When CMS added FFRCT as a covered OPSS service, the agency had to determine whether it should be separately payable or packaged. FFRCT is unusual because it has some attributes that suggest it should be packaged and other attributes that suggest it should be separately payable. CMS decided that it was appropriate to pay separately because the analytics are performed by an entity separate from the provider of the related CT angiography (a FFRCT technician who performs computer analytics off-site), which the agency determined made FFRCT different from a typical packaged service that always occurs in conjunction with a separately payable service and therefore is paid using an add-on code.

Since CMS began covering SaaS items under the OPSS in 2018, the agency has granted separately payable status to most covered SaaS items (Table 4-1, pp. 142–144). However, for some SaaS items, the AMA created two CPT codes for each item. Clinicians use all of these SaaS items to analyze data from an MRI or CT scan. However, sometimes clinicians use these SaaS items to analyze data from an already existing imaging scan, and other times they use the items immediately as part of an imaging scan. For 2022, in the former case, CMS considered the SaaS item a stand-alone service and made it separately payable; in the latter case, CMS considered the SaaS item an add-on service, so it was packaged. However, in the rule-making process for 2023 OPSS payment rates, CMS reevaluated the SaaS

items that the agency had considered add-on services in 2022. CMS concluded that the services described by these SaaS items were not consistent with the agency’s definition of typical add-on codes that are packaged under the OPSS. CMS found that the cost of the SaaS items exceeded the cost of the imaging services with which they would be billed and determined that the SaaS items are separate and distinct services rather than services that are ancillary, supportive, dependent, or adjunctive to a separately payable service, which are CMS’s standards for packaged services.<sup>14</sup> After this reassessment, CMS changed the status of these codes to separately payable. Consequently, all SaaS items have been separately payable services under the OPSS since 2023.

Through 2022, seven SaaS items were separately payable under the OPSS, and three more were packaged services (CMS reclassified them as separately payable in 2023). Of the seven SaaS items that were separately payable under the OPSS in 2022, only HeartFlow (CPT code 0503T) had volume and spending of significant magnitude (8,665 uses and \$8.4 million). LiverMultiScan (CPT code 0648T) and Cleery Labs (CPT code 0625T) had volume of less than 100 uses and spending less than \$50,000. The other four SaaS items that were separately payable had no volume and no spending in 2022.

### **Payment for medical software under Medicare’s hospital inpatient prospective payment systems**

Under the IPPS, Medicare pays acute care hospitals a bundled rate for each FFS beneficiary’s hospital stay. That payment is generally intended to cover all services provided by the hospital during the inpatient stay. Each case is assigned to a Medicare severity–diagnosis related group (MS–DRG), and Medicare’s payment for the case is adjusted by a relative weight that reflects the relative costs of caring for the average case assigned to the MS–DRG. Because the cost of a new technology might not initially be reflected in the data that are used to establish the MS–DRG relative weights, a manufacturer of a new device or drug can apply for a new technology add-on payment (NTAP) for the first two to three years that a product is on the market.<sup>15</sup> After that time, the payment for the new technology is bundled into the payment rates for the applicable MS–DRGs.

To qualify for an NTAP under the IPPS, a new technology must meet three criteria: (1) it must be new, that is, not substantially similar to existing technologies; (2) it must be high cost relative to the MS-DRG payment amount; and (3) it must represent a substantial clinical improvement. New technologies that receive certain designations from the FDA (including products designated as Breakthrough Devices or qualified infectious disease products (QIDPs) or products approved by the FDA under the limited population pathway for antibacterial and antifungal drugs (LPAD)) need only demonstrate that they meet the cost criterion (criterion 2) and do not need to demonstrate that they are different from existing technologies (criterion 1) or that they represent a substantial clinical improvement (criterion 3).

For products that qualify for an NTAP, Medicare's payment is generally the lesser of 65 percent of (1) the cost of the new technology or (2) the amount by which the estimated costs of the case exceed the standard MS-DRG payment. Drug products with QIDP or LPAD status receive a higher payment percentage, 75 percent.

When CMS first considered whether an NTAP should be granted for an AI/ML-enabled medical device with the application for ContaCT in the fiscal year (FY) 2021 IPPS rulemaking, there were a number of questions about whether and how the agency should consider these types of software products under the existing NTAP process. Several issues arose concerning how to judge whether a software product is not substantially similar to existing technologies (NTAP criterion 1) and how to estimate cost per case for a software product that is sold to hospitals on a subscription basis (which affects the cost criterion (NTAP criterion 2) and the maximum NTAP amount for the product). (A more detailed discussion of these NTAP issues is included in the text box (pp. 154–155).)

In total, six products that received market authorization from the FDA and include software or machine learning have received NTAPs. Two of these products, ContaCT and Caption Guidance, have had their NTAP status sunset and are bundled into the payment rates for the applicable MS-DRGs. For fiscal year (FY) 2024, four new products receive NTAPs:

- Canary Tibial Extension (CTE) with Canary Health Implanted Reporting Processor (CHIRP) system:

The tibial extension implant contains electronics and software, used with the Zimmer Persona Personalized Knee System. This technology collects kinematic data pertaining to a patient's gait and activity level following total knee arthroplasty using internal motion sensors (3-D accelerometers and 3-D gyroscopes). The collected kinematic data from the implanted medical device are intended as an adjunct to standard of care and physiological parameter measurement tools applied or used by the physician during the course of patient monitoring and treatment postsurgery. The maximum NTAP for a case involving the use of the CTE with CHIRP system is \$850.85 for one knee or \$1,701.70 for two knees for FY 2024.

- Ceribell Status Epilepticus Monitor: This medical device system is composed of proprietary software and two cleared, proprietary products—a single-use signal acquisition headband (the Ceribell electroencephalogram (EEG) headband) and a recorder (the Ceribell pocket EEG). The software uses a machine learning model to analyze EEG signals to detect features indicative of electrographic status epilepticus (ESE) to provide more effective diagnosis of ESE in adult patients at risk for seizure. The maximum NTAP for a case involving the use of the Ceribell Status Epilepticus Monitor is \$913.90 for FY 2024.
- EchoGo Heart Failure 1.0: This automated machine learning-based decision support system is indicated as a diagnostic aid for patients undergoing routine functional cardiovascular assessment using echocardiography. When used by an interpreting clinician, this device provides information that may be useful in detecting heart failure with preserved ejection fraction. EchoGo Heart Failure 1.0 takes as input an apical four-chamber view of the heart that has been captured and assessed to have an ejection fraction of at least 50 percent. The maximum NTAP for a case involving the use of EchoGo Heart Failure 1.0 is \$1,023.75 for FY 2024.
- SAINT neuromodulation system: This technology is a noninvasive repetitive transcranial magnetic stimulation system that identifies an individualized target and delivers navigationally directed repetitive magnetic pulses to that target located within the left dorsolateral prefrontal cortex (L-DLPFC) to

## New technology add-on payments under the hospital inpatient prospective payment systems

As CMS has considered manufacturers' applications for new technology add-on payments (NTAPs) for software products that involve artificial intelligence (AI) and machine learning (ML), the agency has worked through a number of issues about how the general NTAP framework applies to these types of products.

Under the inpatient prospective payment systems (IPPS), for the first two to three years the product is on the market, new technologies can receive add-on payments if they meet three criteria:

1. They are new—that is, not substantially similar to existing technologies.
2. They are high cost relative to the Medicare severity–diagnosis related group (MS–DRG) payment amount.
3. They represent substantial clinical improvement.

New devices that receive the Breakthrough Device designation from the Food and Drug Administration (FDA) are deemed to meet criteria 1 and 3 and need only to demonstrate that they meet the cost criterion.

CMS uses several criteria to determine whether a product is new. In general, a product is considered substantially similar to an existing technology—not new—if it meets all of the following conditions: (1) it uses the same or similar mechanism of action as an existing technology to achieve a therapeutic outcome, (2) the technology has been assigned to the same MS–DRG as that existing technology, and (3) the technology involves treatment of the same or similar type of disease and patient population as the existing technology.

When CMS first considered ContaCT's application for an NTAP (the first AI/ML-enabled software to receive an NTAP), questions arose about how the newness criterion would apply to software. One key

*(continued next page)*

treat major depressive disorder in adult patients who have not achieved satisfactory improvement from prior antidepressant medication in the current episode. The SAINT neuromodulation system consists of hardware devices (for example, stimulator with treatment coil and neuro-navigation) designed to deliver SAINT therapy to a targeted area within the L–DLPFC. The system also includes cloud software that identifies the personalized target. The maximum NTAP for a case involving use of the SAINT neuromodulation system is \$12,675 for FY 2024.

In FY 2022, two SaaS items had NTAP status under the IPPS—Caption Guidance and ContaCT. Both technologies had appreciable volume and NTAPs in 2022. Caption Guidance had volume of 813 uses and \$1.1 million in NTAPs; ContaCT had volume of 98,000

uses and NTAPs of \$72.4 million. As noted above, under the IPPS, NTAPs are the lesser of 65 percent of the average cost of the technology or the amount by which the costs of the case in which the technology is used exceed the MS–DRG payment amount. In many instances, hospital use of Caption Guidance and ContaCT resulted in \$0 in NTAPs, which indicates that the cost of the case was less than the MS–DRG payment rate.

### Payment for medical software under Medicare's physician fee schedule

Medicare pays for the services of physicians and other health professionals furnished to FFS beneficiaries based on a list of services and their payment rates, called the Medicare physician fee schedule (PFS). Under the PFS, most payment rates are based on relative

## New technology add-on payments under the hospital inpatient prospective payment systems (cont.)

question pertained to defining the mechanism of action for software. CMS expressed concern about whether use of AI, an algorithm, or software—items that are not tangible—could be used to identify a unique mechanism of action. Additionally, CMS concluded that ContaCT did not use the same or a similar mechanism of action to achieve a therapeutic outcome when compared with existing (FDA-approved) treatments; consequently, ContaCT met the newness criterion. CMS also indicated that the agency would continue to consider issues related to defining unique mechanisms of action for these types of software technologies, including how updates to AI, an algorithm, or software would affect an already approved technology or a competing technology; whether software changes for an already approved technology could be considered a new mechanism of action; and whether an algorithm improved by competing technologies would represent a unique mechanism of action if the outcome were the same as that of an already approved new AI technology. These issues surrounding the mechanism of action are not

relevant for products that receive the Breakthrough Device designation since they are deemed not substantially similar to existing technologies for purposes of the NTAP.

Another question concerns how to measure cost per patient for software that hospitals purchase on a subscription basis. With subscription software, the cost per patient depends in part on the volume of patients for whom the software is used: The higher a hospital's volume of patients, the lower its cost per patient. CMS has questioned whether per patient cost of subscription software should be estimated based on data for hospitals currently subscribing to the software or for all IPPS hospitals. To date, CMS has used the estimated cost per patient based on NTAP applicants' analyses of estimated cost for subscriber hospitals.<sup>16</sup> Another question CMS has raised is whether the maximum NTAP amount for a software product should be updated (if the product continues to be eligible for an NTAP in the future) based on the most recent subscriber data. ■

weights, called relative value units (RVUs), which account for the relative costliness of the inputs used to provide clinician services: clinician work, practice expense (PE), and professional liability insurance.

CMS pays for devices considered SaaS items under the PFS as long as the technology fits under an existing benefit category (e.g., diagnostic services under Section 1861(s) of the Social Security Act) and meets all other coverage criteria. However, the agency has faced methodological challenges in determining the PE RVUs for these new technologies (see text box on payment for software under the PFS, p. 156). Consequently, instead of establishing RVUs, CMS has generally paid carrier-set prices for the SaaS items listed in Table 4-1 (pp. 142-144), meaning that Medicare's administrative contractors set the payment amount for such services, generally on a case-by-case basis after reviewing

the documentation. CMS established RVUs for two services (in 2022, 2023, and 2024) by basing the SaaS items' RVUs on a similar service. In 2022, FFS Medicare spending for SaaS under the PFS was low; of the services listed in Table 4-1, FFRCT had the highest spending (about \$2.5 million).

CMS does not pay for the SaaS items defined as PDTs listed in Table 4-2 (p. 145) under the PFS because such technologies do not fall into an existing Medicare benefit category.

### Payment for medical software under Medicare's durable medical equipment fee schedule

Medical equipment prescribed by a clinician and needed at home to treat a FFS beneficiary's illness or

## Determining practice expense for software as a service under Medicare's physician fee schedule

Practice expense (PE) payments cover the direct and indirect costs that clinicians incur in operating a practice. Under the Medicare physician fee schedule (PFS), CMS determines relative value units (RVUs) for a given service (including technologies considered software as a service (SaaS)) using two types of PE—direct PE and indirect PE. Direct PE includes the nonphysician clinical labor, disposable medical supplies, and medical equipment that are typically used to provide a service and are determined for each service through a bottom-up approach in which component costs (e.g., equipment and supply costs) are aggregated at the service level.

Indirect PE includes the costs associated with administration, rent, and other services that cannot be attributed to any specific service, and so CMS uses a top-down approach to allocate the pool of total indirect PE across all PFS services. This complex, multistep process includes a formula that considers the physician work and clinical labor costs associated with the service and the direct PE costs associated with that service adjusted by a ratio that reflects the cost structures of the specialties that tend to bill for that service. For most specialties, CMS derives the specialty-specific indirect percentage from survey data (the Physician Practice Expense Information (PPI) Survey) conducted in 2007 and 2008 (reflecting 2006 data) on indirect PEs incurred per hour worked. Indirect PE plays a significant role in how overall PE is distributed across services.<sup>17</sup>

CMS has not adopted the RVU recommendations from the American Medical Association/Specialty Society Relative Value Scale Update Committee (RUC) for SaaS items because of methodological issues in determining a service's PE costs. For example, the agency did not adopt the RUC's recommendation for direct PE costs of \$25 "per click" for LumineticsCore, an AI system that autonomously diagnoses diabetic retinopathy (Table 4-1, pp. 142–144) because (1) CMS considered this

cost a service fee and, as such, a form of indirect PE, and (2) CMS asserted that this cost is appropriately captured via the indirect PE methodology rather than counted as a separate direct PE input (Centers for Medicare & Medicaid Services 2020a). CMS has either carrier-priced the SaaS technologies listed in Table 4-1 or set the RVUs of the technology based on a similar service (i.e., to address the lack of data on resource costs for a new service assigned to a new billing code, CMS cross-walks the resource costs of an existing service to the new service).

Historically, CMS has treated most medical software and licensing and analysis fees as indirect PE costs (not as a direct PE cost like the RUC treats such fees) because these costs are not individually allocable to a particular patient for a particular service.<sup>18</sup> CMS acknowledges the concerns from some stakeholders that treating software as an indirect PE cost does not account for newer technologies (e.g., SaaS) that rely primarily on analysis/licensing fees with minimal costs associated with medical equipment (and not included in the equipment costs) (Centers for Medicare & Medicaid Services 2023b). However, CMS has said that treating medical software that is not associated with using physical equipment to furnish the service (e.g., SaaS) as a direct cost under the current PE methodology could inadvertently result in allocating too much indirect PE costs to a given service (because direct PE costs are used to allocate indirect PE).

The age of the survey data used to allocate indirect PE costs also raises concerns about potentially misallocating indirect costs. The source of the specialty-specific indirect percentage was the PPI Survey, which was last administered in 2007 and 2008, when emerging technologies that rely primarily on software, licensing, and analysis fees with minimal costs in medical equipment and hardware were not routinely used. According to CMS, such SaaS costs are not well accounted for in the PPI Survey. ■

injury is covered under the DME benefit. DME must meet all five of the following conditions:

- can withstand repeated use;
- has an expected life of at least three years (for items classified as DME after January 1, 2012);
- is primarily and customarily used to serve a medical purpose;
- generally is not useful to an individual in the absence of an illness or injury; and
- is appropriate for use in the home.<sup>19</sup>

Some examples of DME covered by Medicare include walkers, wheelchairs, and home oxygen equipment and related supplies. Medicare also covers supplies that are necessary for the effective use of DME (e.g., oxygen in oxygen tanks). For items not subject to competitive bidding, Medicare pays for DME using a fee schedule.<sup>20</sup> Medicare pays for DME on a HCPCS basis using either a shared billing code (i.e., multiple similar items paid under a single billing code) or a billing code unique to the technology.

Medicare pays for medical software that is embedded in a device (and thus integral to a device's function) as long as the device meets the DME five-part definition. By contrast, the DME benefit generally does not pay for medical software that resides on beneficiaries' personal devices (e.g., personal computers, smartphones, tablets, laptops, or other similar technologies) because these items do not meet the DME five-part definition since personal devices are considered nonmedical (i.e., such devices are not primarily and customarily used to serve a medical purpose). The following are examples of the types of devices with software that Medicare pays for under the DME benefit:

- Speech-generating devices (speech aids) consisting of devices or software that generate speech and are used by beneficiaries with a severe speech impairment. However, Medicare's definition of a speech-generating device does not pay for personal devices that may be programmed to perform the same functions or specific features not related to "functional speaking," such as hardware or software used to create documents or play games. Such features would not meet the current definition of DME (e.g., primarily and customarily used to serve

a medical purpose) (American Speech-Language-Hearing Association 2023, Centers for Medicare & Medicaid Services 2023c).

- Continuous glucose monitors. The DME benefit permits use of personal devices as long as such devices are used in conjunction with a stand-alone receiver or insulin infusion pump that Medicare classifies as DME to display glucose data. That is, there must be a durable component capable of displaying the trending of the continuous glucose measurements in addition to the display of such results on personal devices (Centers for Medicare & Medicaid Services 2023a).
- PDTs in which the medical software and the device in which it is housed are integral to each other. For example, Medicare covers RelieVRx, a virtual reality cognitive behavioral therapy system for treatment of chronic low back pain. The components of the Class II device that received FDA market authorization include a headset, breathing amplifier, and preloaded software; the device can be used only for treatment of the specified clinical indication.

Medicare does not pay for FDA-approved medical software that is furnished solely on personal devices (e.g., smartphones, laptops) because personal devices do not primarily and customarily serve a medical purpose. Table 4-2 (p. 145) provides examples of PDTs that Medicare currently does not cover. In a DME payment determination for several PDTs (reSET, reSET-O, and Somryst) that provide cognitive behavioral therapy or a neurobehavioral intervention, CMS concluded:

Smartphones and computers are generally useful to individuals in the absence of illness or injury and are therefore not DME. . . . Digital therapies or computer software are housed on non-medical devices like smartphones or computers and the equipment and software as a whole are not DME. (Centers for Medicare & Medicaid Services 2022a)

Although CMS does not cover PDTs under the DME benefit, the agency established a new HCPCS Level II code A9291 effective April 1, 2022: "Prescription digital behavioral therapy, FDA cleared, per course of treatment" (Centers for Medicare & Medicaid Services 2022a).

## Payment for medical software under Medicare's end-stage renal disease payment system

Since 2011, Medicare pays dialysis facilities using a PPS bundle comprised of the services—dialysis equipment, supplies, and labor—that are furnished to FFS patients during a given dialysis treatment, including end-stage renal disease (ESRD) drugs and clinical laboratory tests (for which facilities previously received separate payments). Medical software is covered and paid for as part of the prospective payment bundle.

Since 2020, there has been an add-on payment—the transitional add-on payment adjustment for new and innovative equipment and supplies (TPNIES)—for ESRD-related equipment and supply items that meet the following six criteria:

- They have been designated by CMS as a renal dialysis service.
- They are new, meaning within three years beginning on the date of the FDA marketing authorization.
- They are innovative, meaning they meet the substantial clinical improvement criteria.
- They have complete HCPCS Level II code applications submitted for items and services that are DME, orthotics, prosthetics, and supplies.
- They are not capital-related assets, except for such assets that are home dialysis machines.
- They are commercially available by January 1 of the year in which the payment adjustment would take effect.

For a two-year period, Medicare pays 65 percent of a qualifying technology's cost using information from invoices and other relevant sources. Thereafter, the piece of equipment or supply is included in the PPS payment bundle, without any change to the ESRD PPS base rate.

As of June 2023, no applicants had submitted a TPNIES application for a SaaS item. Since January 2022, one ESRD equipment item has qualified for a TPNIES—the Tablo Hemodialysis System, a home hemodialysis machine.<sup>21</sup>

## Obtaining good value for Medicare

New software technologies are of growing importance in the delivery of health care. According to Daniel and colleagues:

AI systems and applications are ubiquitous and are embedded into almost every industry today, including health care. AI-enabled DxSS [diagnostic support software], as a subset of CDS [clinical decision support], has the potential to equip clinicians, staff, patients, and others with the knowledge they need to enhance overall health and improve outcomes by supporting their decision-making processes, helping them arrive at a correct diagnosis faster, reducing unnecessary testing and treatments otherwise resulting from misdiagnosis, and reducing the amount of pain and suffering by facilitating earlier treatment initiation. (Daniel et al. 2019)

The Commission is in the initial stages of considering how Medicare should pay for medical software. However, the Commission has long maintained that the goal of Medicare payment is to obtain good value for the program's expenditures, which means maintaining beneficiaries' access to high-quality services while encouraging efficient use of resources. Anything less does not serve the interests of the taxpayers and beneficiaries who finance Medicare through their taxes and premiums. Regarding other new services (drugs and biologicals), the Commission has said that Medicare should establish payment in a way that (1) promotes access to new technologies that meaningfully improve the diagnosis or treatment of beneficiaries, (2) ensures technologies' affordability for beneficiaries and taxpayers, and (3) creates incentives for the development of new technologies that lead to substantial clinical improvement (as opposed to incentives for developing technologies that have only marginal benefits) (Medicare Payment Advisory Commission 2023).

A key issue facing Medicare is how the program should pay for medical software that is generally separate from the medical device. For the IPPS, OPSS, and dialysis sectors, the Commission has repeatedly said that paying separately for items and services instead of including them in each sector's PPS bundle:

- undermines the integrity of payment bundles;
- limits the competitive forces that generate price reductions among like services;
- can lead to overuse (to the extent clinically possible); and
- shifts financial burden from providers to the Medicare program, beneficiaries, and taxpayers.

Across all settings, paying separately for SaaS items could have implications for Medicare. According to CMS, “the number of FDA approved or cleared ‘machine learning’ or ‘AI’ clinical software programs has rapidly increased in the past few years” (Centers for Medicare & Medicaid Services 2022b).

In its comment letter on the 2023 OPSS proposed rule, the Commission responded to CMS’s proposal (which was later finalized) to classify all SaaS items as separately payable services. The Commission focused on a payment approach that would broadly apply to SaaS items, including payment strategies for these services across care settings. The Commission recognized the need to ensure beneficiaries’ access to new technologies that improve outcomes while preserving the incentives for efficiency that can be achieved within FFS Medicare’s PPSs. Combining a primary service and related ancillary items, including items and services with a similar function, into a single payment unit encourages efficiency because the combination of inputs used to treat a beneficiary determines whether the provider experiences a financial gain or loss. Broader bundles also foster competition among similar items and services, which generates pressure on manufacturers and suppliers to reduce prices. Use of broader payment bundles in the OPSS would make the system more like the IPPS. With respect to the OPSS, the Commission has long supported larger payment bundles because they provide hospitals with opportunities to find flexibility in providing care and incentives to use the most cost-efficient methods. Consequently, the Commission advised CMS to continue seeking ways to increase the amount of packaging and the extent to which SaaS and other items and services can be bundled based on encounters or episodes of care.

Providers make decisions about the use of software in many aspects of their operations, and they optimize

these decisions given their own circumstances and the existing technologies and contractual relationships already in place. In such complex situations, bundled payment, rather than separate payment for specific software products, creates more desirable incentives, encouraging providers to choose technologies based on what is most effective in their own operations and not creating or distorting financial incentives for items that may not be optimal in terms of efficacy or efficiency.

Specific to the software technologies discussed in this chapter, the broader the bundle, the more likely Medicare is to pay for the services in an efficient manner. For hospital services and other episodic bundles, technology may be expected to decrease the cost of services, eliminate the need for add-on payments, and promote competition in a mix of human capital and technology-driven services to promote more efficient care delivery (Miller 2023). The use of larger payment bundles can also provide useful signals about which SaaS items are effective and improve efficiency of care. To the extent that MA plans and providers holistically consider whether a service (in this case, software technology) improves patient outcomes and service delivery, per person capitated payments in MA may be more advantageous than payment on a per unit basis in FFS Medicare.

