

CHAPTER 10

**Mandated report:
Evaluation of a prototype
design for a post-acute care
prospective payment system**

R E C O M M E N D A T I O N

- 10** The Commission forwards to the Congress the report on a unified post-acute care payment system mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014.

COMMISSIONER VOTES: YES 17 • NO 0 • NOT VOTING 0 • ABSENT 0

Mandated report: Evaluation of a prototype design for a post-acute care prospective payment system

Chapter summary

The Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014 mandated three reports on the design of a uniform prospective payment system (PPS) for post-acute care (PAC) providers—skilled nursing facilities (SNFs), home health agencies (HHAs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs). The first report, completed by the Commission, was submitted to the Congress in 2016. The second report, prepared by the Secretary of Health and Human Services (referred to here as the Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation (CMS/ASPE) report), was issued in July 2022. The Commission is required to submit the third report by June 30, 2023. This chapter meets this final requirement.

Two features of payments for PAC triggered interest in a uniform PPS. Despite the overlap in some of the patients treated in the four settings, Medicare uses separate payment systems that can result in different payments for clinically similar patients. Further, when the IMPACT Act was enacted, the payment systems used to pay SNFs and HHAs included incentives for providers to furnish low-value care (such as unnecessary therapy), while the LTCH PPS allowed LTCHs to admit low-acuity patients who might have received appropriate care in other, less costly settings. Since then, CMS has overhauled the SNF and HHA PPSs and implemented

In this chapter

- A PAC PPS is feasible using existing data and would establish reasonably accurate payments
- CMS/ASPE prototype would establish accurate payments for broad clinical groups but would not align payments across settings for clinically similar cases
- A PAC PPS would redistribute payments across providers
- Necessary companion policies to accompany the implementation of a PAC PPS
- Key takeaways
- Appendix: Methodologies used to model a PAC PPS

a dual-rate structure for LTCHs that reduces payments for patients who do not meet specific criteria.

Our previous reports confirmed that a PAC PPS was feasible and identified the basic design features that would help keep payments under a PAC PPS aligned with the cost of care. These include the PAC stay—not an episode of PAC—as the unit of service, a common risk adjustment across provider types, and short-stay and high-cost outlier policies. In addition, because HHAs have considerably lower costs than institutional PAC providers, an adjuster for home health stays would be needed to guard against overpayments for HHA stays and underpayments for institutional PAC stays. Our analyses indicated that there would be no need for a payment adjustment based on the rural location of the provider, nor would adjustments be needed for beneficiaries who had a preceding hospital stay or for those who have low incomes.

In our earlier work evaluating features of a PAC PPS, we excluded functional status as a risk adjuster because providers have an incentive to record this information in ways that raise payments rather than capture patients' actual clinical care needs. However, for this report, we compared the results of models predicting the cost of stay that included and excluded functional status information in the risk adjustment. Our findings raised concerns about the accuracy of payments for the highest- and lowest-functioning patients under a PAC PPS model that excluded functional status. Therefore, a PAC PPS would likely need to include some measure of functional status. CMS would need to pursue strategies to address the inevitable bias in the recording of this information, such as monitoring and auditing the data, revising the recording of functional ability for “activities not attempted,” collecting the information at discharge from an immediately preceding hospital stay (if any), and gathering patient-reported outcomes. In addition, CMS would need to make regular across-the-board adjustments to payments to address the effects of upcoding, as the agency does when setting payments for acute care hospitals and Medicare Advantage plans.

While the development of a case-mix system was beyond the resources of the Commission, we evaluated key features of a PAC PPS design. The prototype developed by CMS/ASPE is consistent with most of the design features identified by the Commission and would provide a good foundation for a PAC PPS. However, the CMS/ASPE prototype includes adjusters that account for cost differences across the four settings. Though an adjuster for HHA stays would be needed to account for their very low costs (as noted

above), including other setting adjusters would incorporate into the PAC PPS potentially unwarranted existing cost differences among the PAC settings, such as practice patterns that reflect the underlying incentives of the current PPSs rather than the care needs of the beneficiary. Including other setting adjusters would therefore undermine the goal of payment alignment across settings for clinically similar cases. That said, including setting adjusters in an initial design may be a reasonable transition policy to give providers time to adjust to a unified PPS. The Commission maintains that each adjuster in a payment system should have a conceptual relationship to the cost of care that is supported by evidence. Deviations from uniform design elements should be limited to those that counter systematic over- and underpayment that could threaten beneficiary access.

The impacts of a PAC PPS on providers' payments would depend on the details of the design but would likely redistribute payments across providers. For example, if payments were set at the average predicted cost across all settings and stays, as in the Commission's PAC PPS design, payments would shift from high-cost to low-cost settings and providers (although the shift from institutional PAC providers to HHAs would be curtailed by the home health setting adjuster). The impacts of the CMS/ASPE prototype are different for LTCHs because under that design, the dual-rate payment policy would no longer lower payments for the low-acuity cases.

A transition to a PAC PPS would give providers time to adjust their costs to anticipated changes in their payments and regulatory requirements. However, managing multiple payment systems would be costly for CMS and could be confusing for providers. And while it is not the purpose of a PAC PPS, policymakers should consider lowering the level of aggregate payments to align them with the cost of care (assuming the Congress has not already done so). Reductions would be consistent with standing Commission recommendations to lower the base payment rates for HHAs, SNFs, and IRFs.

CMS would need the authority to undertake routine maintenance of the PAC PPS, if it is implemented, to reflect changes in costs and practice patterns. This upkeep should include regular revisions to the case-mix classification system (the groupings and their relative weights), rebasing payments so that payments remain aligned with the cost of care, and, as noted above, adjustments to address upcoding. Monitoring provider responses to the new payment system would help CMS identify potential refinements to the design that would help ensure quality of care and beneficiary access.

While designing a payment system is relatively straightforward, developing and implementing the companion policies that would need to accompany a PAC PPS would not be. Medicare's benefit and coverage rules and cost-sharing requirements would need to be aligned across settings so that beneficiaries do not make treatment decisions based on financial considerations. Conditions (or requirements) of participation for providers would need to be aligned so that providers face the same costs associated with meeting them. (Given the noninstitutional nature of home health care, HHAs would likely need somewhat different regulatory requirements.) A new PAC value incentive program also would be necessary to help counter the incentives inherent in any PPS for providers to stint on needed care or generate unnecessary volume. Developing these companion policies could take many years; implementing them would be complex and possibly controversial.

The changes that CMS has implemented to the SNF, HHA, and LTCH PPSs in recent years have helped to reduce the incentives these providers had to furnish low-value care (including unnecessary rehabilitation therapy and paying LTCH rates to cases that do not require that level of service). Given the considerable resources that would be required to develop and implement a PAC PPS, policymakers may wish to look for opportunities to adopt smaller-scale site-neutral policies that could address some of the overlap of similar patients in different settings. ■

Despite the overlap in patients treated in different post-acute care (PAC) settings, Medicare fee-for-service (FFS) uses separate prospective payment systems (PPSs) for each setting, which can result in considerably different payments for similar patients. Section 2(b)(1) of the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014 mandated a series of reports on the feasibility of a unified PAC payment system that sets payments for all PAC stays based on characteristics rather than on the setting (see text box on the mandate, pp. 420–421). First, the Commission was required to submit a report that identified the basic design features that would help keep payments under a PAC PPS aligned with the cost of care and consider the effects of moving to such a system; the Commission submitted this report to the Congress in June 2016. Next, the Secretary of Health and Human Services (HHS) was required to develop a prototype design; the Centers for Medicare & Medicaid Services and the Assistant Secretary for Planning and Evaluation (CMS/ASPE) in the Department of HHS submitted this report in July 2022. Finally, the Commission is required to submit by June 30, 2023, a third report, with recommendations, reacting to CMS/ASPE's prototype design. This chapter meets the IMPACT Act's requirement for the third report.

Background

PAC providers—skilled nursing facilities (SNFs), home health agencies (HHAs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs)—offer Medicare beneficiaries a wide array of services, ranging from recuperation and rehabilitation services to hospital-level services. The Commission and others have documented the degree of overlap in where beneficiaries receive their PAC, which varies by clinical condition (Gage 2012, Medicare Payment Advisory Commission 2017a, Wissoker and Garrett 2019). Several factors contribute to the overlap in treatment settings: The supply and use of PAC vary across the country; there are no clear criteria identifying which patients need PAC (and how much); and there is a lack of evidence-based guidelines to direct beneficiaries to the setting with the best outcomes.¹ However, some of the overlap could be due to unobserved patient characteristics that result in patients appearing

to be more similar than they are. Reflecting these ambiguities, Medicare per capita spending for PAC varies geographically more than for any other type of service (Institute of Medicine 2013, Medicare Payment Advisory Commission 2017b).

Why was there interest in a PAC PPS?

Two concerns about PAC payment policies sparked interest in a unified PPS. First, despite the overlap in patients across the four settings, Medicare uses separate PPSs, which can result in considerably different payments for clinically similar patients. Establishing payments that are based on patient clinical characteristics (and not the setting where they were treated) would be consistent with other site-neutral policies that the Commission has supported.

Second, when the IMPACT Act was enacted, the payment systems that were used to pay SNFs and HHAs included incentives for providers to furnish low-value care (such as unnecessary rehabilitation therapy), and the LTCH PPS encouraged LTCHs to admit low-acuity patients who might have received appropriate care in other, less costly settings. Furthermore, the PPSs for HHAs and SNFs resulted in inequitable payments across different types of patients within these settings. SNFs and HHAs had an incentive to admit beneficiaries who would predominantly receive rehabilitation services because such cases were more profitable than medically complex cases.² Several years earlier, the Commission had recommended that both systems be revised (Medicare Payment Advisory Commission 2011, Medicare Payment Advisory Commission 2008).

To begin to address these concerns, the IMPACT Act required that the Commission and HHS Secretary develop prototype designs that would establish payments based on patient characteristics—not the setting where beneficiaries received their care. Under such a payment system, providers treating similar patients would be paid similar rates (with the home health care caveat).

Changes in the PAC landscape since the IMPACT Act

The PAC landscape has changed considerably since the IMPACT Act was enacted. First, the payment systems for three settings (HHA, SNF, and LTCH) have been revised to correct distortions.^{3,4,5} These changes

Mandate to study a unified payment system for post-acute care

Section 2(b) of the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014 requires three reports on a unified payment system for post-acute care (defined as care provided by SNFs, HHAs, IRFs, and LTCHs).

(b) STUDIES OF ALTERNATIVE PAC PAYMENT MODELS

(1) MEDPAC.—Using data from the Post-Acute Payment Reform Demonstration authorized under section 5008 of the Deficit Reduction Act of 2005 (Public Law 109–171) or other data, as available, not later than June 30, 2016, the Medicare Payment Advisory Commission shall submit to Congress a report that evaluates and recommends features of PAC payment systems (as defined in section 1899B(a)(2)(D) of the Social Security Act, as added by subsection (a)) that establish, or a unified post-acute care payment system under title XVIII of the Social Security Act that establishes, payment rates according to characteristics of individuals (such as cognitive ability, functional status, and impairments) instead of according to the post-acute care setting where the Medicare beneficiary involved is treated. To the extent feasible, such report shall consider the impacts of moving from PAC payment systems (as defined in subsection (a)(2)(D) of such section 1899B) in existence as of the

date of the enactment of this Act to new post-acute care payment systems under title XVIII of the Social Security Act.

(2) RECOMMENDATIONS FOR PAC PROSPECTIVE PAYMENT

(A) REPORT BY SECRETARY.—Not later than 2 years after the date by which the Secretary of Health and Human Services has collected 2 years of data on quality measures under subsection (c) of section 1899B, as added by subsection (a), the Secretary shall, in consultation with the Medicare Payment Advisory Commission and appropriate stakeholders, submit to Congress a report, including—

(i) recommendations and a technical prototype, on a post-acute care prospective payment system under title XVIII of the Social Security Act that would—

(l) in lieu of the rates that would otherwise apply under PAC payment systems (as defined in subsection (a)(2)(D) of such section 1899B), base payments under such title, with respect to items and services furnished to an individual by a PAC provider (as defined in subsection (a)(2)(A) of such section), according to individual characteristics (such as cognitive ability,

(continued next page)

altered payments for 95 percent of PAC stays. New payment models for the SNF PPS (the Patient-Driven Payment Model) and the HHA PPS (the Patient-Driven Groupings Model) base payments on patient characteristics, not the amount of therapy, and have reduced the selection biases of the previous designs. The LTCH PPS was revised to pay the higher LTCH PPS rates only for cases that meet certain qualifying

criteria, while paying lower acute care hospital rates for cases that do not, which has resulted in fewer lower-acuity cases in LTCHs (Medicare Payment Advisory Commission 2022). Because these changes are consistent with a unified payment system, they have dampened the impetus for such a system.

