

CHAPTER

3

**Mandated report:
Developing a unified payment
system for post-acute care**

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

The Commission has voted to forward to the Congress the report on the unified post-acute care payment system required by the Improving Medicare Post-Acute Care Transformation Act of 2014.

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

Mandated report: Developing a unified payment system for post-acute care

Chapter summary

Post-acute care (PAC) providers—skilled nursing facilities, home health agencies (HHAs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals—offer important recuperation and rehabilitation services to Medicare beneficiaries. Though the similarity of patients treated by different PAC providers is well documented, Medicare continues to pay different prices for similar patients depending on the setting. Currently, Medicare pays for PAC services using separate prospective payment systems (PPSs) for each setting, with two of those settings encouraging the provision of therapy services over medically complex care. Furthermore, there is considerable variation in the supply and use of PAC providers across the country. There is also an absence of evidence-based criteria guiding decisions about where beneficiaries should be treated and how much care they should receive. While a common payment system does not address all of these shortcomings, it would begin to base payments for PAC on patient characteristics, not on the site of service, and begin to eliminate the distinctions between settings.

Section 2(b)(1) of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT) requires the Commission to develop a PPS spanning the four PAC settings, using the uniform assessment data gathered during CMS’s Post-Acute Care Payment Reform Demonstration (PAC-PRD). The Act requires the Commission to submit a report by June 30, 2016, that recommends features of a unified, cross-setting PAC payment system and,

In this chapter

- Introduction
- Features of a PAC PPS
- Broad approach to designing a PAC PPS
- Findings from our full and administrative models
- Policy considerations in implementing and maintaining the PAC PPS
- Changing regulatory requirements under a PAC PPS
- Companion policies to dampen FFS incentives
- Monitoring provider responses to a PAC PPS
- Implications for the design of a PAC PPS

to the extent feasible, considers the effects of moving to such a system. IMPACT also requires the Secretary of Health and Human Services to collect and analyze common patient assessment information and submit a report to the Congress recommending a PAC PPS. The Secretary’s report is expected sometime in 2022. After the Secretary’s report, the Commission is required to submit a second report outlining the details of a prototype design for a PAC PPS, which, according to the statute, will be due in 2023.

This chapter meets IMPACT’s requirement for the Commission’s first report. The Commission voted to forward to the Congress this report on the design of a unified post-acute care payment system.

We used a two-part strategy, each with its own data set, to consider the design of a unified PAC PPS and estimate the effect of a PAC PPS. First, we used data from the PAC–PRD to develop models that predicted the cost of PAC stays using patient and stay characteristics. Costs predicted this way could form the basis of payments under a PAC PPS. The PAC–PRD gathered uniform information about patients that is currently unavailable for other stays (such as their functional status and the costs of the routine care they received), but its sample is limited. So while the sample could illustrate what a “best possible” design might include, its lack of representativeness undercuts its utility in modeling a new payment system’s effects. Therefore, after confirming that administratively available data could accurately predict the costs of most stays, we used a second large data set (all PAC stays in 2013) to further explore the design and impact of a PAC PPS.

Our work confirms that a PAC PPS is feasible and within reach. Given the long-standing problems with Medicare’s payment for PAC, moving to a unified PAC PPS is highly desirable. However, a truly reformed PAC payment system will ultimately need to embrace episode-based payments to focus providers on the care needs and outcomes of a patient throughout the episode of care and to dampen the incentives to furnish unnecessary services. In the interim, a uniform PPS that bases payments on patient characteristics will focus providers on each beneficiary’s care needs while reducing program spending on unnecessary services.

Design of a PAC PPS

Models that use patient characteristics were able to accurately predict the average costs of most stays. We “stress tested” the models by examining how accurate the predictions were for 40 patient groups, including 4 definitions of medically complex stays, and found the models were accurate for almost all of the groups. Regarding patient groups with predicted costs that differed substantially from the stays’ actual costs, current practices (such as the provision of therapy unrelated to patient

characteristics) or the cost structures of high-cost settings explained the results. We conclude the following:

- It is feasible to develop a common unit of service (a stay) and a uniform adjustment method.
- Patient and stay characteristics can form the basis of risk adjustment.
- Given differences in coverage across PAC settings, separate models should be used to establish payments for ancillary services other than therapy, called nontherapy ancillary services, and for the combination of routine and therapy services.
- Because the costs of HHAs are so much lower compared with institutional PAC care, payments for stays in HHAs will need to be adjusted to avoid large overpayments to these agencies.
- Available administrative data can accurately predict the costs for most PAC stays, but patient assessment data collected using a common assessment tool can increase the accuracy for certain types of stays.
- A short-stay outlier policy (to prevent large overpayments) and a high-cost outlier policy (to prevent large losses by providers and protect beneficiary access to care) will be necessary components.
- There is not strong support for the current adjusters for rural providers or IRFs that participate in teaching programs.
- Payment adjustments to capture differences in costs beyond providers' control (such as the cost of labor) should be made on an empirical basis only and should apply to all stays, regardless of setting.
- Initial payments can be based on current practices and costs, but over time, payments should be revised to reflect appropriate, high-quality care provided as efficiently as possible.

Impact of a PAC PPS

We estimate that a PAC PPS would redistribute payments among types of stays (e.g., from physical rehabilitation to medically complex care) and from higher cost settings and providers to lower cost settings and providers. Under a PAC PPS, the profitability would be more uniform across different types of stays or patients; therefore, providers would have less financial incentive to admit certain types of patients over others. At the same time, payment would no longer be based in part on the number of services furnished, so providers would have less financial incentive to provide unnecessary services. Our estimates should be thought of as indicating the direction that the redistribution of payments would take and the relative cost values, but should not be thought of as point estimates. Given the objective of a PAC PPS

to base payment on patient characteristics rather than setting, policymakers should expect these directional impacts.

Based on Medicare’s experience with the implementation of setting-specific payment policies, we would expect PAC providers to be responsive to the policy changes that would accompany a PAC PPS. Specifically, we would expect high-cost providers to lower their costs to match the PAC PPS payments and all providers to change their coding practices to record patient diagnoses more completely. In addition, we would expect providers to be less likely to engage in financially motivated selection of certain types of patients over others. In the interim, a transition period, during which providers are paid a blend of “old” and “new” rates, would give providers time to adjust their costs. A high-cost outlier policy that begins with a relatively large outlier pool (but made smaller over time) would help providers adapt and protect patient access to needed care.

Conforming regulatory requirements

As Medicare begins to pay PAC providers under a single payment system, it needs to give providers more flexibility to offer services that span the PAC continuum of care. The Commission considered setting-specific regulations that might be waived when the PAC PPS is implemented. Two time lines should be considered for waiving regulatory requirements:

- **Near term**—Concurrent with the PAC PPS implementation, consider waiving select setting-specific requirements.
- **Longer term**—Develop a “core” set of conditions of participation for all PAC providers and a limited set of additional requirements for providers that opt to treat patients who require specialized care. Regulations should focus on requirements needed to be able to treat specific types of patients rather than on requirements geared to specific settings.

In addition, as Medicare moves to a unified PAC PPS, the program should consider a standard cost-sharing requirement when beneficiaries use any PAC service. Under this policy, beneficiaries could select a provider and setting based on the care they would expect to receive rather than on the financial implications of selecting one setting over another.

Implementation issues

While a PAC PPS and the accompanying companion policies would require large changes for many providers, the PAC industry has consistently shown that it is highly responsive to policy changes. Further, recent acquisition and merger activity indicates a high level of interest among at least some PAC providers in offering

a continuum of PAC. That said, to temper the initial impact of the PAC PPS, the Secretary will need to consider:

- **The transition period**—This period refers to the number of years over which the transition from “old” to “new” payments, and the blend of the two, takes place. Given how well administrative data could accurately predict the cost of most clinical groups of stays and the extended time table outlined in IMPACT, the Secretary could consider moving ahead of schedule to implement a PAC PPS. As functional status data become available, the PPS could be revised to incorporate these patient characteristics.
- **The level of payments**—We estimate that payments in 2013 were 19 percent higher than the cost of stays. Consistent with the Commission’s recommendations over multiple years, payment rates for PAC need to come down. A transition policy should consider when and how large the rebasing should be.

Over time, the risk adjustment factors could be refined if systematic overpayments or underpayments for certain types of cases occurred. As in any payment system, the relative weights should be recalibrated regularly to reflect changes in practice patterns. The Secretary should also have the authority to periodically rebase payments so they remain aligned with costs.

Companion policies to adopt when implementing a PAC PPS

Although a common PPS for PAC stays would begin to rationalize Medicare’s payments, it would not correct the underlying incentives in fee-for-service payment to increase volume or provide low-quality care if it is less costly to do so. Therefore, the Secretary should implement the following companion policies to dampen these incentives:

- a readmission policy to prevent unnecessary hospital readmissions and
- a value-based purchasing policy to tie payments to outcomes (to protect beneficiaries against stinting) and resource use (to prevent unnecessary service use, including serial PAC stays).

In the longer term, Medicare needs to move providers toward greater accountability for spending and quality over an episode of care. Providers would be at financial risk for the entire episode of care, thereby (1) dampening the incentive to generate unnecessary PAC stays or to stint on needed services and (2) encouraging care coordination. By aligning payments with the cost of stays across PAC settings, a unified PPS represents a good transition to broader episode-based payment reforms that encourage care organized around the episodes rather than settings.

The Commission underscores that until a PAC PPS is implemented, CMS and the Congress need to move forward with standing recommendations that would improve the accuracy and equity of payments within each setting. Because the current time line for implementing a PAC PPS is years away, these refinements to the individual payment systems would better align program payments to providers' costs, eliminate known biases in the payment systems, and help ensure access for beneficiaries with varying care needs.

Monitoring provider responses to the PAC PPS

When a unified PAC PPS is implemented, the Secretary will need to establish a monitoring program to detect inappropriate provider responses, including:

- choosing to treat some patients and not others;
- stinting on care that may lower quality and outcomes;
- providing unnecessary PAC stays; and
- delaying care that shifts, but does not lower, program spending.

As indicators of the adequacy of Medicare's payments, the Secretary should also track Medicare margins and cost growth. As any unintended consequences of the PPS are documented, the Secretary would need to make refinements. ■

Introduction

Post-acute care (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. Among beneficiaries enrolled in fee-for-service (FFS) Medicare and discharged from an acute care hospital in 2013, 42 percent went on to use PAC. In 2014, Medicare spent almost \$60 billion on PAC services—\$29 billion in SNFs, \$18 billion in HHAs, \$7 billion in IRFs, and \$5 billion in LTCHs.

There is considerable overlap in types of patients treated across the four settings.¹ Several factors account for this overlap: variation in the supply and use of PAC providers across the country, lack of clear criteria identifying which patients need PAC (and how much), and a dearth of evidence-based guidelines to direct beneficiaries to the setting with the best outcomes (Medicare Payment Advisory Commission 2014). Despite the overlap in patients, Medicare continues to pay considerably different rates for similar patients depending on the setting (Gage et al. 2012). Reflecting this ambiguity, Medicare per capita spending for PAC varies more than for any other type of service (Medicare Payment Advisory Commission 2011b). Because the settings overlap in the mix of patients PAC providers treat, Medicare ideally should move away from separate PAC payment systems and toward a common payment system that spans the four settings, with payments based on patient characteristics, not on the site of service.