Because of the advantages inherent in bundled payment, paying for new software technologies under the various FFS Medicare fee schedules (e.g., the PFS and DME fee schedules), in which the program pays for each service furnished, raises several concerns. For items and services that are separately billable, Medicare has few pricing tools that would help the program strike a balance between maintaining incentives for innovation and ensuring affordability for beneficiaries and taxpayers. In addition, manufacturers set prices based on what they believe the U.S. health care market will bear for items and services that FFS Medicare pays separately under their own billing codes. Paying for software technologies on a per use basis could therefore lead to overuse of such technology and may have significant fiscal implications for Medicare, particularly as the FDA clears or approves more and more such technologies over time. To improve incentives and maintain affordability under the fee schedules, policymakers could consider adjusting a service’s payment rate using a modifier for new

software technologies, such as one based on the extent to which the technology reduces a clinician's work time (Miller 2023). Other approaches include setting a payment rate for new software technologies based on:

- A market price (likely to be unrelated to the clinical value of the product) that is determined by the manufacturer's pricing decisions (such as the average price realized by manufacturers for sales to most purchasers, net of rebates, discounts, and price concessions). CMS generally uses such an approach to establish an initial payment rate for a new technology. Over time, CMS usually updates the initial payment rate through the rate-setting methods in the applicable FFS payment system.
- A new product's net clinical benefit compared with the standard of care, an approach that would aim to balance affordability for beneficiaries and taxpayers with an appropriate reward for manufacturer innovation.

As Medicare pays for software technologies, some have questioned how to ensure that the technologies improve health outcomes. In a cross-sectional analysis of clinical studies of FDA-authorized PDTs (as of November 29, 2022), Kumar and colleagues found

important limitations in the rigor of evidence. For example, 40 percent of PDTs had clinical studies that were not blinded, and the clinical studies frequently excluded older adults and people not proficient in English (Kumar et al. 2023). To ensure that the technologies improve health outcomes, Medicare could require that a manufacturer of a SaaS/PDT provide evidence that its product results in a clinically meaningful improvement compared with the current standard of care for Medicare beneficiaries. Alternatively, for a technology that lacks clear evidence that it has a positive effect on care, Medicare could apply a coverage with evidence development policy that links a service's national coverage to participation in an approved clinical study or to the collection of additional clinical data. The goal of coverage with evidence development is to expedite early beneficiary access to innovative technology while ensuring that patient safeguards are in place.

Moving forward, the Commission will continue to monitor the use of software technologies in FFS Medicare and among other payers, including MA plans and commercial payers. The Commission will also continue to deliberate on appropriate payments for such software under FFS Medicare. ■

## Endnotes

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- 1 The definition of PDTs, also referred to as digital therapeutics (DTx), is ambiguous because there is no international consensus on what PDTs are (Wang et al. 2023). DTx was first defined in 2015 as “evidence-based treatments from the field of behavioral medicine that are delivered online” (Sepah et al. 2015). The Digital Therapeutics Alliance, the leading international organization on digital therapeutics, states that these treatments “deliver to patients evidence-based therapeutic interventions that are driven by high quality software programs to treat, manage, or prevent a disease or disorder. They are used independently or in concert with medications, devices, or other therapies to optimize patient care and health outcomes” (Digital Therapeutics Alliance 2023).
- 2 CMS does pay for certain remote monitoring technologies. For example, under the physician fee schedule, beginning in 2018, CMS began making separate payments for the services described by CPT code 99091, which paid for collection and interpretation of physiologic data digitally stored and/or transmitted to the practitioner. Beginning in 2019, CMS began paying for additional new remote physiologic monitoring codes.
- 3 The FDA does not regulate the practice of medicine, including clearing or approving medical services (Food and Drug Administration 2024a).
- 4 The 21st Century Cures Act of 2016 excludes certain categories of software functions from the definition of a device (e.g., certain types of clinical support software and health administrative software). In addition, according to FDA guidance, the agency intends to exercise enforcement discretion (meaning it does not intend to enforce requirements under the FFDCa) for software functions that may meet the definition of a medical device but pose lower risk to the public (such as software functions that provide periodic educational information and software functions that use a checklist of common signs and symptoms to provide a list of possible medical conditions and advice on when to consult a health care professional) (Food and Drug Administration 2022d).
- 5 According to draft guidance issued by the FDA, the agency defines SiMD as “software that meets the definition of a device in section 201(h) of the Act and is used to control a hardware device or is necessary for a hardware device to achieve its intended use. Typically, SiMD is embedded within or is part of a hardware device” (Food and Drug Administration 2023).
- 6 AI/ML-enabled medical software items are defined by the FDA as “software incorporating artificial intelligence (AI), and specifically the subset of AI known as machine learning (ML)” (Food and Drug Administration 2022a). Because of the ability of AI/ML software to learn from real-world feedback, continually improve performance, and advance the precision of medical care, it is a subset of medical software receiving rapid research and development (Gottlieb and Silvis 2023).
- 7 The 21st Century Cures Act (CCA) removed certain types of DSI software from the definition of a medical device. Under the CCA, DSI software is considered “nondevice [DSI]” and not subject to the FDA’s device regulation if the software meets all four of the following criteria: (1) software does not acquire or analyze medical images; (2) software function displays or analyzes medical information normally communicated between clinicians; (3) software function provides recommendations to a clinician rather than a specific directive; and 4) software function provides the basis of the recommendations so that the clinician does not rely primarily on any recommendation to make a decision (Food and Drug Administration 2022b).
- 8 Most categories are defined in Sections 1812, 1832, and 1861 of the Social Security Act.
- 9 The FDA recently finalized a policy (through the rule-making process) that, effective July 5, 2024, certain laboratory developed testing services are medical devices under the FFDCa, including when the manufacturer of such products is a laboratory.
- 10 CMS notifies contractors whether each new code can be covered and, based on this information, whether Medicare’s automated claims processing systems pay or deny claims submitted with one of these codes (Government Accountability Office 2003).
- 11 A small subset of NCDs links a service’s national coverage to participation in an approved clinical study or to the collection of clinical data. This policy is referred to as “coverage with evidence development,” and its goal is to expedite early beneficiary access to innovative technology while ensuring that patient safeguards are in place.
- 12 Three MACs issued billing and coding guidance for this service.
- 13 A separately payable service does not always have an add-on code provided with it, but an add-on code is always provided with a separately payable service.

- 14 For most services covered under the OPPS, CMS estimates the costs as hospital charges reported on claims that are adjusted to approximate costs. In 2022, however, the SaaS items for which CMS was considering whether to package or pay separately had not yet been on the market long enough for CMS to collect reliable charge data. In these situations, CMS usually relies on data from the manufacturer of the SaaS item to estimate costs.
- 15 Each year, CMS establishes the relative weights for the MS-DRGs by estimating the average cost per case for each MS-DRG relative to the average cost per case for all MS-DRGs. In this process, CMS takes claims data from two years prior and cost-to-charge ratios from the Medicare cost reports to estimate the average cost per case for each MS-DRG. Because CMS develops the relative weights for a given year using claims data from two years prior, the weights do not incorporate the potential cost of new technology developed in the interim period.
- 16 In response to CMS's questions about whether software cost estimates should be based on all IPPS hospitals or only subscriber hospitals, the manufacturer of ContaCT analyzed cost per patient using both approaches and indicated that the cost per case would be higher if they extrapolated to all IPPS hospitals rather than if they used data for subscriber hospitals (Centers for Medicare & Medicaid Services 2020b).
- 17 Indirect PE constitutes a substantial portion of the RVUs allocated across the PFS, accounting for roughly one-third (approximately \$30 billion) of PFS payments in fiscal year 2019 (Burgette et al. 2018).
- 18 CMS has in some cases considered software a direct PE cost. For example, in 2019, the agency included the sheer wave elastography software (ED060) as a direct PE input for elastography (CPT codes 76981-76983), a type of imaging. In this case, the sheer wave elastography software was an additional resource cost added to the general ultrasound room (EL015) equipment, without which the service cannot be performed.
- 19 Section 1861 of the Social Security Act includes certain items defined as DME, including iron lungs, oxygen tents, hospital beds, certain wheelchairs, and—for beneficiaries with diabetes—blood-testing strips and blood glucose monitors.
- 20 Fee schedule rates are largely based on supplier charges from July 1986 through June 1987 (updated for inflation) and on information such as unadjusted list prices for products introduced after that time period.
- 21 Medical software is a component of this hemodialysis machine. The Tablo System is composed of (1) a console with integrated water purification, on-demand dialysate production, and a touchscreen interface; (2) a proprietary single-use pre-strung cartridge; and (3) the Tablo Connectivity and Data Ecosystem. As of January 1, 2022, CMS established HCPCS E1629: "Tablo hemodialysis system, for the billable dialysis service" (Centers for Medicare & Medicaid Services 2021).

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CHAPTER

# 5

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**Considering ways to lower  
Medicare payment rates for  
select conditions in inpatient  
rehabilitation facilities**

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# Considering ways to lower Medicare payment rates for select conditions in inpatient rehabilitation facilities

## Chapter summary

Medicare’s fee-for-service (FFS) payments to inpatient rehabilitation facilities (IRFs) are high relative to the cost of care; Medicare margins have exceeded 10 percent for the past 20 years. In 2018, the Office of Inspector General (OIG) concluded that the high profitability may have created incentives for IRFs to admit patients inappropriately. The Commission has recommended since 2009 that the Congress reduce the aggregate level of FFS payments to IRFs. In this chapter, we explore alternative approaches to lower FFS payment rates for beneficiaries admitted to IRFs with select conditions, in lieu of an across-the-board reduction to IRF payment rates, to better align payments with costs.

To differentiate IRFs from acute care hospitals, CMS requires that 60 percent of an IRF’s admissions be patients with 1 of 13 conditions (or have specified comorbidities and patient characteristics). We refer to these 13 conditions as “contributing to the compliance threshold” because they count toward the provider meeting the 60 percent rule required to be paid as an IRF rather than as an acute care hospital. The remainder of an IRF’s admissions can be patients with other conditions. We refer to these as “not contributing to the compliance threshold” because they do not count toward the 60 percent rule threshold. Though some have questioned whether a clinical condition is sufficient to identify patients

## In this chapter

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who require intensive rehabilitation, CMS has consistently relied on a list of conditions that IRFs should be primarily engaged in treating because those conditions typically require intensive rehabilitation. However, all patients admitted to an IRF, including those who do not count toward the compliance threshold, must meet coverage rules about the need for intensive rehabilitation and medical supervision. Interviews with hospital discharge planners identified many factors that influence the placement of patients in IRFs or skilled nursing facilities (SNFs) or at home, but there are few evidence-based guidelines—except in the case of stroke—to assist discharge planners in making these decisions.

If it were possible to perfectly identify IRF patients who do not require IRF care, who could be treated in SNFs instead, policymakers could establish SNF rates for them, or narrow the payment differences between IRFs and SNFs. However, differentiating among patients who do or do not require IRF-level care is difficult without reviewing medical records. After conducting such reviews, CMS and OIG found that a substantial share of cases admitted to IRFs did not meet medical necessity criteria and documentation requirements.

To assess the impacts of lowering payments for select conditions, we used cases that do not contribute to the compliance threshold as a proxy for cases that may not require IRF-level care. This approach is imperfect because this group can include patients who do require intensive rehabilitation; similarly, it is possible that some patients who contribute to meeting the compliance threshold do not require this level of care. That said, using the proxy allows us to identify and compare patients treated in IRFs and SNFs and assess the impacts of lower payment rates for a select group of conditions. We emphasize that compliance with the 60 percent rule is not used to determine coverage for individual beneficiaries' admission to IRFs.

If IRFs and SNFs treated similar patients and the patients had similar outcomes, lowering payment rates for select conditions might be warranted. However, comparing patients treated in IRFs and SNFs and their outcomes is difficult due to unobserved differences in the patients admitted to the two settings. Looking at characteristics we could examine, we found that while patients treated in the two settings were similar across many dimensions, those treated in IRFs tended to be younger and less medically complex and impaired. Drawing conclusions about differences in the outcomes of patients treated in IRFs and SNFs was more challenging. Even with risk adjustment, underlying differences in the patient populations, not the care they received, could partly explain the

results. Because IRFs are licensed as hospitals and their users face different coverage rules (they must be able to tolerate intensive therapy), we would expect outcomes to differ.

Without being able to draw firm conclusions about differences in outcomes for patients treated in IRFs and SNFs, we evaluated lowering IRF payment rates for cases that do not contribute to the compliance threshold. We considered three approaches. In one, rates would be lowered to the amount paid to SNFs. The resulting rates would not cover IRFs' costs, which might encourage IRFs to scale back admissions of these patients. Further, to lower their costs, IRFs might reduce staffing and care delivery or shorten stays, which could worsen patient outcomes. Because some patients with conditions that do not contribute to the 60 percent rule still require an IRF level of rehabilitation, very low payment rates could disrupt their care. In the second approach, IRF payment rates would be lowered so that they would equal the aggregate cost of care. In the third, payment rates would be based on a blend of current rates and rates that equal the cost of care. Because these last two approaches would involve much smaller reductions in payment rates than SNF-based rates, IRFs would have less incentive to disrupt or change the care provided to beneficiaries.

In assessing whether a targeted reduction was a reasonable approach to lower IRF payments, the Commission considered several factors. First, the list of compliant conditions is imperfect at identifying beneficiaries who require IRF-level care. As a result, reductions targeted at patients with conditions that do not contribute to the compliance threshold could disrupt care for some beneficiaries. Second, cases that did and did not contribute to the compliance threshold were equally profitable overall. Therefore, it was not clear that rates should be lowered for only a subset of conditions. Third, unmeasured differences in the patients treated in IRFs and SNFs undermined our ability to draw conclusions about the characteristics and outcomes of the patients treated in each setting. Taken together, these factors persuaded the Commission that our standing recommendation to lower payment rates for all cases was the best course of action. We will reevaluate our recommendation about the aggregate level of payments in December 2024, when we consider the adequacy of Medicare's payments to IRFs for fiscal year 2026.

Aside from the level of Medicare's payments, CMS, in conjunction with the Congress, could take several steps to improve the definition and identification of cases that do and do not require IRF care. The list of conditions contributing

to the compliance threshold could be updated on a regular basis through rulemaking to include conditions that typically benefit from intensive therapy and exclude conditions that do not. To help prevent unnecessary admissions, CMS might glean useful information from a current demonstration that is reviewing 100 percent of IRF claims in selected states. The ongoing demonstration could identify coverage requirements that might be clarified and suggest best practices for providers' admission processes. CMS may also need to continue to educate providers and claims reviewers about medical necessity and documentation rules. With additional funds, CMS could increase its auditing of IRF admissions. ■

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## Introduction

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Beneficiaries who require recuperative or rehabilitative care are treated in skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals and by home health agencies. Despite the overlap in the patients treated in the settings, Medicare uses separate payment systems that result in different payments for similar cases. The Commission previously concluded that a unified payment system could establish accurate payments, but it would be complex and take years to implement (Medicare Payment Advisory Commission 2023). The Commission stated that it would look for other opportunities to align payments more closely across settings for similar cases.

Beneficiaries who require rehabilitation and cannot go home receive care in IRFs or SNFs. IRF care is more intensive, yet the Commission and others have documented the overlap in the types of patients treated in IRFs and SNFs. The intensity of services furnished in IRFs makes them the appropriate settings for patients who require this level of care, while general rehabilitation can be delivered in other settings (Centers for Medicare & Medicaid Services 2004).

Medicare's fee-for-service (FFS) payments to IRFs are much higher than payments to SNFs for similar cases. The policy question is whether all cases treated in IRFs need this level of care or whether some cases could be treated in a lower-cost setting. The Commission has long maintained that Medicare should not pay higher rates when care can be safely and effectively furnished in a lower-cost setting (Medicare Payment Advisory Commission 2023).

The Commission has also found that Medicare's aggregate payments to IRFs are much higher than IRFs' costs. Concluding that the level was inappropriately high, the Commission has recommended each year since fiscal year (FY) 2009 that the Congress lower the level of payments. In this chapter, we explore approaches that would target payment reductions for beneficiaries admitted to IRFs who may not require intensive rehabilitation.

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## Background

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When the acute care hospital prospective payment system (PPS) was implemented in 1983, CMS identified facilities that primarily furnished extensive rehabilitation therapy and excluded them because they had significantly higher costs than acute care hospitals.<sup>1</sup> Between 1984 and 2002, the number of IRFs increased more than three-fold (from 357 to 1,181) and spending grew nine-fold (from \$0.5 billion to \$4.5 billion) (Centers for Medicare & Medicaid Services 2007). Since 2002, the number of IRFs has remained stable, though the mix has shifted away from nonprofit hospital-based to for-profit freestanding facilities. Despite this shift, about three-quarters of IRFs are hospital based, though they treat less than half of Medicare FFS discharges. In 2022, program spending was \$8.8 billion for 383,000 cases. FFS Medicare makes up half of IRF days.

Since the IRF PPS was implemented in 2002, Medicare margins have exceeded 10 percent each year. Concluding that the level of payments needed to better align with the cost of care, each year since 2009, the Commission has recommended lowering the level of payments. Between 2009 and 2017, we recommended zero updates (effectively lowering payment rates by the market basket update). Beginning in 2018, with record-high Medicare margins, we recommended lowering the payment rates by 5 percent. In 2022, the aggregate Medicare margin was 13.7 percent. For fiscal year 2025, the Commission recommended that payment rates be lowered by 5 percent (Medicare Payment Advisory Commission 2024).

Work conducted for CMS on a unified payment system for post-acute care discussed the overlap and distinct services furnished by IRFs and SNFs (Gage 2012, RTI International 2022). The Commission has previously discussed the reasons for the overlap: the variation in the supply and use of different settings across the country, the lack of clear criteria identifying which patients require what level of post-acute care, and a dearth of evidence-based guidelines to direct beneficiaries to the setting with the best outcomes (Medicare Payment Advisory Commission 2023, Medicare Payment Advisory Commission 2016). Placement of patients who may be referred to either setting may hinge on the specialized expertise, bed availability, or quality of the providers in the local market.

## Medicare's facility and coverage rules for IRFs

Licensed as hospitals, IRFs must meet all conditions of participation for acute care hospitals, such as having a physician present or on call 24 hours a day and a registered nurse (RN) supervising or providing care 24 hours a day. IRFs must comply with additional facility requirements that differentiate them from acute care hospitals. All potential admissions must be screened to ensure that a patient meets the requirements for admission to an IRF, and a physician must review the findings of the screening.<sup>2</sup> A physician-led interdisciplinary team (including a rehabilitation nurse, a social worker or case manager, and a licensed therapist from each therapy discipline involved in the patient's treatment) uses the review to establish a plan of care, which they must review at least weekly. IRFs are required to have a physician medical director who has rehabilitation expertise to supervise all care.

Medicare has additional coverage requirements for IRF services (Centers for Medicare & Medicaid Services 2009). For an IRF claim to be reasonable and necessary, patients must meet several requirements at admission. The patient must be sufficiently stable and is expected to participate in an intensive rehabilitation program. Patients are considered appropriate for IRF care if they require and would benefit from intensive therapy (usually three hours a day, five days a week) involving at least two therapy modalities, one of which must be physical or occupational therapy.<sup>3</sup> The patient must also require supervision by a rehabilitation physician (three visits a week).<sup>4</sup> In addition, a physician-led weekly interdisciplinary team must review the approach to care delivery.

Some IRFs have specialized programs to treat patients recovering from brain and spinal cord injuries, transplants, and cancer. Some facilities obtain accreditation by CARF (previously known as the Commission on Accreditation of Rehabilitation Facilities) for specialty programs in amputation, brain injury, cancer, spinal cord injury, and stroke care. Accreditation is a sign of a high-quality program that may give providers a competitive advantage in gaining referrals and securing external funding.

## Medicare's facility and coverage rules for SNFs

To qualify for Medicare-covered SNF services, a beneficiary must receive daily skilled services—care that requires the skills of technical or professional personnel who directly provide or supervise the services—that are ordered by a physician.<sup>5</sup> Beneficiaries are not required to receive a minimum amount of daily rehabilitation therapy. SNFs must provide 24-hour nursing services by a licensed nurse (either an RN or an licensed practical nurse) and have an RN working in the facility for at least 8 consecutive hours a day.<sup>6</sup> A physician must supervise SNF care and see a patient every 30 days for the first 90 days after admission and at least once every 60 days thereafter, but rehabilitation physicians are not regularly onsite at most SNFs. SNFs must have a medical director who oversees operations and coordinates care.<sup>7</sup>

SNFs vary considerably in the services they offer and the clinical conditions they can manage. Compared with IRFs, SNFs offer a lower level of rehabilitation care. SNFs often provide rehabilitation services to beneficiaries who do not meet the IRF coverage rules or were not approved for admission by the IRF. Almost all SNFs are dually certified as SNFs and nursing homes that provide long-term care services. SNFs vary in their mix of patients receiving long-term care and short-stay post-acute care, and some facilities focus on treating patients recovering from orthopedic surgery. A few SNFs offer ventilator care.

## IRFs must primarily provide care to patients who need intensive rehabilitation

To distinguish IRFs from acute care hospitals, IRFs must be primarily engaged in providing intensive rehabilitation. CMS requires that at least 60 percent of their admissions must be for patients with 1 of 13 conditions—stroke, spinal cord injury, congenital deformity, amputation, amputation of a lower limb, major multiple traumas, hip fractures, brain injury, certain neurologic disorders, burns, certain arthritic conditions, select hip or knee replacements, and polyarthritis—or for patients with these conditions as specified comorbidities.<sup>8</sup> We refer to these conditions as “contributing to the compliance threshold” because they contribute to compliance with the 60 percent rule, which IRFs must meet to be paid under the IRF

PPS. IRFs that do not meet the compliance threshold are paid as acute care hospitals. The large difference in payment rates between acute hospitals and IRFs—in 2021, the acute care hospital base rate was 38 percent lower than the IRF base rate—would act as a stiff “penalty” for noncompliance and is likely a factor in explaining why IRFs rarely fail to meet the compliance threshold. Since 2006, only three IRFs have failed to meet the threshold. The shares of cases contributing to the compliance threshold vary little across facilities. In 2021, the median compliance rate was 71 percent, with only a 7 percentage point difference between the 25th and 75th percentiles.

Up to 40 percent of an IRF’s cases may be patients who do not contribute to the compliance threshold. Cases that do not contribute to the compliance threshold must still meet Medicare’s IRF-specific criteria for Medicare coverage. Examples of these conditions include debility and pulmonary, cardiac, and certain neurologic and orthopedic conditions.

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### **Identifying cases that require intensive rehabilitation is difficult**

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Identifying cases that require intensive rehabilitation is not straightforward. The Office of Inspector General (OIG) and CMS’s assessment of improper payments found that IRFs admit patients who do not meet medical necessity and documentation rules for admission. Differences in clinical judgment may play a role in explaining why so many cases are admitted that, upon review, do not meet coverage rules. The list of conditions, though not used to determine Medicare coverage, indicates the conditions that typically require intensive rehabilitation (Centers for Medicare & Medicaid Services 2004, Health Care Financing Administration 1983). However, the list is imperfect: Some patients with these conditions do not need to be treated in an IRF, while some patients with other conditions do.

### **IRF admissions do not always meet coverage rules**

Although every beneficiary admitted to an IRF must meet coverage rules, there is evidence that beneficiaries who do not meet them are admitted.

In a 2018 report, OIG found that the majority of cases it reviewed did not comply with coverage and, separately, did not meet documentation requirements for reasonable and necessary care (Office of Inspector General 2018). Of the 220 stays it examined, OIG found that two-thirds did not meet both coverage and documentation requirements; 13 percent met coverage rules but not documentation rules; and 20 percent met both coverage and documentation rules. The report gave five reasons for the errors: IRFs lacked adequate internal controls to prevent inappropriate admissions; FFS Medicare Part A lacked a prepayment review for IRF admissions; CMS’s educational efforts and postpayment reviews were insufficient; the appeals process did not always include CMS participation to ensure that the coverage rules and documentation requirements were accurately interpreted; and Medicare’s high payment rates created an incentive for IRFs to admit patients inappropriately. OIG has follow-up work underway to identify coverage and documentation rules that could be clarified to help providers and reviewers meet them (Office of Inspector General 2024). In an innovative approach, OIG will give industry stakeholders the opportunity to provide input to the reviews. The participatory approach may identify aspects of the rules that could be clarified.