A second change resulted from the devastating impact of COVID-19 on beneficiaries and providers;

Mandate to study a unified payment system for post-acute care (cont.)

functional status, and impairments) of such individual instead of the post-acute care setting in which the individual is furnished such items and services;

(II) account for the clinical appropriateness of items and services so furnished and Medicare beneficiary outcomes;

(III) be designed to incorporate (or otherwise account for) standardized patient assessment data under section 1899B; and

(IV) further clinical integration, such as by motivating greater coordination around a single condition or procedure to integrate hospital systems with PAC providers (as so defined).

(ii) recommendations on which Medicare fee-for-service regulations for post-acute care payment systems under title XVIII of the Social Security Act should be altered (such as the skilled nursing facility 3-day stay and inpatient rehabilitation facility 60 percent rule);

(iii) an analysis of the impact of the recommended payment system described in clause (i) on Medicare beneficiary cost-sharing, access to care, and choice of setting;

(iv) a projection of any potential reduction in expenditures under title XVIII of the Social

Security Act that may be attributable to the application of the recommended payment system described in clause (i); and

(v) a review of the value of subsection (d) hospitals (as defined in section 1886(d)(1)(B) of the Social Security Act (42 U.S.C. 1395ww(d)(1)(B)), hospitals described in section 1886(d)(1)(B)(v) of such Act (42 U.S.C. 1395ww(d)(1)(B)(v)), and critical access hospitals described in section 1820(c)(2)(B) of such Act (42 U.S.C. 1395i-4(c)(2)(B)) collecting and reporting to the Secretary standardized patient assessment data with respect to inpatient hospital services furnished by such a hospital or critical access hospital to individuals who are entitled to benefits under part A of title XVIII of such Act or, as appropriate, enrolled for benefits under part B of such title.

(B) REPORT BY MEDPAC.—Not later than the first June 30th following the date on which the report is required under subparagraph (A), the Medicare Payment Advisory Commission shall submit to Congress a report, including recommendations and a technical prototype, on a post-acute care prospective payment system under title XVIII of the Social Security Act that would satisfy the criteria described in subparagraph (A). ■

beneficiaries residing in nursing homes were among the most affected. Given the well-established link between staffing levels and quality in nursing homes (and the industry's poor performance during the early months of the pandemic), the White House issued a statement in February 2022 about the pressing need to improve the safety and quality of care in nursing homes (White House 2022). As part of this effort, CMS plans to propose minimum staffing standards in 2023

(Centers for Medicare & Medicaid Services 2022). Any new requirements would need to be considered in the design of a PAC PPS because they could raise the cost of SNF care and influence the alignment of regulatory requirements.

The coronavirus pandemic also affected whether and where beneficiaries sought PAC, the severity of cases treated, and providers' costs—though some

cost increases are likely to be temporary. The overall share of acute care hospital discharges referred to PAC was unchanged between 2019 and 2020, but for the top conditions for which beneficiaries were referred to PAC, the shares treated in SNFs dropped (as beneficiaries avoided this setting) and the shares going to HHAs rose (as beneficiaries opted to receive care at home instead). Whether some of the apparent substitution will be permanent remains to be seen. The waiving of certain program requirements during the COVID-19 public health emergency (PHE) (such as the “three-hour rule” to qualify for admission to an IRF) also affected where beneficiaries received PAC, though we expect these shifts to be temporary.

A third change is the continued expansion of alternative payment models (APMs), such as accountable care organizations and episode-based bundled payment models. APMs have pursued cost savings in part by encouraging participating entities to shift patients to lower-cost PAC settings (or to eliminate PAC stays altogether) and, in the case of SNF use, to shorten lengths of stay (Agarwal and Werner 2018, Agarwal et al. 2020, Marrufo et al. 2021, McWilliams et al. 2017, Navathe et al. 2020).

A PAC PPS is feasible using existing data and would establish reasonably accurate payments

In a PAC PPS, payments would be based on the predicted cost of a stay. Predicted costs would be accurate if they equaled the actual costs of a stay (see text box on challenges in defining accurate payments). We confirmed that it is possible to establish reasonably accurate payments using patient and stay characteristics with existing data. While the development of a case-mix system was beyond the Commission’s resources, our modeling results indicated key design features of a PAC PPS that would be needed to accurately predict the cost of a stay. These features include using the PAC stay as the unit of service, a common risk adjustment across provider types, and short-stay and high-cost outlier policies. In addition, because HHAs have considerably lower costs than institutional PAC providers, an adjuster for home health stays would be needed to guard against overpayments

for HHA stays and underpayments for institutional PAC stays. Our analyses indicated that there would be no need for a payment adjustment based on the rural location of the provider, nor would adjustments be needed for beneficiaries who had a preceding hospital stay or for beneficiaries who have low incomes.

Basic design features of a PAC PPS

Our previous reports identified many basic features of a PPS design that would help keep payments aligned with the cost of care (Medicare Payment Advisory Commission 2019, Medicare Payment Advisory Commission 2018, Medicare Payment Advisory Commission 2016). We did not reevaluate the need for the following features:

- a stay (or a 30-day period for home health care) as the unit of service;
- an adjuster for home health stays;⁶
- no setting adjusters for SNF, IRF, and LTCH (although adjusters would improve the accuracy of payments, they would undermine the intent of a uniform design);
- a common risk adjustment;
- short-stay and high-cost outlier policies (see Appendix 10-A, p. 445, for a description of the illustrative outlier policies we modeled);
- discounted payments for follow-on HHA stays; and
- no adjuster for the presence of a teaching program.

In our prior reports, we excluded functional status as a risk adjuster because when payments are tied to it, providers have incentive to record this information in ways that raise payments rather than capture patients’ actual clinical care needs (Medicare Payment Advisory Commission 2016). Based on subsequent analyses, we concluded that reporting of this information was biased and needed to be improved (Medicare Payment Advisory Commission 2019). Yet functional status is an important predictor of patient needs (Urban Institute 2021). This year, we compared the results of models predicting the cost of stays that included and excluded functional status information in the risk adjustment. The model excluding functional status resulted in ratios of predicted to actual costs that were below the actual

Challenges in defining accurate payments

Ideally, a post-acute care (PAC) prospective payment system (PPS) would base payments on the cost of furnishing appropriate care by efficient providers. Payments based on providers' current costs are unlikely to be efficient or appropriate because the current payment systems do not reward either. (These costs also reflect current coverage rules and program requirements for participating in the program that differ by setting (see p. 443).) Further, beneficiaries base their decisions on where to receive their PAC on a variety of factors, many of which have little to do with efficiency or appropriateness of care. These factors include patient and family preferences, location, whether the beneficiary has supplemental insurance coverage, presence of a caregiver at home, and bed availability. The lack of evidence-based guidelines means that clinicians and beneficiaries may have relatively little information about where and how much care would result in the best outcomes. In addition, the current cost of care may reflect inequitable service delivery because beneficiaries at high social risk may disproportionately use lower-cost (and lower-quality) providers. So, while we know that current practice patterns do not necessarily reflect the cost of efficient and

appropriate PAC, we do not know what the patterns of care (and providers' costs) should be.

While PAC PPS payments could be based on the costs of the lowest-cost setting treating a certain type of patient, we decided against this approach. Because home health care is provided intermittently in a beneficiary's home, home health care is the lowest-cost PAC setting, but it is not appropriate for beneficiaries who are too sick or frail to be managed at home. Other beneficiaries who otherwise could go home do not have the necessary support to do so. Still other beneficiaries require specialized services, such as ventilator care, that in some markets are provided only in certain settings.

Given the lack of clarity about the appropriate mix of PAC services, we based PAC PPS payments on the current mix of settings, services, and costs. This approach implicitly accepts the existing mix of settings and differences in service provision in the initial establishment of PAC PPS payments. Over time, we expect differences in practice patterns and costs to narrow and sites of care to shift. Regular updating and recalibration of the PAC PPS would keep payments aligned with the cost of care. ■

costs for the lowest-functioning patients' stays (the ratio of predicted to actual costs was 0.92) and well above actual costs for the highest-functioning patients' stays (the ratio was 1.18).⁷ Such differences would create incentives for providers to avoid low-functioning patients (since they would be less profitable) and to admit high-functioning ones (since they would be more profitable). When functional status was included in the risk adjustment, the predictions were comparable for high- and low-functioning patients and very close to actual costs (the ratios were 0.99 and 1.01, respectively). Based on these findings, we included functional status as a risk adjuster in the model results reported below. CMS could pursue multiple strategies to address the

inevitable bias in the recording of this information (see text box on strategies to dampen incentives to inaccurately record patients' functional status, p. 424).

The MedPAC model estimated PAC PPS payments using two models (with identical risk adjusters in each): one for routine and therapy services and another for nontherapy ancillary (NTA) services. Two models were constructed because NTA services are not included in the home health care benefit. Estimated PAC PPS payments equaled the sum of the two predicted payments. Our estimates of costs per stay, current payments, and payments under a PAC PPS assume current coverage and cost-sharing rules.

Strategies to dampen providers' incentive to inaccurately record patients' functional status

Functional assessment data are important for establishing accurate payments. Ideally, we would have accurate, unbiased information about beneficiaries' function to predict their resource needs. However, the recording of functional status includes an element of judgment. When this information affects payments or the calculation of certain quality metrics, providers have an incentive to report the information in ways that raise payments and appear to improve performance.⁸ We have documented the strong and systematic bias in the reporting of this information (Medicare Payment Advisory Commission 2023, Medicare Payment Advisory Commission 2019).

Strategies to improve this information include monitoring and auditing of these data, collecting this information at discharge from a preceding hospital stay (for beneficiaries with a prior hospital stay), and gathering patient-reported outcomes (Medicare Payment Advisory Commission 2019). CMS should also make regular across-the-board adjustments to payments, as is done for hospital and Medicare Advantage payments, to address the effects of upcoding. Although these adjustments would not improve the quality of the information, they would

reduce the unnecessary payments made by the program.

In addition, CMS should adopt a strategy to dampen providers' incentives to record patients' functional status at admission as lower than their actual clinical care needs. One option is to change the way "activities not attempted" (or ANA) are assigned to a level of functioning.⁹ CMS currently reassigns most ANA codes to the most dependent level (which would contribute to assigning the stay to a higher case-mix group).¹⁰ In its report on a post-acute care prospective payment system, CMS and the Assistant Secretary for Planning and Evaluation analyzed patient assessment items that were recorded as ANA in relation to other items that were not recorded as ANA in order to more appropriately recode ANA codes (RTI International 2022). Of the nine items examined, ANA codes for seven items were recoded to a higher level of functioning rather than as "most dependent." While ANA codes are clinically appropriate for some cases, the Commission is concerned that the codes can be used to boost payments. Revising the assignment of ANA codes to more suitable (and higher) levels of function could dampen the incentive to use them. ■

MedPAC modeling confirmed that a PAC PPS would establish accurate payments using currently available data

The objective of a PAC PPS is to pay the same rate for the same case type and care needs regardless of setting. A design that perfectly matches the new payments to current stay costs by setting would simply replicate the large differences in current payments across settings and undermine the purpose of a PAC PPS. Therefore, the goal of our modeling was to predict costs by patient and stay categories rather than to account for the variation in costs by setting.

Using claims, cost reports, and patient assessment data from payment year 2019, we predicted the cost of a PAC stay—a discharge for institutional settings and

a 30-day period for home health care—using patient and stay characteristics. (The Commission's approach is summarized in the appendix on methodology at the end of the chapter.) We included the following characteristics in our risk adjustment: the primary reason for treatment, comorbidities, functional status, cognitive status, measures of frailty, patient age, incontinence, difficulty swallowing, presence of severe wounds, disability status, severity of illness, risk score, vision impairment, the length of stay in an intensive care unit or coronary care unit during a prior hospital stay (if there was one), and an indicator for stays treated in an HHA.