The Congress has asked for guidance on how to establish a unified payment system by requesting two reports from the Commission. The Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT) requires the Commission to first evaluate and recommend features of a prospective payment system (PPS) that spans the PAC settings, using the uniform assessment data gathered previously during CMS's Post-Acute Care Payment Reform Demonstration (PAC-PRD) (completed in 2011) (see text box, p. 102). In this first report, the Commission presents an approach for a unified, cross-setting PAC payment system and, to the extent feasible, considers the impact of moving to such a system. IMPACT also requires the Secretary of Health and Human Services to collect and analyze common patient assessment information and submit a report to the Congress recommending a PAC PPS. The Secretary's report is expected sometime in 2022. After

the Secretary's report, the Commission is required to submit a second report outlining the details of a prototype design for a PAC PPS that, according to the statute, will be due in 2023. On this timetable, a PAC PPS would be implemented after 2023, perhaps as early as 2025.

This chapter meets IMPACT's requirement for the Commission's first report, due June 30, 2016. We found that a unified PAC PPS is feasible with the currently available administrative data, though we acknowledge that patient assessment data would improve the accuracy of payments for some types of patients. Our findings are summarized in Table 3-1, pp. 64–65. Given the well-established problems with the current PAC payment landscape, it is imperative that policymakers advance a unified PPS as soon as practicable.

Features of a PAC PPS

The primary objective of PAC payment reform is to establish a common payment system that spans the four PAC settings, with payments based on patient characteristics, not on the site of service. Under a unified PAC PPS, a common unit of service and a common base price would be established. Setting the stay as the unit of service would eliminate the incentive under per diem payments, such as in the current SNF payment system, to keep patients longer than necessary to generate additional revenues. The per stay payment would be adjusted up or down, depending on the patient's condition, comorbidities, functional status, cognitive status, and impairments. Payments would be higher for beneficiaries who were sicker or more functionally impaired when those conditions raised the cost of care. Ideally, across various conditions treated, payments would be equally proportional to the costs of the stay, so there would be no advantage to treating some conditions over others. The amount of therapy provided within a stay would no longer drive payment, thus correcting this shortcoming of the current SNF and HHA payment systems.

As in any PPS, a unified design would include the following elements:

- a uniform unit of service defining the encounter for which payment will be made (such as a stay);
- a base rate reflecting the cost to provide services included in the unit of service;

**TABLE
3-1**

Summary of findings for a PAC PPS (cont. next page)

Design features	Discussion
Common unit of service (the stay)	A common unit avoids the incentive to furnish unnecessary days or visits, but the incentive to discharge patients prematurely needs to be monitored.
Common risk adjustment using administrative data on patient characteristics	Administrative data can establish accurate payments for most types of stays. Payments are tied to patient characteristics and avoid the incentive to furnish unnecessary rehabilitation care as a way to generate payments. In the future, functional assessment data could be added to the risk adjustment.
Two payment models to reflect differences in benefits across settings	One model establishes payments for routine and therapy care; a separate model establishes payments for nontherapy ancillary care (such as drugs).
Alignment of payments for home health stays	Without aligning payments to costs of home health stays, care in this setting would be considerably overpaid.
Empirically based payment adjusters applied to all settings	Setting-specific adjusters would reinforce adverse incentives under existing separate payment systems.
High-cost outlier policy	A high-cost outlier policy helps ensure access to care for high-cost patients while protecting providers that treat them from large losses.
Short-stay outlier policy	A short-stay outlier policy protects the program from large overpayments and discourages premature discharges.
No broad rural adjusters	Results do not support a broad rural or frontier adjustment. However, the Secretary should evaluate the need for an adjustment for low-volume, isolated providers.
No IRF teaching adjustment	Results do not support an IRF teaching adjustment. Combined with an outlier policy, risk adjustment could establish accurate payments.
More data regarding an adjustment for providers treating high shares of low-income patients	Our examination found a possible need for an adjustment for IRFs with the highest shares of low-income patients; we lacked the data to examine providers in settings other than IRFs. The Secretary should evaluate the need for such an adjustment across all PAC settings.
Impact of changes	
Payment shifts among types of stays	Changes increase payments for medical and most medically complex stays and reduce payments for stays with high rehabilitation services unrelated to patient care needs.
Payment shifts among providers and settings	Changes in payments reflect a provider's mix of the types of stays it treats, its therapy practices, and its existing cost structures.
More uniform profitability across types of stays	Changes dampen incentive to selectively admit certain types of patients.
Conforming regulatory requirements	
Near term: Waiving of select regulatory requirements	The Secretary should evaluate which setting-specific regulatory requirements should be waived when the PPS is implemented. Waiving regulatory requirements would give providers flexibility to offer a broad mix of PAC services and would allow providers to begin to change their cost structures to adapt to a new payment system.
Longer term: "Core" set of requirements for all PAC providers and specific requirements to treat patients with specialized care needs	Core and specific requirements move toward uniform requirements across settings and provide flexibility to treat specialized patient care needs.
Standardized beneficiary cost sharing for PAC	Standardized cost sharing reduces the influence of financial considerations for patients choosing where to receive PAC.
Note: PAC (post-acute care), PPS (prospective payment system), IRF (inpatient rehabilitation facility).	

**TABLE
3-1**

Summary of findings for a PAC PPS (cont.)

Design features	Discussion
Implementation issues	
Level of payments	Some amount of rebasing is necessary to align payments and costs.
Transition period	Transition period gives providers time to adjust their cost structures. Providers could be allowed to skip the transition and elect to be paid under the new PAC PPS. An initial PAC PPS could be implemented sooner using administrative data for risk adjustment, with future refinements to the risk adjustment implemented once uniform patient assessment data are available.
Authority for Secretary to periodically revise and rebase payments	Refinements will maintain alignment of payments to costs.
Companion policies	
Readmission policy	Readmissions policy counters the incentive to furnish poor-quality care that might result in hospital readmissions.
Value-based purchasing that includes a resource use measure	Value-based purchasing ties payments to outcomes and helps prevent unnecessary service provision, including serial PAC stays.
Monitoring	
Monitoring of quality, volume of PAC stays, and selective admissions	Measures would detect inappropriate provider responses, including stinting on care, generating unnecessary PAC stays, delaying care, and patient selection (which could indicate a misalignment of payments to costs).
Evaluation of the adequacy of Medicare payments	Evaluation signals whether payments are adequate to cover the costs of efficient providers in treating beneficiaries, thereby helping to ensure appropriate access to care.
Note: PAC (post-acute care), PPS (prospective payment system), IRF (inpatient rehabilitation facility).	

- a case-mix adjustment reflecting differences in patient severity that affect costs, which would raise or lower the base rate;
- other adjusters to capture differences in costs beyond the provider’s control, such as the cost of labor, and unmeasured differences in the cost of care. Under current law, some PPSs adjust payments for rural location, the unmeasured costs of training residents, and the unmeasured costs of treating low-income patients. In a unified PPS, any adjuster would apply to all settings;
- short-stay policies to adjust payments for unusually short (and low-cost) stays; and
- outlier payments to adjust payments for unusually high-cost stays.

A PAC PPS would continue to pay on an FFS basis, so incentives would remain for providers to admit patients

with marginal care needs, provide the minimum number of services to obtain a full payment, and discharge patients quickly to another provider or setting. A PAC PPS, therefore, should not be considered the end point for payment reform; rather, the unified payments it would establish would represent a necessary first step in a longer term restructuring of how Medicare should pay providers.

Ultimately, the Commission believes Medicare needs to move away from FFS payment and toward integrated payment and delivery systems, such as episode-based payments. Episode-based payments would put providers at risk for all health care spending (including an average number of physician visits) and outcomes (such as readmissions) during a sustained period of time, such as 90 days. Episode-based payments would dampen the incentives to shift care beyond the initial PAC stay because providers would be responsible for care throughout the episode (though the incentive to generate PAC episodes would remain). Toward this end, in 2016, CMS will begin

Better estimates of stay-level routine costs are needed

Current Medicare claims do not include information about the relative routine resource use across stays, most notably differences in nursing care required by patients. Facilities charge a uniform room rate for all patients, but nursing costs—which on average account for about half of a post-acute care stay’s costs—vary considerably across patients’ nursing care needs.² To estimate the costs of stays accurately, CMS needs stay-level information about the variation in these routine costs. Without such information, CMS must either assign every stay or day the same routine costs (resulting in routine payments that are too high for some stays and too low for others) or rely on data collected from the Post-Acute Care Payment Reform Demonstration (PAC-PRD) that is not representative and over time will grow increasingly out of date.

For this study, we relied on the resource use information gathered by the PAC-PRD to estimate

routine costs, but a long-term solution is needed so that payments can vary by differences in patients’ needs for nursing care. CMS could require providers to establish differential daily rates to match the nursing requirements for the patient day. Charges would be higher for more intensive days and lower for days with lower nursing resource use. Alternatively, CMS could issue guidance on the use of existing revenue centers to bill for days with higher nursing intensity. Basing routine charges on resource needs and converting these charges to costs would make costs proportionately higher for patients with higher care needs. Another option would be to periodically field a study of resource use from a representative sample of providers. Because fielding such a study would be costly, it would be unlikely to be conducted on a regular basis, so its findings would become outdated over time. In addition, a sample would be limited in how accurate the costs could be for subgroups of stays. For these reasons, it is not a preferred solution. ■

a 5-year test in 67 markets of a 90-day bundled payment for joint replacement cases. By requiring hospitals located in these markets to participate, CMS will help ensure that participating providers are representative and that the findings will be generalizable.³ By establishing a uniform payment based on patient characteristics, a PAC PPS would create a preferred framework on which to build episode-based payments.

Broad approach to designing a PAC PPS

This chapter meets IMPACT’s requirements for the Commission’s first report, due June 30, 2016. The mandate requires the Commission to use data from the PAC-PRD to evaluate and recommend features of a unified PPS. The law also requires the Commission to consider, to the extent feasible, the impact of moving from setting-specific PPSs to a unified payment system. Given time and data constraints, the Commission developed an approach to establish a common base rate and relative weights to raise or lower payments for a stay. Using this approach, we tested the feasibility of using administrative data to predict

the costs of PAC stays (defined as a discharge in IRFs and LTCHs, an episode in HHAs, and the Medicare-covered days in a SNF), determined how to account for differences in costs and covered services across the PAC settings, and evaluated the accuracy with which our PAC PPS payment models predicted the costs of caring for PAC patients. We also conducted analyses to indicate the need for other payment adjustments under a PAC PPS.

Test feasibility of using administrative data to predict the cost of stays and estimate effect of a unified PAC PPS

IMPACT required the Commission to use the uniform assessment data gathered during CMS’s post-acute care payment demonstration, known as PAC-PRD (completed in 2011), to evaluate and recommend features of a PAC PPS. CMS’s PAC-PRD developed and tested an instrument to gather commonly defined patient assessment information across patients treated in participating SNFs, HHAs, IRFs, and LTCHs.⁴ The demonstration also measured patient resource use, compared patient outcomes across settings, and developed models to explain differences in routine and therapy

**TABLE
3-2**

Overview of Commission’s mandate and approach to the analyses

Mandate	Methodology	Purpose
Evaluate and recommend features of a PAC PPS using data from the PAC-PRD	<ul style="list-style-type: none"> • “Full” model uses data from PAC-PRD sample to predict relative costs of stays 	<ul style="list-style-type: none"> • Use unique data in the PAC-PRD to test feasibility of a PAC PPS
Consider the impact of implementing a PAC PPS	<ul style="list-style-type: none"> • “Administrative” model uses only existing data to predict relative costs of stays (in PAC-PRD sample) • Full and administrative models using the same PAC-PRD stays are compared • If equally accurate, use administrative model on 2013 PAC stays to estimate effects 	<ul style="list-style-type: none"> • Assess the accuracy of administrative model (without the unique data), which could be used on a large number of stays • Estimate impact using a large number of stays

Note: PAC (post-acute care), PPS (prospective payment system), PRD (Payment Reform Demonstration).

resource use across stays. The data collected during the demonstration have unique strengths because they include information we do not have from other sources: uniform patient assessment information across the settings and stay-level routine resource use (most notably nursing costs; see text box on needing better estimates of stay-level routine costs). But participation in the PAC-PRD was voluntary, and the sample of stays and providers was small. As a result, data from participating providers was intended to be illustrative but not representative of the PAC industry nationally (Gage et al. 2012). Therefore, we needed an approach that would take advantage of the unique PAC-PRD data while compensating for the limited generalizability of the sample.