CMS audits a very small share of IRF claims—between 1 percent and 3 percent each year.<sup>9</sup> Most audits conducted by Medicare contract administrators focus on other types of claims since there are relatively few IRF claims. As a result, some auditors may lack the experience and knowledge to evaluate the documentation submitted to support the need for intensive rehabilitation.

Clinical judgment may be a factor when different conclusions are drawn about whether a case meets admission rules. The rules are sufficiently broad that clinicians could reasonably differ about the medical appropriateness of an admission. For example, opinions may differ about when patients are strong enough to tolerate IRF care but not so strong that they could be treated in a less intensive setting. Similarly, there could be different opinions of what is “reasonable and necessary.” Without documentation supporting the need for IRF-level care, the medical necessity of the admission cannot be substantiated.

The successful reversal of many appeals reflects these differing conclusions, though some of the reversals are explained in part by CMS's (or its contractors') inconsistent presence at the appeal hearings (American Medical Rehabilitation Providers Association et al. 2018, Office of Inspector General 2018).

Each year, CMS assesses the extent of improper payments with the Comprehensive Error Rate Testing (CERT) program. The program evaluates a statistically valid random sample of claims to determine program compliance with payment rules, regulations, and requirements (Centers for Medicare & Medicaid Services 2019). In 2023, CERT found that the improper payment rate for IRFs was 27.3 percent, and the projected improper payments totaled \$1.9 billion (Centers for Medicare & Medicaid Services 2024a).<sup>10</sup> Virtually all of the errors (99.7 percent) were due to documentation not supporting medical necessity of the service; the remainder (0.3 percent) was attributed to insufficient documentation.

As a response to high levels of improper payments to IRFs, CMS created the IRF Services Review Choice Demonstration (Centers for Medicare & Medicaid Services 2023b). The goal is to improve the methods of identifying potential fraud and compliance with Medicare's IRF program requirements (Centers for Medicare & Medicaid Services 2023a). The demonstration targets states with particularly high rates of improper IRF payments (Centers for Medicare & Medicaid Services 2020a). Under the demonstration, IRFs are subject to 100 percent claims review until their claim approval rate meets the "target affirmation rate."<sup>11</sup> If an IRF successfully complies with the target affirmation rate, it can forgo the 100 percent claims review and opt for a more selective review. If an IRF fails to meet the target affirmation rate while under a subsequent review option, they must revert to the 100 percent claims review.

The demonstration began in August 2023 for IRF providers in Alabama and will expand to Pennsylvania, Texas, California, and select Medicare administrative contractor (MAC) jurisdictions in the future. Participation is mandatory and requires IRFs to submit to CMS the documentation that supports the medical necessity of the admission and indicates that the beneficiary meets coverage requirements.

(IRFs already must have this information on file.) CMS estimates the additional costs to providers (for locating and submitting the supporting documentation, generally from the medical record) will be about \$3.1 million per year (once the program is fully phased in) and will cost the federal government \$114 million over five years (this amount does not consider any savings that might accrue due to averted unnecessary admissions) (Centers for Medicare & Medicaid Services 2021). The five-year demonstration is being administered by MACs. At the time of our report's publication, early results were not publicly available.

### **The list of conditions does not perfectly identify patients who require intensive rehabilitation**

The original list of conditions that contribute to the compliance threshold was developed by consulting with stakeholders and was intended to differentiate IRFs from acute care hospitals. At the request of the Health Care Financing Administration (the precursor to CMS), the American Academy of Physical Medicine created a committee to develop criteria for IRFs and identify common inpatient rehabilitation diagnoses. In 1978, the committee developed three criteria (the patient is medically stable, the patient is expected to improve within a reasonable period of time, and the patient is expected to tolerate and participate in 3 hours of therapy a day) and identified 10 diagnoses (Reinstein 2014). Eight of those diagnoses became the initial conditions that contribute to the compliance threshold, with the other two (burns and other neurologic conditions) added the following year. CMS also consulted with the American Hospital Association, the Joint Commission of hospitals, and the Commission on the Accreditation of Rehabilitation Facilities (Braddom 2005). There were no existing evidence-based guidelines for stakeholders to consider in developing the criteria for IRFs or the conditions that would count toward the compliance threshold.

While the list of conditions is used to determine whether an IRF is paid under the IRF PPS (and not the inpatient hospital PPS), it does not determine whether a patient meets coverage rules. This assessment is conducted by the IRF prior to admission (see p. 174).

Over the years, the list of conditions (and the associated diagnoses) contributing to the compliance threshold has been revised to include conditions that typically require intensive rehabilitation and exclude conditions that do not, though CMS does not conduct regular reviews (Centers for Medicare & Medicaid Services 2017b, Centers for Medicare & Medicaid Services 2014, Centers for Medicare & Medicaid Services 2013, Centers for Medicare & Medicaid Services 2004, Health Care Financing Administration 1984). (See text box on the history of the compliance threshold, pp. 178–179.) As required by the Medicare, Medicaid and SCHIP Extension Act (MMSEA) in 2009, CMS submitted a report to the Congress examining conditions that did not count toward the compliance threshold. The report concluded that there was little empirical evidence to assess whether IRF services were necessary for the treatment of these other conditions or whether the conditions could have been treated in a less intensive setting (Gage et al. 2009).

We appreciate that no list of conditions will identify each patient who requires IRF care. (Assessing whether a patient has met coverage rules can only be done with medical record review.) Not all patients with a condition contributing to the compliance threshold (e.g., those recovering from a hip fracture) need to be treated in an IRF; some could be treated in SNFs or at home with home health care or outpatient therapy. Conversely, some patients with a condition not contributing to the compliance threshold (e.g., cancer and transplant) require intensive rehabilitation. One IRF we visited had rehabilitation programs for cardiac and cancer care, though neither is one of the 13 conditions. Furthermore, the accuracy of the list of conditions contributing to the compliance threshold is limited by the general lack of conclusive evidence indicating that conditions benefit from IRF-level care. (Research on patients recovering from strokes is the exception.) A review of the available literature on other conditions that might be added to or removed from the list was beyond the scope of our work and expertise.

Stakeholders have requested that other conditions be added that, for the most part, CMS has not adopted because there was insufficient evidence in the literature to confirm that the conditions benefit from intensive therapy (Centers for Medicare & Medicaid Services 2017b, Centers for Medicare & Medicaid Services 2004, Health Care Financing Administration

1984). “Other specified myopathies” are one example of a condition that may not identify patients who require intensive rehabilitation.<sup>12</sup> In 2017, CMS proposed the removal of “other specified myopathies” from the “other neurological conditions” category, which contributes to the compliance threshold (Centers for Medicare & Medicaid Services 2017b). CMS stated that this condition was intended to represent myopathies that had been confirmed (through, for example, medical testing), but instead the agency found that the diagnosis code was being used by certain IRFs as a nonspecific diagnosis for muscle weakness. Indeed, the Department of Justice alleged that certain IRFs were inappropriately admitting patients with these conditions without supporting clinical evidence of their need for IRF services. The case was ultimately settled (Department of Justice 2019). In the end, CMS did not remove this code and stated that it would continue to monitor its appropriate use (Centers for Medicare & Medicaid Services 2017b). The Commission has found that IRFs that tend to be more profitable serve higher shares of patients with this diagnosis code (Medicare Payment Advisory Commission 2024).

The current compliance threshold is lower than the original level of 75 percent. CMS, after a period of not enforcing it, began in 2004 to enforce it again with a slow phase-in back to the 75 percent level. The Congress delayed the implementation of the 75 percent threshold (in the Deficit Reduction Act of 2005) and allowed CMS to set the threshold at no higher than 60 percent (as required by MMSEA), where it has remained. As of March 2024, there are no IRFs out of compliance. In 2021, cases that contribute to the compliance threshold made up 69 percent of FFS cases, compared with 80 percent for Medicare Advantage cases.

### **Many factors influence decisions about placing beneficiaries in IRFs**

Discharge decisions about placement of beneficiaries in IRFs are not well understood. One study found that aspects of hospitals (such as their affiliation with an IRF and location) were key factors, but there was wide variation across hospitals (Simmonds et al. 2023). We interviewed 12 hospital discharge planners to gain insights into the factors that are considered when referring a beneficiary to an IRF or a SNF in markets that have both types of facilities (L&M Policy Research

## History of the compliance threshold

When inpatient rehabilitation facilities (IRFs) were established as a provider category in 1983, at least 75 percent of their cases had to be admitted for treatment of one or more of eight conditions (stroke, spinal cord injury, congenital deformity, amputation, major multiple traumas, fractures of the femur, brain injury, and polyarthritis). These eight conditions were based on sampling criteria used to review the medical necessity of admissions to comprehensive medical rehabilitation hospitals or units and the quality of care they furnished.

Over time, CMS has revised the list of conditions contributing to the compliance threshold, though it does not conduct regular reviews and updates. In 1984, neurological disorders and burns were added, for a total of 10 conditions that contributed to the compliance threshold.<sup>13</sup> In 2004, the definition of osteoarthritis was narrowed to those cases that require intensive rehabilitation care (1 general condition was deleted and 3 specific ones were added), and certain joint replacement conditions were added (for a total of 13 conditions) (Centers for Medicare & Medicaid Services 2004).<sup>14</sup> CMS also expanded the number of cases contributing to the compliance threshold by including patients

admitted for a condition that does not contribute to the compliance threshold but who had one or more comorbidities that did. In fiscal years 2014, 2015, and 2018, CMS updated its lists of codes from the International Classification of Diseases, 10th revision, that are included in the 13 conditions, generally replacing certain general codes (such as the arthritis codes) with more specific ones that would be likely to require intensive rehabilitation therapy (Centers for Medicare & Medicaid Services 2017b, Centers for Medicare & Medicaid Services 2014, Centers for Medicare & Medicaid Services 2013). In fiscal year 2014, other conditions (such as certain amputation codes) were removed because patients would not necessarily require close medical supervision, and other conditions (certain congenital anomalies) were removed because the patients would be unlikely to benefit from IRF-level care (Centers for Medicare & Medicaid Services 2013). The intent of the revisions was to have lists of codes that, as accurately as possible, reflect conditions that require intensive therapy and count toward complying with the 60 percent rule.

Since the development of the original list of conditions contributing to meeting the compliance threshold, stakeholders have requested that the

*(continued next page)*

2023). Though this was admittedly a small sample, we learned about the various practices of discharge planners and IRF preadmission reviews.

Discharge planners said they focus primarily on whether a patient was expected to tolerate and benefit from intensive therapy, though some also considered whether the patient had a condition that contributed to the compliance threshold. In addition, discharge planners said they considered several other questions, including:

- Did the patient have a three-day prior hospital stay? Beneficiaries without a three-day prior hospital stay may be referred to an IRF (if they meet other Medicare requirements) rather than a SNF to avoid being denied Medicare coverage for the SNF stay.
- Is the patient likely to be discharged home after the IRF or SNF stay? Discharge planners told us that some IRFs prefer to admit patients who are expected to be discharged home, though it is not a CMS requirement.

## History of the compliance threshold (cont.)

list be expanded to include replacement of a single joint, chronic pain, debility, postsurgery cancer, transplant, multi-organ failure (shock/sepsis), and cardiac and pulmonary conditions requiring rehabilitation (Centers for Medicare & Medicaid Services 2015a, Centers for Medicare & Medicaid Services 2005, Centers for Medicare & Medicaid Services 2004). In 2004, CMS noted that it did not add these conditions because “we have not seen any studies indicating that medical conditions now listed in existing Section 412.23(b)(2) require the type of intensive rehabilitation that IRFs can uniquely deliver. Although the conditions listed by commenters have been treated in IRFs, we do not believe that they are the type of conditions that typically require intensive rehabilitation” (Centers for Medicare & Medicaid Services 2004). CMS also noted that IRFs are not necessarily the most appropriate setting for treating patients with complex medical conditions (Centers for Medicare & Medicaid Services 2005). In 1984, CMS did not add chronic pain to the list because it considered chronic pain a symptom, not a medical condition, and stated that many treatments for this condition were not considered rehabilitation (Health Care Financing Administration 1984). CMS has held that although prosthetic fitting or adjustment may require multidisciplinary services, it does not, by

itself, require IRF-level care (Centers for Medicare & Medicaid Services 2015c, Centers for Medicare & Medicaid Services 2014). CMS encouraged stakeholders to conduct research evaluating whether patients with any of these conditions require services unique to IRFs.

Several studies have explored whether patients with certain conditions that do not currently contribute to the compliance threshold benefit from intensive therapy. Though the studies have serious limitations (most were conducted at just one or a handful of IRFs with very small sample sizes), they examined patients recovering from cancer, chronic graft-versus-host disease, heart failure, and medically complex conditions (Forrest and Deike 2018, Fu et al. 2017, Gallegos-Kearin et al. 2018, Leung et al. 2018, Mix et al. 2017, Reilly and Ruppert 2023, Sliwa et al. 2016, Tay et al. 2022, Zhang et al. 2022). The studies found that the conditions benefited from inpatient rehabilitation. Three of the studies found that the improvements were similar to those made by patients with conditions that contribute to the compliance threshold (Fu et al. 2017, Reilly and Ruppert 2023, Sliwa et al. 2016). Some experts have questioned whether a clinical condition is sufficient to identify patients who require intensive rehabilitation care (Gage et al. 2009). ■

- Is the patient medically complex? Beneficiaries who require close medical supervision were referred to IRFs (if they met IRF admission criteria). Some patients who cannot tolerate intensive rehabilitation are discharged to SNFs, with the expectation that they will be referred to an IRF once they build up their strength.<sup>15</sup>
- What are the patient’s preferences? Patient preferences about proximity to family, experience with a SNF or IRF, or a facility’s amenities or reputation play an important role in discharge placement. Some patients who want to avoid SNFs

but are not approved by the IRF for admission will be discharged home with home health care or outpatient therapy.

Placement options were also shaped by how close the IRF was to meeting the compliance threshold. One IRF representative we spoke with said that on any given day, a patient with a condition not contributing to the compliance threshold might be admitted or not, depending on whether the facility was above or close to meeting the threshold. Clinical judgment and experience may result in different placement decisions. Industry stakeholders told us that IRFs admit less

than 40 percent of the patients who are referred to them because they do not meet Medicare coverage requirements, do not require intensive therapy, or do not have the potential to improve (American Medical Rehabilitation Providers Association 2023).

Given the differing requirements for IRFs and SNFs, it was not surprising that the hospital discharge planners we spoke with did not consider the care in SNFs and IRFs to be interchangeable. Furthermore, few evidence-based guidelines exist to help direct beneficiaries to the setting with the best outcomes. For example, one study of patients treated for debility in IRFs concluded that more research was needed to identify the most appropriate setting (Kortebein et al. 2008). However, stroke guidelines established by the American Heart Association/American Stroke Association outline best practices in the rehabilitation care for stroke patients (e.g., prevention of falls and skin breakdown and pain management) and recommend placement in IRFs (Winstein et al. 2016). The Canadian spinal cord injury guidelines outline the components of ideal care (e.g., diagnostic imaging) and the management of complications; it could serve as a model for evidence-based guidelines (Praxis Spinal Cord Institute 2021).

### **Using conditions that do not contribute to the compliance threshold as a proxy for cases that do not require IRF-level care**

IRFs may admit up to 40 percent of their cases for conditions that do not contribute to the compliance threshold if the patients meet IRF coverage rules (including medical necessity). As noted above, OIG and CMS concluded that IRFs admitted some patients who did not meet medical necessity rules and did not qualify for IRF care. However, identifying these patients is difficult without medical record review. We used cases not contributing to the compliance threshold as proxies for IRF cases that could qualify for lower payments because CMS determined that such conditions typically do not require intensive therapy (Centers for Medicare & Medicaid Services 2004). We appreciate that the approach is imperfect, but it gives us a starting point for considering whether lowering payment rates for a select set of conditions is a good alternative to the Commission's standing recommendation for an across-the-board reduction.

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### **Medicare pays less for many patients treated in SNFs than in IRFs**

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We found that the majority of IRF and SNF patients with conditions not contributing to the compliance threshold got their care in SNFs, even in markets that had an IRF. Some characteristics of patients treated in IRFs and SNFs were similar, but IRF patients were generally younger, less medically complex, and had fewer impairments. IRF patients received substantially more therapy per day compared with SNF patients. However, over the course of the longer SNF stays, the differences narrowed considerably. It is hard to draw conclusions about differences in the outcomes due to the underlying differences in the patients treated in the two settings and Medicare's differing requirements of each setting. IRF payments for these cases were substantially higher than SNF payments for similar cases.

### **Many patients with conditions not contributing to the compliance threshold get their care in SNFs**

We assessed the extent to which cases that do not contribute to the compliance threshold are currently treated in SNFs by examining the share of cases that were treated in SNFs in markets (defined as hospital service areas) that also had at least one IRF.<sup>16</sup> (See methodology text box on identifying IRF and SNF cases.) We found that among the 406,300 patients with these conditions in markets with IRFs and SNFs, the vast majority (323,600, or about 80 percent) of cases were treated in SNFs, indicating that these conditions can be treated in SNFs.

We also looked at IRF use by beneficiaries who lived in markets without an IRF. In 2021, while almost every market (defined as a hospital service area) had at least one SNF, about 30 percent of beneficiaries lived in a hospital service area without an IRF. Not surprisingly, beneficiaries' use of IRFs is considerably lower in markets with no IRFs than in markets with IRFs. In 2021, the share of all FFS beneficiaries using IRFs was 40 percent lower in markets without an IRF than the share of FFS beneficiaries using IRFs in markets with one or more IRFs. Hospital discharge planners we spoke with told us that patients who might otherwise go to an IRF may be treated in a SNF if there is no nearby IRF or no IRF with an available bed.

## Methodology for identifying IRF cases that do not contribute to the compliance threshold and comparable SNF cases

To identify inpatient rehabilitation facility (IRF) cases that contribute to the compliance threshold and comparable skilled nursing facility (SNF) stays, we started with 2021 Part A-covered SNF and IRF claims with positive fee-for-service (FFS) Medicare payments (Table 5-1). We excluded beneficiaries who were enrolled in Medicare Advantage plans, did not have continuous Part A enrollment through their stay, had a COVID-19 diagnosis, had a disaster-related condition code (that is, were admitted during the

public health emergency using a waiver), died during the stay, had a prior IRF or SNF stay within 30 days (that could be considered follow-on post-acute care), or were admitted from or discharged to hospice. Short IRF and SNF stays (three days or fewer) and stays with no matching patient assessment data were also excluded. (IRFs must submit patient assessment data gathered with the Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF-PAI), and SNFs must submit patient assessment information using the Minimum Data

*(continued next page)*

**TABLE  
5-1**

**Cases included in the analysis, FY 2021**

	IRFs	SNFs
All Part A cases	363,180	1,756,870
Study population	269,810	860,290
Cases not contributing to the compliance threshold	82,980	519,490

Note: FY (fiscal year), IRF (inpatient rehabilitation facility), SNF (skilled nursing facility). Part A cases include IRF and SNF cases for beneficiaries continuously enrolled in Part A during the stay, who had no Medicare Advantage enrollment and had positive Medicare fee-for-service payments. The study population was drawn from the initial pool of all Part A cases but excludes Part A stays with a COVID-19 diagnosis, disaster-related condition code, short stays, readmissions to the same setting, admissions or discharges from hospice, discharges that end in death, stays with no matching admission assessment, and stays for which patients could not complete the brief interview for mental status (BIMS) section of the assessment tool. "Cases not contributing to the compliance threshold" are cases in the study population that did not meet the IRF compliance criteria applied to both IRF and SNF cases (<https://www.cms.gov/files/document/specifications-determining-irf-60-rule-compliance.pdf>).

Source: Analysis of FY 2021 Medicare IRF and SNF fee-for-service claims, assessment data, and enrollment files conducted by Acumen LLC for MedPAC.

### IRF beneficiaries with conditions that do not contribute to the compliance threshold were younger and less medically complex than comparable patients treated in SNFs

Many clinical conditions are treated in IRFs and SNFs, and the literature indicates that their patients' observed characteristics are similar (Balentine et al. 2018, Buntin et al. 2010, Gage 2012, Mallinson et al. 2014, Medicare Payment Advisory Commission 2023, Medicare Payment Advisory Commission 2017, RTI International 2022, Wissoker and Garrett 2023,

Wissoker and Garrett 2019). If the patients in IRFs were reasonably similar to or healthier than patients in SNFs and their outcomes were similar, policymakers could consider paying SNF rates for IRF cases that do not contribute to the compliance threshold (or at least narrowing the differences in payment rates between the two settings). However, unobserved differences between the two populations could exist.

We found that IRF patients were similar to SNF patients in a Medicare-covered Part A stay in some ways but

## Methodology for identifying IRF cases that do not contribute to the compliance threshold and comparable SNF cases (cont.)

Set. The instruments differ in the elements included and the definitions and recording requirements for many of the elements.) These restrictions helped to keep the study population to IRF and SNF cases that are more typical for each setting. Our study population after these exclusions is shown in the second row of Table 5-1.

Throughout this chapter, we used CMS's specifications for presumptive compliance to identify patients with conditions that do not contribute to the compliance threshold.

"Presumptive compliance" refers to an algorithm developed by CMS that uses diagnosis codes on the IRF-PAI to determine whether an IRF meets the compliance threshold.<sup>17</sup> The Medicare administrative contractors (MACs) apply CMS's presumptive compliance algorithm to determine compliance if at least 50 percent of an IRF's patients are covered by Medicare. For IRFs that do not meet the compliance threshold using the algorithm or if Medicare patients do not compose at least 50 percent of the IRF's population, MACs must conduct a medical review of a sample of the IRF's cases to make a final determination on compliance (they may use the presumptive compliance algorithm as guidance) (Centers for Medicare & Medicaid Services 2015b).

The presumptive compliance algorithm uses patients' impairment group categories (IGCs), which are based on the etiologic diagnosis codes on the

patient's assessment, age, and body mass index. The presence of certain comorbidities can also meet the compliance threshold.<sup>18</sup> If the admission or discharge met CMS's presumptive compliance criteria, it was identified as contributing to the compliance threshold; if the case did not meet the criteria, it was identified as not contributing to the compliance threshold. We identified 82,980 such IRF cases (30 percent of the study population). The share of IRF cases that did not contribute to the compliance threshold varied by IGC (Figure 5-1).

To identify comparable SNF cases and assign an IRF IGC to them, we applied the same presumptive compliance algorithm to SNF cases using International Classification of Diseases, 10th revision, diagnosis codes and other items available on the SNF claims and SNF patient assessment data. Because identifying IRF cases that do not contribute to the compliance threshold uses some information that was not available for SNF cases, we used proxies for those factors. For example, we used information from the prior hospitalization to obtain necessary information about amputations and hip/knee replacements. If an IGC could not be assigned, the SNF case was categorized into IGC 13 ("other disabling impairments"). We identified 519,490 SNF cases (60 percent of the SNF study population) that were comparable with IRF cases that do not contribute to meeting the compliance threshold.