Our modeling confirmed that a PAC PPS would establish accurate payments using existing data. (Table 10-1 shows high-volume clinical groups and patient

**TABLE
10-1**

Updated MedPAC modeling confirms that a PAC PPS would establish accurate payments across patient groups using currently available data

Group	Ratio of predicted to actual cost	Share of stays
All stays	1.00	100%
Orthopedic medical (MDC 8)	1.00	14
Cardiovascular medical (MDC 5)	1.00	13
Serious mental illness	1.00	10
Orthopedic surgical (MDC 8)	1.00	10
Other neurology medical (MDC 1)	1.00	9
Respiratory medical (MDC 4)	1.01	8
Kidney and urinary medical (MDC 11)	1.00	7
GI and hepatobiliary	1.00	6
Infection medical (MDC 18)	1.00	5
Trauma	0.95	4
Severe wound	0.98	4
Digestive medical (MDC 6)	1.00	3
Cardiovascular surgical (MDC 5)	1.01	3
Endocrine medical (MDC 10)	0.99	3
Skin medical (MDC 9)	0.99	3
Stroke	1.00	2
Ventilator care during PAC stay	1.00	<1
Other patient characteristics		
Least frail	1.01	16
Most frail	1.00	34
Low function	0.99	23
High function	1.01	26
Cognitively impaired (coma or dementia)	1.00	20
Severely ill (severity of illness level 4)	1.00	6
5+ body-system diagnoses	1.00	10
Chronically critically ill	0.99	4
Highest acuity (severely ill and CCI)	0.98	2
ESRD	0.99	5
Disabled	1.00	24
Dual eligible/LIS	0.99	34
Not dual eligible/LIS	1.00	66
Very old (85+)	1.00	31

Note: PAC (post-acute care), PPS (prospective payment system), MDC (major diagnostic category), GI (gastrointestinal), CCI (chronically critically ill), ESRD (end-stage renal disease), LIS (low-income subsidy). Stays without a prior hospitalization were assigned to an MDC based on diagnoses from the PAC claim. "Serious mental illness" includes beneficiaries with schizophrenia, bipolar disorder, or severe depression. "Least frail" and "most frail" include patients in approximately the bottom and top quartile, respectively, of the distribution of scores assigned using the JEN frailty index. "Low function" and "high function" include patients in the bottom and top quartile, respectively, of the distribution of function scores (see Appendix 10-A for more on methodology). "Severely ill" includes those with a level 4 severity of illness (the sickest), calculated using the all-patient refined-diagnosis related groups, and excludes patients treated in home health agencies. "Chronically critically ill" includes patients who spent eight or more days in the intensive care or coronary care unit during the preceding hospital stay or were on a ventilator during the PAC stay. "Highest acuity" includes patients who were severely ill and CCI. The shares sum to more than 100 percent because a stay can have multiple characteristics. For example, a stay for a very old, most frail beneficiary recovering from a stroke is included in the "stroke," "most frail," and "very old" groups. The "dual eligible/LIS" group includes beneficiaries who were fully or partially dually eligible for Medicare and Medicaid or who received the LIS under Part D. The analysis included 3,692,064 stays in 2019.

Source: The Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

groups of particular interest. A ratio of 1.0 indicates that the model correctly predicted the average costs of stays.) Estimates of predicted costs (which would form the basis of PAC PPS payments) accurately reflected the actual costs for most patient groups. Many of the ratios are close to 1.0 because the model predicting the costs includes many of the same patient characteristics (or proxies for them) that are used to define the reporting groups. Of the 50 patient groups we examined, predicted costs were within 2 percent of actual stay costs for all but three groups (patients recovering from trauma, HIV medical, and rehabilitation medical—the latter two groups not shown).¹¹ These results indicate that the final design should include an extensive set of case-mix groups similar to those we modeled. For groups with less accurate predictions, special care should be taken in designing a case-mix system so that payments for them are accurate: Either there should be separate case-mix groups or certain characteristics could be included as comorbidity adjustments.

We paid particular attention to whether the model could predict the costs of the most vulnerable patients. We assessed the model's accuracy for beneficiaries who had low incomes or were frail, cognitively impaired, medically complex, disabled, or very old. We found that a PAC PPS design can be accurate for these special patient populations. Except for beneficiaries with low incomes, measures of these characteristics were included in the risk adjustment and illustrate that including these patient characteristics would establish accurate payments. The results underscore the importance of including these factors (or proxies for them) in a final design.

Given that many types of patients treated in higher-cost settings (IRFs and LTCHs) are also treated in lower-cost settings, we expected the predicted costs (and thus payments) for IRF and LTCH stays to be considerably lower than the actual costs of these stays. Our modeling confirmed these expectations (Table 10-2). The stays in high-cost settings (IRFs and LTCHs) had average predicted costs below their average actual costs, with ratios of 0.85 and 0.70, respectively. The low ratios may also reflect the costs associated with meeting different regulatory and statutory requirements and unmeasured differences in the mixes of patients that IRFs and LTCHs treat (including more complex cases within the patient groups). The average predicted costs for SNF stays were higher

than the average actual costs (the ratio was 1.09), most likely because the model uses a broad array of patient characteristics to predict costs and the average cost includes stays treated in higher-cost settings. The ratio for HHA stays was 1.00 because we included an HHA indicator to account for the substantially lower costs for this noninstitutional care.

Decreasing payments for stays in IRFs and LTCHs for clinically similar patients who are also treated in lower-cost settings would be a desirable outcome of moving from setting-specific PPSs to the site-neutral payments of a PAC PPS.¹² Assuming aligned Medicare conditions of participation (see discussion of uniform Medicare conditions of participation, p. 443), such results would not warrant an adjustment. A PPS should not compensate providers for having high costs that are unrelated to their mix of patients or the costs associated with meeting regulatory requirements.

The model underpredicted the costs for nonprofit and government and hospital-based providers, in aggregate and within each setting. These providers have higher average actual costs than their for-profit and freestanding counterparts. Because the higher costs were not explained by patient characteristics, Medicare policy should not correct such underpredictions.

One metric of the robustness of the model is how well it explains the variation in costs across all stays, using a statistical measure known as R-squared (R^2). Our model explains a relatively high share of the cost variation across stays—an R^2 of 0.54, indicating that the model explains 54 percent of the variability in costs. However, our model achieves much of its accuracy from the inclusion of a home health adjuster. We therefore have highlighted the ratios of predicted-to-actual costs as a gauge of model accuracy.

Some adjusters in the current payment systems would not be needed to keep PAC PPS payments aligned with the cost of care

Design features should help to correctly predict the actual cost of stays because the predicted costs will form the basis of payments. To evaluate what features would align PAC PPS payments with predicted costs, we estimated predicted costs of a stay and then compared them with the actual costs. The model results would tell us which features are needed to align payments with the cost of care. For example, if the

**TABLE
10-2**

MedPAC modeling results of a PAC PPS, by provider and stay characteristics

Group	Actual cost	Predicted cost	Ratio of predicted to actual cost	Share of stays
All	\$5,496	\$5,496	1.00	100%
HHA	1,685	1,685	1.00	71
SNF	13,179	14,301	1.09	23
IRF	18,393	15,621	0.85	5
LTCH	42,647	29,838	0.70	1
For profit	5,160	5,294	1.03	72
Nonprofit	6,036	5,734	0.95	25
Government	8,811	8,118	0.92	3
Urban	5,441	5,494	1.01	87
Rural	5,847	5,503	0.94	13
Frontier	5,700	4,958	0.87	<1
Hospital based	7,507	5,890	0.78	10
Freestanding	5,270	5,451	1.03	90
Low share of low-income patients	5,645	5,702	1.01	26
High share of low-income patients	8,478	7,735	0.91	8
HHA stays admitted from the community	1,535	1,676	1.09	48
HHA stays with prior hospital stay	1,988	1,705	0.86	24
I-PAC stays admitted from the community	15,467	14,078	0.91	2
I-PAC stays with prior hospital stay	15,006	15,130	1.01	26

Note: PAC (post-acute care), PPS (prospective payment system) HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital), I-PAC (institutional PAC (i.e., SNFs, IRFs, and LTCHs) providers). Low-income share is the share of a provider’s stays for patients who were fully or partially dual eligible for Medicare and Medicaid or who were eligible for the low-income subsidy (LIS) in Part D. Low and high shares are defined as the lowest and highest within setting quintiles of the provider’s shares of dual-eligible/LIS patients. The analysis included 3,692,064 stays in 2019.

Source: The Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

risk adjustment included a measure of severe wounds and the predicted costs were equal to actual costs, we would know that the design should include a measure of severe wounds in the risk adjustment. Similarly, if a measure of low-income status was not included in the risk adjustment, yet predicted costs were accurate for beneficiaries with low incomes, we would conclude that the design would not need a separate adjuster for low-income status. Our results indicated that there would be no need for adjustments based on the rural location of the provider, the provider’s share of patients with low incomes, or the source of admission.

No need for a broad rural adjuster

We explored the need for an adjustment for rural providers. Current rural policies differ by PAC setting but are premised on the principle of protecting access for beneficiaries living in rural areas.¹³ However, the Commission has determined that rural “add-on” payments generally are distributed too broadly, providing additional payments to providers in rural areas even if those areas have adequate provider supply (Medicare Payment Advisory Commission 2012). The program should not subsidize providers located near each other, even in a remote area, because doing so

would discourage improvements in economies of scale achieved by consolidation. Instead, the Commission has posited that a rural policy should target low-volume isolated providers.

Our analyses found that the average actual cost of rural stays and frontier stays were higher (7 percent and 5 percent, respectively) than urban stays (after adjusting for differences in wage rates). These higher costs partly reflect the much larger shares of rural and frontier stays that were furnished by hospital-based providers (14 percent and 29 percent, respectively, compared with 8 percent of urban stays). Hospital-based providers have considerably higher costs than their freestanding counterparts (42 percent higher) that are not due to differences in the patients they treat and therefore are not predicted by a model based solely on patient characteristics (hospital-based PAC providers' predicted costs are only 8 percent higher than those of freestanding providers). The predicted costs for both rural groups were essentially the same or lower than the costs for urban stays. The large cost differential between hospital-based and freestanding providers also reflects hospital-based providers' different setting mix. IRFs, which have higher costs than SNFs and HHAs, make up a higher share of hospital-based providers.

Another factor that raises unit costs for rural and frontier providers is that they are more likely to have low patient volumes. In our analysis, stays in rural and frontier areas were much more likely to have been furnished by low-volume providers (defined as being in the lowest quartile of volume for each setting). On average, 2 percent of urban stays were furnished by low-volume providers, compared with 4 percent of rural stays. In frontier areas, the share treated by low-volume providers rose to 19 percent.

In the absence of other extenuating circumstances, the Medicare program should not correct for the inefficiencies of low-volume providers or the higher costs of hospital-based providers. If the PAC PPS includes a rural policy, it should tailor an adjustment for providers that are isolated and are necessary to ensure beneficiary access to care in addition to having consistently low volume. The Commission has recommended such an adjustment for the end-stage renal disease PPS (Medicare Payment Advisory Commission 2020). The adjustment could vary by

volume so that isolated providers with especially low volume could receive a larger boost to payments than other isolated low-volume providers.

No need for an adjustment based on care provided to beneficiaries with low incomes

We looked at the accuracy of predicted costs for all PAC providers by their share of Medicare patients who were beneficiaries with low incomes (defined as beneficiaries who were fully or partially dually eligible for Medicare and Medicaid or who received the low-income subsidy (LIS) under Part D). Currently, only the IRF PPS includes a payment adjustment based on a provider's share of low-income patients. Across all providers, the model was accurate for providers with low shares (the bottom 20 percentile of shares) of low-income beneficiaries, but it underpredicted costs for providers with high shares (the top 20th percentile of shares) of low-income patients, with a ratio of predicted to actual cost of 0.91. However, the relationship between shares of low-income patients and ratios of predicted to actual costs was not consistent across individual settings, and the accuracy did not steadily worsen with greater shares of low-income beneficiaries. At the stay level, our results do not support a separate adjuster for high shares of low-income patients, as predicted costs for them were within 1 percent of actual costs (see Table 10-1, p. 425). Taking these facts together, we conclude that an adjuster for dual-eligible/LIS status would not be needed.

No need to adjust for source of admission

We explored the need for an adjuster to capture the cost differences between PAC stays admitted from the community and those that follow a hospital stay.¹⁴ We found that HHA stays that follow a hospitalization had higher actual costs (30 percent higher) than those admitted from the community. Two factors contributed to the difference in actual costs. First, compared with community-admitted stays, posthospital stays included more visits (including unnecessary therapy visits that are not considered when predicting costs using patient characteristics). Second, a higher share of posthospital home health care was provided by hospital-based providers that had, on average, higher per stay costs (31 percent higher) compared with freestanding HHAs. However, differences in the predicted costs of posthospital and community-admitted home health stays were minimal (posthospital stays had per stay

costs that were 2 percent higher than community-admitted stays). The relatively small differences in predicted costs suggest that a payment adjustment for source of admission would not be needed.

The predicted costs for institutional PAC (I-PAC) stays, which include SNF, IRF, and LTCH stays, admitted from the community and those that followed a hospital stay differed by 7 percent. These differences are driven largely by the mix of settings of the stays that, as discussed above, do not warrant correction.

CMS/ASPE prototype would establish accurate payments for broad clinical groups but would not align payments across settings for clinically similar cases

The prototype design outlined by CMS/ASPE would establish a payment for each PAC stay using a set of case-mix groups and payment adjusters (Figure 10-1, p. 430). Payment for a stay would be calculated by multiplying a base rate by the relative weight for the applicable case-mix group and three adjusters: rural location of the provider, PAC setting, and comorbidity tier (see text box, p. 431, and Figure 10-2, p. 431, for an example of how the prototype would set the payment for a stay). The sizes of the adjustments were based on regression analyses (see Appendix 10-A, p. 445, for a summary of the methodology). A full description of the methods can be found in the Secretary's report to the Congress (RTI International 2022).

The CMS/ASPE prototype includes most of the design features identified by the Commission and would provide a good foundation for a PAC PPS design, establishing accurate payments and uniform profitability across broad clinical groups. However, the CMS/ASPE prototype includes adjusters that account for cost differences across the four PAC settings. An adjuster would be needed for HHA stays in order to account for their very low costs (as noted above). However, including other setting adjusters would undermine payment alignment across settings. It could incorporate existing, unwarranted setting-specific cost differences into the proposed PAC PPS. The Commission maintains that each adjuster in a payment

system should have a conceptual relationship to the cost of care that is supported by evidence. Deviations from uniform design elements should be limited to those that counter systematic over- and underpayment that could threaten beneficiary access.