Working with researchers from the Urban Institute, we devised the following strategy to fulfill the statutory requirements to use the PAC-PRD data and model the impact of doing so (Table 3-2):

- First, to evaluate and recommend features of a PAC PPS, we developed a “full” model to predict the costs of stays using the unique data in the PAC-PRD and existing administrative data, including claims, beneficiary risk scores, and demographic information from enrollment files. The ratios of the average predicted costs to the average actual costs of stays were used to establish a relative weight for each stay, measuring how the predicted cost of any given stay compares with the average cost. When used to establish payments, these relative weights

would raise or lower payment for the stay relative to the average “base” payment. The purpose of this step was to establish the relative costs of stays and test the feasibility of a PAC PPS.

- Second, because common assessment data are not available for the vast majority of PAC encounters, we built another model using only existing administrative data (the “administrative model”) and analyzed the same PAC-PRD stays used in the full model.
- Third, we compared the accuracy of predicted costs using the full model with the accuracy of predicted costs using the administrative model for the same stays. The purpose of this step was to determine whether the administrative model could explain an equal share of the variation in costs across stays and if it could be used to establish payments that on average equaled the costs of stays for the broad patient groups we examined. We found that the administrative model was almost as accurate as the full model and therefore could be used to estimate the impact of a PAC PPS using the universe of PAC stays from 2013.
- Finally, to analyze the impact of a PAC PPS on patients and providers, we compared actual 2013 payments to PAC providers with simulated PAC PPS payments based on the predicted costs using the administrative model. We also compared our PAC PPS payments with the actual cost of stays to assess whether PAC PPS payments would cover the actual

costs of stays. In our impact analyses, we assumed that implementation of the PAC PPS would be budget neutral (i.e., total payments under the unified PPS would equal total actual spending in 2013); we also assumed no changes in provider behavior (Wissoker and Garrett 2016).

Account for differences in coverage and lower costs of home health care

The mandate requires the Commission to develop a PPS that spans the four PAC settings. For this work, the Commission did not consider changes to current coverage policies, which vary by setting on a number of dimensions. First, eligibility for services differs by PAC setting. Medicare covers inpatient hospital services, including those provided in IRFs and LTCHs, if it is reasonable and necessary to furnish the services on a hospital inpatient basis. In addition, for IRF services to be covered, the beneficiary must: (1) require active and ongoing therapy in at least two modalities (one of which must be physical or occupational therapy); (2) require supervision by a rehabilitation physician; and (3) be able to actively participate in and benefit from intensive therapy that typically consists of three hours of therapy a day at least five days a week. Care in a SNF is covered if the beneficiary requires skilled nursing or skilled rehabilitation services on a daily basis. Home health care is covered if the beneficiary is confined to the home and needs skilled nursing or rehabilitation services on an intermittent basis.

Notably, Medicare coverage of SNF services requires a 3-day inpatient hospital stay within the immediately preceding 30 days. No such requirement exists for coverage of IRF, LTCH, and HHA services. Because current Medicare rules do not require a prior short-term acute care hospital stay for services to be covered in these three settings, we included community admissions to these settings in our analyses.

In addition, the allowable number of days of care differs. Medicare places no limit on the number of days that home health care can be provided, as long as services meet medical necessity requirements. By contrast, Medicare limits SNF coverage to 100 days per spell of illness and covers inpatient hospital stays, including those in IRFs and LTCHs, for up to 90 days per spell of illness.⁵

Further, the services and supplies covered in the PAC settings differ. For beneficiaries in IRFs and LTCHs, Medicare covers bed and board; nursing services; diagnostic and therapy services; medical social services;

and drugs, biologicals, supplies, appliances, and equipment ordinarily furnished for the care and treatment of hospital inpatients. Medicare covers the same services in SNFs (albeit often at a lower level of care). The mix of individual, group, and concurrent therapies is limited in SNFs, but not in the other settings. For beneficiaries receiving home health care, Medicare specifically excludes from coverage some services and supplies that are routinely provided in the other PAC settings, including meals or other food service arrangements, housekeeping services, drugs and biologicals, and respiratory care furnished by a respiratory therapist.

Because the costs and payments for HHA stays do not include nontherapy ancillary services (such as drugs), we developed one model to predict the costs of routine and therapy care for stays in the four PAC settings and a separate model to predict nontherapy ancillary (NTA) services costs of stays in SNFs, IRFs, and LTCHs.⁶ We combined the results of the two models and evaluated the feasibility of a PAC PPS by comparing total actual costs (including zero NTA costs for HHA stays) with total predicted costs (including zero predicted NTA costs for HHA stays).

Another consideration in developing our model was the large difference in costs between home health care and facility-based PAC care. Because routine and therapy costs are so much lower for stays treated in HHAs compared with stays treated in the institutional settings (SNFs, IRFs, and LTCHs), we included a home-health indicator in the model predicting routine and therapy costs. Without this adjustment, the model would predict costs that are too high for HHA stays and too low for stays in institutional PAC settings; if used to establish payments, the model would substantially overpay HHAs and underpay the other PAC providers. The adjustment needs to be accurate so that it neither encourages nor discourages the use of HHA. The decision to use any provider should be based on the appropriateness of the care provided, not the payment incentives.

Estimate the cost of care

Ideally, a PAC PPS would base payments on the cost of furnishing appropriate care by efficient providers. In the near term, however, payments would reflect current practice that may be neither efficient nor appropriate care. The current designs of the PPSs shape the amount and mix of therapies patients receive. The SNF PPS encourages providers to furnish rehabilitation therapy because, as the

amount of therapy they provide increases, payments rise even more, making these services profitable (Medicare Payment Advisory Commission 2016, Office of Inspector General 2015). HHAs have been highly responsive to therapy thresholds included in the HHA PPS (Medicare Payment Advisory Commission 2011a, U.S. Senate Committee on Finance 2011). The PPS designs also influence the mix of therapy modalities: IRFs are required to furnish at least two therapy modalities while the SNF case-mix groups are based on the number of modalities and minutes of therapy. These payment policies encourage providers to furnish services that are not tied to patients' care needs.

In addition to payment policies, a variety of factors shape where and how much PAC beneficiaries receive. Some factors can be measured, such as differences in patients' conditions and functional abilities. However, even the best data cannot fully capture patients' clinical conditions, so unexplained differences between patients will remain. At the same time, other factors can influence where a patient is treated and the care furnished, including patient and family preferences, practicality of the beneficiary's home environment for home care, the proximity and configuration of PAC resources in the market, the acute care hospital's financial interest in one or more PAC settings, and the available PAC options at time of discharge.

Further complicating the landscape of PAC use is the lack of evidence-based guidelines to help discern which beneficiaries need PAC, how much care they need, and where those services are best provided. Few studies have compared outcomes across settings and conditions, with the PAC-PRD being the exception (see online Appendix 3-A, available at <http://www.medpac.gov>). In addition, coverage rules (e.g., whether there was a prior hospital stay), payment rules (e.g., an IRF must furnish intensive therapy or LTCH stays need to average 25 days), and incentives inherent in the various PPS designs also influence where and how much PAC beneficiaries receive, which in turn is captured in the cost of a stay. In summary, we know that current practice patterns do not necessarily reflect the cost of efficient and appropriate PAC use, but we do not know what the patterns of care *should* be.

PAC PPS payments could be based on the costs of the lowest cost setting that treats a certain type of patient, but this basis is not a likely starting point for designing a PPS. For example, even though most beneficiaries prefer to be discharged home, many are too frail or sick 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. As in any PPS design, policymakers would need to decide whether nonclinical factors should be considered in establishing payments.

Given the lack of clarity about the appropriate mix of PAC services, we based PAC payments on the current mix of settings and the costs of stays (in 2013, the year of the data used). By including all costs during the stay, the approach implicitly accepts differences in length of stay across settings that are likely influenced by payment rules and incentives. Under a PAC PPS, we expect differences in cost and length of stay across settings to narrow over time. Further, where patients are treated may shift to reflect the design and incentives of the new PPS.

Using an average of current practice patterns to establish payments is a conservative approach that would give high-cost settings and providers time to adjust their costs to lower payments inherent in the averaging. To further minimize disruptions to beneficiaries, providers, and health care markets, a transition period to the new payment system should be considered. Over time, as with Medicare's other PPSs, payments under the PAC PPS would be recalibrated to reflect changes in costs as practice patterns change. Likewise, the case-mix adjusters would be revised periodically to reflect changes in the relative costs of treating different conditions. Such revisions to base rates and case-mix adjusters are customarily required to maintain accurate payments.

Evaluate the accuracy of the relative predicted costs of stays

To evaluate the robustness of our models' estimates of PAC stay costs, we looked at two metrics. First, we assessed the accuracy of the average predicted per stay costs compared with the average actual costs across all stays and for many types of stays based on clinical condition and beneficiary characteristics (see text box on methodology, pp. 70–74). This comparison indicates whether a PAC PPS would establish accurate relative costs across all stays and the various types of stays we examined. If the models accurately predicted the average cost of stays, we could conclude that they captured the cost variation across stays. Because current HHA and SNF PPSs encourage the provision of therapy services unrelated to a patient's condition, we expected that, for some types of stays (for example, orthopedic conditions),

Methodology to estimate actual costs per post-acute care stay and predict stay costs using patient characteristics

The Improving Medicare Post-Acute Care Transformation Act of 2014 required the Commission to use the uniform assessment data gathered during CMS's Post-Acute Care Payment Reform Demonstration (PAC-PRD) (completed in 2011) to evaluate and recommend features of a single prospective payment system (PPS) to pay for post-acute care (PAC) services. The data collected during the demonstration have unique strengths because they include information we do not have from other sources: uniform patient assessment information across the settings and stay-level routine resource use (most notably, nursing costs). Because participation in the PAC-PRD was voluntary, participating providers were not representative of the PAC industry nationally. Furthermore, the PAC-PRD sample of stays and providers was small.⁷ Therefore, our methodology was designed to take advantage of the unique PAC-PRD data while compensating for the sample's limited generalizability. This approach required us to estimate the costs of the stays included in the PAC-PRD sample and PAC stays in 2013.

Estimating the costs of PAC-PRD stays

The sample used to analyze the PAC-PRD stays included 107 providers and 6,409 stays across the 4 PAC settings—home health agencies (HHAs), skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs). The PAC-PRD sample is not nationally representative: Stays in IRFs and LTCHs are overrepresented, while SNF stays are underrepresented compared with their share of all PAC stays nationally. We weighted the PAC-PRD stays so that the weighted distribution across settings matched that of the national distribution of PAC stays in 2013.

To estimate therapy and nontherapy ancillary (NTA) costs, we converted charges from the PAC claims to costs using facility-specific and department-specific cost-to-charge ratios from each provider's Medicare cost report. Routine costs were estimated differently because SNF, IRF, and LTCH claims do not include patient-level measures of routine services (the claims include a flat daily room and board charge). We calculated an average

routine cost per day from each provider's Medicare cost report and multiplied it by the average length of stay for stays in the PAC-PRD for that provider. Then, using the routine cost and resource-use data from the PAC-PRD, we developed a relative weight for each stay and adjusted the stay's routine cost up or down relative to the facility average.⁸ All costs were standardized for differences in wages and adjusted for the growth in costs across the three years of data collection. The costs per stay included overhead costs and the costs associated with teaching programs and treating low-income patients.