*(continued next page)*

notably different in others (Table 5-2, p. 184). Younger on average, IRF patients were much less likely to be over 85 years old. IRF patients had lower risk scores on average (based on CMS's hierarchical condition category (HCC) risk scores), and there were larger differences among high-risk (i.e., sicker) patients (those with risk scores at the 75th percentile or higher). Compared with SNFs, IRFs had slightly smaller shares of disabled patients (based on a patient's original

reason for Medicare entitlement) and patients with the greatest severity (identified as severity level 4 in the All Patient Refined Diagnosis Related Groups), but their patients had similar motor scores and JEN frailty scores (see text box on measuring motor functional status, p. 185).<sup>19</sup> SNF and IRF patients had similar median cognitive scores, but SNF patients with the lowest cognitive functioning were more impaired than those in IRFs. Interestingly, at the 75th percentile, SNF

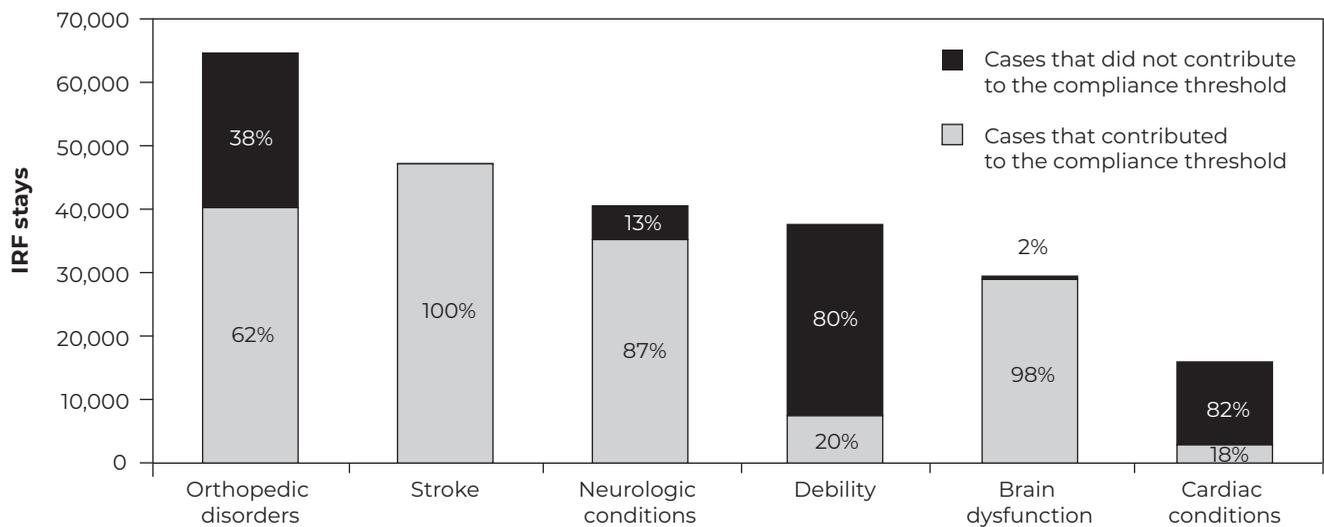
## Methodology for identifying IRF cases that do not contribute to the compliance threshold and comparable SNF cases (cont.)

Despite our best efforts to make accurate identifications, we found that the study populations of IRF and SNF cases could differ for multiple reasons. First, we had to use some proxy items to assign IGCs to SNF cases. Second, SNFs treat a broader range of patients compared with IRFs (for example, all IRF patients must be able to tolerate

and benefit from intensive therapy), so there were differences between the populations even after selecting cases that do not contribute to the compliance threshold. Finally, there will be inevitable differences in coding practices across providers and settings. ■

**FIGURE 5-1**

**In IRFs, the share of cases that did not contribute to the compliance threshold varied by condition, 2021**



Note: IRF (inpatient rehabilitation facility). Conditions were sorted by the broad impairment group categories (IGCs). Low-volume IGCs were excluded from the figure. See the IRF Patient Assessment Instrument manual Appendix A for the list of all IRF IGCs.

Source: Analysis of fiscal year 2021 Medicare IRF fee-for-service claims and assessment data from CMS.

patients had slightly higher motor scores at admission, perhaps because IRF patients must be able to benefit from intensive therapy (so they may have lower functioning). While all differences were statistically significant, some of them may not be clinically meaningful. SNF patients were generally more variable than IRF patients, consistent with the IRF coverage requirements that narrow the range of patients those facilities admit.

IRF patients with conditions that did not contribute to the compliance threshold were less medically complex than their SNF counterparts. They had lower rates of certain chronic conditions compared with similar SNF patients (including chronic kidney disease, heart failure, depression, Alzheimer's, and chronic obstructive pulmonary disease) but similar rates of diabetes. IRF patients had substantially lower rates

**TABLE  
5-2**

**FFS Medicare IRF beneficiaries with conditions not contributing to the compliance threshold were younger and healthier than comparable SNF FFS beneficiaries, 2021**

Characteristic	IRF cases not contributing to the compliance threshold	Comparable SNF cases
Median age (25th to 75th percentile)	77 (71 to 84)	79 (72 to 87)
Share of patients who are 85+ years old	23%	32%
Median risk score (25th to 75th percentile)	1.8 (1.0 to 3.3)	2.0 (1.1 to 3.6)
Share of patients who are disabled	7%	8%
Share of patients assigned to highest severity level	16%	17%
JEN frailty score (25th to 75th percentile)	6 (4 to 8)	6 (4 to 8)
Median motor score at admission (25th to 75th percentile)	30 (25 to 34)	30 (24 to 35)
Median cognitive score at admission (25th to 75th percentile)	14 (13 to 15)	13 (10 to 15)
Share of patients with:		
Chronic kidney disease	72%	76%
Heart failure	55	61
Diabetes	52	53
Depression	49	57
Alzheimer's disease	35	52
Chronic obstructive pulmonary disease	34	39
Bladder incontinence	5	12
Bowel incontinence	5	17
Swallowing difficulty	7	19

Note: FFS (fee-for-service), IRF (inpatient rehabilitation facility), SNF (skilled nursing facility). "IRF cases not contributing to the compliance threshold" refers to cases that do not contribute to meeting CMS's 60 percent rule for IRFs. "Comparable SNF cases" were identified by applying the same criteria as used for IRF to SNF cases. Numbers in parentheses are the values at the 25th percentile and 75th percentile. The highest severity level is defined as All Patient Refined Diagnosis Related Groups severity level 4. "Disabled" is defined using the beneficiary's current reason for Medicare enrollment from CMS. The risk score is CMS's hierarchical condition category risk score using diagnosis codes from the prior year. The JEN frailty index identifies frail older adults who may be at risk of institutionalization. The motor score is a composite of nine self-care and mobility items recorded in the Minimum Data Set and Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF-PAI) assessments. Higher scores indicate greater independence in functioning. The cognitive score was measured using the brief interview for mental status, a 15-point scale based on cognitive items on the IRF-PAI and the SNF Minimum Data Set. Higher scores indicate higher cognitive function; lower scores indicate cognitive impairment. Differences for IRF cases and comparable SNF cases were statistically significant at the 1 percent level for each of the characteristics. Means were compared for age, risk scores, JEN frailty scores, motor scores, and cognitive scores. Proportions were compared for all other characteristics. The study population is described in Table 5-1 (p. 181).

Source: Analysis of 2021 Medicare IRF and SNF FFS claims, FFS Medicare IRF and SNF patient assessments, Medicare enrollment file, and hierarchical condition category risk scores from CMS.

(one-third to one-half) of bladder incontinence, bowel incontinence, and swallowing difficulty compared with their SNF counterparts.

Medicare's coverage rules likely play a role in the differences between IRF and SNF patients. IRF patients must be able to tolerate and benefit from intensive

## Measuring motor functional status

**W**e measured functional status using a motor score composite of nine self-care and mobility items recorded in Section GG of the Inpatient Rehabilitation Facility Patient Assessment Instrument and the skilled nursing facility Minimum Data Set, including eating, oral hygiene, toileting hygiene, sit to lying, lying to sitting on the side of a bed, sit to stand, chair/bed-to-chair transfer, toilet transfer, and walking 50 feet. We computed the motor score using the same methodology used by RTI in its report to the Congress on a unified post-acute care payment (RTI International 2022). The motor score is computed by summing the responses to the nine items. Each item response ranges from 1 to 6, with higher scores indicating greater independence in functioning. Thus, the motor score can range from 6 to 54.

Clinicians may select an “activity not attempted” (ANA) response if they could not assess the patient on a particular activity. ANA responses include patient refused, “not applicable” (patient did not perform activity prior to illness), “not attempted due to environmental limitations,” and “not attempted due to medical conditions or safety concerns.” We recoded these ANA responses to a 1 to 6 response using RTI’s methodology. RTI used Rasch modeling to assess patients’ ability to perform functional items that were not coded as ANA and used the resulting relationships to recode ANA items to a more appropriate and (most often) higher level of function. Because a patient’s functional status at admission is used to assign cases to case-mix groups for payment, we do not know whether the scores are accurate. ■

therapy, whereas SNF patients do not (they must require a skilled service). Patients with lower cognitive function and more impairments and comorbidities would be less likely to tolerate and be able to participate in intensive therapy.

### **Conclusions about differences in IRF and SNF outcomes are hard to draw**

We examined differences in outcomes to provide context for aligning payments between the two settings. However, due to the underlying differences in the SNF and IRF populations, caution is warranted in interpreting our results. Despite our efforts to control for differences between the two patient populations, our results may in part reflect unmeasured differences, not the causal effect of the care received in one setting or another. To meet Medicare’s coverage rules, IRFs must necessarily be—and, according to industry stakeholders, are—selective in the patients they admit. Another factor is the differing regulatory requirements for each setting. Licensed as hospitals, IRFs can treat the worsening of many patient conditions that many SNFs cannot.

Ideally, we would compare functional status at discharge (controlling for ability at admission)

because maintaining or improving function is the main purpose of receiving inpatient rehabilitation. However, functional status at admission is used to establish SNF and IRF payment rates and therefore may reflect coding to boost payments rather than patients’ functional status (Medicare Payment Advisory Commission 2019). In our 2019 report, the Commission discussed ways to improve the function data.

We examined four claims-based measures—potentially preventable readmissions in the 30 days after discharge from the IRF or SNF, potentially preventable readmissions during the IRF or SNF stay, discharge to community, and Medicare spending per beneficiary (see text box on definitions of the measures and the methodology used to calculate them, p. 187). All measures were risk adjusted with demographic and clinical characteristics. To control for systematic selection not captured by the comorbidities included in the risk-adjustment model, we included an IRF setting indicator as a covariate in the risk adjustment. We also examined measures that did not include an IRF setting indicator as a covariate, and our conclusion remained the same.

**TABLE  
5-3**

**Comparison of risk-adjusted outcomes for cases treated in IRFs and SNFs, 2021**

Outcome measure	IRF cases		Comparable SNF cases	
	Case count	Rate	Case count	Rate
<b>Readmissions within 30 days after discharge from IRF or SNF</b>				
Cases not contributing to the compliance threshold	63,260	11.2%	382,380	11.3%
95% confidence interval		[10.9% -11.4%]		[11.2% -11.4%]
<b>Discharge to community</b>				
Cases not contributing to the compliance threshold	60,260	73.1%	397,380	55.8%
95% confidence interval		[72.7% -73.4%]		[55.6% -55.9%]
<b>Readmissions during the IRF or SNF stay</b>				
Cases not contributing to the compliance threshold	68,020	4.5%	451,660	10.3%
95% confidence interval		[4.3% -4.7%]		[10.3% -10.4%]
<b>Medicare spending per beneficiary</b>				
Cases not contributing to the compliance threshold	68,500	\$33,897	350,480	\$28,529
95% confidence interval		[\$33,881-\$33,912]		[\$28,513-\$28,545]

Note: IRF (inpatient rehabilitation facility), SNF (skilled nursing facility). IRF cases in the table are those with diagnoses that do not count toward the 60 percent compliance threshold to be paid under the IRF prospective payment system. Comparable SNF cases were identified using the same criteria as IRF cases. The case counts differed across the measures because of differing specifications for the denominators.

Source: Analysis of 2021 Medicare claims conducted by Acumen LLC for MedPAC.

The risk-adjusted rates of readmissions in the 30 days after discharge for IRF cases not meeting the compliance threshold and comparable SNF cases were almost identical (11.2 percent in IRFs and 11.3 percent in SNFs; lower rates are better) (Table 5-3). The rates for all IRF cases (those that contributed and did not contribute to meeting the compliance threshold) were the same (data not shown).

The rates of discharge to the community were considerably higher (better) for IRF cases not contributing to the compliance criteria compared with SNF cases (73.1 percent compared with 55.8 percent, respectively). Nursing home residents in a Medicare-covered skilled nursing stay who were discharged back to the same facility were counted as discharged to the community. These differences are consistent with what we heard from hospital discharge planners

we spoke with. They told us that IRFs are reluctant to admit patients who are unlikely to be discharged home; instead, those patients would be referred to SNFs. Some of the differences in the rates probably reflect differences in who is admitted to each setting and not necessarily only the differences in the care furnished. The rates for IRF cases that did and did not contribute to meeting the compliance threshold were comparable (data not shown).

Rates of readmission that occurred during the stay were substantially lower (better) for IRFs than for SNFs (4.5 percent compared with 10.3 percent). The difference may reflect a lack of comparability between the two settings that would not be captured in the risk adjustment. Because IRFs are licensed as hospitals, they are better equipped to manage many worsening patient conditions that, in a SNF, would require a hospital

## Methodology for estimating risk-adjusted quality measures

The measures we used are based on CMS's quality reporting measures (Centers for Medicare & Medicaid Services 2016a, Centers for Medicare & Medicaid Services 2016b). We used inpatient rehabilitation facility (IRF) and skilled nursing facility (SNF) claims and enrollment data from fiscal year 2021 to develop risk-adjustment models to estimate the rates of four quality measures: within-stay potentially preventable rehospitalizations, postdischarge potentially preventable rehospitalizations, discharge to community, and Medicare spending per beneficiary.

For all measures, we pooled IRF cases not contributing to the compliance threshold and comparable SNF cases to calculate the covariates included in the risk-adjustment model. (CMS's risk-adjustment models include covariates that were estimated using a setting-specific population of patients, not the combined pool of IRF and SNF cases.) Covariates used in the risk adjustment varied across quality measures but generally included demographic and eligibility covariates (e.g., age, gender), prior inpatient adjusters (prior surgery, prior acute hospital length of stay), and post-acute care (PAC) adjusters (e.g., patient had a prior PAC stay). Motor score ranges and rehabilitation impairment coding groups were included as covariates in the readmission and discharge to community models. An indicator for nursing home residents was added to the discharge to community measure to account for potential clinical differences in this population. Separate rates were calculated for the IRF cases and SNF cases included in the analysis.

The two measures of potentially preventable rehospitalization capture the rate at which beneficiaries had a potentially preventable hospital readmission during or after the IRF (or SNF) stay. Lower rates indicate better quality. The methodologies were the same as the methodologies used for current CMS programs, apart from the alignment of the pregnancy

exclusion across measures (previously implemented in SNF measures but not IRF measures). The postdischarge measure reports the risk-standardized rate of Medicare fee-for-service (FFS) beneficiaries who were discharged from an IRF (or SNF) but experienced a potentially preventable readmission to either an acute care hospital (ACH) or a long-term care hospital (LTCH) within 30 days after discharge from the IRF or SNF. The during-stay measure reports the risk-standardized rate of FFS Medicare beneficiaries who experienced a potentially preventable readmission to an ACH or LTCH in the period following admission to the IRF (or SNF) and including discharge from the IRF (or SNF).

The discharge to community measure assesses the rate at which beneficiaries are successfully discharged to the community from the IRF or SNF. Higher rates indicate better quality. For the SNF rate, we included long-term nursing home residents and considered them as having had a successful discharge to community if they were discharged back to same long-term nursing home (this aspect of the definition differs from the CMS measure for SNFs). The risk-standardized rate includes beneficiaries who were discharged to the community (with or without home health services), did not have an unplanned readmission to an ACH or LTCH, and remained alive during the 31 days after discharge.

The Medicare spending per beneficiary measure gauges the total Medicare spending on FFS Part A and Part B services during an episode of care (standardized for differences in prices across locations). The episode begins at admission to the IRF (or SNF) and ends 30 days after discharge from the IRF (or SNF). Certain services are excluded from the measure, including planned readmissions, routine maintenance of preexisting chronic conditions, routine screening (such as colonoscopies), and immune-modulating medications (e.g., immunosuppressants for beneficiaries with organ transplant or rheumatoid

readmission. Further, because IRF stays are typically much shorter than SNF stays, there is a shorter period during which a hospital readmission could occur.

Medicare spending per beneficiary (MSPB) is a measure of resource use. It captures Medicare program (Part A and Part B) spending during an episode that includes the post-acute care (PAC) stay and the following 30 days (see text box on estimating risk-adjusted measures, p. 187). Median episode spending was 19 percent higher for IRF cases that did not contribute to the compliance threshold than the spending for comparable SNF cases (\$33,897 vs. \$28,529). Almost all (97 percent) of the difference was attributable to the higher spending for the IRF stay. Other resource use was similar. IRF cases that did contribute to the compliance threshold had higher MSPB compared with cases not contributing to the compliance threshold because the IRF case-mix groups for cases meeting the compliance threshold tend to have higher payment rates.

We considered, but did not compare, other quality measures. Some measures (such as the share of patients who had falls with major injury or the share of patients with worsening skin integrity) may reflect providers' willingness to report these adverse events rather than the actual rates (Sanghavi et al. 2020). We did not consider process measures because they do not meet the Commission's principles for measuring quality (Medicare Payment Advisory Commission 2018). A patient experience survey has been developed for IRFs and is available for IRFs to use for their own purposes. However, IRFs are not required to use the tool, so there are no publicly reported data. We did not have data on patients' goals of care and motivation to return to community living to evaluate whether these factors contributed to differences in outcomes.

### **Other studies of outcome differences between IRFs and SNFs**

Our mixed results are consistent with the findings from other studies that examined differences in outcomes between IRFs and SNFs, though those studies have generally focused on patients recovering from strokes, joint replacement, and hip fracture—largely conditions that contribute to the compliance threshold. Studies of other conditions typically do not compare outcomes across PAC sites and, when they do, they are usually

very limited in the number of patients and facilities they include. Many studies lack controls for selection and the differences in the patients treated in the two settings. Finally, most studies do not consider the potential differences in patient motivation and long-run recovery potential that can dramatically affect patient outcomes.

In general, studies of stroke patients found that patients in IRFs had better outcomes than those in SNFs, though selection bias could have contributed to these findings (Alcusky et al. 2018, Chan et al. 2013, Hong et al. 2019). Consistent with earlier studies, more recent studies of patients with other conditions do not have consistent conclusions for similar measures (such as functional improvement) or across measures (Cogan et al. 2021, Cogan et al. 2020, Osundolire et al. 2024, Padgett et al. 2018, Riestter et al. 2023). In a study of patients recovering from hip replacement who were treated in IRFs and SNFs, researchers found that the risk-adjusted rates of discharge with an opioid and using an opioid in the year after discharge were higher among patients treated in IRFs compared with those treated in SNFs (Cupp et al. 2023). The authors noted that patients treated in IRFs have shorter stays, receive more intensive rehabilitation, and have fewer comorbidities, which may lead to greater use of pain medication during the IRF stays and after discharge.

### **Patients treated in IRFs received much more therapy per day than patients in SNFs, but the differences narrowed over the course of the stays**

IRF patients with conditions that do not contribute to the compliance threshold receive substantially more therapy per weekday compared with comparable SNF patients (Table 5-4). The median number of minutes for IRF cases was 170 minutes per weekday compared with 80 minutes for SNF cases.<sup>20</sup> Even the 25th percentile for IRF therapy minutes per weekday (158 minutes) was higher than the 75th percentile for comparable SNF cases (97 minutes).<sup>21</sup>

However, the differences in the total amount of therapy furnished during the stays are much smaller. The median total number of therapy minutes for IRF cases not contributing to the compliance threshold was 1,355 compared with 1,250 minutes per stay for comparable SNF cases (8 percent higher). So while the minutes per day of therapy are much lower in SNFs, by the end of

**TABLE  
5-4**

**IRF cases not contributing to the compliance threshold had shorter lengths of stay and received more daily therapy compared with comparable SNF cases, FY 2021**

	IRF cases not contributing to the compliance threshold	Comparable SNF cases
Median minutes of therapy per weekday (25th to 75th percentile)	170 (158 to 184)	80 (63 to 97)
Median total minutes of therapy per stay (25th to 75th percentile)	1,355 (1,080 to 1,620)	1,250 (690 to 2,100)
Median length of stay in days (25th to 75th percentile)	12 (10 to 15)	22 (14 to 35)

Note: IRF (inpatient rehabilitation facility), SNF (skilled nursing facility), FY (fiscal year). "IRF cases not contributing to the compliance threshold" refers to only cases with clinical conditions that do not contribute to meeting CMS's 60 percent rule for IRFs. "Comparable SNF cases" were identified by applying the same criteria as used for IRF cases to SNF cases. The study population is defined in Table 5-1 (p. 181). The length of stay is calculated as the number of days from admission to discharge. "Minutes of therapy" refers to physical, occupational, and speech-language pathology therapies. The analysis of therapy minutes in IRFs was conducted on cases that were 14 days or shorter because these data are not collected past 14 days in IRFs. By limiting the stays that were 14 days or shorter, all therapy minutes for the stays are recorded (and thus are more comparable with the SNF data). Therapy minutes per day were calculated by summing the total minutes of therapy (excluding cotreatment) and dividing by the number of weekdays. Cases with outlier therapy values were excluded (defined as more than eight hours of therapy per day). Differences in the mean values for IRFs and SNFs were statistically significant at the 1 percent level.

Source: Analysis of 2021 IRF and SNF claims and assessment data from CMS.

the relatively longer SNF stays, the total amount was closer to the amount IRF users received. However, even when the total minutes are similar, some patients may benefit more from shorter, more intensive therapy, while others may benefit more from therapy spread over a longer duration.

Studies of whether more therapy furnished by IRFs results in better outcomes are limited but suggest that providing more therapy does not necessarily improve patient outcomes. The studies have small sample sizes (in terms of patients and facilities) and do not focus on patients with conditions not contributing to meeting the compliance threshold. One study of 581 patients with any condition found that the outcomes (as measured by discharge function score, changes in function, length of stay, and discharge home) were not better for patients who received therapy three hours per day compared with those who received less therapy (Forrest et al. 2019). Further, minutes of therapy per

day were not associated with improved outcomes, and more therapy did not shorten lengths of stay. Another study of brain injury patients found that compliance with the three-hour rule did not improve function but a patient's level of effort did (Beaulieu et al. 2019). Greater effort was associated with improved outcomes (including community participation, functional independence, and life satisfaction) nine months after discharge. A second study of brain injury patients also concluded that the patients' level of effort was a critical predictor of rehabilitation outcomes (Horn et al. 2015).

**SNF payments for comparable cases were considerably lower than IRF payments for cases not contributing to the compliance threshold**

We compared Medicare's FFS payments for IRF cases not contributing to the compliance threshold and comparable SNF cases using payments from 2021 claims. In 2021, Medicare's median payments for

**TABLE  
5-5**

**Medicare payments for SNF cases were about 40 percent lower than payments to IRFs for cases not contributing to the compliance threshold, FY 2021**

Condition category	Median payment		Percent difference
	IRF	SNF	
All cases not contributing to the compliance threshold	\$20,880	\$12,650	39%
Debility	21,060	12,690	40
Other orthopedic conditions	20,830	13,870	33
Cardiac disorders	20,100	11,430	43
Other neurologic conditions	21,490	14,570	32
Replacement of lower extremity joint	18,420	10,190	45
Other disabling impairment	21,830	11,590	47
COPD	21,130	13,110	38
Other	22,660	12,900	43

Note: SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), FY (fiscal year), COPD (chronic obstructive pulmonary disease). "All cases not contributing to the compliance threshold" includes only cases with clinical conditions that do not contribute to meeting CMS's 60 percent rule for IRFs. Comparable SNF cases were identified by applying the same criteria used for IRF cases to SNF cases. The study population is defined in Table 5-1 (p. 181). The payments were not risk adjusted. IRF payments include wage index, rural, teaching, outlier, and low-income subsidy adjustments. IRF and SNF payments are rounded to the nearest \$10. Payments to IRFs and SNFs cover most ancillary services but do not include payments made to physicians under the physician fee schedule. Percentage differences were calculated using unrounded values. Conditions are classified by impairment group categories (IGCs). Cases mapped to IGCs with fewer than 1,000 IRF cases or SNF cases that were not assigned to an IGC were classified as "other."

Source: Analysis of fiscal year 2021 Medicare FFS claims conducted by Acumen LLC for MedPAC.

SNF cases were an estimated 39 percent lower than Medicare's payments to IRFs for such cases (Table 5-5). The median IRF PPS payment was \$20,880 compared with \$12,650 (including cost sharing) for SNFs. The differences ranged from 32 percent for cases in the "other neurologic conditions" category to 47 percent for cases in the "other disabling impairments" category. These large differences occurred despite SNFs' longer stays; for IRF cases not contributing to the compliance threshold, the median IRF length of stay was 12 days compared with the SNF stays' median of 22 days (data not shown).

As previously noted, IRFs provide a more costly mix of services compared with SNFs, and these higher costs were used to set the payment rates when the IRF PPS was established. In addition, IRFs receive additional payments based on their share of low-income patients and whether they are a teaching facility. That said, the IRF base payment, prior to any adjustments and to

classifying patients by case-mix group, was \$16,856 in 2021—still substantially higher than the SNF median payment per case. In addition, certain services are excluded from SNF payments but included in IRF payments (such as chemotherapy, certain prosthetic devices, imaging services, and preventive and screening services) (Centers for Medicare & Medicaid Services 2023c). Although about 20 percent of IRF cases not contributing to the compliance threshold included some services excluded from SNF payments, they represented only 1.5 percent of the costs of these IRF cases in 2021. Thus, these services would not have substantively affected the differences between IRF and SNF payments.