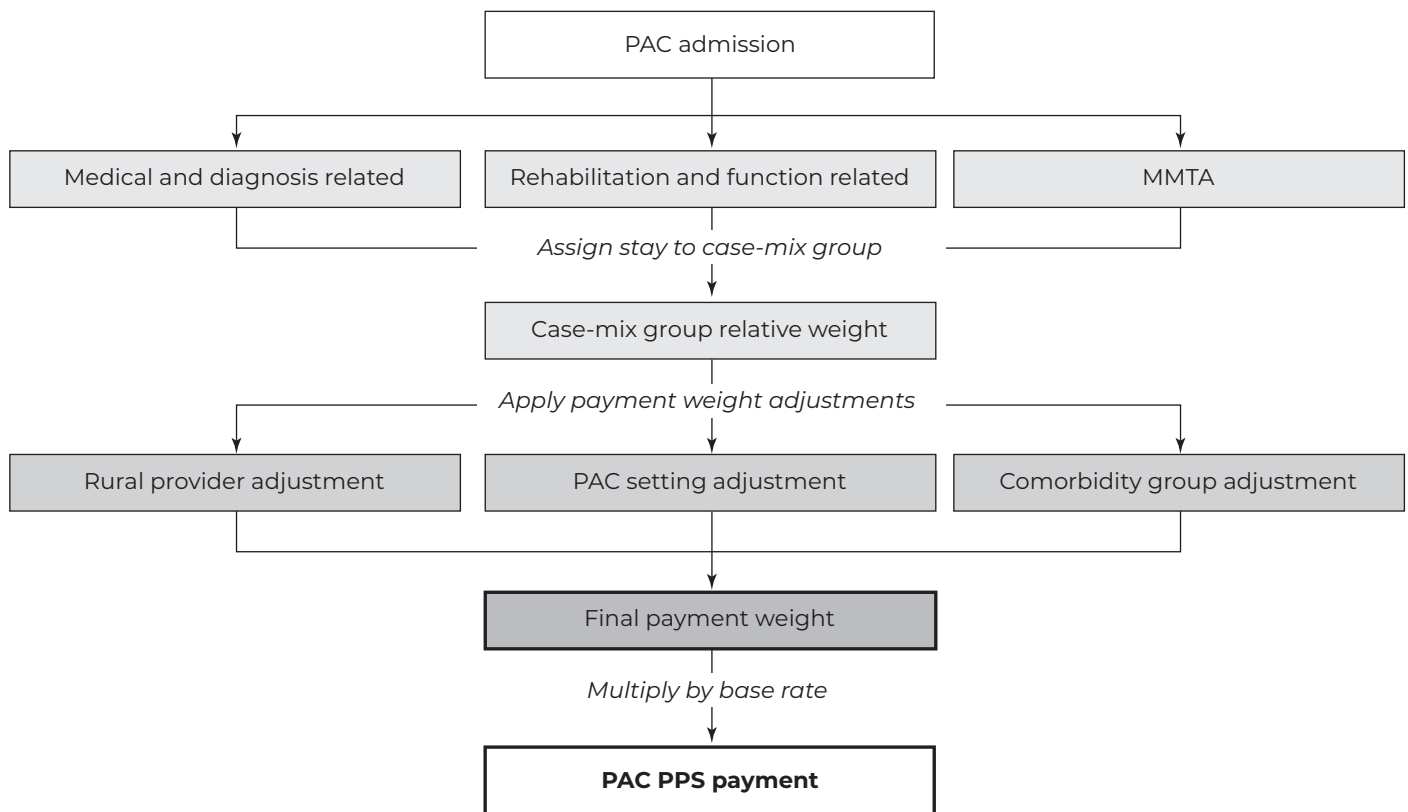
The CMS/ASPE prototype is consistent with many of the Commission's preferred design features but would maintain differences in payments across settings for clinically similar cases

The components of the CMS/ASPE prototype PPS are:

- *A stay as the unit of service:* A stay was defined as an individual stay for IRF, SNF, and LTCHs. For HHAs, 60-day episodes within 60 days of another episode treated by the same provider were consolidated into a stay.
- *Case-mix groups:* Each PAC stay would be assigned first to a broad clinical grouping in one of three domains—medical and diagnosis related, rehabilitation and function related, or medication management, teaching, and assessment (MMTA)—and then subdivided into a case-mix group. The case-mix groups were developed based on classification and regression tree analyses that identified groups of clinically similar patients with comparable costs. Case-mix groups for the medical and diagnosis-related grouping are differentiated by clinical diagnoses, while the case-mix groups for the rehabilitation and function-related grouping and the MMTA grouping are differentiated by functional status.¹⁵ The behavioral health group and the MMTA groups are specific to HHA stays.
- *Comorbidity adjuster:* Each stay would be assigned to a comorbidity tier based on the patient's secondary diagnoses and their relative costliness. A patient with more and/or costlier comorbidities would be assigned to a higher tier that has a larger payment adjustment. The size of the adjusters would vary by broad clinical group to capture their differing effects on patient costs.
- *Setting adjuster:* CMS/ASPE states that it included an adjuster for each setting (except for IRFs, which is the reference group) because of variation in the cost of care attributed to different statutory and

FIGURE 10-1

CMS/ASPE PAC PPS prototype design



Note: PAC (post-acute care), PPS (prospective payment system), CMS/ASPE (Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation), MMTA (medication management, teaching, and assessment).

Source: Adapted from Figure ES-1 in a report by RTI International, 2022.

regulatory requirements. Relative to IRFs, LTCHs would receive higher payments and SNFs and HHAs would receive lower payments after the application of setting adjusters. The adjustment varies by broad clinical group. CMS/ASPE notes that this adjuster could be modified in the future, should regulations change.

- *Rural adjuster:* CMS/ASPE included a rural adjuster to reflect the higher costs associated with stays in rural providers. The size of the adjustment would vary by broad clinical group.

- *Outlier cases:* Short stays and decedents would be assigned to separate case-mix groups. High-cost outlier stays would be paid separately with an outlier policy.

The CMS/ASPE prototype includes no adjustments for providers with teaching programs or for providers that treat high shares of low-income patients. The design did not align the services included in the definition of a stay across settings (such as the exclusion of drugs in home health stays).

Example of establishing a payment for a stay under the CMS/ASPE prototype

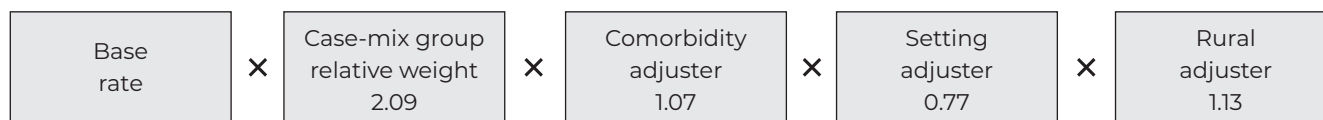
To illustrate how the prototype designed by the Centers for Medicare & Medicaid Services and the Assistant Secretary for Planning and Evaluation would establish payments for a stay, we selected a patient with moderate comorbidities who is recovering from a stroke (the rehabilitation and function-related group) and had a motor score of 10 at admission. She was treated in a skilled nursing facility (SNF) in a rural location.

Payment for this beneficiary's stay would be calculated as follows: The stay would be assigned to a case-mix group for patients recovering from a

stroke with motor scores equal to or greater than 8 but less than 11. The relative weight for the case-mix group is 2.09 (Figure 10-2). With moderate comorbidities, the stay would be assigned to comorbidity tier 3 with a payment adjustment of 1.07. The SNF setting adjustment for the stroke medical and diagnosis group is 0.77, and the rural location adjuster is 1.13. The final payment adjustment ($2.09 \times 1.07 \times 0.77 \times 1.13 = 1.9458$) would be applied to a base rate to establish the payment for the stay. All payments would be adjusted for the area wage index to account for differences in labor costs across markets (not shown). ■

FIGURE 10-2

Example of establishing a payment for a stay under the CMS/ASPE prototype



Note: CMS/ASPE (Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation).

Source: MedPAC illustrative analysis based on RTI International, Department of Health and Human Services, 2022.

The CMS/ASPE prototype is consistent with many of MedPAC's preferred design features (Table 10-3, p. 432). Payments would be made for a stay; there are separate adjustments for home health stays and unusually high-cost and very short stays.¹⁶ There are no adjustments for stays furnished by a provider with a teaching program, for source of admission, or for the share of a provider's beneficiaries who are low income. The CMS/ASPE prototype also includes a relatively common risk adjustment, though some case-mix groups are specific to HHAs (the MMTA and the behavioral health groups). If design work proceeds, efforts should limit the setting-specific groups and consider expanding the number of case-mix groups so that the residual "other" groups are small. Some of the risk adjusters were based on setting-specific assessment items that vary across settings. Where possible, the adjusters should be claims based because they may be less susceptible to

biases in coding. The prototype includes a comorbidity adjustment that considers a comprehensive set of comorbidities.

However, the CMS/ASPE prototype differs from MedPAC's preferred features in that it includes setting adjusters for SNF, IRF, and LTCH stays (IRF stays were used as the reference group, so their "setting-specific adjustment" is embedded in the base rate). While the Commission has underscored the necessity of an HHA adjuster, adjusting payments for the other settings would implicitly accept all cost differences across settings, including those associated with regulatory requirements, practice patterns (such as length of stay), and unmeasured differences in case mix. Because the prototype does not assume regulatory alignment, its setting adjusters account for differences in costs that are not attributable to case mix. In its report, CMS/

**TABLE
10-3**

Comparison of MedPAC's preferred design features for a PAC PPS and the CMS/ASPE PAC PPS prototype

MedPAC's preferred design feature	CMS/ASPE prototype	
	Consistent with MedPAC's preferred features	Comment
Stay-based unit of service	Partially	Home health stays include consecutive episodes
Adjustment for home health stays	Yes	
No adjustment for SNF, IRF, or LTCH stays	No	Making adjustments for each setting undermines alignment of payment across settings for clinically similar cases but may be reasonable during a transition
Common risk adjustment based on patient characteristics	Yes	Mostly. Some case-mix groups are setting specific. Some risk adjusters rely on setting-specific patient assessment data, so the definitions vary slightly.
High-cost and short-stay outlier policies	Yes	
Targeted rural adjuster	No	Adjustment made for stays furnished by a rural provider
No adjustment for providers treating high shares of low-income patients	Yes	
No adjustment for source of admission	Yes	
Adjustment for follow-on HHA stays	No	No adjustment; however, the stay includes consecutive home health episodes.
No teaching adjustment	Yes	

Note: PAC (post-acute care), PPS (prospective payment system), CMS/ASPE (Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital), HHA (home health agency).

Source: MedPAC analysis of a prototype PAC PPS design as published by RTI International, 2022.

ASPE noted that these adjusters could be modified over time if regulations are changed to unify PAC policies. The size of the setting adjustments varies by broad clinical group, indicating that the relationship between PAC setting and per stay cost differs depending on whether the patient is receiving care for a case that falls into a medical and diagnosis-related group, a rehabilitation and function-related group, or an MMTA group. The varying adjustment reflects the associated costs of differing practice patterns, compliance with regulatory requirements, and unmeasured case-mix that are incorporated into the prototype design.

A PAC PPS with setting-specific adjusters would not achieve a unified, site-neutral payment system for post-acute care (see text box on the trade-offs between uniform design and accurate payments). Including adjusters for setting in the PAC PPS design would result in some level of unwarranted payments and would do little to encourage provision of care in the most efficient and appropriate setting. That said, including such adjusters in an initial design may be a reasonable transition policy that would give providers time to adjust their cost structures to a unified PPS and aligned Medicare conditions of participation (see section on establishing uniform Medicare conditions of

A PAC PPS: Trade-offs between a uniform design and accurate payments

The primary objective of a post-acute care (PAC) prospective payment system (PPS) is to establish a common payment system to pay for PAC based on patient characteristics rather than the setting in which care is provided. Because the Commission prioritized aligning payments across settings for clinically similar cases, we did not include adjusters in our model that would vary payments based on setting (except for home health care). In contrast, the Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation prototype prioritized accuracy over uniform payments and includes adjusters that vary by setting.

A design that adjusts payments by PAC setting (except for home health care) has important implications. While some of the cost differences across settings are warranted (such as the costs associated with meeting regulatory requirements),

others are not (such as practice patterns that may reflect the incentives of the individual PPSs, not the care needs of the beneficiary). Continuing to pay providers for unwarranted costs would do little to encourage the provision of efficient care. For example, including an adjustment for the skilled nursing facility setting would incorporate the costs associated with lengths of stay that likely reflect the day-based payment incentive to extend stays.

If policymakers opt to pursue a PAC PPS, they will need to consider the trade-off between accuracy and the uniformity of a design. Uniform elements that would result in systematic over- and underpayment for certain types of cases or groups of beneficiaries are to be avoided. Designers should accept modest erosions in accuracy and limit the deviations from uniform design elements to those necessary to ensure access for beneficiaries. ■

participation for PAC providers, p. 443). If CMS moves forward with a PAC PPS design, it should evaluate transitions of varying duration and propose a timetable for phasing out the adjusters for SNF, IRF, and LTCH stays.