Estimating the cost of 2013 PAC stays

The analysis of the 2013 PAC stays included 8.9 million stays across the 4 settings (about 10 percent of stays had missing data and were dropped). The stays included all conditions, reflecting the assumption that the PAC PPS would be used to pay for all stays regardless of principal reason to treat or the patient's comorbidities. The variables included in predicting costs per stay in the PAC-PRD data were included in the model predicting the costs of 2013 PAC stays, but the relative importance of each variable (the coefficient) was re-estimated based on the 2013 data.

The costs per stay included overhead costs and the costs associated with teaching programs and treating low-income patients (in IRFs).⁹ We estimated therapy and NTA costs by converting charges on the PAC claims to costs using facility-specific and department-specific cost-to-charge ratios. All costs were standardized using the provider's wage index.

For 2013 stays, we did not have measures of routine relative resource use (see text box on needing better measures of routine costs, p. 66). Therefore, we imputed "actual" stay costs by developing a model to predict the routine resource use for the stays in the PAC-PRD—using patient characteristics and length of stay (or, in the case of HHA episodes, the number of visits)—and applying this model to the 2013 PAC stays. We calculated an average routine cost per stay from each provider's Medicare cost report and used the model prediction to adjust a stay's routine cost up or

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Methodology to estimate actual costs per post-acute care stay and predict stay costs using patient characteristics (cont.)

**TABLE
3-3**

Comparison of data used to predict costs per stay in the “full” and “administrative” models

Model feature	PAC-PRD stays using:		
	Full model	Administrative model	2013 PAC stays using administrative model
Predictors of costs			
Age	X	X	X
Diagnoses and comorbidities	X	X	X
Patient severity and treatments	X	X	X
Impairments	X	Some proxies	Some proxies
Functional status	X	No	No
Cognitive status	X	Proxies	Proxies
Routine (nursing) resource use	X	X	Estimated
Number of PAC stays	6,409	6,409	8.9 million
Number of providers	107	107	24,953

Note: PAC-PRD (Post-Acute Care Payment Reform Demonstration), PAC (post-acute care). The full model was based on unique patient assessment information and routine resource-use data collected during CMS’s PAC-PRD, as well as readily available administrative data such as claims information from PAC stays and the preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores from the Medicare Advantage risk score files, and cost report information for PAC providers. The administrative model was based only on administrative data. Both models combine the results of a model that predicts the costs of routine and therapy care combined and one that predicts nontherapy ancillary costs.

Source: Urban Institute analysis of PAC-PRD stays and 2013 PAC stays for MedPAC.

down relative to the facility average.¹⁰ The same patient and stay characteristics used to predict the total costs of stays were used to predict the routine costs.

Modeling the predicted cost of stays

We first developed a “full” model to predict the costs of each stay using the unique data in CMS’s PAC-PRD. These data provided information on patients’ motor and cognitive function and routine resource use (predominantly nursing care). In addition, we used claims information from PAC stays and the preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers (Table 3-3). Information on diagnoses and the primary reason to treat was collected from prior hospital stay claims and from PAC stay claims for patients admitted from the community. Comorbidities data were likewise collected from hospital stay claims and claims from PAC stays

for patients admitted from the community. Indicators of ventilator care and severe wound care needs were obtained from the PAC stay claims. The clinical, demographic, and stay information was used to predict the cost of each stay. Although we used one model to predict the costs for all stays, we assessed the model’s accuracy by examining our results for numerous clinical categories (see discussion of evaluating the design, pp. 76 and 78).

We developed two models to predict each stay’s actual costs (one model for routine and therapy costs and another for NTA costs) using patient and stay characteristics. We combined the cost estimates generated by the two models and evaluated the results by comparing total actual costs (including zero NTA costs for HHA stays) with the total predicted costs (including zero predicted NTA costs for HHA stays). Similarly, under a PAC PPS, relative weights for each

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Methodology to estimate actual costs per post-acute care stay and predict stay costs using patient characteristics (cont.)

stay would be based on the total of the predicted costs generated by the two models.

We used the following information to predict the cost of stays:

- patient age and disability status;
- primary reason to treat (defined using Medicare severity–diagnosis related groups (MS–DRGs) taken from the hospital claim when there was a preceding hospital stay and simulated from PAC claims for stays without a preceding hospitalization) aggregated into broad “reason to treat” groups included in the PAC–PRD;
- patient comorbidities (taken from the hospital claim when there was a preceding hospital stay, simulated from PAC claims for stays without a preceding hospitalization);
- days spent in the intensive and coronary care units during the prior hospital stay;
- the patient’s severity of illness using the all-patient refined–diagnosis related groups (APR–DRGs) based on the diagnostic information from the immediately preceding hospital stay (or simulated for patients admitted directly from the community);
- the number of body systems involved with the patient’s comorbidities (taken from the hospital claim when there was a preceding hospital stay, simulated from PAC claims for stays without a preceding hospitalization);
- patient’s risk score;
- patient’s cognitive status;
- patient’s functional status; and
- impairments and treatments (bowel incontinence, severe wounds or pressure ulcers, use of certain high-cost service items, and difficulty swallowing).¹¹

The full and administrative models include the same factors except where data are not available in

administrative data—functional assessment information and indicators of certain high-cost care items (complex wound care management, specialty surface or bed, and cardiac monitoring). To compensate for the lack of functional status information in the administrative models, we included information about a patient’s frailty in these models.¹² The definitions of some factors differ between the full and administrative models because we substituted claims-based proxies for PAC–PRD data where approximations could be made. Specifically, the PAC–PRD data include a variable indicating the patient was on a ventilator, had bowel incontinence, or received complex care management. For the administrative models, we relied on International Classification of Diseases, Ninth Revision (ICD–9) codes in the PAC claims to indicate bowel incontinence and the presence of ventilator care. Because there was no readily available data on complex care management, we excluded this indicator from the administrative model. The PAC–PRD data include measures of cognitive function; for the administrative models, we used ICD–9 codes for coma, dementia, Alzheimer’s disease, schizophrenia, and depressive disorders as proxies for this dimension. The PAC–PRD data include information on a patient’s difficulty swallowing; in the administrative models, we used ICD–9 codes for dysphagia as a proxy for swallowing difficulties.

We avoided including in the model indicators of service use that might be manipulated by providers (such as the amount of rehabilitation therapy, the number of therapy disciplines, or the use of oxygen without a link to a respiratory diagnosis). However, we did include indicators for ventilator care, tracheostomy care, and continuous positive airflow pressure because the cost of these services is significant, and use is much less likely to be influenced by payment policy. We also excluded measures of socioeconomic status because they would effectively mask differences in the cost of stays depending on the share of low-income patients treated by a provider.

Costs were predicted using Poisson regression models.¹³ These models were developed to evaluate whether a PAC PPS is feasible; further refinements to

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Methodology to estimate actual costs per post-acute care stay and predict stay costs using patient characteristics (cont.)

the predictors may improve their ability to explain cost differences across stays. The Secretary of Health and Human Services could decide to use a regression-based approach (similar to the PPS for psychiatric hospitals), in which the payment for each stay is based on the stay's characteristics (there are no case-mix groups but, rather, a set of adjusters that establish the payment). Alternately, the Secretary could use the results of regression models as the basis of case-mix groups.

Comparing payments and costs

To compare the estimated payments generated by our PAC PPS models with the actual costs of and actual payments for stays, actual payments were adjusted by each provider's area wage index. Thus, payments and costs exclude differences in input costs across geographic areas. Payments include any relevant adjustments for rural location, teaching, low-income share, outliers, and the amounts paid by the beneficiary (any coinsurance and deductibles).

Evaluating the design of the PAC PPS

To evaluate the potential accuracy of a PAC PPS and estimate its impact on payments, we examined the accuracy of the models in aggregate (across all stays) and their effects on many patient groups. Stays from the four settings were assigned to one or more groups based on the stays' characteristics. (We created these groups to report the results of the PPS design, but the underlying prediction models remain the same across all groups.) These groups "stress test" the models by looking at how well they perform for different clinical conditions and various definitions of medically complex patients. The groups we examined include:

Clinical condition—Twenty of the 22 clinical conditions we examined were based on information (diagnosis and procedure codes) from claims for the preceding hospital stay and, where there was no prior acute hospital stay within 30 days, from claims for the PAC stay. Two clinical conditions, ventilator care and severe wound care, were based on information from the PAC claim. For stays without a prior hospital stay, the MS-DRG assignment was simulated using information

from the PAC claim. Except for stays for patients with serious mental illness, the clinical condition groups were mutually exclusive, with stays first assigned to ventilator care, then severe wound care; all other stays were assigned to a major diagnosis category (MDC) based on the MS-DRG. We report on the following 13 clinical conditions because they accounted for at least 2 percent of stays, were clearly defined, or were of particular interest:

- ventilator care;
- severe wound care;
- stroke;
- other neurology medical—medical stays assigned to MDC 1, excluding stroke;
- orthopedic medical—medical stays assigned to MDC 8;
- orthopedic surgical—surgical stays assigned to MDC 8;
- respiratory medical—medical stays assigned to MDC 4;
- cardiovascular medical—medical stays assigned to MDC 5;
- cardiovascular surgical—surgical stays assigned to MDC 5;
- infection medical—medical stays assigned to MDC 18;
- hematology medical—medical stays assigned to MDC 16 or MDC 17;
- skin medical—medical stays assigned to MDC 9; and
- serious mental illness—stays for beneficiaries with schizophrenia, bipolar disorder, or severe depression, identified using the hierarchical condition code indicators 57 or 58. This group and the other clinical groups are not mutually exclusive; a stay can be assigned to another clinical group and to the serious mental illness group.

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Methodology to estimate actual costs per post-acute care stay and predict stay costs using patient characteristics (cont.)

Medically complex—We examined four definitions of *medically complex*. The definitions (and the stays included in each) overlap to some degree.¹⁴

- *Multiple body systems*—stays in institutional PAC settings for patients with diagnoses involving five or more body systems. About 5 percent of stays are included in this group.
- *Chronically critically ill*—stays for 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 in the PAC setting. About 5 percent of stays are included in this group.
- *Severity of illness (SOI) Level 4 (the highest level)*—stays for patients assigned to the highest severity group (Group 4, indicating extreme severity) using the APR–DRG based on the diagnostic information from the immediately preceding hospital stay (or simulated for patients admitted directly from the community). About 4 percent of stays are included in this group.
- *Highest acuity patients*—stays for patients categorized as SOI Level 4 during the prior hospital stay who were not treated in HHAs (they were too sick to be discharged home) and were also on dialysis and had severe wounds. This group represents a subset of outlier stays and makes up about 0.003 percent of all stays.

Patient impairment and functional status—We looked at two aspects of patient frailty and functional status.

- *Impaired cognition*—For the PAC–PRD stays, we defined these as patients assessed as moderately or severely impaired; for the 2013 stays, we defined these as patients who were in a coma or had dementia or Alzheimer’s disease.

- *High and low function*—For the PAC–PRD stays, we assigned stays to high and low function groups using Rasch motor scores, a combination of mobility and self-care at admission to the PAC setting. High and low function was defined as the top (highest functioning) and bottom (lowest functioning) quartiles of the distribution of Rasch scores. This information was not available for 2013 PAC stays; therefore, results for these groups were not reported.
- *Patient frailty*—We used the JEN Frailty Index to assign stays to the top (most frail) and bottom (least frail) of the distribution of the frailty scores.