We also looked at the profitability of Medicare's payments (the payment-to-cost ratios, or PCRs) for IRF cases (Table 5-6). If IRFs had lower costs for treating cases not contributing to the compliance threshold than cases that did and if payments were not correspondingly

**TABLE  
5-6**

**IRF cases had similar Medicare profitability whether or not they contributed to meeting the compliance threshold, FY 2021**

<b>Compliance</b>	<b>Case counts</b>	<b>Aggregate payment per case</b>	<b>Aggregate cost per case</b>	<b>PCR</b>
Contributed to meeting compliance threshold	186,820	\$25,270	\$20,800	1.21
Did not contribute to meeting compliance threshold	82,980	\$21,800	\$17,920	1.22

Note: IRF (inpatient rehabilitation facility), FY (fiscal year), PCR (payment-to-cost ratio). The “compliance threshold” refers to CMS’s 60 percent rule for IRFs. Case counts were rounded to the nearest 10 cases, and aggregate payments were rounded to the nearest \$10. Aggregate payment per case is calculated by summing total Medicare payments and dividing by the number of cases. This calculation is different from the one in Table 5-5, which shows the average payment per case. Aggregate cost per case is calculated by summing total Medicare costs and dividing by the number of cases. A PCR is calculated as a ratio of Medicare payments divided by Medicare costs. A PCR greater than 1.0 indicates that the case would be profitable; a ratio less than 1.0 indicates that the case would be unprofitable.

Source: MedPAC analysis of 2021 IRF claims.

lower, cases not contributing to the compliance threshold would be more profitable and IRFs would have an incentive to admit them. However, we found that the profitability (the aggregate PCR) was only slightly higher for these cases compared with cases that contribute to the compliance threshold (1.22 compared with 1.21). Although cases that do not contribute to the compliance threshold had much lower aggregate costs compared with other cases, they were also paid less. In general, PCRs were similar across conditions, though there was some variation by condition. For example, cases in the “other neurologic conditions” had PCRs of 1.18 for cases contributing to the compliance threshold and 1.31 for cases not contributing to the compliance threshold (data not shown).

**Considering lower payments for IRF patients with conditions that do not contribute to the compliance threshold**

We explored three approaches to lower payment rates for cases not contributing to the compliance threshold: Make IRF payment rates for cases that do not contribute to the compliance threshold (1) equal to that of SNF cases, (2) equal to the aggregate cost of care, or (3) a blend of current IRF rates and rates equal to the aggregate cost of care. Given the variation in the mix of cases across IRFs, the impacts would differ by provider.

Our impact estimates are based on the current list of conditions that contribute to the compliance threshold, the compliance threshold, and IRF behavior (such as admission decisions). The impact of lowering IRF payment rates for patients with conditions that do not contribute to the compliance threshold would vary if any of these circumstances changed.

No list of conditions that count toward the compliance threshold will perfectly identify patients who require intensive rehabilitation. Therefore, lowering payment rates for conditions that do not count toward meeting the compliance threshold could disrupt their care. Depending on the size of the reduction, IRFs could avoid admitting these cases or lower the quality of care they furnish. Given the ambiguities in this approach—the difficulty in identifying patients who do or do not require intensive rehabilitation and the unmeasured differences in the patients treated in IRFs and SNFs—the Commission concluded that targeted reductions in payment rates for select conditions was not a preferred approach to lowering Medicare’s payments to IRFs.

**Lower IRF payment rates to SNF rates**

We considered lowering the IRF payment rates for patients with conditions not contributing to meeting the compliance threshold to the rates paid to SNFs. To implement this policy, CMS would convert the SNF per diem payment to a case-based payment using the average IRF length of stay for cases in the group. A

**TABLE  
5-7**

**Impacts on IRFs' profitability from lowering payment rates for IRF cases not contributing to the compliance threshold**

Rates for cases not contributing to the compliance threshold	Rate reduction	Cases not contributing to the compliance threshold		All Medicare cases PCR
		PCR	Marginal profit PCR	
Current IRF rates	N/A	1.22	1.50	1.22
Based on SNF payments	-66%	0.41	0.51	1.00
Equal to the aggregate cost of IRF cases not meeting the compliance threshold	-18%	1.00	1.23	1.16
Blend of current rates and rates equal to aggregate cost of care	-9%	1.11	1.37	1.19

Note: IRF (inpatient rehabilitation facility), PCR (payment-to-cost ratio), N/A (not applicable), SNF (skilled nursing facility). The "compliance threshold" refers to CMS's 60 percent rule for IRFs. A PCR is calculated as a ratio of Medicare revenues divided by Medicare costs. A PCR greater than 1.0 indicates that the case would be profitable; a ratio less than 1.0 indicates that the case would be unprofitable. The marginal profit PCR is calculated as Medicare payments divided by marginal costs. Marginal costs were approximated as 81 percent of total costs. "All Medicare cases" refers to all IRF Medicare cases, including those that do and do not contribute to meeting the compliance criteria.

Source: Estimates were based on Acumen LLC's analysis of 2021 Medicare claims and Medicare cost reports.

case-based payment would avoid creating incentives for IRFs to extend stays for such cases. CMS would assign each case to a SNF case-mix group and calculate the aggregate rate difference between the SNF rates and the current IRF payment. IRF rates would be lowered by this aggregate difference.

Paying SNF rates for cases that do not contribute to meeting the compliance threshold would make them highly unprofitable, largely because IRFs incur the higher costs associated with meeting Medicare's facility and coverage requirements. Very low rates could threaten beneficiary care but would have the advantage of discouraging medically unnecessary admissions.

**Impacts on payment rates and profitability**

We modeled the impacts on IRF profitability of paying SNF rates for cases not contributing to meeting the compliance threshold (see text box on estimating SNF payments for IRF cases). We estimated that this approach would lower payment rates for such cases by 66 percent and would not cover the average costs of treating the cases. The PCR, a measure of profitability, would be 0.41 compared with the current PCR for these

cases of 1.22 (Table 5-7). (A PCR of 1.0 means payments equal costs.) There were small differences across the clinical conditions (data not shown). The estimated losses are not surprising: IRFs incur higher costs to meet Medicare rules that SNFs do not have to meet.

The aggregate PCR across all Medicare IRF cases would drop from 1.22 to 1.00, with average PCRs below 1.0 for hospital-based, small, nonprofit, and government IRFs. Within each group of providers, there was considerable variation in the size of the reductions to total Medicare payments. IRFs with larger shares of cases not contributing to the compliance threshold would incur larger reductions in payments. One-quarter of providers would experience a 12 percent or smaller reduction in total Medicare payments, and one-quarter would experience reductions of at least 21 percent (data not shown).

A key problem with this approach is that IRFs would be paid SNF rates but still be required to meet Medicare requirements that raise their costs. Yet waiving those requirements for IRF cases would remove the distinctions that differentiate IRF care from that of other providers. In addition, it would be complex to

## Methodology to estimate payments and costs in modeling ways to lower inpatient rehabilitation facility payment rates for cases that do not contribute to the compliance threshold

**W**e modeled the impacts of alternative ways to lower payment rates for cases treated in inpatient rehabilitation facilities (IRFs) that do not contribute to the compliance threshold. We started with the 2021 IRF stays included in the study (see text box, pp. 181–183, describing the method used to identify IRF cases that do not contribute to compliance threshold).

**SNF payments for IRF stays**—To estimate the skilled nursing facility (SNF) payments for cases treated in IRFs that do not contribute to the compliance threshold, we first calculated a SNF payment for each day using the Patient-Driven Payment Model (PDPM) case-mix groupings used in the SNF prospective payment system. We multiplied the SNF base rates for each component by the relative weight for each PDPM case-mix group and then summed the components' payments. We then applied the variable per diem adjustment factors for physical therapy, occupational therapy, and nontherapy ancillary components. We multiplied the daily payments by the number of days in the stay. Because IRFs receive additional payments for treating low-income patients and for teaching programs (if the IRF has one), we estimated the average size of each adjustment across all providers and boosted the SNF payment by this adjustment. Finally, the labor share of the payment was adjusted

by the wage index for the IRF's location. We estimated SNF payments for each IRF case that was identified as not contributing to the compliance threshold in fiscal year 2021. To assign these IRF cases to SNF case-mix groups, we used items from the IRF patient assessment and International Classification of Diseases, 10th revision; revenue center codes (to identify the use of certain services); and rehabilitation impairment categories from IRF claims.

**Cost per IRF stay**—The cost per IRF case was estimated in two parts. Routine costs per day were estimated from cost reports and multiplied by the number of days in the stay. Ancillary costs were estimated by multiplying ancillary charges reported in the claims for a case by department-specific cost-to-charge ratios as reported in each facility's Medicare cost report.

**Current IRF payment rates**—Medicare payments were gathered from IRF claims.

**Marginal profit**—The marginal cost was estimated as total costs minus fixed building and equipment costs. The marginal profit was estimated as (Medicare payments - marginal costs)/ Medicare payments. ■

administer two sets of coverage requirements for different types of conditions.

### Disruptions to care

Paying SNF rates for beneficiaries with conditions not contributing to the compliance threshold would likely be disruptive to beneficiaries with these conditions. We assessed whether IRFs would have a financial incentive to continue to admit beneficiaries with conditions that do not contribute to meeting the compliance threshold by estimating the marginal profit PCR of these cases. The marginal profit PCR is a measure of the attractiveness of a case for admission. It compares

the marginal revenue for cases (the Medicare payment) with marginal costs (the costs that vary with volume). If Medicare payments are higher than the marginal cost (i.e., the marginal profit PCR is greater than 1.0), a provider with excess capacity has a financial incentive to admit the beneficiary. A value below 1.0 indicates that a provider would not have an incentive to admit the beneficiary.

If these IRF cases were paid SNF rates, the marginal profit PCR would be well below 1.0 (PCR of 0.51), assuming IRFs did not lower their costs. These cases would not be attractive admissions. The low payment

rates (and resulting PCRs) could discourage admissions and could shift cases to SNFs. The SNF rates could disrupt care for those beneficiaries who need intensive therapy—either in terms of whether or how quickly they would be placed in IRFs.

### **Impact on care**

IRFs might respond to the unprofitable payment rates by lowering their costs, which could harm patient care. Cost-reduction strategies could include providing less therapy (though the three-hour rule would limit the size of the reductions) and shortening stays. As noted earlier, the literature is mixed on whether less therapy would impact patient outcomes. IRFs could substitute lower-cost group or concurrent therapy for individual therapy, but individual therapy should comprise the majority of minutes (per Medicare guidance). While some patients can benefit from limited group therapy, CMS considers individual therapy the standard of care (Centers for Medicare & Medicaid Services 2018).

IRFs could also lower the skill mix of staff, such as replacing physical therapists (PTs) with PT aides or replacing RNs with licensed practical nurses, though Medicare rules would restrict the changes that could be made. The therapy would have to remain under the supervision of a licensed therapist, and IRFs must meet hospital staffing rules for nursing care. We do not know whether such changes would negatively affect care or outcomes. Literature on the relationship between lower staffing levels and outcomes in nursing homes is mixed, finding worse outcomes for some measures but not others (Clemens et al. 2021, Jutkowitz et al. 2023). One study of COVID-related outcomes found that higher-level staffing was related to fewer deaths (Konetzka et al. 2021). We do not know whether the same outcomes would be true for staffing changes in IRFs.

If paid lower rates, IRFs could opt to shorten stays. We do not know whether shorter stays would worsen patient outcomes. In SNFs, cost sharing (that begins on day 21 of a stay) results in higher rates of discharge on day 20 (thus shortening stays), but studies of the effects on outcomes are inconclusive. One study found that shorter stays were not associated with worse outcomes, while two others found that they were (McGarry et al. 2021, Werner et al. 2023, Werner et al. 2019). One of the studies found that one additional SNF

day lowered readmission rates, but the effect was small and heterogenous across patient types (Werner et al. 2023). We do not know whether IRFs would respond to lower rates by shortening stays, and if they did, whether the shorter stays would affect outcomes.

### **Ease of implementation**

To implement SNF rates for IRFs, CMS would have to calculate payments in two ways: one using the IRF case-mix classification for cases that contribute to the compliance threshold and another calculation using the SNF case-mix classification system for cases not contributing to the compliance threshold. CMS would have to calculate IRFs' average length of stay for each group from the prior year to convert the SNF per diem payment to a case-based payment. After estimating the aggregate difference in payment rates, CMS would apply this average reduction to each case not contributing to the compliance threshold. In addition, CMS would have to recalibrate the relative weights for the cases that contribute to the compliance threshold by removing the cases that do not from the calculation.

### **Bottom line**

The large reduction in payment rates that would result from this approach would make cases that do not contribute to the compliance threshold highly unprofitable. This consequence could disrupt care and lower the quality of care furnished. Because beneficiaries who require intensive rehabilitation could be among patients with these conditions, their care could be at risk. An advantage of this approach is that it would discourage unnecessary admissions.

### **Lower IRF rates for cases that do not contribute to the compliance threshold so that aggregate payments equal the aggregate costs of care**

In this approach, IRF rates would be lowered by a percentage so that aggregate payments equaled aggregate costs. For each of these cases, a reduction would be applied to the IRF payment rate. Because payments would cover costs (in aggregate, not necessarily for each case or provider), providers would have less incentive to change their admitting practices or to lower their costs in ways that might harm patient care.

### **Impacts on payment rates and profitability**

If payment rates were set to equal the cost of care, we estimated that, in aggregate, base payment rates for cases that do not contribute to the compliance threshold would be reduced by 18 percent. The profitability of these cases would fall from the current PCR (1.22) to 1.0 (Table 5-7, p. 192). Because profitability differs by case-mix group, the reductions would vary by condition. Since costs vary by provider, the impacts on any given IRF could be different. One-quarter of providers would have PCRs for these cases well below 1.0 (0.85 or lower), and one-quarter of providers would have PCRs well above 1.0 (1.31 or higher). Across all Medicare cases, including cases that do not contribute to IRFs' compliance threshold, the aggregate PCR would be lowered from 1.22 to 1.16. Medicare would remain a very profitable payer.

### **Disruptions to care**

With the much smaller reduction to payment rates—compared with IRFs being paid SNF rates—this approach would be less likely to disrupt beneficiaries' care. The marginal profit PCR would be well above 1.0 (1.23), so providers would have a strong financial incentive to continue admitting these cases. The advantage of this approach is that it would likely protect beneficiary access; the disadvantage is that it would not dampen the incentive to admit cases that do not require an IRF stay.

### **Impact on care**

With payment rates that would, in aggregate, cover their costs, IRFs would be under far less pressure to change their staffing or service provision. However, the rate reductions might trigger changes in their practices that could adversely affect the care beneficiaries receive and their outcomes, especially if IRFs were under pressure to maintain their current profit levels.

### **Ease of implementation**

This approach would be relatively simple to implement. CMS would have to calculate the reduction to aggregate payments needed to make them equal to the cost of care. This percentage reduction would be applied to the base payment amounts for cases not contributing to the compliance threshold. The Congress could lower the rates by an across-the-board amount or, because profitability varies considerably by condition, the reductions could vary by condition. For

example, the reduction for cases with debility would be set so that payments for these cases equaled their cost.

### **Bottom line**

Compared with basing IRF payment rates on SNF rates, setting IRF payment rates equal to the cost of care would likely be less disruptive to beneficiaries and the care they receive. Because payments would cover the marginal costs of these cases, IRFs would have a financial incentive to continue to admit patients with conditions that did not contribute to the compliance threshold.

### **Set the payment rates for cases that do not contribute to the compliance threshold as a blend of current IRF rates and the IRF rates that equal the aggregate costs of care**

In this approach, payment rates for cases that do not contribute to the compliance threshold would be a blend of current rates and the rates set so that aggregate payments equaled aggregate costs. We modeled a 50/50 blend. CMS would apply a reduction to the current IRF payment for each stay that does not contribute to the compliance threshold. Because aggregate payments would more than cover providers' costs, providers would have much less incentive to change their admitting practices or to lower their costs in ways that might harm patient care. Of the three approaches, this third option would be the least likely to deter unnecessary admissions because it would preserve attractive rates.

### **Impacts on payment rates and profitability**

We estimated that, if payment rates were based on a 50/50 blend of current IRF rates and rates equal to the cost of care, base payment rates would be lowered by 9 percent in aggregate (see Table 5-7, p. 192). Given the relatively modest drop in payment rates, cases that do not contribute to the compliance threshold would remain quite profitable, with a PCR of 1.11 compared with the current 1.22 (Table 5-7). One-quarter of providers would have PCRs below 1.0 (0.95 or lower), and one-quarter of providers would have PCRs well above 1.0 (1.45 or higher) (data not shown). Across all Medicare cases, the aggregate PCR would be lowered only slightly, from 1.22 to 1.19 (Table 5-7). Of the three approaches, this one would yield the most profitable rates and may not dampen the financial incentive to admit questionable cases.

### **Disruptions to care**

Because of the much smaller reduction to payment rates relative to the two other approaches, this approach would be less likely to be disruptive to beneficiaries. The marginal profit PCR would be well above 1.0 (1.37). Providers would have a strong financial incentive to continue admitting cases that do not contribute to the compliance threshold, including those that do not meet medical necessity requirements. While the rates are likely to protect beneficiary access, they would not discourage providers from admitting medically unnecessary cases.

### **Impact on care**

With payment rates that would, in aggregate, cover their costs, IRFs would be under far less pressure to change their staffing or service provision. However, if IRFs were under pressure to maintain their current profit levels, they might reduce services that could, in turn, affect beneficiaries' care and outcomes.

### **Ease of implementation**

To implement this approach, CMS would have to calculate rates two ways: using current rates and rates resulting from setting payments equal to cost. The final rate would be a combination of the two. In a 50/50 blend, the rate would be the average of the two rates. The Congress could lower the rates by an across-the-board amount or, because profitability varies considerably by condition, the reductions could vary by condition. For example, payments for all cases with other orthopedic conditions could be set equal to their cost.

### **Bottom line**

This approach would be the least disruptive to beneficiaries and the care they receive. Because the payment rates would remain relatively high, they would be unlikely to deter unnecessary admissions.

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## **Targeted reductions are not a preferred approach to lower Medicare payments to IRFs**

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To target reductions of payment rates, one would have to be able to identify patients who do not require IRF-level care. CMS's 13 conditions are intended to

differentiate IRFs from acute care hospitals and do not identify patients who meet coverage rules for IRF admission. No list of conditions can perfectly identify these patients; patients who require IRF-level care can have conditions that do or do not contribute to the compliance threshold. Moreover, there is a lack of evidence-based guidelines and research indicating which conditions benefit from intensive rehabilitation. A targeted reduction might be supported if the cases that do not contribute to the compliance threshold were more profitable, but we did not find this. Overall, cases with conditions that did contribute to the compliance threshold and those that did not were equally profitable. Furthermore, unobserved differences in the patients treated in IRFs and SNFs make it difficult to compare these facilities' patients and their outcomes. As a result of these ambiguities, the Commission concluded that there is not a solid evidence basis for lowering payment rates for conditions that typically do not require intensive rehabilitation. That said, the aggregate level of Medicare payments to IRFs is too high. The Commission urges the Congress to adopt our March 2024 recommendation to lower payment rates by 5 percent (Medicare Payment Advisory Commission 2024). As it does each year, in December 2024 the Commission will evaluate the adequacy of Medicare's payments to IRFs and consider many factors in its recommendation regarding the aggregate level of payments.

### **Actions policymakers could take to minimize medically unnecessary admissions**

The Commission is concerned that Medicare's high payment rates encourage IRFs to treat cases that do not require this level of care and unnecessarily increase Medicare spending. Although identifying these cases is difficult, policymakers could take several steps to minimize how frequently Medicare pays for inappropriate IRF stays. First, the Congress could direct CMS to regularly evaluate the list of conditions that count toward compliance and the compliance threshold. Second, CMS could clarify existing coverage rules, continue to educate providers about appropriate admissions and documentation, and expand its monitoring and review of claims.

### **Regularly evaluate the list of conditions that contribute to meeting the compliance threshold**

The list of conditions that count toward compliance in combination with the compliance threshold

limits admissions of patients with conditions that do not count toward compliance with the 60 percent threshold. While no list will capture the circumstances of any individual patient, the list should be periodically reviewed in terms of conditions that might be added or removed. CMS could propose revisions to the list through its regular rule-making process. Ongoing monitoring would detect patterns that might raise questions about conditions that may not need intensive therapy (for example, differences in coding between for-profit and nonprofit providers).

Concurrently, policymakers should consider how additions and exclusions would affect the compliance threshold. Excluding codes from the list of conditions that contribute to the compliance threshold would have the same effect as raising the threshold because it would be harder for providers to meet it. Conversely, adding codes would make it easier to meet the threshold. Separately, policymakers could consider raising the compliance threshold. The current threshold is relatively low compared with its original level (75 percent). Because the list of conditions and the threshold are in statute, changes would have to be made by the Congress.

### **Improve ways to prevent unnecessary admissions**

OIG and CMS's CERT program found that a large share of IRF admissions do not meet coverage (medical necessity) and documentation rules. CMS has implemented a demonstration that requires its administrative contractors to review 100 percent of

claims in select states. Even before it is completed, it is possible that the demonstration will identify coverage requirements that could be clarified, best practices for providers' admission processes, and opportunities to enhance education for providers and claims reviewers. Consistent with OIG's recommendations, CMS could enhance its education and training of IRF clinical and billing personnel on Medicare's coverage and documentation requirements. CMS held a comprehensive provider education webinar in November 2023, and the agency told us that it plans to conduct these regularly. Providers could improve their internal controls so that patients who do not meet IRF-specific coverage rules are not admitted. OIG's ongoing work may identify coverage and documentation rules that warrant clarification.

In addition, CMS could expand its monitoring and reviews of claims. CMS could monitor patterns of claim submissions, denials, and appeals to detect patterns of questionable provider behavior for investigation. Monitoring may identify coverage rules and documentation requirements that could be clarified. CMS could also increase the share of claims it reviews. The very low share of claims that are reviewed is unlikely to discourage providers from admitting cases that, on closer inspection, do not meet coverage rules. Conducting more reviews would likely require additional financial resources for CMS. CMS would need to weigh the benefit of the additional audits (such as fewer unnecessary admissions) with the cost of the audits. ■

## Endnotes

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- 1 The exempt facilities and units continued to be paid on a cost basis (with limits) until the IRF PPS was implemented in 2002.
- 2 The preadmission screening evaluates the beneficiary's condition and need for rehabilitation therapy and medical treatment, including the beneficiary's prior level of function, expected level of improvement, estimated length of time to achieve level of improvement, evaluation of the beneficiary's risk for clinical complications, conditions that caused the need for rehabilitation, treatment needed, and anticipated discharge destination. The screening must be done and signed by a rehabilitation physician in the 48 hours prior to IRF admission (Centers for Medicare & Medicaid Services 2017a).
- 3 Though not a requirement, the majority of therapy minutes should be provided on an individual basis, not in a group or concurrently.
- 4 The patient must require close medical supervision by a rehabilitation physician, demonstrated by face-to-face visits at least three days a week throughout the stay. A nonphysician provider may provide one of the three weekly visits after the first week (Centers for Medicare & Medicaid Services 2017a).
- 5 Technical or professional personnel include registered nurses, licensed (vocational) nurses, physical therapists, occupational therapists, and speech-language pathologists or audiologists.
- 6 In April 2024, CMS finalized new minimum staffing requirements for Medicare- and Medicaid-certified long-term care facilities (Centers for Medicare & Medicaid Services 2024b). In the new rules, nursing facilities must have an RN on site 24 hours per day, 7 days per week, and minimum staffing ratios for RNs of 0.55 hours per resident day (HPRD) and 2.45 HPRD for nurse aides.
- 7 Beginning January 1, 2022, the medical director must be (or will be within five years) a medical director certified by the American Board of Post-Acute and Long-Term Care Medicine.
- 8 If a case is admitted for rehabilitation for a condition that does not contribute to meeting the compliance threshold but (1) the patient has a comorbidity that is a condition that contributes to the compliance threshold and (2) that comorbidity has caused significant decline in functional ability such that the patient requires intensive rehabilitation, then the case counts toward meeting the compliance threshold. The neurologic conditions include multiple sclerosis, Parkinson's disease, cerebral palsy, and neuromuscular disorders. The arthritic conditions contribute to the compliance threshold if appropriate, aggressive, and sustained outpatient therapy has failed. Hip and knee replacements contribute to the compliance threshold when they are bilateral, the patient is obese, or the patient is at least 85 years old.
- 9 Interview with CMS staff, February 29, 2024.
- 10 The IRF error rate has varied over time, ranging from 19 percent in 2021 and 2022 to a high of 62 percent in 2016.
- 11 The target affirmation rate begins at 80 percent and increases incrementally to 90 percent as the demonstration progresses. Until the target is met, IRFs can choose to have their claims approved prior to payment or after claims are submitted for payment. In the first option, an IRF submits a preclaim review request (prior to the claim being submitted for payment) to the Medicare administrative contractor. Requests that are provisionally "affirmed" are not subject to further review, and the claim will be paid as long as all other requirements are met. Requests that are nonaffirmed may be resubmitted with additional documentation. In the second option, all claims are reviewed after final claim submission. Once the target rate is met, a provider can forgo the 100 percent review and choose between a review of a statistically valid randomly drawn sample of postpayment claims or a prepayment "spot check" of 5 percent of claims (Centers for Medicare & Medicaid Services 2023a).
- 12 Myopathies are a heterogeneous group of disorders that usually present with muscle weakness that interferes with activities of daily life. "Other specified myopathies" are identified by using diagnosis code G72.89.
- 13 Neurological disorders included multiple sclerosis, motor neuron diseases, polyneuropathy, muscular dystrophy, and Parkinson's disease.
- 14 Joint replacements were included as conditions that contribute to the compliance threshold if both joints were replaced or, for single joint replacement, if the patient was obese or 85 years or older.
- 15 In earlier work, we found that transfers from SNFs to IRFs occurred but were infrequent. In episodes of multiple post-acute care stays (such as back-to-back home health care stays or transfers from IRFs to SNFs), we found that about 0.2 percent of episodes included referrals from SNFs to IRFs (Medicare Payment Advisory Commission 2018).