The CMS/ASPE prototype also includes a rural adjuster that varies by broad clinical group. Given that all payments would be adjusted for geographic differences in wage levels, it is not clear why a rural adjustment should vary by broad clinical group. As noted above, the Commission found that some of the cost differences between rural and urban stays are likely due to factors that do not, by themselves, warrant adjustment (such as whether the stay was furnished by a hospital-based provider). The Commission's view is that any rural policy should target low-volume isolated providers needed to ensure beneficiary access.

Finally, the CMS/ASPE prototype does not include an adjuster for stays that follow a hospitalization, consistent with MedPAC's preferred features. The

CMS/ASPE prototype does not include an adjuster for subsequent HHA stays, but this could be because the "stay" includes consecutive home health care use. An adjuster for follow-on HHA stays may be needed if, in a revised design, the definition of a stay does not include consecutive home health episodes.

The CMS/ASPE prototype established accurate payments for broad clinical groups

CMS/ASPE reported that the prototype would establish accurate payments by broad clinical group. Estimated payments would be within 2 percent of actual stay costs for almost all patient groups (Table 10-4, p. 434). The ratios for trauma cases (a group we were concerned about, given our modeling results) were close to 1.0, indicating that having separate case-mix groups for them would establish accurate payments. The model was equally accurate for low- and high-cost stays (data not shown), though some of

**TABLE
10-4****CMS/ASPE PAC PPS prototype would establish reasonably accurate payments for most broad clinical groups and providers**

Category	Ratio of predicted to actual cost
All	1.00
Broad clinical group	
MMTA: Cardiac	0.98
MMTA: Endocrine	0.98
MMTA: GI/GU	0.99
MMTA: Infections	0.99
MMTA: Respiratory	0.98
MMTA: Surgical aftercare	0.99
MMTA: Other	0.98
Lower extremity fracture including joint replacement	0.99
Joint replacement without lower extremity fracture	0.98
Other orthopedic surgery	0.99
Trauma	0.98
Limb loss	1.01
Orthopedic other	0.98
Stroke	0.99
Nontraumatic brain dysfunction	1.01
Spinal dysfunction	1.01
Traumatic brain injury	1.00
Neurological (other)	0.99
Respiratory	1.02
Cardiovascular	1.01
Behavioral health	0.98
Coma	0.98
Invasive ventilator	1.04
GI and hepatobiliary	1.02
Infections	1.02
Kidney and urinary	1.02
Skin	0.98
Cancer	1.02
Transplant	1.01
Hematological	1.03
Other	1.00
Setting	
HHA	1.00
SNF	0.99
IRF	1.02
LTCH	1.02

Note: CMS/ASPE (Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation), PAC (post-acute care), PPS (prospective payment system), MMTA (medical management, teaching, and assessment), GI (gastrointestinal), GU (genitourinary), HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital).

Source: RTI International 2022.

this would be explained by the exclusion of short stays, decedents, and high-cost outliers from the analyses. If the ASPE/CMS prototype is refined, it will be important to reevaluate the accuracy of the model when these stays are included in the analysis because some of these patients could be easily identified prior to admission and avoided (or preferred).

CMS/ASPE also examined the accuracy of the model for stays in 2020, a year of considerable changes. These changes include revised practices (and the associated costs) in response to the new case-mix systems (notably, fewer therapy services provided in HHAs and SNFs); the temporary waivers granted during the public health emergency (that waived patient and facility criteria, allowing patients to be admitted to the institutional providers when they otherwise would not qualify and paying full LTCH PPS rates for nonqualifying cases); and costs associated with COVID-19. Not surprisingly, the 2020 payment-to-cost ratios varied more than those for the 2017 to 2019 period. However, even with the many changes in 2020, the model still explained a high share of costs across stays (R^2 was 0.48).

The CMS/ASPE report does not evaluate the accuracy of payments by case-mix group. Yet, payments could be accurate for broad clinical groups but not for specific case-mix groups, which could affect beneficiary access to care. Any future evaluation should be conducted for individual case-mix groups.

Across providers, the CMS/ASPE design would establish fairly accurate payments. The ratios of payments to costs for providers in each of the four settings were close to 1.0. These results are not surprising because the design included setting-specific adjustments and payments were accurate for the broad clinical groups. The contrast between these results and our modeling results for providers in each setting (Table 10-2, p. 427) illustrates the trade-off between a uniform design and accuracy. Setting-specific adjustments help improve the accuracy of payments but do not meet the goal of establishing unified payments across settings.

CMS/ASPE prototype resulted in fairly uniform profitability across broad clinical groups

When some types of cases are likely to be more profitable than others, providers have an incentive

to selectively admit them and avoid others that are likely to be less profitable. Although CMS/ASPE did not examine this aspect of its design, the Commission examined the variation in the reported profitability of different types of cases (the ratios of CMS/ASPE's PAC PPS payments to stay costs). The results from the CMS/ASPE report indicate that, at least for broad clinical groups, profitability would be fairly uniform (Table 10-4). The ratios of predicted to actual costs (the measure of profitability) varied from 0.98 to 1.02 for all but two categories (invasive ventilator and hematological). For these two, the ratios are higher than 1.0 (1.04 and 1.03, respectively), indicating that providers would have more financial incentive to admit these cases compared with other cases. There was much less uniformity in the profitability for the broad clinical groups in 2020 (data not shown).

An examination of profitability should be conducted for individual case-mix groups (at least for those with sufficient counts for analysis). What may appear to be fairly uniform profitability for a broad clinical group may mask larger differences for individual case-mix groups. Some case-mix groups may be highly profitable while others may be unprofitable, creating incentives to selectively admit some types of patients and avoid others.

A PAC PPS would redistribute payments across providers

Differences in the estimated impacts of the CMS/ASPE prototype and the Commission's model on providers' payments reflect, in part, differing design choices—specifically, the decision to include setting adjusters other than an HHA adjuster. CMS/ASPE estimated that their prototype would, on average, increase payments to LTCHs and decrease payments to IRFs and HHAs. By contrast, we estimate that our model would reduce payments to IRFs and LTCHs and increase payments to SNFs. Both our model and the CMS/ASPE prototype would generally increase payments to nonprofit providers and rural providers and lower payments to for-profit providers. Estimates of the impacts of the CMS/ASPE prototype and our model do not assume changes in cost sharing, coverage rules, or PAC setting. Any of these changes would affect the estimates.

**TABLE
10-5**

A PAC PPS would redistribute payments across providers relative to current payment levels

CMS/ASPE prototype		MedPAC model	
Provider group	Percent change in payments	Provider group	Percent change in payments
All stays	0%	All stays	0%
HHA	-4	HHA	-3
SNF	1	SNF	7
IRF	-6	IRF	-17
LTCH	17	LTCH	-6
For profit		For profit	-3
HHA	-9		
SNF	-4		
IRF	-7		
LTCH	18		
Nonprofit		Nonprofit	7
HHA	5		
SNF	17		
IRF	-4		
LTCH	15		
Government		Government	3
HHA	7		
SNF	4		
IRF	-6		
LTCH	13*		
Urban	0	Urban	-1
Rural	3	Rural	4
		Frontier	-1
		Hospital based	-3
		Freestanding	0

Note: PAC (post-acute care), PPS (prospective payment system), CMS/ASPE (Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation), HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). The impacts for the CMS/ASPE prototype are for stays admitted between 2017 and 2019. The impacts for MedPAC's model are for stays admitted in 2019. The impacts for the CMS/ASPE prototype are for a sample of stays from calendar year 2017 through 2019. See Appendix 10-A for the methodology used to estimate payments.

*This result should be interpreted with caution because the group only includes 28 providers.

Source: The CMS/ASPE results were included in the report prepared by RTI International (2022). Results of the MedPAC unified design were prepared by the Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

Estimated impacts of the CMS/ASPE prototype on providers' payments

The impacts of the CMS/ASPE prototype on providers' payments reflect differences between current payments and PAC PPS payments. CMS/

ASPE estimated that the prototype would, on average, increase payments to LTCHs (by 17 percent) and decrease payments to IRFs and HHAs by 6 percent and 4 percent, respectively (Table 10-5). Payments to LTCHs would increase because the prototype's payments

would be based on the predicted cost of stays, whereas current LTCH payments include the policies to pay less for cases that do not meet qualifying criteria (to discourage placement of these cases in this high-cost setting). A final design should maintain payment differences for lower-acuity stays, even in LTCHs.

Payments to IRFs and HHAs would decrease because current Medicare payments are well above the cost of care. In contrast, payments made under a PAC PPS would be based on the cost of care, so payments to them would be reduced (but would still cover the cost of care). This is an example of where payment accuracy would correct the overpayments inherent in current policy. The Commission has recommended payment reductions to both settings for years, and the design of a PAC PPS represents a vehicle to achieve better alignment of payments with costs.

Payments to SNFs would increase slightly because the SNF PPS in place at the time (stays admitted in 2017 through 2019) did not fully consider the medical conditions and complexity of patients. Even though the prototype design would reduce the substantial overpayments to SNFs during this period (Medicare margins during this period were more than 10 percent), they would be offset by the increases in payments that result from a design that better accounts for the medical conditions of patients.

Estimated impacts of MedPAC's model on providers' payments

Because our model does not include setting adjusters (except for HHAs), the estimated impacts on IRFs and LTCHs (the high-cost settings) are quite different from those of the CMS/ASPE prototype. Changes in payments relative to current setting-specific PPSs would be largely explained by the averaging of costs of stays across all settings. Where there is overlap in case types with lower-cost settings, payments to IRFs and LTCHs are likely to decline because the PAC PPS payments would be based on an average predicted cost that includes providers in lower-cost settings.

Payments to SNFs are likely to increase due to the averaging of relatively lower-cost SNF cases with the relatively higher costs of IRF and LTCH cases and because the PAC PPS does a better job of capturing patient complexity, which would raise payments for SNF patients. HHA payments would decline because

a PAC PPS would be based on predicted cost of care and exclude the sizable overpayments under current policy (the aggregate Medicare margin of freestanding HHAs in 2021 was 24.9 percent). Payments to hospital-based providers are likely to decrease for two reasons: They have higher costs per stay that are not explained by patient characteristics, and the group includes a disproportionate share of IRF stays, whose payments on average would decline because many of the types of patients they treat are also treated in lower-cost settings. Both our unified design and the CMS/ASPE prototype would generally increase payments to nonprofit providers and rural providers and lower payments to for-profit providers.

A transition would phase in the impacts of a PAC PPS but would be costly to administer

A transition to a PAC PPS would give providers time to adjust their costs to anticipated changes in their payments and regulatory requirements. During a transition, providers would be paid a blend of current setting-specific payments and PAC PPS payments. The Commission previously recommended a phase-in period of three years, during which providers would be paid a blend of current (setting-specific) rates and a PAC PPS rate (Medicare Payment Advisory Commission 2017a). To reevaluate the need for and the duration of a transition, we estimated distribution of impacts across providers under the Commission's illustrative model.

In addition to the large (and expected) impacts on certain types of providers, as discussed above, there would be a wide range of impacts on providers' payments within in each provider group. We found that if the level of payments were implemented to be budget neutral overall, payments under our model would decrease by more than 25 percent for 5 percent of providers and increase by more than 25 percent for 18 percent of providers (Table 10-6, p. 438). Within each provider group, the variation in payment change would be wide. For example, payments to nonprofit providers would increase on average but would decrease for 39 percent of these providers. There are even wider distributions by case type (data not shown) that are averaged across all of a provider's stays. The wide range in impacts supports implementing a PAC PPS with a transition.

**TABLE
10-6**

Estimated distribution of the changes in payments under MedPAC's PAC PPS model

Provider group	Decrease in payments			About the same	Increase in payments		
	>25%	10% to 25%	1% to 10%	-1% to 1%	1% to 10%	10% to 25%	>25%
All providers	5%	16%	24%	5%	17%	15%	18%
HHA	0	12	42	9	25	10	2
SNF	9	13	12	3	13	20	31
IRF	10	68	18	1	2	0	0
LTCH	4	30	30	7	20	7	2
Nonprofit	2	17	20	3	11	15	31
For profit	6	15	26	6	19	15	14
Government	5	19	19	3	18	16	20
Hospital based	5	30	23	4	12	8	18
Freestanding	5	14	24	5	18	16	18
Urban	6	16	24	5	17	14	17
Rural	3	15	24	4	17	17	19
Frontier	3	22	27	5	18	14	11

Note: PAC (post-acute care), PPS (prospective payment system), HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). Each row shows the distribution of changes in payments for that group of providers. There were 19,979 providers with at least 20 stays included in the analysis. The impacts for MedPAC's model are for stays in 2019. See Appendix 10-A for the methodology used to estimate payments.