Other stay and patient characteristics—We also examined the following patient groups:

- *Low and high therapy*—For institutional PAC stays, the groups include stays with the lowest (bottom quartile) and highest (top quartile) therapy costs as a share of total stay costs. For home health stays, the low group includes the 40 percent of HHA stays with no therapy costs.
- *Community admissions*—Patients admitted from the community, including patients with no hospital stay within the 30 days preceding the PAC stay, identified by the lack of a matching hospital claim.
- *Patients with a prior hospitalization*—Identified by matching hospital claims to PAC PPS claims.
- *Patients with disabilities.*
- *Patients dually eligible for Medicare and Medicaid.*
- *Patients with end-stage renal disease.*
- *Patients age 85 and older.* ■

actual costs would be higher than costs predicted on the basis of patient characteristics alone. We also expected that the predicted costs of stays treated in high-cost settings would be lower than their actual costs because many types

of stays are also treated in lower cost settings. For all stays, the predicted costs of stays would reflect the current mix of settings where similar patients are treated.

Because the objective of a PAC PPS is to pay the same rates for the same patient 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 based on setting and undermine the purpose of a PAC PPS. Therefore, we focused our evaluation on our ability to predict costs by *patient categories* rather than our ability to explain the variation in the costs by *setting*.

The second metric used to determine the robustness of our models is how well they explained the variation in costs across all stays (using a statistical measure known as *R-squared*). We did not develop or test condition-specific models (i.e., one model for stroke patients, another for orthopedic stays).

Findings from our full and administrative models

Our analysis of 2013 PAC stays found that a stay-based PAC PPS using patient characteristics could establish accurate relative costs of stays in aggregate and across most of the patient groups we examined. Because payments would be based on patient characteristics and not the amount of therapy care, the PAC PPS would raise payments for medically complex stays and lower payments for rehabilitation stays compared with current (2013) payments. Compared with current policy, payments would be more uniformly related to the costs of stays across the patient groups, so PAC providers would have less incentive to selectively admit certain types of patients over others. For patient groups with predicted costs that were substantially different from actual costs, current practices (such as the provision of therapy unrelated to patient characteristics) or cost structures of high-cost settings explained these results.

Providers and settings with high costs that are unrelated to patient characteristics would experience reductions in payments, but since the objective of the unified PPS is to establish payments based on a patient's characteristics, this result should not be "corrected" with payment adjusters. Over time, we would expect providers to lower their costs to match the PAC PPS payments. In the interim, a transition with blended rates could dampen the incentive to selectively admit certain types of patients over others. The patient characteristics included in the risk adjustment could be refined over time if systematic overpayments or

underpayments occurred. Similarly, the relative weights should be recalibrated regularly to reflect changes in practice patterns.

Our work examined the need for stay-level and provider-level adjustments. The results indicate the need for two stay-level adjusters: (1) an adjustment for stays that are unusually short to prevent substantial overpayment for these stays and (2) a high-cost outlier policy for exceptionally high-cost stays. We modeled illustrative short-stay and high-cost outlier policies. A short-stay policy would more closely align payments with the considerably lower costs of short stays. We found that a high-cost outlier policy would increase payments for stays with ventilator care and severe wound care and for the four medically complex groups. Because payments would increase for these types of stays, providers could have less financial incentive to avoid these patients.

Under a unified PPS, provider-level adjusters should be considered only when they could be applied to all settings. We did not find clear evidence for the need for broad rural adjusters, a more targeted rural policy for isolated providers, or a teaching adjustment for IRFs; a robust risk adjustment method combined with an outlier policy would most likely be able to accommodate the cost of these stays. We did not have adequate information to assess the need for an adjustment for providers that treat unusually high shares of low-income patients.

Our analysis assumed PAC spending would remain the same under a unified PPS. However, the level of PAC payments is high (across all stays, payments in 2013 exceeded the actual costs of stays by 19 percent), so policymakers should consider rebasing payments. Rebasing would be consistent with the Commission's recommendations to rebase HHA and SNF payments, which constitute over 90 percent of PAC payments.

Models using only administrative data can accurately predict the per stay costs for most patient groups

To estimate the impact of a PAC PPS, we needed to use PAC stays over an entire year rather than the small, unrepresentative sample of PAC-PRD stays. Thus, we could use only administrative data (including information on diagnoses, comorbidities, demographics, risk scores, select high-cost service use indicators, and a limited set of proxies for patient impairments and cognitive status) since patient assessment and resource-use data collected specially for the PAC-PRD would not be available.

Therefore, we used PAC–PRD data to develop “full” predictive models (that include the patient assessment and routine resource use information) and re-estimated the models with the same PAC–PRD stays using information only available in administrative data (the “administrative” models).

Compared with the full models, the administrative models were almost as accurate in predicting the average actual cost of the PAC–PRD stays across most of the clinical condition, medically complex, and other patient groups we examined (Table 3-4). The average predicted costs were very similar to the average actual cost of stays (ratios are close to 1.0) for most of the 22 clinical groups (10 are shown in the table). Also, the models were accurate for three of the four definitions of medically complex stays (the fourth, an outlier group that includes less than 1 percent of stays, is discussed below). The administrative models were also accurate for the demographic groups.

The ratios are close to 1.0 for most groups because the models predicting the cost of stays include many of the same patient characteristics (or proxies for them) that are used to define the reporting groups. Thus, any reporting group with the same definition will have a ratio close to 1.0. The models include over 60 indicators of clinical characteristics to adjust the predicted costs of stays and, since we wanted to assess how the PAC PPS would affect different groups of beneficiaries, many of the same indicators were also used to define our reporting groups. For example, we included an indicator for stroke to predict the cost of stays, and we also reported the models’ results for this group of patients. Of note, the prediction models did not include indicators of community admission, dual eligibility, or disability status, yet the model performed well for these groups. Finally, for groups for which the full model’s predicted costs differed substantially from the stays’ actual costs (where the ratios deviate from 1.0, such as the functional status groups), the administrative models produced similar results (discussed below).

Across all PAC–PRD stays, the administrative and full models explained a high and similar percent of the variation in stay costs (60 percent and 57 percent, respectively).¹⁵ From these results, we concluded that the administrative models could be used to establish accurate relative costs for stays and to estimate the impact of a PAC PPS using PAC stays in 2013.

The administrative models were not as accurate as the full models for some patient groups. Compared with the full models, the administrative models’ predictions

were slightly less accurate for patients on ventilators, likely because the ventilator indicator used in the administrative model (ICD–9 codes) is not a completely reliable indication of ventilator use in PAC settings. The administrative models performed poorly for the highest acuity group, an outlier group comprising less than 1 percent of stays (though the administrative models performed better than the full models for this group). Compared with other patient groups, a larger share of these stays were treated in LTCHs. However, because the models predict the average cost for the group based on the mix of settings for all PAC–PRD stays, including lower cost SNFs and IRFs, the averaging of costs lowered LTCHs’ predicted costs.

The administrative models also performed relatively poorly for PAC–PRD patients with high and low functional status. Clearly, functional assessment data, such as that collected in the PAC–PRD, are important to predict these stays’ costs accurately. Without such data, the models predict costs that are too high for patients with high levels of function and too low for patients with low levels of function, even though the results by clinical group suggest that these differences average out across the stays within each clinical group. The results suggest that functional assessment data would improve the accuracy of predicting costs and counter the incentive for providers to avoid low-functioning patients. Although an extensive array of patient assessment information may not be needed to improve risk adjustment, assessment information is also used to plan the care for each patient, develop outcome measures (such as changes in function during the PAC stay), and track processes of care. A broader set of assessment data may be needed for these other purposes.

Some patient categories indicate where administrative data are adequate and where they are lacking to establish accurate relative costs of stays. The ratios for the cognitively impaired group are only slightly less accurate than the full model, indicating that a diagnosis-based measure could be a reasonable substitute until patient assessment information becomes available. However, to the extent that diagnosis coding for these conditions is missing or does not adequately capture the degree of impairment, better information about cognition (either from more complete diagnosis coding or, in the longer term, from patient assessment information) would improve the predicted costs of these stays and assign proper payment to them. More complete and accurate diagnostic coding would also improve the accuracy of the administrative models’ predictions for patients on ventilators.

**TABLE
3-4**
Models with and without PAC-PRD information are equally accurate in predicting the costs of PAC-PRD stays for most patient groups and could be used to set relative weights
**Ratio of average predicted to
average actual cost of stays**

Characteristic	Share of stays	Ratio of average predicted to average actual cost of stays	
		Full models (Include unique PAC-PRD data)	Administrative models (Exclude unique PAC-PRD data)
All stays		1.00	1.00
Clinical group			
Orthopedic surgical	17%	1.00	1.00
Cardiovascular medical	9	0.99	1.00
Other neurology medical	8	1.00	1.00
Respiratory medical	8	1.02	1.03
Orthopedic medical	7	1.02	1.03
Cardiovascular surgical	5	0.99	0.98
Severe wound care	5	0.99	0.99
Stroke	4	1.00	1.00
Serious mental illness	3	0.99	0.99
Ventilator care	3	1.00	0.93
Functional status and frailty			
High functional status	22	1.04	1.22
Low functional status	32	0.97	0.90
Least frail	6	1.19	1.09
Most frail	10	0.95	0.99
Cognitively impaired	40	0.99	0.96
Medically complex			
Multiple body-system diagnoses	2	0.97	0.96
CCI	12	1.01	0.99
Severely ill (SOI = 4)	7	0.98	0.97
Highest acuity	0.2	0.66	0.74
Other patient characteristics			
Community admitted	28	0.96	0.91
Stays with prior hospital stay	72	1.01	1.02
Disabled	20	1.00	1.00
Dual eligible	20	0.98	0.97
ESRD	3	1.00	0.99
Percent of variation in costs explained (R^2)		60%	57%

Note: PAC-PRD (Post-Acute Care Payment Reform Demonstration), CCI (chronically critically ill), SOI (severity of illness), ESRD (end-stage renal disease). The table shows the ratios of average predicted costs compared with the average actual costs for the sample PAC-PRD stays included in each group. A predicted-to-actual ratio of 1.0 indicates that the average predicted costs are equal to the average actual costs and that the model would establish accurate relative weights for a payment system. The sample is based on stays included in CMS's PAC-PRD between 2008 and 2010 ($n = 6,409$ stays). The full models are based on unique patient assessment information and routine resource-use data collected during CMS's PAC-PRD, as well as readily available administrative data such as claims information from post-acute care (PAC) stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models are based only on administrative data. The administrative and full models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. Patients' level of function was determined using Rasch motor scores at PAC admission. Patients' level of frailty was determined using a frailty index. CCI stays include patients who spent eight or more days in an intensive care unit during the preceding hospital stay or were on a ventilator in the PAC setting. Severely ill stays include patients who were categorized as SOI Level 4 during the immediately preceding hospital stay. "Multiple body-system diagnoses" includes patients with diagnoses involving five or more body systems who were treated in institutional PAC settings. "Highest acuity" refers to patients who were categorized as SOI Level 4 and received PAC in institutional settings only, were on dialysis, and had severe wounds or pressure ulcers.

Source: Analysis of PAC-PRD stays for MedPAC by the Urban Institute.

The average predicted cost for community-admitted patients was more accurate with the patient assessment data (the ratio of the average predicted to average actual stay cost was 0.96 for the full model but decreased to 0.91 for the administrative model). It is possible that patient assessment data provide additional information about community-admitted stays that lack the clinical information obtained from prior hospital stay claims. Without the patient assessment data, it is more difficult to predict these stays' costs. Under a PAC PPS that used diagnoses to determine payments more directly, all providers, including HHAs, would code diagnostic information more completely, and the accuracy of the predicted costs for these stays would likely improve.

In summary, administrative models accurately predicted the relative cost of stays for most patient groups, performing almost as well as models that included more extensive (but currently not readily available) information about patients. Groups with less accurate cost predictions (stays for patients with high and low functional status and the highest acuity patients) illustrate the importance of functional assessment information and a robust risk adjustment method to predict the costs for certain stays accurately.