- 16 Hospital service areas (HSAs) are local health care markets for hospital care. An HSA is a collection of ZIP codes in which Medicare residents receive most of their hospitalizations from hospitals in that area. HSAs are defined by assigning ZIP codes to the hospital area where the greatest proportion of their Medicare residents was hospitalized. There are 3,435 HSAs. See <https://www.dartmouthatlas.org>.
- 17 See the specifications at <https://www.cms.gov/files/document/specifications-determining-irf-60-rule-compliance.pdf>.
- 18 In our analyses, cases that required the presence of “combination codes” (multiple specific diagnosis codes) to contribute to the compliance threshold were excluded. These account for about 5 percent of stays and are mostly stays in the major multiple trauma IGC.
- 19 The severity level was based on information from the prior hospital stay if there was one and on information from the IRF (or SNF) stay when there was not a preceding hospitalization. The JEN frailty index was developed to identify frail older adults who may be at risk of institutionalization. The index is based on 13 grouped categories of diseases or signs found to be significantly related to concurrent or future need for long-term care services. The algorithm uses diagnoses from claims.
- 20 Only stays that were 14 days or shorter were included in the analyses of IRF stays because IRFs are required to report therapy minutes for that period but not for the entire stay. About 70 percent of IRF cases for conditions that do not contribute to the compliance threshold were 14 days or shorter.
- 21 The distributions of therapy minutes were similar across types of therapy provided (physical, occupational, or speech pathology (data not shown)).

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CHAPTER

# 6

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**Medicare's Acute Hospital  
Care at Home program**

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# Medicare's Acute Hospital Care at Home program

## Chapter summary

Acute care hospital services are an important benefit for Medicare beneficiaries who need inpatient clinical care or close medical supervision. For many years, hospitals and payers have experimented with providing this care through a modified acute care benefit, referred to as “hospital at home” (HAH), which provides acute care in a beneficiary’s home rather than a traditional stay in a hospital. Proponents of HAH contend that it can provide better care at lower costs to the health care system, though past evaluations of HAH programs have not conclusively demonstrated these outcomes. Concerns about a shortage of acute care hospital capacity during the coronavirus pandemic led CMS to establish the Acute Hospital Care at Home (AHCAH) program in fee-for-service (FFS) Medicare. Though the program was originally set to expire at the conclusion of the coronavirus public health emergency (PHE), the Congress extended the program through December 31, 2024, in the Consolidated Appropriations Act, 2023.

Under the AHCAH program, hospitals apply to CMS to provide the inpatient acute care benefit at home. The AHCAH program waives some requirements of Medicare’s hospital conditions of participation but adds other requirements unique to home care, such as requiring two daily in-home visits by clinical staff. The payment for AHCAH cases is the same as

## In this chapter

- Key elements and goals of the hospital-at-home model
- Hospital at home: Two prepandemic programs
- Hospital at home in FFS Medicare: The Acute Hospital Care at Home program

the amount Medicare would have paid for an in-hospital acute care stay under the inpatient prospective payment systems (IPPS). Hospitals select the clinical and social criteria for patient inclusion and exclusion based on their judgment of the patients and services that can be safely provided in the home, and CMS reviews and approves the criteria as part of the AHCAH waiver application process.

CMS reported that, as of April 2024, about 23,000 AHCAH discharges have occurred (including both Medicare and Medicaid beneficiaries) and 328 hospitals have been approved to participate. However, past experience suggests that many approved hospitals may not have implemented programs. For example, CMS's data for the AHCAH program in 2022 included 284 hospitals, but only 105 hospitals, or 37 percent, reported at least one discharge under the program. These hospitals reported approximately 6,100 discharges (less than 0.1 percent of all IPPS discharges), for an average of about 59 patients per active hospital. In 2022, AHCAH volume was concentrated among those hospitals, with 26 hospitals accounting for 71 percent of the AHCAH discharges.

Hospitals active in AHCAH in 2022 tended to have higher all-payer patient volume, higher occupancy, and nonprofit ownership status, and they tended to be located in urban areas. The reported rates of patient mortality and escalations from the home to the hospital were low, with unanticipated patient mortality of 0.36 percent and an escalation rate of 7.2 percent, indicating that more than 90 percent of patients remained at home in AHCAH. The two most common diagnoses for AHCAH discharges in fiscal year 2022 were respiratory infection and heart failure.

As noted above, AHCAH generally follows the inpatient hospital conditions of participation, but many aspects of the care model are new and evolving, and hospitals have flexibility to design their programs. The program guidance creates opportunities for experimentation and may ease implementation, but it also means that some aspects are undefined. In interviews with Commission staff, hospitals participating in the AHCAH program noted challenges in getting their programs started. Such challenges included the expiration of the program's statutory authorization on December 31, 2024; start-up costs for new staff and operational infrastructure; gaining institutional support for a new, and often unfamiliar, line of service; hiring or identifying additional staff to operate the program; developing a community-based delivery network for ancillary services such as food, laboratory services, pharmaceuticals, and medical equipment; and gaining clinician support for referring to the program.

In addition, hospitals described experiences with beneficiaries declining AHCAH care (though the rates of patient uptake varied by hospital), citing beneficiary lack of familiarity with the model and distrust.

Though AHCAH probably played a negligible role in increasing hospital capacity during the PHE, the limited uptake likely reflects the implementation challenges that hospitals faced, challenges that may present fewer obstacles as providers gain more familiarity with the model. Whether providing AHCAH is less costly for hospitals than providing conventional brick-and-mortar care is a critical unresolved question that may affect the take-up of the program. The Commission's interviews with hospitals participating in AHCAH found that beneficiaries receive fewer services (such as physician consults and laboratory tests) during an AHCAH stay than during a conventional inpatient stay. Nevertheless, the cost per unit of service may be higher due to the additional costs and inefficiencies of providing care to patients in their homes. Whether AHCAH can provide value to beneficiaries and the Medicare program—through better outcomes and reduced Medicare expenditures for follow-on care—has yet to be conclusively determined.

If the program continues, CMS will want to review many of the aspects of care provided under the program, such as the use of remote patient monitoring, the timeliness of hospital response to urgent care needs, and the substitution of virtual physician visits for in-person visits. Understanding how these factors impact beneficiaries' care may help identify areas where the AHCAH model needs refinement. More important, policymakers will need to consider how to (1) measure outcomes for the program so as to safeguard quality of care; (2) ensure that beneficiaries using AHCAH require that level of care (and not a lower, less costly, level of care, such as that provided by home health agencies); and (3) set FFS payments appropriately. ■



Acute care hospital services are an important benefit for Medicare beneficiaries who need inpatient clinical care or close medical supervision. For many years, hospitals and payers have experimented with providing this care through a modified acute care benefit, referred to as “hospital at home” (HAH), that provides acute care in a beneficiary’s home rather than a traditional stay at a hospital. Concerns about a shortage of acute care hospital capacity during the coronavirus pandemic led CMS to establish the Acute Hospital Care at Home (AHCAH) program in fee-for-service (FFS) Medicare under its emergency authority available for the duration of the public health emergency (PHE). Under this program, hospitals approved by CMS can provide inpatient acute care services in a beneficiary’s home. Though the program was originally set to expire at the conclusion of the PHE, the Congress extended the program through December 31, 2024, in the Consolidated Appropriations Act, 2023. Statute also requires CMS to provide a report to the Congress by September 30, 2024, evaluating the quality, cost, and other aspects of AHCAH.

Assessing the value of the AHCAH program to beneficiaries and to Medicare is critical to inform the program’s future direction. In this chapter, we review the elements of the HAH model, assess the experience of hospitals and Medicare beneficiaries in the AHCAH program, and review considerations for Medicare policymakers. Because AHCAH is a new program, we supplemented analysis of claims data with findings from interviews with six hospitals, one commercial HAH vendor, and one health insurance plan that operate HAH programs. These interviews were conducted in July 2023 through November 2023.

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## **Key elements and goals of the hospital-at-home model**

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The implementation of AHCAH in FFS Medicare followed several years of experimentation with HAH by Medicare and other payers. HAH programs have long been a feature of health care in other countries, and experimentation in the U.S. began in the 1990s with a demonstration project led by researchers at Johns Hopkins University (Leff et al. 2005, Leff et al. 1999). The components of HAH programs vary significantly, but generally they include the following:

- clinical criteria that define the conditions served by the program (although HAH programs may focus on specific clinical conditions, the severity of the clinical condition must require an acute hospital level of care to qualify for inpatient admission);
- intensive clinical services provided at home in lieu of a stay at a brick-and-mortar hospital, including daily in-home visits by physicians, nurses, or other advanced practice providers (some of these services may be provided virtually);
- in-home provision of the ancillary services typically associated with an inpatient stay, including meals, laboratory services, imaging services, and pharmacy;
- beneficiary on-demand access to clinical staff by telephone or digital means; and
- a defined geographic service area adjacent to the hospital operating the AHCAH program (which facilitates timely response for any urgent care needs).

Though the specific components often vary across HAH programs, they have the same general purpose: identifying patients who are sick enough to qualify for inpatient acute hospital care but are also sufficiently clinically stable that they can be safely served at home with appropriate intensive clinical care. HAH programs also have exclusion criteria to safeguard patient safety. Common reasons for exclusion include the need for critical care (severe acuity and/or need for particularly close monitoring) and the need for imaging and other inpatient services that cannot be provided in the home (Ouchi et al. 2021). Hospitals may also exclude a patient if they determine that the home is in an unsafe condition or that the patient lacks adequate informal support at home (Brigham and Women’s Hospital 2018).

Patients can be referred to HAH programs from a range of clinical settings. A common arrangement is for a patient at a hospital to be referred after an inpatient surgery or visit to the emergency department. However, some payers have also experimented with referring patients from other settings, such as from outpatient clinics and primary care clinics (Cryer et al. 2012, DeCherrie et al. 2019).

There are two common approaches to initiating at-home services in HAH programs: (1) a patient can have an initial overnight stay at a brick-and-mortar hospital and be transferred home to continue their acute inpatient care (often referred to as “early supported discharge”), or (2) a patient can be directly admitted to HAH with no initial overnight stay at the brick-and-mortar hospital and receive all of their inpatient hospital care at home (often referred to as “admission avoidance”). In both approaches, the patient could return to the hospital if a change in condition requires acute care services that cannot be provided in the home. HAH programs are offered as an option to qualifying patients, who may choose to decline HAH services and have a conventional hospital stay instead.

In discussions with hospitals implementing HAH, program staff indicated that they often begin implementing the program by transferring eligible patients home after an overnight stay in the brick-and-mortar hospital. The program then expands into identifying patients in the emergency room who can be directly admitted to HAH without an overnight stay at the hospital. This approach allows referring physicians an opportunity to become more familiar with HAH before admitting directly to the beneficiary’s home, and it allows for a more gradual increase in the workload of the hospital’s network of in-home care providers and vendors. In general, hospitals reported a mix of both types of these cases when their programs were in full operation.

The literature has identified several potential benefits of the model relative to a traditional acute care inpatient stay:

- Beneficiaries are often more physically and emotionally comfortable in the home, which facilitates better rapport and cooperation between patients and medical staff in the development and implementation of care plans (Chua et al. 2022, Levine et al. 2021).
- Care at home can improve medical outcomes by avoiding iatrogenic complications that occur in the hospital or decompensation that can lead to physical and mental functional impairment (Krumholz 2013, Leff 2009).
- HAH can encourage care continuity because it eliminates the need for a transition to a new location after inpatient care (Gorbenko et al. 2023).

- HAH can lower hospitals’ costs of providing acute care and reduce associated FFS Medicare expenditures such as hospital readmissions (Ritchie and Leff 2022).
- HAH can serve as a “safety valve” for overstretched health systems that have insufficient inpatient bed capacity (Gorbenko et al. 2023).

Some observers also contend that the HAH model could advance health equity and address social determinants of health (Truong and Siu 2024). HAH programs, because they can observe the patient in the home, may be better equipped to identify a patient’s health, functional, and quality of life needs and might achieve better outcomes than standard inpatient care (Boone and Shammash 2022). A 2024 review of the initial AHCAH experience found that escalation and mortality rates did not differ significantly across ethnic groups, dual-eligible Medicare-Medicaid beneficiaries, and disabled Medicare beneficiaries (Levine et al. 2024).<sup>1</sup> However, there are still concerns that HAH could exacerbate disparities if it is implemented in ways that avoid low-income or vulnerable beneficiaries if they are perceived as more challenging or costly to serve (Boone and Shammash 2022).

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## Hospital at home: Two pre-pandemic programs

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HAH programs have been studied in the U.S. and abroad. Some studies suggest favorable impacts of HAH on quality of care and other outcomes; however, the strength of the evidence for these findings varies (Arsenault-Lapierre et al. 2021, Edgar et al. 2024). Another challenge in drawing conclusions from earlier studies of HAH programs is that many of them were implemented in other countries, making it difficult to generalize their experience to the U.S. Two early experiences in the U.S., one sponsored by CMS, provide some evidence and illustrate the challenges and complexities of operating and assessing these programs.

### CMS-sponsored grant for testing HAH services in New York

In 2014, Mount Sinai Hospital received a Health Care Innovation Award grant from CMS to demonstrate an HAH program, referred to as the Mobile Acute Care

Team (MACT) (Gilman et al. 2020). The purpose of MACT was to test a bundled model in which patients received acute and post-acute care services at home for about 33 days (i.e., an acute care episode at home of about 3 days, on average, followed by 30 days of post-acute care). Patients were recruited from Mount Sinai hospitals, had to live in Manhattan, and had to meet clinical and other program criteria.<sup>2</sup> Like other HAH programs, MACT provided acute care at home through a combination of nursing services, physician visits, and ancillary services such as meals, pharmacy, at-home imaging, and durable medical equipment. FFS Medicare beneficiaries and patients covered by a participating private insurer were eligible to enroll. FFS Medicare enrollees accounted for about 62 percent of the patients served by MACT.

MACT experienced implementation challenges in recruiting patients and delivering services during the start-up phase. Clinicians reported difficulty in determining whether patients met program criteria, a challenge that may have undercut recruitment efforts, and about one-third of beneficiaries deemed eligible for MACT declined to participate (Federman et al. 2018). The program also experienced difficulties with external contractors providing ancillary services when needed because some outside contractors were not accustomed to providing the after-hours services necessary for MACT patients (Gilman et al. 2020). Mount Sinai made changes to MACT to address these challenges, including refining patient criteria and hiring and training additional staff to administer the program. MACT was also restructured to rely less on external vendors and more on in-house staff to provide ancillary services.

CMS's evaluation of MACT did not include a quantitative analysis of the program's impact (Gilman et al. 2020). The evaluation concluded that MACT's patient selection criteria relied on beneficiary attributes that could not be identified in Medicare claims data, so a control group of brick-and-mortar hospital discharges could not be identified for comparison purposes. In addition, a small number of patients received MACT services, limiting the statistical power of any analysis.

However, clinical investigators involved with MACT conducted an analysis using a control group of beneficiaries who qualified for MACT but did not

receive care through the program—either because they declined to participate or because they were evaluated during periods when the program could not admit new patients (Federman et al. 2018). The analysis found that MACT beneficiaries had a shorter length of stay and a lower rate of readmission compared with the control group. In the 30 days following MACT care, beneficiaries were more likely to use home health care and less likely to be admitted to a skilled nursing facility. HAH patients also reported better pain management, greater satisfaction with the care they received, and greater satisfaction in their communication with physicians and nurses.

However, because patients were not randomized to the study and control groups and because the control group primarily consisted of beneficiaries who were eligible for, but not offered, HAH care, the results may be biased to the extent that patients who might have declined HAH (if given the opportunity) differed in severity of illness or other characteristics associated with outcomes (Liao et al. 2018). A separate study also found that dual-eligible Medicare–Medicaid beneficiaries who received HAH services had better outcomes than those who had received brick-and-mortar care, though this study, similar to the 2018 analysis by Federman and colleagues, is limited because patients were not randomly assigned to HAH (Siu 2022).

### **A recent small, randomized trial observed favorable outcomes for many HAH patients**

A randomized trial of HAH in the U.S. was conducted by investigators at Brigham and Women's Hospital in 2017, which was the most recent U.S. study completed before CMS implemented AHCAH (Levine et al. 2020, Brigham and Women's Hospital 2018). The program directly admitted patients with select conditions to HAH (i.e., there were no initial overnight hospital stays before beginning care at home). Patients were evaluated for HAH while receiving care in the emergency department, and those who met the program's clinical and other criteria were offered services.<sup>3</sup> About 37 percent of patients who were offered HAH accepted the service, and these patients were randomized between HAH ( $n = 43$ ) and usual care at the brick-and-mortar hospital ( $n = 48$ ). Patients were recruited from an academic medical center and a community hospital.

Under the program, HAH patients received one physician visit and two nursing visits each day at home,

**TABLE  
6-1**

**Differences in utilization between the HAH intervention group and the usual care group, as reported by the 2020 BWH study**

Measure	Intervention (hospital at home) (n = 43)	Control (usual care in brick-and-mortar hospital) (n = 48)
During acute care episode		
Mean length of stay (95% CI)	4.5 (3.9–5.0)	3.8 (3.3–4.4)
Share of patients (in percent) receiving:		
Intravenous medication during admission	70%	81%
Imaging during admission	14	44
Consultant session during admission	2	31
Physical or occupational therapy session during admission	0	17
Median laboratory orders per admission	3	15
Rate of readmission after acute care episode (in percent)	7%	23%
Disposition after acute care episode (in percent)		
Routine (home with no other services)	65%	67%
Home health	23	31
Home hospice	9	2
Other	2	0
30 days after acute care episode		
Primary care visit ≤ 14 days after discharge	55%	42%
30-day readmission	7	23
30-day ED presentation	7	13

Note: HAH (hospital at home), BWH (Brigham and Women’s Hospital), CI (confidence interval), ED (emergency department). Components may not sum to 100 percent due to rounding.

Source: Levine et al. 2020.

with physician specialists available through telehealth as needed. Patients were also monitored through remote patient monitoring devices, and they could contact the care team through telephone, video, or text messaging for unscheduled care consultations. Home health aide services were available to assist with personal care needs. Ancillary services such as meals, durable medical equipment and medical supplies, pharmaceuticals, and lab services were also provided as necessary.

The study compared outcomes for two groups of patients: an intervention group that received HAH

services and a control group that received care in a standard inpatient hospital. The small sample size limited the statistical power of the study, so although some of the results indicate better performance for HAH, they were not statistically significant (Table 6-1):

- The average length of stay for HAH patients was 0.7 days longer than for the control group.
- HAH patients received fewer services such as laboratory tests and specialty physician consultations, on average.

- In both groups, about two-thirds of patients were discharged home with no other services (i.e., home health or hospice).
- The rate of readmission was lower for HAH patients.
- HAH patients and brick-and-mortar inpatients reported similar rates of patient satisfaction and functional status at discharge, though HAH patients reported less time lying down or being otherwise inactive (not shown in table).<sup>4</sup>
- No patients in the HAH group had to be “escalated” from home to a brick-and-mortar hospital, and no patients died in either group while receiving acute care.<sup>5</sup>

The study also compared risk-adjusted costs for the acute care episode and the 30 days afterward for the two randomized groups of patients, the HAH group and the brick-and-mortar group (the analysis examined provider costs for services and not FFS Medicare’s payments for them and did not include implementation costs).<sup>6</sup> The analysis found that risk-adjusted acute care costs for the HAH group were 19 percent lower than the brick-and-mortar group (the results were significant with a  $p$ -value of  $<0.001$ ). When the following 30 days of care were included, costs were 25 percent lower for the HAH group, likely reflecting, in part, the lower rate of readmission for HAH patients (the results were significant with a  $p$ -value of  $<0.001$ ).

About two-thirds of patients declined HAH services, and a subsequent analysis identified several factors that affected patient recruitment (Levine et al. 2022b). Patients’ most frequently reported reason for declining the service was that they believed it was easier or safer to remain in the hospital. Patients who declined HAH were also more likely to live alone. The authors observed that patients who were evaluated at a community hospital were more likely to decline HAH programs. Hospital representatives cited similar experiences with patients who declined care and noted that patients’ distrust of or lack of familiarity with the model played a role. One hospital pointed out that many patients arrive at the hospital with an expectation of an in-facility stay, which can make it challenging for patients to consider an alternative.

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## Hospital at home in FFS Medicare: The Acute Hospital Care at Home program

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In November 2020, CMS launched the Acute Hospital Care at Home program. The program waives several conditions of participation for Medicare hospitals: the requirement that nursing care be provided on premises 24 hours a day, 7 days a week, and certain facility requirements.<sup>7</sup> All other hospital conditions of participation remain in effect. Hospitals seeking to participate in AHCAH submit a waiver to CMS, which reviews it to ensure it meets AHCAH program requirements. Under the waiver application, hospitals must:

- describe the clinical conditions and other criteria that hospitals will apply when determining which beneficiaries may be offered HAH services;
- provide two in-person visits by clinicians each day of service and a daily physician visit that may be virtual or in person (hospitals have the option of using a mobile integrated health community paramedic for appropriate patients, though they must be supervised by a nurse);
- deliver all the clinical and ancillary services at home that a beneficiary may need during their stay, such as durable medical equipment, laboratory services, and pharmacy;
- provide monthly reporting of three metrics for HAH patients—unanticipated mortality, number of AHCAH cases escalated to brick-and-mortar inpatient care, and the total number of AHCAH discharges;
- provide a round-the-clock contact system for patients to reach out to clinicians with questions or concerns; and
- when necessary, provide in-person emergency clinical services at the beneficiary’s home within 30 minutes.

Medicare treats AHCAH services like an acute care hospital stay under Medicare’s inpatient hospital benefit in terms of administrative needs, benefit eligibility, and payment policy, with the exceptions to the hospital conditions of participation noted above. Only acute care hospitals may apply for AHCAH

**TABLE  
6-2**

**Twenty-six hospitals accounted for 71 percent of all AHCAH discharges in 2022**

Number of AHCAH discharges	Number of operational hospitals	Total AHCAH discharges	Share of all AHCAH discharges	Average annual AHCAH discharges per hospital
Six or fewer	27	70	1%	2.6
7-25	24	337	6	14.0
26-74	28	1,162	21	41.5
75-170	15	1,181	21	78.7
171-223	6	1,134	20	189.0
224 or more	5	1,675	30	335.0
Total	105	6,189	100	58.9

Note: AHCAH (Acute Hospital Care at Home). Includes all discharges covered under the AHCAH waiver, which includes Medicaid discharges.