Source: The Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

The relationship between the expected changes in payments under a PAC PPS and a provider's current profitability also informs the decision to include a transition and how long it should be. If the providers that are projected to experience the largest payment reductions are currently highly profitable, then they would be able to absorb some of the payment reductions. If average payments are expected to increase for the least profitable providers, it would be desirable to have a short transition so they could begin to benefit from the higher payments.

To explore the relationship between estimated changes in payments under a PAC PPS and current profitability, we first measured current relative profitability using the ratio of the provider's average current payment to its average per stay costs. We compared each provider's payment-to-cost ratio (PCR) with the average PCR for all providers in a setting to control for different levels of profitability across settings. For example, we

compared each IRF's PCR with the average PCR for all IRFs. Then we examined the distribution of changes in payments under a PAC PPS by level of relative profitability.

In general, we found that expected changes in payments under a PAC PPS were inversely related to providers' relative profitability (Table 10-7). On average, providers that would see the largest increases in payments tended to have the lowest profitability under the current payment systems, and, conversely, those that would experience decreases in payments tended to have the highest profitability. Of the 4,171 providers whose payments would decrease by at least 10 percent, 58 percent were relatively profitable (they had PCRs greater than 1.1). Of the 6,515 providers whose payments would increase by at least 10 percent, 57 percent were relatively unprofitable (they had PCRs less than 0.90).

**TABLE
10-7**

For many providers, changes in payments under a PAC PPS would be inversely related to current Medicare profitability relative to other providers in the same sector

	Provider count	Decrease in payments under a PAC PPS			Increase in payments under a PAC PPS			
		<25%	10% to 25%	1% to 10%	About the same	1% to 10%	10% to 25%	>25%
Current relative profitability								
Below average								
<0.75	2,846	0	47	223	82	611	702	1,181
0.75–0.9	4,519	8	376	1,025	309	949	811	1,041
About average								
0.9–1.1	6,906	137	1,191	2,083	396	1,135	985	979
Above average								
1.1–1.25	2,876	208	762	857	130	400	283	236
>1.25	2,832	694	748	652	111	330	196	101
Provider count	19,979	1,047	3,124	4,840	1,028	3,425	2,977	3,538

Note: Relative profitability is a ratio of the provider's profitability (the ratio of the provider's average payment under current policy to the average stay cost) to the setting's average profitability. Ratios below 1.0 indicate below-average profitability; ratios above 1.0 indicate above-average profitability. Only providers with at least 20 stays were included in the analysis (19,979 providers). The impacts for MedPAC's model are for stays in 2019. See Appendix 10-A for the methodology used to estimate payments.

Source: The Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

Given the redistribution of payments across providers, we concluded that if there were a transition, it could be relatively short. That way, providers whose payments would increase could reap the benefits of the PAC PPS sooner, while payments would be more quickly aligned with costs for providers with the highest profitability. Yet, including a transition that blends PAC PPS and setting-specific PPS payments would be complicated and costly for CMS to implement because it would require the agency to maintain five payment systems (the four setting-specific ones and the new PAC PPS). In addition, a transition could be confusing for providers because estimating payments for a stay would be more difficult than with a single payment system. One alternative could be to implement a PAC PPS with setting adjusters that would be phased out over time. This way, CMS would manage payments under a single PPS—the PAC PPS. Under either approach, policymakers would need to evaluate the impacts of transitions of varying duration and specify a phase-in schedule.

If a PAC PPS is implemented, the Congress should consider the level of aggregate payments

If a PAC PPS is implemented, policymakers would need to decide whether (1) aggregate payments under the new system should be set equal to those under the current PPSs (i.e., implemented to be budget neutral) or (2) current payments are too high. While it is not the objective of a PAC PPS, policymakers could use the opportunity to better align payments with the cost of care and lower Medicare spending. The Commission previously recommended lowering the aggregate level of spending by 5 percent under a unified PAC PPS (when payments were 14 percent higher than costs (Medicare Payment Advisory Commission 2017a)) and has continued to recommend reductions in payments each year for the individual PAC sectors (Medicare Payment Advisory Commission 2023).

Our updated analysis using 2019 PAC stays again found that aggregate PAC payments were 14 percent

**TABLE
10-8**

Comparison of PAC PPS payment-to-cost ratios under three illustrative implementation scenarios

Provider group	100% PAC PPS rates, no transition, no reduction to payments	100% PAC PPS rates, no transition, 5% reduction to payments	First year of a three-year transition, 5% reduction to payments
All providers	1.14	1.08	1.12
HHA	1.15	1.09	1.16
SNF	1.22	1.15	1.14
IRF	0.96	0.91	1.08
LTCH	0.93	0.90	0.96
Nonprofit	1.09	1.03	1.02
For profit	1.17	1.11	1.17
Government	1.06	1.01	1.03
Hospital-based facility	0.92	0.87	0.92
Freestanding facility	1.17	1.12	1.15
Urban	1.15	1.09	1.13
Rural	1.09	1.03	1.04
Frontier	1.04	0.99	1.04

Note: PAC (post-acute care), PPS (prospective payment system), HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). The first year of a three-year transition includes a blend of current payments (two-thirds) and PAC PPS payments (one-third). There were 19,979 providers with at least 20 stays included in the analysis. The payment-to-cost ratios were estimated using stays in 2019.

Source: The Urban Institute under contract to MedPAC (Wissoker and Garrett 2023).

higher than costs (Table 10-8). A 5 percent reduction to the aggregate level of spending would be consistent with the Commission’s recommendations on the payment updates for HHAs, SNFs, and IRFs (Medicare Payment Advisory Commission 2023). Even with such a reduction, we estimate that payments would remain 8 percent higher than the cost of care (a PCR of 1.08). The ratios for hospital-based and frontier providers reflect their higher costs and lower volume, costs that the program should not necessarily pay for (see discussion of the high costs of hospital-based or low-volume rural providers, p. 428).

To consider the impact of a transition on a reduction to payments, we modeled an illustrative three-year transition of a 5 percent reduction to payments. In the first year, payments were modeled as a blend of two-thirds current payments and one-third PAC PPS payments. (The second year would be a blend

of one-third current payments and two-thirds PAC PPS payments.) In this scenario, aggregate payments would be 12 percent higher than costs in the first year, compared with 8 percent higher without a transition. For every group of providers, average reductions in payments would be tempered by the three-year transition, though (as shown earlier) the impacts across providers within any group would vary.

Monitor changes in provider responses and, if needed, make revisions to the PAC PPS

If a PAC PPS is implemented, we expect practice patterns to change as providers adjust to the new payment system. Some changes in PAC use may be desirable, while others could compromise the quality of care furnished or beneficiaries’ access to care. CMS should monitor indicators of quality of care, unnecessary PAC use, patient selection, and the adequacy of payments (Table 10-9). For

**TABLE
10-9**

Measures to monitor quality of care and provider behavior under a PAC PPS

Dimension	Measure
Quality of care	<ul style="list-style-type: none"> • Hospitalization within the PAC stay and after discharge • Emergency department visits during the PAC stay and after discharge • Successful discharge to the community • Changes in patient function (e.g., self-care and mobility) • Complication rates (e.g., health care–associated infections, falls) • Medicare spending per beneficiary • Patient experience
Under- and overprovision of PAC	<ul style="list-style-type: none"> • PAC use following a hospital stay • Length of PAC stay • Subsequent PAC use following an initial PAC stay
Patient selection	<ul style="list-style-type: none"> • PAC use by condition and by vulnerable beneficiaries • Mix of patients across settings and providers • Length of stay of preceding hospital stay
Adequacy of payments	<ul style="list-style-type: none"> • Medicare margins • Cost growth

Note: PAC (post-acute care), PPS (prospective payment system). “Vulnerable patients” include (but are not limited to) medically complex, very old, disabled, and dual-eligible beneficiaries.

Source: MedPAC.

example, increases in undesirable outcomes (such as hospitalizations and emergency department visits) could flag potential problems in the design that warrant correction.

Under- and overprovision of PAC will be difficult to assess, given the lack of evidence-based guidelines about when PAC is beneficial or what kind of PAC would yield the best outcomes. Moreover, current practice patterns may be more heavily influenced by the incentives and coverage restrictions inherent in the current payment systems than by evidence-based clinical protocols. That said, large increases in the share of PAC stays followed by additional PAC care (subsequent stays) could indicate that providers are unbundling care and shifting costs to a subsequent provider, thereby raising Medicare spending, exposing beneficiaries to unnecessary care transitions, and potentially increasing beneficiaries’ cost sharing. Large declines in PAC use or reductions in lengths of PAC stays could signal stinting on care.

Meanwhile, changes in the frequency and distribution of admissions across case types could reflect differences in profitability that create incentives for providers to admit certain types of cases (or beneficiaries with specific characteristics) and to avoid others. Increases in the lengths of stay of preceding hospitalizations could indicate difficulty in placing less profitable patients.

Medicare margins and cost growth are good barometers of the adequacy of Medicare’s payments. When payments are more than adequate, providers have less incentive to control their costs, and cost growth may be high. However, high levels of cost growth could also reflect providers making investments in staffing and equipment to treat a more complex mix of patients.

To keep payments under a PAC PPS aligned with the cost of care, the Commission previously recommended that the Secretary periodically revise and rebase payments as needed (Medicare Payment Advisory

Commission 2017a). Ongoing maintenance of the case-mix system includes revisions to the case-mix groups (e.g., adding or collapsing of case-mix groups) and the relative weights associated with each. For example, changes in admitting practices and standards of care could affect the relative costs of different types of stays.

Because coding practices are likely to change (as they typically do when new payment systems are implemented), payments are likely to increase, even when patients' resource needs remain the same. If so, changes in payments would outpace cost changes (cost could remain the same since the patients did not change). Regular rebasing of payments (as is done for payments to hospitals and MA plans) would help keep them aligned with the cost of stays.

Necessary companion policies to accompany the implementation of a PAC PPS

Several companion policies would need to be implemented concurrently with a PAC PPS. This is to ensure that beneficiaries have the same benefits and cost sharing regardless of where they seek their PAC and that providers incur the same costs to comply with Medicare's regulations when treating the same types of patients. In addition, a value incentive program would create incentives for providers to furnish efficient (high-quality, low-cost) care. CMS/ASPE also discussed these policies in its report to the Congress.

Align benefits and cost sharing

When payments are aligned for PAC providers, beneficiaries should face the same cost sharing and have the same PAC benefits regardless of where they are treated. Current coverage and cost-sharing rules vary depending on the PAC setting where beneficiaries receive their care.¹⁷ For example, a three-day prior hospital stay is required for Medicare coverage in SNFs but not for other PAC settings.¹⁸ IRF and LTCH users must pay the inpatient hospital deductible per spell of illness (most will meet this with a prior inpatient hospital stay) and face coverage limits and copayments on long stays in those settings.¹⁹ SNF users incur daily cost sharing starting on day 21 of their stay, and

coverage per spell of illness ends on day 100. There is no cost sharing or benefit limit on services for HHA users.

In addition, when payments are aligned for PAC providers, services included in the PAC "bundle" also need to be aligned so that providers produce the same product (with the associated costs) and beneficiaries have no incentive to select one setting over another to avoid out-of-pocket spending for services not included in the bundle. There are differences in the services included in the current bundle paid for in each setting-specific PPS. For example, drugs are not included in the payment for home health services, while the costs of drugs are included in the payment rates for SNF, IRF, and LTCH services. Renal dialysis treatments are covered by the IRF and LTCH PPSs but not the home health care and SNF PPSs (the services are billed separately under Part B).

If policymakers wanted to encourage the use of home health care, copayments could be lower for home health stays and higher for institutional PAC stays. A two-tiered approach would scale cost sharing to the large differences in payments made for HHA and I-PAC stays but would result in uneven cost sharing (with possibly higher cost sharing for beneficiaries who cannot be cared for at home).

Changes to cost-sharing requirements would raise issues that could have significant implications for some PAC users and for program spending. Ideally, policymakers would set a cost-sharing amount that discourages the initiation and continuation of unnecessary PAC yet is neutral to where PAC is furnished.²⁰ But requiring cost sharing would be a significant change for home health care users. If cost sharing were imposed, beneficiaries could become more sensitive to the value of the home health care they receive and could reduce their use of home health care. While this choice could result in program savings, it could restrict services for some beneficiaries. The Commission notes that home health care is a valuable service when used properly but has historically been subject to misuse under the Medicare benefit. Therefore, the imposition of cost sharing on home health care would need to strike a balance between making beneficiaries sensitive to the cost and value of the home health care they receive without discouraging appropriate care.

Changes to coverage could also have significant implications. The three-day requirement for SNF coverage, though perhaps outdated in its form, is an important guardrail on SNF use and program spending.²¹ During the PHE, the three-day requirement was waived, allowing nursing homes to provide skilled services without a prior hospital stay and to accept admissions directly from the community (if beneficiaries met the other coverage requirements). In fiscal year 2021, 27 percent of stays were admitted with a PHE-related waiver, which effectively shifted some Medicaid spending onto Medicare. On the other hand, requiring a prior hospital stay for all PAC use would eliminate the coverage for two-thirds of home health users.