Models using only administrative data accurately predicted the per stay costs for PAC stays in 2013

Having confirmed the performance of the administrative models to predict costs accurately for the PAC-PRD sample of stays, we applied our methods for evaluating the models' accuracy to the broader universe of 2013 PAC stays. We found that the administrative models accurately predicted the average actual costs for most of the 30 patient groups we examined. For patient groups with predicted costs that were substantially different from actual costs, providers' therapy practices, current PPS designs, and the cost structures of high-cost settings explained the results. The overall results confirm that administrative models could be used to estimate the impact of a unified PAC PPS.

Results by clinical group

The administrative models accurately predicted the average cost of PAC stays in 2013 for the 13 clinical groups reported in Table 3-5.¹⁶ The ratios of the average predicted costs to the average actual costs were at or near 1.0, indicating that the model would establish accurate relative cost weights.

Results for the cognitively impaired, frailty, and medically complex groups

The models also predicted average costs that were close to average actual costs for all but one of the functional status, frailty, and medically complex groups. Relative weights based on the predicted costs would be accurate for the least and most frail patients, patients who are cognitively impaired, patients who have diagnoses involving five or more body systems, patients who are chronically critically ill, and patients assigned to the highest severity level (severity of illness (SOI) Level 4).

One exception is the group of highest acuity stays, an outlier group with an average predicted-to-average actual cost ratio of 0.80. Compared with other patient groups, a larger share of these stays was treated in LTCHs (54 percent). Nevertheless, almost half of these stays were treated in SNFs and IRFs, which have much lower costs than LTCHs. Like all groups, the average predicted cost reflects the mix of settings where the stays were treated, resulting in an average predicted cost that was much lower than the average actual cost. We note this exception because it may signal that the models do not adequately predict costs for exceptionally high-cost stays, though they appear to work well for the other definitions of *medically complex*. In designing a PAC PPS, the risk adjustment method should result in accurate payments for patients with predictably high costs. Otherwise, providers would likely avoid admitting these patients. For exceptionally costly stays, an outlier policy would make additional payments to help defray providers' losses and help protect beneficiary access to needed care.

Results by other stay and patient characteristics

We expected that the average predicted costs for stays with low and high shares of therapy costs would be considerably different from these stays' average actual costs. For patients who receive high amounts of therapy services unrelated to their care needs, we expected our model would predict costs that, on average, are lower than actual costs (since the amount of therapy received may have little relationship to the patients' diagnoses and comorbidities). Conversely, for patients who receive low amounts of therapy (such as medical patients with multiple comorbidities), we expected our model to predict costs that are higher than actual costs.

The results were exactly as expected. For stays with a high share of therapy costs, the average predicted costs were lower than the average actual costs of the stays, with a predicted-to-actual cost ratio of 0.66 for HHA stays and

**TABLE
3-5**

Administrative models predicting the cost of stays based on patient characteristics accurately predict costs of 2013 PAC stays for almost all patient groups

Reporting group	Actual cost	Predicted cost	Ratio of predicted to actual cost	Percent of stays
All stays	\$5,653	\$5,653	1.00	100%
Clinical group				
Cardiovascular medical	3,781	3,786	1.00	14
Orthopedic medical	4,190	4,187	1.00	10
Orthopedic surgical	7,711	7,727	1.00	10
Respiratory medical	5,868	5,945	1.01	9
Other neurology medical	4,401	4,394	1.00	8
Serious mental illness	7,323	7,298	1.00	5
Severe wound	8,082	7,868	0.97	5
Skin medical	3,683	3,602	0.98	4
Cardiovascular surgical	6,952	7,030	1.01	3
Infection medical	8,736	8,822	1.01	3
Stroke	12,181	12,164	1.00	2
Hematology medical	3,521	3,536	1.00	2
Ventilator	51,219	51,219	1.00	<1
Frailty and cognitive impairment				
Least frail	2,668	2,681	1.00	7
Most frail	9,645	9,567	0.99	11
Cognitively impaired	6,967	6,962	1.00	20
Medically complex				
Multiple body-system diagnoses	16,033	16,035	1.00	5
CCI	14,375	14,445	1.00	5
Severely ill (SOI = 4)	17,740	17,739	1.00	4
Highest acuity	29,593	23,750	0.80	<0.1
Other stay and patient characteristics				
Low/no therapy share of costs: HHA stays	1,207	2,198	1.82	29
Low/no therapy share of costs: Institutional PAC	14,408	15,222	1.06	8
High therapy share of costs: HHA stays	3,488	2,318	0.66	30
High therapy share of costs: Institutional PAC	13,144	12,117	0.92	8
Community admitted	2,850	2,854	1.00	50
Stays with prior hospital stay	8,461	8,457	1.00	50
Disabled	5,517	5,517	1.00	26
Dual eligible	5,572	5,543	0.99	32
ESRD	6,856	6,872	1.00	4
Very old (85+ years old)	5,687	5,678	1.00	30

Note: PAC (post-acute care), CCI (chronically critically ill), SOI (severity of illness), HHA (home health agency), end-stage renal disease (ESRD). The table shows the ratios of average predicted costs compared with the average actual costs in 2013 for all PAC stays included in the group. A predicted-to-actual ratio of 1.0 indicates that the average predicted cost is equal to the average actual cost and that the model would establish accurate relative weights for a payment system. Predicted payments are based on a payment model that uses readily available administrative data such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. Patients' level of frailty was determined using a frailty index. "Multiple body-system diagnoses" includes patients with diagnoses involving five or more body systems who were treated in institutional PAC settings. CCI stays include patients who spent eight or more days in an intensive care or coronary care unit during the preceding hospital stay or were on a ventilator in the PAC setting. Severely ill stays include patients who were categorized as SOI Level 4 during the immediately preceding hospital stay. "Highest acuity" refers to patients who were categorized as SOI Level 4 and received PAC in institutional settings only, were on dialysis, and had severe wounds or pressure ulcers.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

0.92 for institutional PAC stays. For stays with a low share of therapy costs, the average predicted costs were higher than the average actual costs, with ratios of 1.82 for HHA stays and 1.06 for institutional PAC stays. Over time, under a PAC PPS, we would expect these ratios to move toward 1.0 as providers changed their therapy practices (and costs) to match patients' care needs.

We also examined model performance for stays for beneficiaries who were dually eligible for Medicare and Medicaid, disabled, over 85 years old, or on dialysis. The ratio of the average predicted costs to the average actual costs was at or near 1.0 for these groups, underscoring the finding that relative cost weights based on the administrative models would be accurate for these patients' stays. The model also accurately predicted the average costs for community admissions and stays with a prior hospitalization.¹⁷

Finally, we examined the need for a short-stay outlier policy. Such a policy reduces payments for stays that are unusually short to avoid large overpayments that would otherwise occur if payments for these stays were based on the cost of stays of average duration. The current IRF, LTCH, and HHA PPSs include short-stay outlier policies. (Because the SNF PPS is based on days, the PPS adjusts payments by length of stay.) A short-stay outlier policy could pay on a per day or per visit amount up to the per stay amount for the case. We found the average predicted costs for short stays were substantially higher than the stays' average actual costs because the estimates assumed average lengths of stay. The average predicted costs were 50 percent higher than the average actual cost for short IRF stays, more than double the average actual cost of short LTCH stays, more than three times the average actual cost for short HHA stays, and more than four times the average actual cost for short SNF stays (see Table 3-10, p. 90). Therefore, we modeled an illustrative short-stay policy and include those results in the impact section (p. 87).

Comparisons by setting and provider group

The goal of a PAC PPS is to establish uniform prices across settings, basing payments on a patient's characteristics and not on where the patient is treated or the amount of therapy service furnished. Given that many types of patients treated in the higher cost settings (IRFs and LTCHs) are also treated in lower cost settings, we would expect the predicted costs (and, thus, the payments) for stays to be considerably lower than the actual costs of the higher cost settings. This result would be a desirable

outcome of moving from setting-specific PPSs to a consolidated payment system in which providers are paid the same amount for treating the same patient, regardless of setting. (The home health setting would be an exception because its cost structure is fundamentally different from that of institutional settings). Likewise, within a setting, we would expect providers with high costs relative to those of other providers treating similar mixes of patients to have predicted costs (and, thus, payments) that are lower than their actual costs. Such results do not warrant correction: A PPS should not compensate providers for having high costs that are unrelated to their mix of patients or local wage rates. A transition to the PAC PPS would give providers time to adjust their cost structures and provision of care to match the needs of their patients.

Our results confirmed these expectations (Table 3-6). The high-cost settings (IRFs and LTCHs) had average predicted costs below their average actual costs, with ratios of 0.88 and 0.68, respectively. We separately examined LTCH stays that met the recently enacted patient-specific LTCH criteria and found that the average predicted costs were closer to the average actual costs (0.76).¹⁸ The average predicted costs for SNF stays were higher than the average actual costs (the ratio was 1.09), most likely because the model predicted the cost of a stay using a broader array of a patient's conditions and comorbidities than the current SNF payment system. A smaller contributing factor may be that higher cost settings treat some of the same types of patients, thereby raising the predicted costs for all PAC stays. The ratio for HHAs was 1.0 because we set predicted costs equal to actual costs as one way to account for the very different costs of this setting.

Regardless of PAC setting, providers that typically had high costs relative to other providers in the same setting also had ratios below 1.0. In all PAC settings, hospital-based providers and nonprofit providers often have relatively high costs and, as expected, their average predicted costs were lower than their average actual costs. Hospital-based providers had a ratio of 0.83, while nonprofit providers had a ratio of 0.96. Providers located in geographic areas with high utilization (such as the region that includes Arkansas, Louisiana, Oklahoma, and Texas) had average predicted costs that were lower than their average actual costs (the ratio for this region was 0.93, not shown).

We explored the need for provider-level adjustments. Under current policy, PAC providers receive higher payments

**TABLE
3-6**

As expected, predicted stay costs based on patient characteristics differ from certain providers' actual costs, using administrative models to analyze 2013 PAC stays

Reporting group	Actual cost	Predicted cost	Ratio of predicted to actual cost	Percent of stays
All stays	\$5,653	\$5,653	1.00	100%
Setting				
HHA	2,269	2,269	1.00	69
SNF	11,281	12,289	1.09	26
IRF	15,446	13,569	0.88	4
LTCH				
All stays	36,521	25,006	0.68	2
Qualifying stays	41,467	31,318	0.76	1
Provider characteristics				
Hospital based	7,463	6,160	0.83	11
Freestanding	5,433	5,592	1.03	89
Nonprofit	6,259	6,028	0.96	22
For profit	5,385	5,496	1.02	75
Government	7,773	6,769	0.87	3

Note: PAC (post-acute care), HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). The table shows the ratios of average predicted costs compared with the average actual costs in 2013 for all PAC stays included in the group. A predicted-to-actual ratio of 1.0 indicates that the average predicted costs are equal to the average actual costs and that the model would establish accurate relative weights for a payment system. Predicted payments are based on a payment model that used readily available administrative data such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. All LTCHs are included in the freestanding group. LTCH-qualifying stays are those that would meet the patient-specific criteria to qualify for LTCH PPS payments.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

when they serve beneficiaries in rural areas. While these policies vary in the size and nature of the additional payment, they all are premised on the principle of preserving access to care for beneficiaries living in rural areas. However, the Commission has determined that these rural “add-ons” are distributed too broadly, providing additional payments to providers in rural areas even if those areas have adequate or high utilization and provider supply (Medicare Payment Advisory Commission 2012). Instead, the Commission has posited that rural adjustments should be tied to low volume and isolation. Medicare should not subsidize two low-volume providers in close proximity to each other, even in a remote area, because doing so may discourage providers from achieving economies of scale by consolidating. Rather, any rural policy should target *isolated* low-volume providers.