Source: MedPAC analysis of AHCAH data from CMS.

waivers. CMS established an expedited waiver request process for hospitals with prior experience operating HAH services, while hospitals that are starting new programs or have limited experience receive more scrutiny.<sup>8</sup>

Medicare pays the same amount for AHCAH cases that it would pay for a brick-and-mortar hospital stay under the inpatient prospective payment systems (IPPS). The payment is the same for AHCAH cases regardless of whether the stay included an initial overnight stay at the brick-and-mortar hospital or acute inpatient care began at home without a brick-and-mortar stay. An AHCAH case that is transferred from home to the hospital for care is treated as a single discharge (referred to as an “escalation of care”), so Medicare does not make an additional payment when a patient cannot remain in the home.

**Volume in the AHCAH program has remained limited**

Under the AHCAH waiver, hospitals are required to submit monthly reports indicating the number of patients served, mortality for AHCAH patients, and the number of patients who are “escalated” from home to the hospital because they need a higher level of care. These data are reported through an

online portal that is not validated with other Medicare data, such as claims or enrollment information. As a result, these data reflect the completeness of hospital reporting practices, and they have not been reviewed for completeness or accuracy. In April 2024, CMS reported that over 23,000 discharges had occurred under the AHCAH program (including both Medicare and Medicaid discharges) and 328 hospitals had been approved to participate (Centers for Medicare & Medicaid Services 2024). Separately, CMS reported that from November 21, 2021, through March 20, 2023, the program had served 11,159 patients, with FFS Medicare beneficiaries accounting for about 85 percent of the population (Medicaid beneficiaries accounted for the remaining patients) (Adams et al. 2023).

Data from 2022 suggest that hospitals approved for AHCAH often lag in initiating a program after approval. In 2022, 284 hospitals were participating in CMS’s reporting for AHCAH, though only 105, or about 37 percent, reported at least one discharge. About 6,200 AHCAH discharges were reported in 2022, less than 0.1 percent of all IPPS discharges. CMS reports that, as of early 2024, the number of AHCAH discharges since the program’s inception was over 23,000 (Centers for Medicare & Medicaid Services 2024). The monthly volume of patients receiving AHCAH services in 2022

**TABLE  
6-3**

**Hospitals that reported providing services through the AHCAH program tended to be larger and nonprofit, FY 2022**

<b>Hospital characteristic</b>	<b>Hospital-at-home IPPS hospitals (n = 103)</b>	<b>Other IPPS hospitals (n = 3,190)</b>
Urban location	91%	76%
Teaching hospital	68%	36%
For profit	2%	25%
Median:		
Inpatient beds	314	127
All-payer admissions	16,896	5,320
Medicare admissions	4,089	1,396
Inpatient occupancy	81%	61%
Total (all-payer) profit margin	3.0%	1.1%

Note: AHCAH (Acute Hospital Care at Home), FY (fiscal year), IPPS (inpatient prospective payment systems). We examined 103 hospitals that reported hospital-at-home discharges to CMS and compared those with 3,190 traditional IPPS hospitals that did not report any hospital-at-home discharges. For some variables, the sample was further limited to hospitals with available cost report data.

Source: CMS Acute Hospital Care at Home discharge database, hospital cost reports, and Medicare impact file.

increased from 350 discharges in January to 757 discharges in December, reflecting higher volume as incumbent programs expanded and new hospitals initiated services.

Active AHCAH hospitals, those with one or more reported discharges, had an average of 58.9 HAH discharges in 2022. Even among the 105 active hospitals, relatively few of them accounted for a disproportionate share of the AHCAH volume: The 26 hospitals with the highest AHCAH volume accounted for 71 percent of all program discharges (Table 6-2). Fifty-one of the active hospitals had 25 or fewer AHCAH cases in 2022.

Hospitals active in the AHCAH program in 2022 tended to be located in urban areas and to have higher patient volume, nonprofit ownership status, and higher occupancy than other acute care hospitals (Table 6-3). Patient volume was among the greatest difference: AHCAH hospitals had a median all-payer volume that was 3.2 times higher than other hospitals and median Medicare admission volume that was 2.9 times higher.

The median occupancy rate for AHCAH hospitals was 20 percentage points higher than that of other hospitals, suggesting that AHCAH hospitals may have been under more pressure to relieve facility capacity.

The reported rates of patient mortality and escalations from the home to the hospital were low. For unanticipated patient mortality, AHCAH hospitals reported 22 deaths for 2022, or a rate of 0.36 percent. The rate of escalation was 7.2 percent, indicating that more than 90 percent of AHCAH patients remained at home for the duration of their stay.

**Respiratory infection was the most common diagnosis for AHCAH discharges in FY 2022**

To better understand case-level trends for AHCAH beneficiaries, we examined claims-level data for fiscal year 2022. In these data, the most common AHCAH diagnosis was respiratory infection with a major clinical complication, followed by heart failure with a major clinical complication (Table 6-4, p. 218). The average

**TABLE  
6-4**

**Respiratory infection was the most common AHCAH discharge in FY 2022**

MS-DRG	Condition	CC, MCC, or no MCC	AHCAH cases (percent)
177	Respiratory infection (e.g., COVID-19)	MCC	16%
291	Heart failure	MCC	11
871	Septicemia	MCC	7
193	Pneumonia	MCC	5
603	Cellulitis (bacterial infection)	No MCC	5
229	UTI	No MCC	4
228	COPD	CC	4
872	Septicemia	No MCC	4
178	Respiratory infection (e.g., COVID-19)	CC	3
194	Pneumonia	CC	3
All other			38

Note: AHCAH (Acute Hospital Care at Home), FY (fiscal year), MS-DRG (Medicare severity–diagnosis related group), CC (complication or comorbidity), MCC (major complication or comorbidity), UTI (urinary tract infection), COPD (chronic obstructive pulmonary disease). MedPAR reported hospital-at-home status through only the middle of fiscal year 2022. Therefore, the percentages of each type of discharge were computed using a sample of 2,962 discharges.

Source: MedPAC analysis of MedPAR data.

length of stay was longer for AHCAH discharges compared with non-AHCAH discharges in the same diagnosis related groups (DRGs) at active hospitals: 6.6 days compared with 5.7 days, respectively (data not shown). The average allowable charge per discharge was 18 percent lower for AHCAH cases compared with non-AHCAH discharges in the same DRGs at active AHCAH hospitals, with allowable charges for laboratory services 23 percent lower and radiology charges 34 percent lower (data not shown). These results indicate that AHCAH discharges have longer stays and lower resource use than the average brick-and-mortar hospital discharge. The lower charges likely reflect that, similar to the findings noted in the Brigham and Women’s Hospital study described above, AHCAH discharges include fewer laboratory and radiology services.

Several factors may explain the lower resource use of AHCAH patients, but it is important to note that program criteria and hospital practices unrelated to AHCAH may affect the comparison. As described earlier, AHCAH programs have eligibility criteria intended to ensure patient safety and screen out

patients who will need more intensive acute care. As a result, within a DRG, the average severity of a non-AHCAH beneficiary who received regular hospital care may be higher than the average AHCAH beneficiary. The lower resource use of AHCAH patients may indicate that hospital clinical criteria direct less severe patients who qualify for inpatient care to in-home care, a central goal of the HAH model. In addition, AHCAH is offered as a voluntary service. Beneficiaries who decline HAH services may have unmeasured needs, which could also contribute to a biased comparison. The higher allowable charges for laboratory and radiology services received by beneficiaries in a brick-and-mortar hospital (usual care) may also reflect overuse of these services during an inpatient stay.

**Financial, operational, and regulatory considerations may account for the limited uptake of AHCAH**

As with any new line of business for a hospital, the decision to implement an AHCAH program will reflect the local market circumstances and organizational context of an individual hospital. Because these

circumstances vary across facilities, the reasons for the limited uptake likely vary. In interviews with the Commission, hospitals operating HAH programs cited inpatient capacity issues and a belief that HAH would be better care for many patients, though they also noted challenges in getting programs started. In addition to addressing the financial viability of HAH services, hospital staff noted that HAH, while being a valuable service, was not viewed as favorably as other new services that the hospital could consider. Though the Commission did not interview hospitals that were approved by CMS for AHCAH but had not yet started a program, differences in how they evaluated the financial, operational, and regulatory considerations for AHCAH likely affected the decision to implement a program.

Hospitals also vary in the resources they can marshal to address these considerations. However, any new hospital service requires addressing this range of issues. While providing acute inpatient care in the community poses unique challenges that hospitals and regulators may not have considered in the past, the 105 active AHCAH programs under FFS Medicare demonstrate that some hospitals have the resources to initiate a program. AHCAH supporters cite the success of early-adopter hospitals as evidence that implementation challenges can be resolved (Brody et al. 2023).

### **Financial considerations**

The financial impact of AHCAH is a primary consideration for hospitals. In interviews conducted by Gorbenko and colleagues as part of a qualitative analysis of hospitals' AHCAH implementation processes, some hospitals that had not implemented a program indicated that uncertainty about the financial viability of the program dissuaded them from implementation (Gorbenko et al. 2023). The financial impact of AHCAH was reported as uncertain by hospitals that have implemented the program. Some of the hospitals that provided AHCAH believed it was financially viable (i.e., that AHCAH could entail lower costs to deliver care and so would be more profitable under FFS Medicare) but also noted that they had not yet produced definitive data demonstrating that AHCAH was less costly than traditional inpatient care (Gorbenko et al. 2023).

Even if a hospital considers AHCAH financially viable, that conclusion may reflect the local health system's needs, and AHCAH can be attractive to hospitals even

if at-home care is more costly than brick-and-mortar hospital care. AHCAH has been noted as a way for hospitals, particularly those that have a bed shortage, to open up inpatient beds for patients who must be cared for in the facility or who require other services that may be more remunerative (Boone and Shammash 2022). Hospitals with excess inpatient bed capacity likely have less incentive to pursue an AHCAH program. In addition, the interest of Medicare Advantage or other health insurers in covering HAH services may affect a hospital's interest in AHCAH under FFS Medicare. How hospitals view their current inpatient bed capacity, their strategic goals for inpatient services, the interest of other health care payers, and the financial impact of AHCAH relative to usual care will likely affect their decision about whether to implement a program.

### **Operational considerations**

A hospital's administrative and managerial capacity to tackle the operational challenges is also likely to account for some of the variation in uptake. AHCAH requires hospitals to establish new clinical infrastructure and rework existing hospital practices. Hospitals will need to hire or redeploy clinical staff; hire, manage, and oversee external vendors to provide services not available through in-house resources; and extend hospital infrastructure such as electronic health records to work outside institutional settings (Gorbenko et al. 2023). AHCAH requires hospitals to develop a network of couriers and providers that can deliver needed services and supplies on a timely basis to beneficiaries at home. Hospitals will also have to work with physicians who refer patients to inpatient care in order to develop processes for physicians to identify and direct appropriate patients to AHCAH and to provide physician care in the patient's home. Hiring clinical or other staff for a new service line may not be possible for a hospital experiencing staffing shortages in other services. The decision to implement or forgo an AHCAH program will likely reflect the availability of financial resources for new investments, availability of staff, preparedness to construct a community-facing network of clinicians and vendors to deliver acute care in the home, and organizational willingness to redesign existing inpatient admission practices.

### **Legislative and regulatory considerations**

Another factor affecting hospital participation in AHCAH may have been that the statutory authority for

the program expires on December 31, 2024. Hospitals may have been reluctant to invest in a program that did not have a more lengthy authorization in law. Hospitals implementing an AHCAH program must resolve regulatory and licensure issues—in addition to needing Medicare’s statutory authorization—which can be difficult because existing rules often define care based on current models (DeCherrie et al. 2022). Hospitals seeking to establish a program have to consider the range of local, state, and federal regulations that apply to both inpatient and outpatient care and consider how they pertain to the HAH model. Many hospitals have addressed these issues successfully, but implementation efforts can be stymied or halted if regulatory or licensure issues prove difficult to resolve. If it is unclear how regulations apply to AHCAH, regulatory agencies may need to provide flexibility or modify existing requirements.

A primary issue is whether state or local rules permit hospitals to deliver acute inpatient care in a patient’s home. For some hospitals, state regulation may not allow hospitals to operate an AHCAH program, even when permitted by Medicare. Alternatively, regulations may require additional licensure or certification, as in the case of one hospital that had to procure a home health agency license to operate an AHCAH program (Medically Home 2023). Hospitals may also have to consider whether HAH services apply to state certificate-of-need laws that regulate the number of hospital beds.

The use of community paramedics to provide acute hospital care in the home is another example of a regulatory issue that some hospitals will face. Medicare’s AHCAH rules allow the use of community paramedics as an alternative to more costly nurses, but state and local regulations govern the clinical practice of paramedics. The current regulations often reflect the responsibilities of paramedics in emergency medical care, and hospitals may have to work with regulators to modify these strictures to allow community paramedics to provide the services that are required in AHCAH (Medically Home 2023).

### **Current structure of AHCAH will hinder efforts to compare outcomes for AHCAH to brick-and-mortar hospital care**

Measuring outcomes under AHCAH will be challenging since the program is operating as a

voluntary benefit in FFS Medicare and because data limitations will likely make it difficult to examine key aspects of the program that contribute to outcomes. For example, constructing a statistically comparable baseline of AHCAH and non-AHCAH discharges will be challenging because FFS Medicare beneficiaries are not randomly assigned to each service. We would expect AHCAH beneficiaries and non-AHCAH beneficiaries to differ in clinical and social risk factors because of the eligibility criteria used by AHCAH programs, which may consider such factors as housing status, caregiver availability, and clinical acuity. Many of these patient attributes are not captured in claims or other administrative data, making it difficult to construct clinical baseline and intervention groups for evaluation. As noted above, establishing clinical baseline and intervention groups was an issue in CMS’s evaluation of the Mount Sinai Hospital MACT program since that program’s criteria included factors that could not be identified in Medicare administrative data.

Measuring the services that AHCAH patients receive will also be challenging with current data. AHCAH hospitals have the flexibility to select the acute care services they provide under the program.<sup>9</sup> As a result, the costs of care will likely vary across hospitals because hospitals may have different approaches to delivering care, even for patients with similar characteristics. Current administrative data do not include discharge-level information such as the use of remote patient monitoring and other digital technologies, the number of virtual visits provided by nurses or other practitioners who do not bill Medicare under the physician fee schedule, and the timing and length of in-person visits provided in the home. All of these factors affect the cost and quality of an AHCAH stay, which are important for understanding the impact of the program.

Another key data limitation is that the AHCAH experience will reflect only hospitals that have been active in the program through 2023. As noted earlier, these hospitals are predominantly large, nonprofit teaching hospitals, and so the experience of AHCAH will reflect the capabilities and resources of this cohort, which may not be generalizable to other hospitals.

Although making comparisons to usual care will be challenging, there are several aspects of AHCAH that would benefit from additional analysis.

### **Performance measurement**

The quality measures for AHCAH—unanticipated mortality and escalations to inpatient care—do not provide a direct measure of the care that beneficiaries receive in the home. For example, they do not capture whether beneficiaries are able to contact their care team after hours or the effectiveness of providers in teaching and training beneficiaries about their condition. It is also important to know whether AHCAH patients experience fewer adverse events, such as falls or infections, when at home compared with patients who receive usual care in hospitals. Measuring AHCAHs' impact will require a broader set of measures than the mortality and escalation measures that CMS currently collects; this work could begin by reviewing CMS's current acute care hospital measures to determine whether they can be applied to AHCAH.

### **Substitution of virtual physician visits for in-person physician visits**

AHCAH programs generally use virtual visits to provide physician services, although use varies, and it appears that some programs sometimes provide in-person visits. It would help to understand how increased provision of virtual visits affects outcomes and would help to develop policies to ensure that beneficiaries receive in-person physician services when necessary. One study found that virtual visits could safely substitute for in-person visits in many instances but noted that in-person visits were necessary for several patients (Levine et al. 2022a). Understanding the policies and procedures that hospitals follow in determining the need for in-person or virtual physician visits would permit CMS to assess whether any policy guidance is needed to ensure access to in-person care for beneficiaries.

### **Addressing health disparities**

As noted earlier, there is evidence that AHCAH programs have successfully served low-income beneficiaries and Black and Latino beneficiaries. Additional research could examine whether the geographic service areas, clinical services including

supportive services such as personal care, and social criteria (e.g., housing or availability of informal caregivers) used by AHCAH programs affect their ability to serve populations with health disparities.

### **Impact on family caregivers**

Future research could also assess how AHCAH affects the burden on informal caregivers; depending on how it is implemented, AHCAH could increase or decrease the burden of caregivers. In one respect, AHCAH could increase the burden because it requires caregivers to tend to beneficiaries who would normally be in a facility. Alternatively, AHCAH could be beneficial for caregivers because the care team attending to the beneficiary at home means that the family caregiver does not have to travel to and from the hospital to see their loved one. The caregiver can also receive training and support from the care team. CMS could collect outcome data from family caregivers about their experience during AHCAH, such as the program's effects on their caregiving burden and their working relationship with AHCAH clinicians during a stay.

### **Use of remote patient monitoring**

Remote patient monitoring, which typically involves providing beneficiaries with digital devices that record and transmit vital signs and other health information, has become a common part of HAH care. A better understanding of hospitals' costs of remote patient monitoring under AHCAH, as well as its impact on outcomes, would improve evaluation of the care model. There are no standards for the frequency and intensity of these services during an AHCAH stay, so this research could support discussion of program requirements about remote patient monitoring.

### **Hospital staff response time to AHCAH patients' urgent care needs**

A hospital with an AHCAH program must provide beneficiaries with the means to contact hospital staff immediately if they have an urgent concern, and the hospital must be able to deploy staff to the home within 30 minutes when an emergency health concern arises. The experience of AHCAH to date has not raised significant patient safety concerns, but a 30-minute response time could be problematic for patients experiencing complications at home. CMS may want to examine current hospital practices for meeting these

requirements and, for example, see how the actual response time compares with the 30-minute standard.

### **Key issues that should be considered in setting future AHCAH policy**

FFS Medicare's experience with AHCAH suggests that the clinical model has potential advantages for Medicare beneficiaries. The limited volume and participation to date likely reflect the complexities of creating such a program. If Medicare continues the program, the number of participating AHCAH providers could increase. The low rates of mortality and escalation in AHCAH suggest that inpatient hospital-level care can be provided safely in the home for some patients, consistent with the findings of several reviews of past trials of hospital at home by health services researchers (Arsenault-Lapierre et al. 2021, Edgar et al. 2024). Several policy issues need to be considered, including how to ensure that the program does not overlap with other FFS Medicare services, whether care in the home is more or less costly for hospitals to provide than brick-and-mortar care, and what would be the appropriate payment policy for AHCAH.

Policymakers will want to ensure that AHCAH care does not overlap with or draw patients from other, frequently less costly, home-based services currently available under FFS Medicare, such as home health care, hospice, home infusion, and Part B-covered medical services. The CMS AHCAH waiver requires hospitals to identify the "patient leveling process" that they will follow to ensure that a beneficiary requires an inpatient level of care. Under these processes, a physician's decision to admit a patient for AHCAH relies on the same policy and standards that CMS requires for a standard inpatient admission, such as the "two-midnight" rule (established in 2013 to define inpatient care) and commercially available medical-necessity criteria.<sup>10</sup> However, some literature suggests that physicians' evaluations of a patient's need for inpatient care can differ, so there can be variation in hospital admission practices even with policies and guidelines (Hack et al. 2005, Ouchi et al. 2021). The Commission notes that, as a result, the existing criteria for inpatient admissions may be inadequate to prevent admitting beneficiaries to AHCAH who could be served in other settings.

Concerns about an increase in low-value or unnecessary inpatient hospitalizations under AHCAH

could be reduced if the program were provided under capitated programs such as Medicare Advantage or alternative payment models that hold providers accountable for the total cost of care across all FFS Medicare services. Though AHCAH discharges to date have been few, concerns that AHCAH may draw beneficiaries from other, less costly settings in FFS Medicare may grow if program volume increases.

The AHCAH program requires that a beneficiary be evaluated at a hospital before being admitted to the at-home service, which would be an important safeguard if the program continues. The risk of inappropriate utilization may vary across AHCAH models. The "early supported discharge" model, which includes an overnight stay in the brick-and-mortar hospital before home care begins, likely presents less risk of inappropriate use. By contrast, the "admission avoidance" model, which directly admits patients to AHCAH without an overnight stay, could entail a higher risk of overlap with community-based care (while the beneficiary still has to meet criteria for Medicare benefits, as noted above, these criteria can vary in their application and lead to overlap).

Admitting patients from the community with no hospital visit or overnight stay arguably poses the greatest risk of overlap with other community-based services. Community-based providers would have a strong incentive to screen beneficiaries for HAH care, and the inexact nature of FFS Medicare's criteria for acute hospitalization may allow providers to admit patients they already serve. For example, a nursing home could screen residents for AHCAH and get paid higher rates for individuals already in their facilities (an AHCAH stay would also qualify beneficiaries for a skilled nursing facility stay, which would also increase payments for the facility). Because the AHCAH program does not currently permit beneficiaries to be admitted directly from the community, this risk is not yet an issue for FFS Medicare, but the example illustrates how admitting beneficiaries to AHCAH directly from the community has a greater risk of inappropriate use compared to an approach that requires a hospital visit.

A critical unanswered question is whether providing AHCAH is less costly than brick-and-mortar care. The health services literature and the Commission's interviews with participating AHCAH hospitals indicate that beneficiaries receive fewer services during their

in-home stay compared with beneficiaries in a regular inpatient hospital stay (e.g., fewer physician consults and laboratory tests). However, the cost per unit of service may be higher because of the particular expenses and inefficiencies of providing care in the home. For example, nurses in AHCAH may have lower productivity compared with hospital-based nurses because they will spend time traveling to patient homes as part of their workday. In addition, hospitals that operate AHCAH programs may incur additional costs for remote monitoring services and other enabling technologies that they might not incur otherwise. The available evidence does not conclusively indicate whether the savings from providing fewer services during an AHCAH stay offset higher costs from providing care in the community. Assessing the impact of an AHCAH program's size (number of discharges) on program costs will also be important since the size of an AHCAH program may affect whether the program is less costly for hospitals than usual care. AHCAHs' impact on hospital readmissions and post-acute care may also need to be considered when assessing the costs of care under the program. Lower rates of readmission for AHCAH discharges could offset higher per discharge costs for in-home care.

In the future, policymakers may want to reconsider how FFS Medicare pays for AHCAH services, particularly if volume in the program increases. Under current policy, FFS Medicare pays the same IPPS rate for AHCAH discharges and non-AHCAH discharges. This policy facilitated rapid deployment of AHCAH during the coronavirus pandemic and administrative convenience for hospitals and FFS Medicare. However, the equal rate may not be appropriate if AHCAH discharges do not have the same costs as brick-and-mortar acute care stays. The policy also does not provide a mechanism for FFS Medicare to share in savings if AHCAH is less costly than usual care. Currently, AHCAH accounts for a small share of IPPS discharges, so the impact of the current payment policy's incentives is limited. If AHCAH volume increases, a better understanding of the hospital costs under the program would be appropriate for evaluating AHCAH payment policy. However, as noted earlier, it will be challenging to compare the costs of AHCAH and non-AHCAH discharges. ■

## Endnotes

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- 1 The study examined data for July 2022 through June 2023 and examined outcomes for several racial/ethnic groups (White, Black, Latino) and Medicare-eligible categories (disabled beneficiaries and Medicare-Medicaid dually eligible beneficiaries).
- 2 MACT clinical conditions included congestive heart failure, chronic obstructive pulmonary disease, dehydration, diabetes, pneumonia, cellulitis, urinary tract infection, and pulmonary embolism. Patients had to be in FFS Medicare or a participating Medicare Advantage plan to be eligible for MACT. The program also required a caregiver to be present in the beneficiary's home.
- 3 The conditions included serious infections (e.g., pneumonia, urinary tract infection), heart failure, chronic obstructive pulmonary disease, hypertension, and atrial fibrillation, as well as the need for anticoagulant therapy.
- 4 These data were collected through digital activity trackers and patient assessment evaluations conducted for this trial.
- 5 In HAH programs, an escalation occurs when a patient receiving care at home experiences a change in condition that requires an overnight stay at the brick-and-mortar hospital.
- 6 The cost analysis adjusted for sex, age, race/ethnicity, education, discharge diagnosis, and comorbid condition count. Categories of cost included direct patient costs such as nurses, aides, therapists, ancillary services, physicians, and other allied professionals who served patients in both groups.
- 7 The statute also waives 42 CFR 482.41, which establishes general facility requirements for hospitals (adequate facilities to treat patients, emergency preparedness, fire safety, building safety, and other facility needs for inpatient care).
- 8 Hospitals that have provided HAH services to at least 25 patients previously may use the expedited process.
- 9 Under the waiver, hospitals must provide the full range of acute care services to any beneficiary at home. However, hospitals may exclude patients from AHCAH who need services a hospital has decided are impractical or inappropriate for the home. For example, a hospital could opt not to provide infusion drugs in the home, and so needing this service would effectively exclude beneficiaries who met other AHCAH requirements.
- 10 Under the two-midnight criterion for coverage as an inpatient stay, a beneficiary must need care at an inpatient hospital for a period that crosses two midnights. If the stay is shorter, any services would be covered as an outpatient observation stay.