Establish uniform Medicare conditions of participation for PAC providers

CMS currently promulgates and enforces setting-specific regulatory requirements that SNFs, IRFs, LTCHs, and HHAs must meet to participate in the Medicare program. SNFs must meet Medicare's requirements of participation that are different from the conditions of participation for IRFs and LTCHs, which are licensed as hospitals. HHAs face a different set of requirements. Under a PAC PPS, Medicare's existing setting-specific regulations (e.g., for services and staffing, care planning, administration, quality and safety, and patients' rights) would need to become more similar. Otherwise, PAC providers would face setting-specific requirements—with differing associated compliance costs—yet be paid unified payment rates. The requirements for some dimensions are similar and would be relatively straightforward to align (e.g., emergency preparedness and patients' rights), while others are not (e.g., the presence of registered nurses and physicians). Given the noninstitutional nature of the home health care setting, HHAs are likely to always have somewhat different regulatory requirements.

In prior reports, the Commission proposed a two-tiered approach to Medicare's requirements (Medicare Payment Advisory Commission 2019, Medicare Payment Advisory Commission 2016). All PAC providers would have to comply with a common (tier 1) set of requirements that would establish the essential competencies to treat any beneficiary using PAC, essentially creating new provider category (a PAC provider). Providers opting to treat patients with

specialized care needs—such as patients who require ventilator support or complex wound care—would need to meet additional requirements (tier 2) that spell out the competencies and specialized services required to treat the specific population. Providers who treat multiple specialized patient populations would be required to meet the requirements for each group. This policy would be akin to licensing by service line.

Ideally, the requirements and staff competencies would be based on evidence-informed guidelines. For example, as a starting point, CMS could consider the clinical guidelines for stroke patients developed by the American Stroke Association and the American Heart Association (Winstein et al. 2016). Any PAC provider that met the guidelines would be approved to treat stroke patients. The Canadian spinal cord injury guidelines are another example of evidence-based recommendations for care (Praxis Spinal Cord Institute 2021). Some states may have requirements for specialized care that could serve as models for this approach. For example, the District of Columbia has requirements for providers treating ventilator patients (District of Columbia 2019).

Shifting to requirements and skill-based competencies that are specific to the types of patients a provider treats would be a substantial departure from current regulations that are defined by setting. A common set of regulations for institutional providers (with a modified set for home health care) may raise requirements and costs for some providers. Developing and implementing them would likely take years.

Implement a value incentive program

To improve value, a value incentive program (VIP) would need to accompany the implementation of a PAC PPS. Otherwise, as with any FFS payment system, providers may increase revenues (by generating unnecessary volume) or lower their costs in ways that could harm patient care (such as stinting on services within the PAC stay). Currently, there are value-based purchasing programs for HHAs and SNFs but not for IRFs and LTCHs.

The Commission has done extensive work on the design features of a VIP for PAC. In a congressionally mandated report, the Commission evaluated the current SNF value-based purchasing program and recommended eliminating it and replacing it with a

new program (Medicare Payment Advisory Commission 2021). In a separate mandated report, the Commission identified key decisions that policymakers would need to make to develop and implement a PAC VIP (Medicare Payment Advisory Commission 2022).

Based on its principles for quality measurement, the Commission has identified the following design elements of a VIP: a small set of performance measures; strategies to ensure reliable measure results; a system of rewards with minimal “cliff” effects; an approach to account for differences in patients’ social risk factors using a peer-grouping mechanism (if needed); and a method to distribute the entire provider-funded pool of dollars. The Commission identified a starter set of quality and resource use measures (readmissions, successful discharge to the community, and Medicare spending per beneficiary) but underscored that CMS needs to develop a measure of patient experience and ensure that a measure of functional status is accurate. More work also needs to be done to define and measure the social risk of a provider’s patient population.

Key takeaways

Two separate bodies of work—ours and the work completed by CMS/ASPE—found that designing a PAC PPS is feasible and could establish accurate payments. Our work identified the preferred features of a design, and the CMS/ASPE prototype includes many of them. We identified modifications to the prototype that would make it more consistent with the intent of a

unified payment system. If CMS moves forward with the development of a PAC PPS, the setting adjusters should be temporary and phased out.

While designing a payment system is relatively straightforward, implementing the companion policies is not. They would require substantial changes to Medicare’s benefit and coverage rules and its conditions of participation for providers (requirements for SNFs). These changes would be controversial, require considerable resources to develop, and take many years to implement.

The changes that CMS has already implemented to the SNF, HHA, and LTCH PPSs are substantial and addressed at least one of the original reasons for a unified payment system: to correct shortcomings in the then-current PPSs. While the redesigned PPSs do not address the overlap of cases treated in different settings, they corrected the incentives that these providers had to furnish low-value care (including unnecessary rehabilitation therapy and paying LTCH rates to cases that did not require that level of service). Given the considerable agency resources that would be required to implement a unified payment system, CMS may consider smaller-scale site-neutral policies that would address some of the overlap in the patients treated in different settings.

Over the coming years, the Commission will look for opportunities for site-neutral policies that would be far simpler to implement. In the meantime, the Congress should implement the Commission’s standing recommendations to lower the level of payments to HHAs, SNFs, and IRFs. ■

10-APPENDIX A

Methodologies used to model a PAC PPS

The approaches taken by the Commission and the Centers for Medicare & Medicaid Services/Assistant Secretary for Planning and Evaluation (CMS/ASPE) were broadly similar but differ in important ways. Each is described below.

MedPAC modeling

To evaluate features of a post-acute care (PAC) prospective payment system (PPS), we used data from 2019 cost reports, claims filed during payment year 2019, and patient assessments that matched the claims based on admission dates (Wissoker and Garrett 2023). Although these data do not capture the coronavirus pandemic's effects on providers, they allow us to draw conclusions about design features of a PAC PPS.

We modeled costs and payments for each PAC stay. For inpatient rehabilitation facility (IRF) and long-term care hospital (LTCH) use, a stay was defined using claims data, with one stay per admission. Multiple claims for a skilled nursing facility (SNF) stay were consolidated into one stay using dates of claims, and they incorporated the revised interrupted stay policy.²²

PAC providers were required to collect uniformly defined information about a patient's functional status (the "GG" items) beginning on October 1, 2018, for institutional PAC providers and January 1, 2019, for home health agencies (HHAs). There are considerable missing data in the early months of collection by HHAs. Therefore, the Commission's analyses included stays admitted between April 1, 2019, and September 30, 2019, a period with more complete data. Given the continued uneven completeness of the data submitted by HHAs (and that some stays could not be matched to claims), the sample of stays with function data included different mixes of settings compared with all stays during the same six-month period.²³ Further, the home health stays with assessment data had higher average costs (13 percent higher) compared with stays that did not have assessment data; the average costs for stays in the other settings were essentially the same. The accuracy of predicted costs and the profitability across the patient groups for the two samples (all stays during the six months and only those with function data) were very similar. The ratios of predicted to actual costs and the ratios of PAC PPS payments to actual costs differed

by 2 percent or less for almost all reporting groups (for example, they differed for the low- and high-function patient groups). The results for categories with larger differences are explained by the mix of settings in the reporting group or the absence of the function data (the low- and high-functioning groups).

Actual cost of stays—For institutional PAC stays, 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 stay by department-specific cost-to-charge ratios. The costs of home health stays were estimated by multiplying the average cost per visit (by visit type, calculated from the cost report) by the number of visits in an episode, as reported on the claim. Because we modeled payment policies in place in 2022, we estimated costs for home health care stays in 30-day periods, not 60-day episodes. Costs were standardized for differences in area wages and labor share.

"Current" payments—We modeled "current" payments in 2019 to reflect payment policy rules in 2022. This modeling helps compare the impacts of a PAC PPS on providers after considering the key policy changes in HHAs, SNFs, and LTCHs. For SNFs, we estimated payments for 2019 under 2022 payment rules by running the claims through the new case-mix classification system. SNF payments also incorporate the revised policy for interrupted stays (those with an intervening hospital stay) and the variable per diem payment for physical therapy, occupational therapy, and nonancillary therapy components of the SNF PPS. For HHA payments, the 60-day home health episodes were divided into 30-day periods based on dates of service and each "piece" was run through the new HHA case-mix classification system. LTCH payments reflected what would have been paid under a fully implemented dual-rate structure—LTCH rates for qualifying stays and the lower of the inpatient hospital PPS rate or 100 percent of the cost of the case.²⁴ The estimates of payments are reasonable approximations of what payments would have been in 2019 under 2022 policies. Payments to IRFs were gathered from IRF claims (there were no major changes to the IRF payment policy). Payments were standardized for differences in area wages and labor share.

PAC PPS payments—PAC PPS payments were based on the predicted costs of stays using patient and stay characteristics. The risk-adjustment factors included the primary reason for treatment, comorbidities, functional status, cognitive status, measures of frailty, patient age, incontinence, difficulty swallowing, presence of severe wounds, disability status, severity of illness, risk score, vision impairment, the length of stay in an intensive care unit or coronary care unit during a prior hospital stay (if there was one), and an indicator for stays treated in a HHA.²⁵ Except for functional status, the factors were based on information from PAC and hospital claims. Patient assessment information was used to create the measure of functional status (see description of function score used in MedPAC analyses below).

PAC PPS payments were estimated using two models (with identical risk adjusters in each): one for routine and therapy services and another for nontherapy ancillary (NTA) services because NTA services are not included in the home health care benefit. Estimated PAC PPS payments equaled the sum of the two predicted payments.

PAC PPS payments for unusually short stays and high-cost stays were modeled using illustrative outlier policies. The high-cost outlier policy established separate outlier pools for HHA and institutional PAC stays. The pool was set at 5 percent of spending and paid 80 percent of the difference between net loss from the stay (PAC PPS payment minus predicted cost) and the outlier threshold amount. The illustrative short-stay outlier policy paid a per day rate (or per visit for HHA stays) set at the average cost per day (or per visit) plus 20 percent to reflect that costs are generally higher at the beginning of a stay. “Short stay” was defined as the bottom decile of length of stays for institutional PAC stays and, for HHA stays, having received a low-utilization payment adjustment.

Function score used in MedPAC analyses—Function scores were created using uniformly defined and validated information about a patient’s ability to perform activities of daily living at admission. We created a composite function score of six items that we weighted equally—a patient’s ability to perform toileting hygiene, bathe/wash, roll left/right, walk 10 feet, transfer from sitting to lying, and transfer from sitting to standing. Assessments with missing data

or with items recorded as “activity not attempted” (ANA) for three or more items were dropped from the analysis due to concerns about the accuracy of this information.²⁶ For assessments with one or two items recorded as ANA, we calculated a reweighted composite based on the four or five items without the ANA items.

CMS/ASPE modeling

A full description of the CMS/ASPE methodology can be found in their report to the Congress (RTI International 2022).

CMS/ASPE used claims and patient assessments from 2017 through 2020 and cost reports from 2017 to develop its design. The study samples were a random sample of 50 percent of FFS beneficiaries who used PAC services and included all PAC stays associated with them. Analyses of the design were conducted using stays from 2017 through 2019, and separately for 2020 stays. Extending the analyses to 2020 allowed CMS/ASPE to test the model’s accuracy for a year of considerable change (new PPSs, the effects of the coronavirus pandemic, and the policies enacted during the public health emergency).

Stays were based on claims. CMS/ASPE consolidated consecutive HHA 60-day periods into a single stay.

Actual cost of stays—For institutional PAC stays, 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 stay by cost-to-charge ratios (using facility-level averages). The costs of home health stays were estimated by multiplying the average cost per visit (by visit type, calculated from the cost report) by the number of visits in an episode, as reported on the claim. The costs of an HHA stay aggregated the costs for consecutive 60-day episodes. Costs were standardized for differences in area wages, labor share, and inflation.

“Current” payments—Current payments were gathered from claims and reflect the policies in place between 2017 and 2020. SNF and HHA payments reflect the payments under the prior PPSs for 2017 and 2018

and under the current revised PPSs for 2019 and 2020. Payments for consecutive HHA episodes were aggregated to a stay. LTCH payments include the blended rates for cases that did not meet qualifying criteria. Payments were standardized for differences in wages.

PAC PPS payments—In the CMS/ASPE prototype, a PAC PPS payment would be based on four components: a case-mix group, comorbidity tier, PAC setting, and whether location of the provider is rural. Payment for case-mix group would be based on the predicted costs of stays using patient and stay characteristics, including the primary reason for treatment, functional status, cognitive status, incontinence, patient age, prior hospital use, and prior PAC use. After a stay was assigned to a broad clinical group based on the primary reason for treatment, the stay was assigned to a case-mix group based on diagnoses or, in the case of some HHA stays, their assignment to a medication management, teaching, and assessment case-mix group under the current HHA PPS. The case-mix group structure was developed using classification and regression tree analyses. The relative weight for each case-mix group was estimated using regression analyses.

The comorbidity adjustment is based on 148 factors that capture secondary diagnoses, including difficulty swallowing and presence of severe wounds. Each stay was assigned to one of five comorbidity tiers based on the number and costliness of the comorbidities. The size of the adjustment associated with each tier varies by broad clinical group to capture their differing effects on patient costs.