We found that providers in most rural areas would receive adequate payments under a reformed system, with the ratios ranging from 0.97 for providers in frontier areas

(that account for 0.3 percent of stays) to 1.03 for providers in rural-adjacent and rural-nonadjacent areas. Less than 10 percent of rural stays had ratios of predicted-to-actual costs less than 1.0, and most of those had ratios of 0.99, indicating little need for even a targeted rural policy.

If a targeted rural policy is considered, it should subsidize remote, low-volume providers to ensure access—for example, providers located more than 20 miles from another provider.

Further, a targeted policy could help ensure access to only the most commonly provided PAC services—such as those provided by HHAs and SNFs. Ensuring both a home-based and institutional PAC option would cover a broad range of posthospital needs, permitting those who can be discharged home to do so and those needing a higher level of care access to it. Other more specialized services, such as those provided in IRFs and LTCHs, are used less frequently and could be considered referral services. As PAC providers are given more regulatory flexibility,

institution-based providers might offer a wider range of PAC services than they do currently (see section on waiving regulatory requirements, p. 92). As payments for medically complex patients increase, SNFs could invest in the resources to treat these patients (Table 3-6, p. 81).

Under the current IRF PPS, IRFs receive additional payments for treating high shares of low-income patients. Yet setting-specific adjustments (except in the case of an adjustment for the lower costs of HHAs) undermine the broad purpose of a unified PPS. Under a PAC PPS, any adjustment should be considered for all PAC providers. We did not have the data to explore low-income shares in PAC settings other than IRFs. We examined the ratio of the average predicted to the average actual costs by quintile of low-income share (i.e., the bottom 20th percentile, the 20th to 40th percentile, etc.). We found that only IRFs with the highest shares of low-income patients had an average predicted cost that was lower than the ratio for all IRFs. The Secretary should evaluate whether a low-income share adjustment is needed for all PAC settings and whether the adjuster should be graduated or only for providers with the highest shares.

As with the additional payments for high shares of low-income patients, IRFs alone receive an adjustment for teaching programs, yet such an adjuster would make sense only if it is applicable to all PAC settings. The predicted-to-actual cost ratio for IRF teaching facilities was not that different from the ratio for all IRFs, particularly when combined with an outlier policy, and did not provide a clear indication that a separate adjuster should be considered. It is possible that a robust risk adjustment method could adequately address any cost differences in teaching facilities.

Estimated impact of a PAC PPS on payments

The results of our administrative models indicate that a PAC PPS base payment could be set at the average predicted costs of all PAC stays and adjusted up or down using relative weights based on each stay's predicted costs. To analyze the impact of moving to such a PAC PPS, we made three comparisons. First, as a reference, we compared current (2013) payments with the actual costs of stays to evaluate relative profitability by type of stay. Next, we compared current (2013) payments with estimated PAC PPS payments (calculated using our administrative models) to assess how payments would be redistributed across types of stays, settings, and providers. Last, we compared estimated PAC PPS payments with the actual

costs of stays to evaluate the relative profitability of stays under the unified payment system.

In our analysis, we assumed the PAC PPS would be implemented initially on a budget-neutral basis, with total estimated payments set equal to actual payments made for all PAC services in 2013. Our estimates do not reflect policy changes since 2013, such as the enactment of LTCH policies for qualified stays. Our estimates also do not assume any changes in provider behavior. For example, over the coming years, LTCHs are likely to change their patient mix and costs of stays; we have not factored such potential changes into our estimates.¹⁹

Under current policy, the profitability of different types of stays varies considerably. A PAC PPS would redistribute payments and narrow those differences. Providers would therefore not have strong financial incentives to admit some patients over others or favor rehabilitation care over treating medically complex cases. Payments would increase for medically complex stays (except those that are essentially outlier cases) and would decrease for stays that are predominantly for physical rehabilitation because current (2013) payments for therapy services are less related to patient characteristics. A PAC PPS would also shift payments from high-cost settings to lower cost settings. The estimated aggregate spending under a PAC PPS was set to be budget neutral relative to spending in 2013, so the level of payments would remain high relative to the costs of stays. The level of payments and the time frame for making reductions are two issues policymakers should consider when implementing a PAC PPS.

Payments under current policy result in widely varying profitability and high levels of payments

Under current (2013) policy, profitability varied considerably across types of stays (Table 3-7). Payment-to-cost ratios ranged from 0.97 for institutional PAC stays with no or low therapy costs to 1.60 for HHA stays with low shares of therapy services. The variation in profitability reflects many factors, including the mix of where PAC stays are treated; the overall high level of payments compared with costs (particularly in HHAs and SNFs); and the biases of the HHA and SNF PPSs that favor physical rehabilitation care over treating medically complex patients. Clinical groups with the highest relative profitability included other neurology medical and orthopedic (surgical and medical). The therapy biases in the current HHA and SNF PPSs are seen in the very high ratio of current (2013) payments to actual costs for stays with the highest therapy share of costs (1.12 and 1.37 for

**TABLE
3-7**

The ratios of payments to the actual cost of stays would be more uniform under a PAC PPS for most groups, using administrative models to analyze 2013 PAC stays

Reporting group	Percent of stays	Ratio of current (2013) payments to actual stay costs	Percent change in payments between PAC PPS and current (2013) payments	Ratio of PAC PPS payments to actual stay costs
All stays	100%	1.19	0%	1.19
Clinical group				
Cardiovascular medical	14	1.19	0	1.19
Orthopedic medical	10	1.26	-6	1.18
Orthopedic surgical	10	1.22	-2	1.19
Respiratory medical	9	1.14	6	1.20
Other neurology medical	8	1.26	-6	1.18
Serious mental illness	5	1.19	0	1.18
Severe wound	5	1.09	6	1.15
Skin medical	4	1.15	0	1.16
Cardiovascular surgical	3	1.10	9	1.20
Infection medical	3	1.18	2	1.20
Stroke	2	1.18	0	1.18
Hematology medical	2	1.11	7	1.19
Ventilator	<1	1.11	7	1.19
Frailty and cognitive impairment				
Least frail	7	1.24	-4	1.19
Most frail	11	1.16	1	1.18
Cognitively impaired	20	1.24	-4	1.18
Medically complex				
Multiple body-system diagnoses	5	1.14	4	1.19
CCI	5	1.10	9	1.19
Severely ill (SOI = 4)	4	1.11	7	1.19
Highest acuity	<0.1	1.07	-11	0.95
Other stay and patient characteristics				
Low/no therapy share of costs: HHA stays	29	1.60	35	2.16
Low/no therapy share of costs: Institutional PAC	8	0.97	29	1.25
High therapy share of costs: HHA stays	30	1.12	-30	0.79
High therapy share of costs: Institutional PAC	8	1.37	-20	1.09
Community admitted	50	1.25	-5	1.19
Stays with prior hospital stay	50	1.16	2	1.19
Disabled	26	1.17	1	1.19
Dual eligible	32	1.22	-3	1.18
ESRD	4	1.16	3	1.19
Very old (85+ years old)	30	1.21	-2	1.18

Note: PAC (post-acute care), PPS (prospective payment system), CCI (chronically critically ill), SOI (severity of illness), HHA (home health agency), end-stage renal disease (ESRD). The table shows the ratios of average payments in 2013 to average costs in 2013 for all the PAC stays included in the group, as well as the ratios of estimated payments under a PAC PPS to average costs in 2013 for all the PAC stays in each group. A payment-to-cost ratio of 1.0 indicates that payments equal the actual costs. Estimated payments under a PAC PPS are based on a payment model that uses readily available administrative data, such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. Patients' level of frailty was determined using a frailty index. "Multiple body-system diagnoses" includes patients with diagnoses involving five or more body systems who were treated in institutional PAC settings. CCI stays include patients who spent eight or more days in an intensive care or coronary care unit during the preceding hospital stay or were on a ventilator in the PAC setting. Severely ill stays include patients who were categorized as SOI Level 4 during the immediately preceding hospital stay. "Highest acuity" refers to patients who were categorized as SOI Level 4 and received PAC in institutional settings only, were on dialysis, and had severe wounds or pressure ulcers.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

HHA and institutional PAC stays, respectively). Clinical groups with the lowest relative profitability included ventilator, severe wound, cardiovascular surgical, and hematology medical groups and the medically complex groups. The wide range in the relative profitability can encourage providers to prefer treating beneficiaries with primarily physical rehabilitation care needs to medically complex patient groups.

Across all stays, payments in 2013 were 19 percent higher than the actual costs of stays. Given the high level of payments to providers in these settings, the Commission has repeatedly recommended reductions of or freezes on payment rates under their current payment systems.

A PAC PPS would shift payments away from physical rehabilitation care that is unrelated to patient characteristics

A comparison of payments made under our proposed PAC PPS with those made under current (2013) payment policy indicates that a PAC PPS would increase payments for many of the medical and patient impairment and severity groups, while lowering payments for stays in the patient groups where physical rehabilitation care is a large component of care (Table 3-7, p. 83). The difference, in broad terms, results from basing payments on patient characteristics rather than on the amount of therapy, which may be unrelated to care needs. Across the clinical groups, estimated changes in payments ranged from increases of 9 percent for cardiovascular surgical groups to decreases of 6 percent for the orthopedic and the other neurology medical groups. However, the model would not lower payments indiscriminately for rehabilitation care. If a patient had clinical characteristics and impairments indicating higher than average care needs, payments for the stay would be above average.

As for the medically complex groups, we estimated that payments under a PAC PPS would increase for three groups from between 4 percent (for stays with multiple body-system diagnoses) to 9 percent (for stays in the chronically critically ill (CCI) group). The large decrease (-11 percent) observed in payments for the “highest acuity” group (essentially an outlier group) reflects the mix of settings where these stays are treated. Because almost half of the stays in this group are treated in SNFs and IRFs, the average payment under a PAC PPS would fall for cases treated in LTCHs. In contrast, payments for ventilator stays (a group dominated by stays treated in LTCHs) would increase 7 percent, reflecting the relative costliness of this care that is not reduced by stays treated in lower cost

settings. These two examples illustrate that the changes in payments are a function of many factors, including whether the stays are predominantly medical or rehabilitative *and* the mix of settings where the stays are treated.

Across the other stay and patient characteristics, payments would increase substantially for stays with low therapy costs, which are likely to be medical in nature, and decrease substantially for stays with high therapy costs. Payments on average would decrease for stays with high therapy costs because a portion of the therapy provided is unrelated to a patient’s care needs. Payments would decrease for stays in the least frail patient group (92 percent of these stays were treated in HHAs), again, most likely because a portion of this care was unrelated to the patient’s care needs.

A PAC PPS would result in more uniform ratios of payments to costs

Compared with payment-to-cost ratios under current policy, these ratios under a PAC PPS would become more uniform for the clinically defined groups (Table 3-7, p. 83). With a few exceptions, the PAC PPS payment-to-cost ratios vary little across patient groups and cluster around the overall average (1.19). One exception is the highest acuity group (a small outlier group), whose ratio is considerably lower (0.95). Although PAC PPS payments would almost cover these stays’ costs, the ratio is much lower than for the other groups. Any PAC PPS design needs to account for stays that are predictably costly relative to others (and not rely on outlier payments), so that the relative profitability of these cases is similar to other cases. Otherwise, providers would have an incentive to avoid such costly patients.

As expected, the high-therapy groups had estimated payment-to-cost ratios that deviated from the average. The ratio of PAC PPS payments to actual costs was 0.79 for high-therapy HHA stays and 1.09 for high-therapy institutional PAC stays. Providers with high shares of therapy costs would need to adjust their therapy practices to bring their costs in line with the PAC PPS payments that reflect patients’ estimated care needs.

As providers adjust their practices and costs to the PAC PPS payments, differences between a provider’s payments and costs would narrow, and taking one type of stay over another would be of limited financial advantage. To allow time for such adjustments and protect beneficiary access to care, the PAC PPS should be phased in over time, with a transition that blends current and PAC PPS payments.