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A P P E N D I X

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**Commissioners' voting  
on recommendations**

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## Commissioners' voting on recommendations

In the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000, the Congress required MedPAC to call for individual Commissioner votes on each recommendation and to document the voting record in its report. The information below satisfies that mandate.

### **Chapter 1: Approaches for updating clinician payments and incentivizing participation in alternative payment models**

No recommendations

### **Chapter 2: Provider networks and prior authorization in Medicare Advantage**

No recommendations

### **Chapter 3: Assessing data sources for measuring health care utilization by Medicare Advantage enrollees: Encounter data and other sources**

No recommendations

### **Chapter 4: Paying for software technologies in Medicare**

No recommendations

### **Chapter 5: Considering ways to lower Medicare payment rates for select conditions in inpatient rehabilitation facilities**

No recommendations

### **Chapter 6: Medicare's Acute Hospital Care at Home program**

No recommendations



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## **Acronyms**

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## Acronyms

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<b>2-D</b>	two-dimensional	<b>CPT</b>	Current Procedural Terminology
<b>3-D</b>	three-dimensional	<b>CT</b>	computed tomography
<b>A-APM</b>	advanced alternative payment model	<b>CTE</b>	Canary Tibial Extension
<b>ACH</b>	acute care hospital	<b>CY</b>	calendar year
<b>ACO</b>	accountable care organization	<b>DME</b>	durable medical equipment
<b>AHCAH</b>	Acute Hospital Care at Home	<b>DO</b>	doctor of osteopathic medicine
<b>AHRQ</b>	Agency for Healthcare Research and Quality	<b>DRG</b>	diagnosis related group
<b>AI</b>	artificial intelligence	<b>DSH</b>	disproportionate share hospital
<b>AIC</b>	amount in controversy	<b>DSI</b>	decision support intervention
<b>AKI</b>	acute kidney injury	<b>DTx</b>	digital therapeutics
<b>ALJ</b>	administrative law judge	<b>DxSS</b>	diagnostic support software
<b>AMA</b>	American Medical Association	<b>E&amp;M</b>	evaluation and management
<b>ANA</b>	activity not attempted	<b>ECI</b>	Employment Cost Index
<b>APM</b>	alternative payment model	<b>ED</b>	emergency department
<b>APRN</b>	advanced practice registered nurse	<b>EEG</b>	electroencephalogram
<b>BBA</b>	Bipartisan Budget Act	<b>ESE</b>	electrographic status epilepticus
<b>BPCI</b>	Bundled Payments for Care Improvement	<b>ESRD</b>	end-stage renal disease
<b>BPT</b>	bid pricing tool	<b>FDA</b>	Food and Drug Administration
<b>CAA</b>	Consolidated Appropriations Act	<b>FFCRA</b>	Families First Coronavirus Response Act
<b>CAD</b>	computer-aided detection	<b>FFDCA</b>	Federal Food, Drug, and Cosmetic Act of 1938
<b>CAH</b>	critical access hospital	<b>FFRCT</b>	fractional flow reserve derived from computed tomography
<b>CBT</b>	cognitive behavioral therapy	<b>FFS</b>	fee-for-service
<b>CC</b>	complication or comorbidity	<b>FY</b>	fiscal year
<b>CCA</b>	21st Century Cures Act	<b>GAO</b>	Government Accountability Office
<b>CDC</b>	Centers for Disease Control and Prevention	<b>GDP</b>	gross domestic product
<b>CDS</b>	clinical decision support	<b>HAH</b>	hospital at home
<b>CEAC</b>	Counties with Extreme Access Considerations	<b>HCC</b>	hierarchical condition category
<b>CED</b>	coverage with evidence development	<b>HCFA</b>	Health Care Financing Administration
<b>CERT</b>	Comprehensive Error Rate Testing	<b>HCPCS</b>	Healthcare Common Procedure Coding System
<b>CFR</b>	Code of Federal Regulations	<b>HEDIS<sup>®</sup></b>	Healthcare Effectiveness Data and Information Set <sup>®</sup>
<b>CHIRP</b>	Canary Health Implantable Reporting Processor	<b>HHS</b>	Health and Human Services
<b>CI</b>	confidence interval	<b>HMO</b>	health maintenance organization
<b>CMS</b>	Centers for Medicare & Medicaid Services	<b>HMO-POS</b>	HMO point of service
<b>CON</b>	certificate of need	<b>HOPD</b>	hospital outpatient department
<b>COPD</b>	chronic obstructive pulmonary disease	<b>HPRD</b>	hours per resident day
<b>COVID-19</b>	coronavirus disease 2019	<b>HSA</b>	hospital service area
<b>CPC+</b>	Comprehensive Primary Care Plus	<b>IGC</b>	impairment group category
<b>CPI</b>	Consumer Price Index	<b>IME</b>	indirect medical education
<b>CPI-U</b>	Consumer Price Index for All Urban Consumers		
<b>CPR</b>	customary, prevailing, and reasonable		

<b>IMRT</b>	intensity-modulated radiation therapy	<b>OIG</b>	Office of Inspector General
<b>IPPS</b>	inpatient prospective payment systems	<b>OMHA</b>	Office of Medicare Hearings and Appeals
<b>IRE</b>	independent review entity	<b>OON</b>	out of network
<b>IRF</b>	inpatient rehabilitation facility	<b>OPPS</b>	outpatient prospective payment system
<b>IRF-PAI</b>	Inpatient Rehabilitation Facility Patient Assessment Instrument	<b>OT</b>	occupational therapy
<b>LCD</b>	local coverage determination	<b>PA</b>	physician assistant
<b>LOI</b>	letter of intent	<b>PAC</b>	post-acute care
<b>LPAD</b>	limited population pathway for antibacterial and antifungal drugs	<b>PACE</b>	Program of All-Inclusive Care for the Elderly
<b>LPN</b>	licensed practical nurse	<b>PCP</b>	primary care provider
<b>LTCH</b>	long-term care hospital	<b>PCR</b>	payment-to-cost ratio
<b>MA</b>	Medicare Advantage	<b>PCR</b>	plan all-cause readmissions
<b>MAC</b>	Medicare administrative contractor	<b>PDPM</b>	Patient-Driven Payment Model
<b>MAC</b>	Medicare Appeals Council	<b>PDT</b>	prescription digital therapeutic
<b>MACRA</b>	Medicare Access and CHIP Reauthorization Act of 2015	<b>PE</b>	practice expense
<b>MACT</b>	Mobile Acute Care Team	<b>PFS</b>	physician fee schedule
<b>MAO</b>	Medicare Advantage organization	<b>PHE</b>	public health emergency
<b>MA-PD</b>	Medicare Advantage-Prescription Drug [plan]	<b>PLI</b>	professional liability insurance
<b>MCC</b>	major complication or comorbidity	<b>PMA</b>	premarket approval
<b>MD</b>	doctor of medicine	<b>PMN</b>	premarket notification
<b>MDS</b>	Minimum Data Set	<b>POS</b>	point of sale
<b>MedPAC</b>	Medicare Payment Advisory Commission	<b>PPI</b>	Producer Price Index
<b>MedPAR</b>	Medicare Provider Analysis and Review	<b>PPI</b>	Physician Practice Expense Information
<b>MEI</b>	Medicare Economic Index	<b>PPO</b>	preferred provider organization
<b>MGH</b>	Massachusetts General Hospital	<b>PPRC</b>	Physician Payment Review Commission
<b>MIPS</b>	Merit-based Incentive Payment System	<b>PPS</b>	prospective payment system
<b>ML</b>	machine learning	<b>QIDP</b>	qualified infectious disease product
<b>MMSEA</b>	Medicare, Medicaid and SCHIP Extension Act of 2009	<b>QMRCP</b>	quantitative magnetic resonance cholangiopancreatography
<b>MR</b>	magnetic resonance	<b>RBRVS</b>	Resource-Based Relative Value Scale
<b>MRI</b>	magnetic resonance imaging	<b>RCD</b>	Review Choice Demonstration
<b>MSA</b>	Medicare Savings Account	<b>RN</b>	registered nurse
<b>MS-DRG</b>	Medicare severity-diagnosis related group	<b>RSNAT</b>	repetitive, scheduled nonemergent ambulance transport
<b>MSPB</b>	Medicare spending per beneficiary	<b>RUC</b>	Relative Value Scale Update Committee
<b>NCD</b>	national coverage determination	<b>RVU</b>	relative value unit
<b>NCQA</b>	National Committee for Quality Assurance	<b>SAS</b>	Service Annual Survey
<b>NDA</b>	new drug application	<b>SaaS</b>	software as a service
<b>NPI</b>	national provider identifier	<b>SaMD</b>	software as a medical device
<b>NTAP</b>	new technology add-on payment	<b>SGR</b>	sustainable growth rate
<b>OACT</b>	Office of the Actuary	<b>SiMD</b>	software in a medical device
<b>OASIS</b>	Outcome and Assessment Information Set	<b>SLP</b>	speech language pathology
		<b>SNF</b>	skilled nursing facility

**TKA**

total knee arthroplasty

**TPNIES**

transitional add-on payment adjustment for new and innovative equipment and supplies

**UTI**

urinary tract infection

**VBID**

value-based insurance design

**VPS**

volume performance standard



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## **More about MedPAC**

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## Commissioners' biographies

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**Lynn Barr, M.P.H.**, is recognized as an influential leader in the movement to transform and improve our nation's rural and safety-net health care systems. As founder of Caravan Health, Ms. Barr led the development and implementation of nationwide programs that resulted in better patient care and helped health care providers achieve sustainable financial success. Caravan Health, now CVS ACO, was established to support safety-net providers interested in value-based payment models under population health programs such as accountable care organizations (ACOs). With a background as a chief information officer for a rural hospital, she recruited and organized small rural hospitals across three states to form the first National Rural ACO to help rural providers succeed in value-based payment. Ms. Barr formed Caravan Health to manage the ACO's services and was awarded a \$30 million Transformation of Clinical Practice Initiative grant from CMS to provide similar services to rural providers and small practices who were not yet ready to participate in value-based payments. In March 2022, Ms. Barr sold Caravan to Signify, a division of CVS Health, and created the Barr-Campbell Family Foundation, which focuses on rural health, the underserved, education, and the environment. Prior to forming Caravan Health, Ms. Barr shepherded 4 start-up companies and 12 medical inventions through the Food and Drug Administration and worldwide markets. While earning her master's degree in public health from the University of California, Berkeley, she led the group purchasing of electronic medical records for California's rural hospitals, including individual needs assessments, vendor selection, negotiations, contracting assistance, and financing.

**Lawrence Casalino, M.D., Ph.D.**, is emeritus professor of public health at Weill Cornell Medical College, where he served as the Livingston Farrand Professor of Public Health and chief of the Division of Health Policy and Economics in the Department of Population Health Sciences. His research focuses on the intended and unintended effects of public and private policies on the types of provider organizations that exist, on the processes they use to provide care, on the quality and cost of care, and on the impact of policies and organizational processes on socioeconomic and

racial/ethnic disparities. Dr. Casalino has served as senior advisor to the director of the U.S. Agency for Healthcare Research and Quality, as chair of the Academy Health Annual Research Meeting, as a member of the Panel of Health Advisors for the Congressional Budget Office, on the FAIR Health board of directors, and on many other national committees, technical advisory panels, and nonprofit boards. Prior to academia, Dr. Casalino worked full time as a primary care physician for 20 years and, prior to that, as a community organizer.

**Michael E. Chernew, Ph.D.**, is the Leonard D. Schaeffer Professor of Health Care Policy and the director of the Healthcare Markets and Regulation Lab in the Department of Health Care Policy at Harvard Medical School. Dr. Chernew's research examines several areas related to improving the health care system, including studies of novel benefit designs, Medicare Advantage, alternative payment models, low-value care, and the causes and consequences of rising health care spending. He is also a member of the Congressional Budget Office's Panel of Health Advisors and vice chair of the Massachusetts Health Connector Board. Dr. Chernew is a member of the National Academy of Sciences, a research associate at the National Bureau of Economic Research, and a MITRE fellow. He is currently a coeditor of the *American Journal of Managed Care*. He has served on a number of CMS technical advisory panels reviewing the assumptions used by Medicare actuaries to assess the financial status of the Medicare trust funds. Dr. Chernew previously served on the Commission from 2008 to 2014 and was vice chair from 2012 to 2014. He earned his undergraduate degree from the University of Pennsylvania and his Ph.D. in economics from Stanford University.

**Robert A. Cherry, M.D., M.S.**, is chief medical and quality officer at UCLA Health in Los Angeles, CA. Dr. Cherry has extensive experience in quality and safety improvements and value-based care within health systems located in different parts of the U.S. He has coordinated innovative analytical methods to increase clinical quality of care, improve patient experience, and provide value to patients. He also has served on the board of many organizations, including the

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**Cheryl L. Damberg, Ph.D.**, is director of the RAND Center of Excellence on Health System Performance, distinguished chair in health care payment policy, and a principal senior economist at the RAND Corporation in Santa Monica, CA. Her research explores the impact of strategies to drive cost and quality improvements in health care. She also studies how providers are redesigning health care delivery in response to new payment models and increased accountability for cost and quality and the effects of health care consolidation on health care spending and quality performance. Her work has focused on improving the design of value-based payment systems to address disparities and improve health equity. Dr. Damberg is an international expert in value-based payment reforms and has advised the Congress and federal agencies on these and other issues. She earned her Ph.D. in public policy from the Pardee RAND Graduate School of Public Policy Studies and a master of public health degree from the University of Michigan.

**Stacie B. Dusetzina, Ph.D.**, is a professor of health policy and an Ingram Professor of Cancer Research at Vanderbilt University Medical Center in Nashville, TN. She has conducted extensive research on topics related to Medicare coverage for prescription drugs, including studies focused on drug pricing, Medicare Part D benefit design, and Medicare formulary coverage policies. Dr. Dusetzina has served as a committee member for the National Academies of Sciences, Engineering, and Medicine on the topic “Ensuring Patient Access to Affordable Drug Therapies” and as an expert witness for the Senate Special Committee on Aging. She received her Ph.D. in pharmaceutical sciences from the Eshelman School of Pharmacy at the University of North Carolina at Chapel Hill and postdoctoral training in the Department of Health Care Policy at Harvard Medical School.

**Jonathan Jaffery, M.D., M.S., M.M.M.**, is chief health care officer at the Association of American Medical Colleges (AAMC), where he leads efforts to improve

health care access, quality, equity, and affordability and to advance clinical leadership and effectiveness. Throughout his career, he has worked to align innovative care models that improve the health of populations with payment models that support that work. Previously, Dr. Jaffery was on the faculty in the Division of Nephrology within the Department of Medicine of the University of Wisconsin-Madison (UW). Dr. Jaffery’s prior roles include serving as chief population health officer at UW Health and president of the UW Health ACO, where he provided strategic leadership for UW Health’s transformation toward value-based care. From 2008 to 2010, he served as the chief medical officer for the state of Wisconsin’s Medicaid program. As a 2010–2011 Robert Wood Johnson Foundation Health Policy Fellow, Dr. Jaffery worked for the Senate Committee on Finance on a variety of issues relating to delivery-system and payment reform. A board-certified nephrologist, Dr. Jaffery is a member of numerous professional organizations, including the American Association for Physician Leadership and the American Society of Nephrology, and he is a fellow of the American College of Physicians. A graduate of the University of Michigan and the Ohio State University College of Medicine, Dr. Jaffery has graduate degrees from the UW School of Medicine and Public Health and the University of Southern California Marshall School of Business.

**Kenny Kan, F.S.A., C.P.A., C.F.A., M.A.A.A.**, is vice president and chief actuary of Horizon Blue Cross Blue Shield (BCBS) of New Jersey in Newark, NJ, where he recently helped launch a Medicare Advantage plan. Prior to joining Horizon BCBS, Mr. Kan was chief actuary for two other large health plans, where he oversaw efforts to assess payment and delivery innovations designed to improve quality and reduce cost. He also served for six years on the Maryland Health Care Commission. He is a fellow of the Society of Actuaries and a member of the American Academy of Actuaries. Mr. Kan earned his master’s degree in professional accounting from the University of Texas.

**R. Tamara Konetzka, Ph.D.**, is the Louis Block Professor of Public Health Sciences at the University of Chicago, with a secondary appointment in the Department of Medicine, Section of Geriatrics and Palliative Medicine. She is also the codirector of the Health Policy Data Lab and an associate director of the Center for Chronic Disease Research and Policy

at the University of Chicago, and she serves as the editor-in-chief of *Medical Care Research and Review*. Her research addresses the incentives created by health care payment policy on the quality of post-acute and long-term care, including the effects of public reporting of quality and the costs and benefits of home-based care. She received her Ph.D. in health economics from the University of North Carolina at Chapel Hill and completed a postdoctoral fellowship at the University of Pennsylvania and the Philadelphia VA.

**Brian Miller, M.D., M.B.A., M.P.H.**, is an assistant professor of medicine at Johns Hopkins University and a nonresident fellow at the American Enterprise Institute. His research focuses on the Medicare Advantage program, the Food and Drug Administration's (FDA's) regulation of pharmaceutical products and medical devices, and competition in health care markets. His research leverages his previous experience at CMS, the FDA, and the Federal Trade Commission. A practicing hospital medicine physician, Dr. Miller earned his medical degree from Northwestern University, a master of public health degree from Johns Hopkins University, and a master's degree in business administration from the University of North Carolina at Chapel Hill.

**Amol Navathe, M.D., Ph.D.**, is founding director of The Parity Center, codirector of the Healthcare Transformation Institute, and associate director of the Center for Health Incentives and Behavioral Economics in the Department of Medical Ethics and Health Policy at the University of Pennsylvania's Perelman School of Medicine. He is also an associate professor at Penn and staff physician at the Corporal Michael J. Crescenz VA Medical Center in Philadelphia, PA. Dr. Navathe's research group designs, tests, and evaluates payment models for public and private payers, including national insurers and state Blue Cross Blue Shield plans. His work led to the founding of Embedded Healthcare, a health care technology company that accelerates high-value practice using behavioral economics. Dr. Navathe received his M.D. from the University of Pennsylvania and his Ph.D. in health care management and economics from the Wharton School at the University of Pennsylvania.

**Gregory P. Poulsen, M.B.A.**, is senior vice president at Intermountain Healthcare, an integrated health system based in Salt Lake City, UT. He has vast

experience in strategy and policy for providing higher-quality health care while reducing health care costs. In addition, Mr. Poulsen was a key architect of many innovations at Intermountain Healthcare, including offering a Medicare Advantage plan and assisting with the transition to a value-based integrated health care delivery system. Mr. Poulsen was a founding member of the Commonwealth Fund Commission on a High Performance Health System, has been a board and executive committee member of the American Hospital Association, and a trustee for the American Board of Internal Medicine Foundation. He is also a national guest scholar at Stanford University. He has also been a member of several other value-focused boards and task forces. He earned his master of business administration degree from Brigham Young University.

**Betty Rambur, Ph.D., R.N., F.A.A.N.**, is the Routhier Endowed Chair for Practice and professor of nursing in the College of Nursing at the University of Rhode Island, where she has conducted research on such topics as alternative payment models, telehealth nursing, and value-based workforce redesigns. Before joining the University of Rhode Island, Dr. Rambur served on the Green Mountain Care Board—a five-member regulatory, innovation, and evaluation board that has broad responsibility for cost containment and oversight of Vermont's transition to post-fee-for-service provider reimbursement. Previously, Dr. Rambur served as dean of the College of Nursing and Health Sciences at the University of Vermont and was chairperson for the North Dakota Health Task Force, a statewide health care financing reform initiative. Dr. Rambur received her Ph.D. in nursing from Rush University.

**Wayne J. Riley, M.D., M.P.H., M.B.A.**, is president of the State University of New York (SUNY) Downstate Health Sciences University, tenured professor of internal medicine and of health policy and management, and the chair of the board of the New York Academy of Medicine. Immediately prior to joining Downstate, Dr. Riley served as clinical professor of medicine and adjunct professor of health care management at Vanderbilt University and as the 10th president and chief executive officer of Meharry Medical College. He began his career at Baylor College of Medicine, where he completed residency training in internal medicine and held several key administrative posts, including vice president and vice dean for health affairs and

governmental relations, assistant dean for education, and assistant chief of medicine at Ben Taub Hospital—a leading public safety-net teaching hospital. Dr. Riley is a member of the National Academy of Medicine (NAM) of the National Academy of Sciences, where he served as vice chair and chair of the NAM Section on the Administration of Health Services, Education and Research. He is also president emeritus of the American College of Physicians, the nation's largest medical specialty society representing internal medicine, and the president of the Society of Medical Administrators, an organization of 50 of the nation's leading physician-executives. He is an independent director of HCA Healthcare Inc., Compass Pathways PLC, and HeartFlow Group Inc. Dr. Riley earned a B.A. in anthropology from Yale University, an M.P.H. in health systems management from the Tulane University School of Public Health and Tropical Medicine, an M.D. from Morehouse School of Medicine, and an M.B.A. from Rice University's Jesse H. Jones Graduate School of Business.

**Jaewon Ryu, M.D., J.D.,** is CEO of Risant Health, a nonprofit organization created to expand and accelerate the adoption and success of value-based care in diverse multipayer and multiprovider health systems across the country. Immediately prior to joining Risant, Dr. Ryu was president and CEO of Geisinger, the integrated health system headquartered in Danville, PA, that was Risant's inaugural member organization. He previously served as president of integrated care delivery at Humana and held leadership roles at the University of Illinois Hospital & Health Sciences System and at Kaiser Permanente. Dr. Ryu received his undergraduate education at Yale University and his medical and law degrees from the University of Chicago, after which he completed his residency training in emergency medicine at Harbor-UCLA Medical Center.

**Scott Sarran, M.D., M.B.A.,** is the founding chief medical officer of Harmonic Health, a start-up company focused solely on revolutionizing the dementia care journey for patients, caregivers, and providers. Dr. Sarran is also the principal at Triple Aim Geriatrics, where he provides consultative services to managed care entities (payers and providers) to improve systems of care and outcomes for Medicare and dual-eligible beneficiaries. His leadership experiences include chief medical officer roles across the payer sector—both large (Blue Cross Blue Shield IL, Health Care Service Corporation) and small (MoreCare IL, Fidelis Senior Care)—and provider sector (Advocate Health Care, University of Chicago, Cook County Health). In all these roles, his focus has been the intersection of improving care for high-risk patients while enabling win-win payer-provider partnerships.

**Gina Upchurch, R.Ph., M.P.H.,** is the founder and executive director of Senior PharmAssist, a nonprofit organization that helps older adults obtain and manage medication and provides Medicare benefits counseling and tailored community referrals in Durham, NC. Ms. Upchurch is a registered pharmacist and has participated in various committees at the state and national levels, such as the American Geriatrics Society Public Policy Committee and several working groups for the North Carolina Institute of Medicine. She received her bachelor of science degree in pharmacy and her master of public health degree from the University of North Carolina at Chapel Hill, where she also completed her geriatric pharmacy practice residency and still holds adjunct positions. In 2001, she was named a Robert Wood Johnson Community Health Leader for her patient advocacy and health literacy efforts. Ms. Upchurch began her career as a science teacher with the U.S. Peace Corps in Botswana.

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