Separate adjusters for rural location and PAC setting were based on regression analyses and are specific to each broad clinical group.

The final payment adjustment (that would be applied to a base payment) was estimated by multiplying the relative weight for the case-mix group by the comorbidity tier, the rural adjuster, and the setting adjuster.

Function score—CMS/ASPE created a function score for each PAC stay. Because uniform functional assessment data were not available for stays in 2017 and 2018, CMS/ASPE developed a crosswalk between the setting-specific patient assessments to create a composite score. Uniform (“GG”) items were used once they were available for 2019 and 2020 stays. The composite included a patient’s ability to perform the following nine activities of daily living: eating, oral hygiene, toileting hygiene, sitting to lying, lying to sitting on the side of a bed, sitting to standing, chair/bed-to-chair transfer, toilet transfer, and walking 50 feet. The smaller set of items used for HHA stays in 2017 and 2018 included lying to sitting on the side of a bed, dressing upper and lower body (separate items), and transferring.

Some items may be recorded as ANA because the patient could not perform an activity—either for safety reasons, because the activity was not applicable due to an environmental limitation, or because the patient refused to perform the activity. In the prototype design, CMS/ASPE examined a patient’s ability to perform other items and, based on these analyses, recoded the ANA items to what it referred to as a more appropriate (and higher) level of function. ■

Endnotes

- 1 The guidelines for stroke care from the American Heart Association/American Stroke Association are an important exception to the general lack of guidelines (Winstein et al. 2016).
- 2 Work on SNF payments conducted for the Commission by the Urban Institute found that as the provision of therapy increased, the costs of patients increased but payments increased even more, and that the differences had grown larger over time (Medicare Payment Advisory Commission and The Urban Institute 2015). Similarly, for the average HHA, the relative weights (and associated payments) assigned to cases receiving increasing levels of therapy grew faster than treatment costs (Medicare Payment Advisory Commission 2011).
- 3 CMS implemented the SNF Patient-Driven Payment Model on October 1, 2019. Therapy minutes per SNF stay decreased 27 percent between August 2019 and February 2020 and have continued to slowly decline since then (Medicare Payment Advisory Commission 2023). The HHA Patient-Driven Groupings Model was implemented on January 1, 2020. Between 2019 and 2021, the number of home health visits per 30-day period declined 4.7 percent, with therapy visits accounting for about two-thirds of the reduction (Medicare Payment Advisory Commission 2023).
- 4 The LTCH dual-rate structure was phased in between 2016 and 2019. A qualifying LTCH stay either (1) is immediately preceded by an acute hospital stay that included at least three days in an intensive care unit or (2) is one in which the patient received mechanical ventilation services in the LTCH for at least 96 hours. Cases that do not qualify for LTCH rates are paid (lower) inpatient acute hospital rates.
- 5 CMS also revised the patient functional assessment items used to categorize IRF stays into case-mix groups, but the structure of the IRF PPS was not changed.
- 6 Without this adjustment, predicted costs would be too high for HHA stays (and would result in overpayment) and too low for institutional PAC (I-PAC) stays (and would result in underpayment). HHAs have considerably lower infrastructure costs compared with I-PAC stays, and the stays do not include the costs of nontherapy ancillary services because the services are not covered in the home health care benefit. In 2019, the average cost of a home health 30-day period was \$1,685, the average cost of a SNF stay was \$13,179, the average cost of an IRF stay was \$18,393, and the average cost of an LTCH stay was \$42,647.
- 7 “Lowest functioning” includes stays in the bottom quartile of the distribution of function scores; “highest function” includes stays in the top quartile. The function score is a composite of a patient’s ability to perform toileting hygiene, bathe/wash, roll left/right, walk 10 feet, transfer from sitting to lying, and transfer from sitting to standing. See Appendix 10-A for a description of the calculation of the function score.
- 8 A patient’s functional status is used to assign the stay to a case-mix group in the HHA, SNF, and IRF PPSs. Payments are higher for patients with lower functioning because they generally require more resources.
- 9 The clinician assessing the patient may select an ANA code if a functional ability item cannot be assessed because the patient refused, the patient did not perform this activity prior to the current illness or injury, or the activity was not attempted due to environmental limitations (e.g., lack of equipment, weather constraints) or medical conditions or safety concerns.
- 10 In the IRF PPS, CMS recodes the ANA codes for “toilet transfer” to “patient requires substantial/maximal assistance” rather than “most dependent.”
- 11 The HIV medical and rehabilitation groups are not shown because they are small, with fewer than 1 percent of stays.
- 12 For a patient group that is treated essentially in one setting (such as ventilator cases in LTCHs), payments would be based on the predicted costs of cases in that setting, with almost no averaging across settings.
- 13 Payments to rural IRFs are raised by 14.9 percent. SNFs have separate rural and urban base rates for their six components (the rural base rates are higher for the therapy and non-case-mix components and base rates are lower for the nursing and nontherapy ancillary components). Payments to HHAs in frontier counties are raised by a 1 percent add-on during 2023; otherwise, there has been no differential for rural HHAs. The LTCH PPS does not include rural adjustments.
- 14 The HHA PPS includes an adjustment for HHA stays that follow a hospitalization. Rates for posthospital stays are raised by the adjustment.
- 15 Examples of medical and diagnosis-related groups include invasive ventilator, infections, and certain types of cancer. Examples of the rehabilitation and function-related clinical groups include stroke and lower extremity fracture with joint

- replacement. The medication management, teaching, and assessment clinical groups are specific to home health stays and include respiratory and cardiac groups, among others.
- 16 An HHA stay would include consecutive episodes. Because consecutive home health episodes can span many months (indeed, some use can be essentially continuous for a year), we previously found that paying for consecutive home health care would overpay for short stays and underpay for long ones (Medicare Payment Advisory Commission 2019). If development of a PAC PPS proceeds, CMS should assess whether this definition of a stay would result in systematic over- and underpayment and, if warranted, modify this feature.
 - 17 Our estimates of costs per stay, current payments, and payments under a PAC PPS assume current coverage and cost-sharing rules.
 - 18 The three-day hospitalization requirement was waived during the COVID-19 PHE.
 - 19 A spell of illness, sometimes referred to as a benefit period, begins with the first day of a hospital or SNF stay and ends 60 days after the beneficiary has not been in either a hospital or SNF. For IRF and LTCH stays that exceed 60 days (which includes the days in a prior hospital stay), the beneficiary is responsible for a \$341 daily copayment (in 2019) for days 61 through 90 of hospital care. For stays that exceed 90 days, in 2019 the daily copayment is \$682, and Medicare coverage is limited to a lifetime reserve of 60 additional days.
 - 20 Many beneficiaries have some form of supplemental coverage, so they may not incur the cost sharing associated with PAC use. A uniform benefit could change beneficiaries' decisions about whether to purchase supplemental insurance, switch plans, or enroll in Medicare Advantage.
 - 21 Because hospital stays are much shorter than when the requirement was implemented with the enactment of Medicare in 1965, in 2015, the Commission recommended that the three-day SNF policy be revised to allow for up to two outpatient observation days to count toward meeting the criterion. That way, beneficiaries who spend three days in a hospital but much of it in observation status would qualify for coverage.
 - 22 CMS defines an "interrupted" SNF stay as one in which a patient is discharged from Part A-covered SNF care and subsequently readmitted to Part A-covered SNF care in the same SNF (not a different SNF) within three days or less after the discharge (the "interruption window"). If both conditions (duration of the interruption and same SNF) are met, the subsequent stay is considered a continuation of the previous "interrupted" stay. If the patient is readmitted to the same SNF more than three consecutive calendar days after discharge, or in any instance when the patient was admitted to a different SNF (regardless of the length of time between stays), then the interrupted stay policy does not apply and the subsequent stay is considered a new stay.
 - 23 The sample with function data included 71 percent HHA stays (compared with 80 percent in the full six-month sample); 23 percent SNF stays (compared with 16 percent in the full six-month sample); 5 percent IRF stays (compared with 4 percent in the full six-month sample); and 1 percent LTCH stays.
 - 24 Although the transition to a fully phased-in site-neutral policy was suspended during the public health emergency, we modeled it because it would give a better indication of the impacts of a PAC PPS than if we had not considered it.
 - 25 The HHA indicator was included to reflect this setting's substantially lower costs compared with stays treated in the institutional settings. Without this adjustment, the predicted costs (used to set PAC PPS payments) would be too high for HHA stays and too low for institutional PAC stays.
 - 26 We were concerned that the items recorded as ANA may not accurately capture a patient's condition. Some providers may use ANA codes to boost payments because CMS recodes the items as "most dependent," which will contribute to a lower score and would result in a higher payment. In addition, some providers may have been confused about how to code ANA given the changes CMS made to the items and coding used to determine function scores.

References

- Agarwal, D., and R. M. Werner. 2018. Effect of hospital and post-acute care provider participation in accountable care organizations on patient outcomes and Medicare spending. *Health Services Research* 53, no. 6 (December): 5035–5056.
- Agarwal, R., J. M. Liao, A. Gupta, et al. 2020. The impact of bundled payment on health care spending, utilization, and quality: A systematic review. *Health Affairs* 39, no. 1 (January): 50–57.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2022. Medicare program; prospective payment system and consolidated billing for skilled nursing facilities; updates to the quality reporting program and value-based purchasing program for federal fiscal year 2023; changes to the requirements for the Director of Food and Nutrition Services and physical environment requirements in long-term care facilities. Final rule. *Federal Register* 87, no. 148 (August 3): 47502–47618.
- District of Columbia. 2019. District of Columbia municipal regulations: Nursing facilities. Title 22B. Chapter 3215. Ventilator care services. <https://casetext.com/regulation/district-of-columbia-administrative-code/title-22-health/subtitle-22-b-public-health-and-medicine/chapter-22-b32-nursing-facilities/rule-22-b3215-ventilator-care-services?q=22-B%20DCMR%20%C2%A7%203215&sort=relevance&p=1&type=case&resultsNav=false>.
- Gage, B., M. Morley, L. Smith, et al. 2012. *Post-Acute Care Payment Reform Demonstration: Final report, volume 1 of 4*. Prepared under contract to the Centers for Medicare & Medicaid Services. Baltimore, MD: CMS.
- Institute of Medicine. 2013. *Interim report of the Committee on Geographic Variation in Health Care Spending and Promotion of High-Value Care: Preliminary committee observations*. Washington, DC: The National Academies Press.
- Marrufo, G., A. Bradley, J. Somers, et al. 2021. *CMS Bundled Payments for Care Improvement Initiative Models 2-4: Year 7 Evaluation & Monitoring Annual Report*. Falls Church, VA: Lewin Group. <https://innovation.cms.gov/data-and-reports/2021/bpci-models2-4-yr7evalrpt>.
- McWilliams, J. M., L. G. Gilstrap, D. G. Stevenson, et al. 2017. Changes in postacute care in the Medicare Shared Savings Program. *JAMA Internal Medicine* 177, no. 4 (April 1): 518–526.
- Medicare Payment Advisory Commission. 2023. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2022. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2021. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2020. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2019. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2018. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2017a. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2017b. *Report to the Congress: Regional variation in Medicare Part A, Part B, and Part D spending and service use*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2016. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2012. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2011. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2008. *Report to the Congress: Reforming the delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission and The Urban Institute. 2015. *The need to reform Medicare's payments to SNFs is as strong as ever*. Washington, DC: MedPAC/Urban Institute.
- Navathe, A. S., E. J. Emanuel, A. S. Venkataramani, et al. 2020. Spending and quality after three years of Medicare's voluntary bundled payment for joint replacement surgery. *Health Affairs* 39, no. 1 (January): 58–66.

Praxis Spinal Cord Institute. 2021. Canadian spinal cord injury practice guideline (Can-SCIP). <https://kite-uhn.com/can-scip>.

RTI International. 2022. *Report to Congress: Unified payment for Medicare-covered post-acute care*. Report prepared for the Centers for Medicare & Medicaid Services and the Office of the Assistant Secretary for Planning and Evaluation. Research Triangle Park, NC: RTI International. <https://www.cms.gov/files/document/unified-pac-report-congress-july-2022.pdf>.

Urban Institute, Department of Health and Human Services. 2021. *Evaluating potential proxies for patient functional status in a unified post-acute care payment system for Medicare*. Report prepared for the Medicare Payment Advisory Commission. Washington, DC: MedPAC.

White House. 2022. Protecting seniors by improving safety and quality of care in the nation's nursing homes. Fact sheet. February 28. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/>.

Winstein, C. J., J. Stein, R. Arena, et al. 2016. Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 47, no. 6 (June): e98–e169.

Wissoker, D., and B. Garrett. 2023. *Updated simulation of a prospective payment system for post-acute care*. Report prepared by the Urban Institute for the Medicare Payment Advisory Commission. Washington, DC: MedPAC. https://www.medpac.gov/wp-content/uploads/2022/04/Apr22_IPF_CONTRACTOR_SEC.pdf.

Wissoker, D., and B. Garrett. 2019. *Simulating an episode-based payment system for post-acute care*. Washington, DC: The Urban Institute.