A transition would help mitigate the patient selection that could otherwise occur by providers in high-cost settings until they aligned their costs with the lower payment rates. Over time, payments should be recalibrated to reflect the relative changes in providers' costs, consistent with the maintenance of all PPSs.

Because the law asked us to examine the feasibility of designing a PAC PPS, we modeled estimated payments under a PAC PPS at the same level of payments as current law. With the aggregate payment-to-cost ratio at 1.19, policymakers may consider whether this overall high level of payment relative to costs is warranted. Rebasement to bring payments more in line with providers' costs could be initiated at the same time a PAC PPS is implemented or phased in over time.

A PAC PPS would redistribute payments across settings and providers

The goal of a PAC PPS is to establish uniform payments for patient groups, regardless of setting (with lower payments to HHAs because their costs are so much lower than institutional PAC providers). Under a unified PPS, we expect payments would be redistributed across individual providers and PAC settings based on the mix of patients treated, the provider's therapy practice, and existing cost structures. Payments would be based on patient characteristics rather than setting. The estimates in our analysis suggest the direction and relative values of changes produced by a PAC PPS and should not be considered point estimates.

Under a PAC PPS, estimated payments to IRFs and LTCHs would decrease by 12 percent and 25 percent, respectively, because the stay costs of lower cost settings treating many of the same types of patients would be included in setting the payment (Table 3-8). Compared with all LTCH stays, the reductions for LTCH-qualifying stays would be considerably smaller (-17 percent compared with -25 percent) because this subcategory overlaps less with similar stays treated in other settings. Payments to SNFs would increase for two reasons. First, the PAC PPS design would base payments on patients' diagnoses and comorbidities, which could raise payments for patients with comorbidities (only some of which are recognized in the SNF PPS). Second, the higher costs of IRFs and LTCHs would raise the average cost of stays also treated in SNFs (though this effect would be small since the high-cost settings account for only 6 percent of stays).

We estimated that payments to hospital-based providers would increase 13 percent, while payments to freestanding

**TABLE
3-8**

Estimated changes in payments under a PAC PPS compared with 2013 payments, by provider category

Reporting group	Percent change
All stays	0%
HHA	-1
SNF	8
IRF	-12
LTCH	
All stays	-25
Qualifying stays	-17
Hospital based	13
Freestanding	-2
Nonprofit	10
For profit	-3
Government	4
Urban	0
Rural	3
Frontier	7

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 table shows the percent change in estimated average payments under a uniform PAC PPS, relative to average payments in 2013 for all the PAC stays included in the group. Estimated payments under a PAC PPS were based on a payment model that uses readily available administrative data such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. All LTCHs are included in the freestanding group. LTCH-qualifying stays are those that meet the patient-specific criteria to qualify for LTCH PPS payments.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

providers would decline by 2 percent. Payments to nonprofit providers were estimated to increase 10 percent, while payments to for-profit providers would decrease 3 percent. We estimated that payments to providers located in high-use areas of the country (such as Arkansas, Louisiana, Oklahoma, and Texas) would decrease by 8 percent (results not shown).

A PAC PPS would create incentives for many providers to change their practices and cost structures. High-cost providers and PAC settings would need to lower their costs in line with those of other providers and settings

treating similar mixes of patients. Over time, there would be no financial advantage of one PAC setting over another; indeed, distinctions between settings could disappear. In the near term, the impact of a PAC PPS on any individual provider could differ from the general trends we report. Factors that could affect providers individually include the mix of patients treated, the PPS design and incentives under which the provider is currently paid, the provider's current therapy practices, and the provider's ability to reduce its costs. For example, because PAC PPS payments would not be tied to the amount of rehabilitation therapy furnished, providers that systematically furnish therapy unrelated to their patients' care needs would experience larger declines in payments compared with providers treating similar mixes of patients but with different therapy practices. Under a new PAC PPS, some providers might opt to change the way they organize care (for example, some could decide to offer a continuum of PAC) and the types of cases they treat (for example, a provider could opt to treat beneficiaries with specialized care needs).

Outlier policies would more closely align payments to the cost of stays

Under a PAC PPS (based on patient characteristics and average costs across all PAC providers) payments would, on average, be accurate. However, because some patients' needs are much greater or much less than expected, the new payment system would require outlier policies to help compensate providers for extraordinarily high-cost cases and help the program prevent large overpayments for extraordinarily low-cost cases.

High-cost outlier policy

A high-cost outlier policy protects providers from incurring exceptionally large losses from treating unusually high-cost stays and helps ensure beneficiary access to care. High-cost outlier policies establish payments that cover a portion of the losses incurred so that a provider retains an incentive to be efficient. For treating an exceptionally high-cost stay, a provider receives the PPS payment and must cover the difference between the PPS payment and a fixed-loss amount. Then, the provider is paid a portion of the costs above the fixed-loss amount.

An outlier policy design needs to specify the share of payments to redistribute to high-cost cases (the size of the outlier "pool"), the amount of loss that triggers an outlier payment (the "fixed-loss amount"), and the share of costs covered beyond the fixed loss. The size of the pool and the fixed-loss amount are interrelated: a larger

pool would include more stays, so outlier payments would begin after a smaller fixed-loss amount, while a smaller pool would be established with a higher fixed-loss amount. Outlier policies are generally financed by lowering the base payments for all cases by a small amount so that total spending remains the same.

Three of the four PPSs for PAC services (HHA, IRF, and LTCH) currently include an outlier policy; the SNF PPS does not. (The SNF per day payments offer some protection against large losses because payments increase with length of stay). In designing an outlier policy, the Secretary would need to determine the size of the outlier pool, the fixed-loss amount, and the share of the cost covered by the outlier payment. Setting a large outlier pool with the initial implementation of a PAC PPS is an attractive option because it would offer more protection for providers and help ensure access to care for beneficiaries while providers transition to full PAC PPS rates. Separate pools for HHA and institutional PAC stays would allow HHAs with unusually high costs to qualify for outlier payments. Otherwise, because HHAs' costs are so much lower than those of institutional PAC providers, HHAs would be unlikely to incur high enough costs to receive an outlier payment. Over time, as differences in costs and practices narrowed across providers and settings, the size of the pool would need to be reduced. In the future, the Secretary could also consider a uniform outlier policy for all PAC providers, rather than separate pools.

We modeled an illustrative high-cost outlier policy to gauge the general impact of such a policy. In this example, we established two pools—one for home health stays and one for institutional PAC stays. Each pool was set at 5 percent of spending and paid for 80 percent of the difference between the estimated cost of the stay and the outlier threshold.

Across most of the clinical, impairment, and medically complex groups, the illustrative high-cost outlier policy made little or no difference in payments (Table 3-9, pp. 88–89). Payments for most of the groups changed by 2 percent or less, indicating that although base rates would be lower, outlier payments were spread across clinical groups such that there was little reduction or gain in the aggregate. Clinical groups with changes in revenues of 3 percent or more included ventilator, severe wound care, and two of the medically complex groups (severely ill and highest acuity groups). For these groups, payments increased under a PAC PPS with the illustrative outlier policy and resulted in payments that were higher than the

stays' actual costs, with payments ranging from 7 percent higher than stay costs (highest acuity group) to 26 percent higher (ventilator group).

Short-stay outlier policy A short-stay outlier policy attempts to counter the incentives under a stay-based or episode-based payment system for providers to treat and promptly discharge patients to another setting or home. A short-stay outlier policy protects the program and taxpayers from excessive payments that would otherwise result for these short stays and protects beneficiaries from transfers that could be motivated by financial rather than clinical considerations. By establishing payments based on the average cost of short stays, the policy should neither encourage nor discourage short stays.

To illustrate the directional impact of a short-stay outlier policy, we modeled a day-based payment (or visit based, in the case of HHAs). We calculated the average per day cost for short stays across all institutional PAC stays and paid short stays this average daily rate for the number of days in the stay. Similarly, for home health episodes, we calculated the average per visit cost for the short episodes and paid short stays this average per visit rate for the number of visits in the stay. We added 20 percent to the payment for the first day of the stay (or visit) to acknowledge the higher costs typically incurred the first day of a stay (or episode).

The illustrative short-stay outlier policy more closely aligned payments to the costs of the short stays (Table 3-10, p. 90). Under substantially lower payments for short stays, all the payment-to-cost ratios were closer to the overall average (1.19) compared with payments without a policy. The ratios for payments for IRFs and LTCHs (0.80 and 0.72) were below 1.0 because the average cost of all stays includes stays treated in SNFs, which typically have lower costs. Though clearly needing refinement, the example illustrates the intent and impact of such a policy.

If past behavior is any indication, a short-stay outlier policy could encourage providers to extend stays so they qualified for full payments. This financial incentive would be reduced if short-stay outlier payments were calculated so that providers were not penalized for discharging patients before the short-stay threshold and a steep “cliff” did not exist between the payment for a full stay and that for a short stay. For example, CMS could consider paying more for the first day (or visit) of care, which typically has higher costs than later days in the stay. Although our illustration includes setting-specific length of stay thresholds, over time, as

practice patterns converged, we would expect that a single threshold could define short stays.

The Secretary could consider extending recovery audit contractor (RAC) reviews to identify aberrant patterns of short stays. As an initial effort, RACs could develop audits to flag providers with unusually high shares of stays that are just long enough to qualify for the full-stay payments (but still well below the average duration). Although providers are unlikely to welcome RAC reviews, their focus to date on HHAs and SNFs has been small relative to program spending in these two settings. HHAs and SNFs make up about 13 percent of Medicare Part A and Part B spending but only about 5 percent of the payment corrections made by RACs (Centers for Medicare & Medicaid Services 2015b).

Policy considerations in implementing and maintaining the PAC PPS

In designing a PAC PPS, the Secretary will need to define when a stay begins and ends for beneficiaries with serial PAC stays. The Secretary will also need to define a policy that eases providers through the transition from setting-specific PPSs to a unified PAC PPS. In addition, the Secretary should consider an aggregate level of payments, given the high level of current PAC spending relative to providers' costs. Finally, the Secretary should have the authority to make ongoing refinements to the PAC PPS—including regular recalibration of the relative weights and periodic rebasing of payments—to reflect changes in costs and practice patterns over time. These ongoing refinements would be designed to maintain payment accuracy to help ensure that providers have no financial incentive to admit certain types of patients over others and that beneficiaries are protected from impaired access to needed care.

Defining the stay

The task of defining a stay is straightforward for the patient who returns home after one PAC stay (with or without home health care). The stay would begin at admission to the PAC provider and end at discharge (or at the end of the 60-day episode for home health care). Likewise, when a beneficiary is discharged from one PAC setting and admitted to a second setting, the stay would begin at admission to the first PAC provider and end when discharged to the second setting. However, identifying the beginning and end of a PAC stay is more complicated for the patient requiring multiple levels of institutional PAC

**TABLE
3-9**
Comparison of estimated payments under a PAC PPS with and without an illustrative high-cost outlier policy (cont. next page)

Reporting group	Ratio of payments to actual costs without an outlier policy	Percent change in payments with an outlier policy	Ratio of payments to actual costs with an outlier policy
All stays	1.19	0%	1.19
Clinical group			
Cardiovascular medical	1.19	0	1.19
Orthopedic medical	1.18	-1	1.17
Orthopedic surgical	1.19	-2	1.17
Respiratory medical	1.20	0	1.20
Other neurology medical	1.18	0	1.19
Serious mental illness	1.18	1	1.19
Severe wound	1.15	3	1.19
Skin medical	1.16	1	1.17
Cardiovascular surgical	1.20	-1	1.19
Infection medical	1.20	0	1.20
Stroke	1.18	-1	1.18
Hematology medical	1.19	0	1.20
Ventilator	1.19	6	1.26
Frailty and cognitive impairment			
Least frail	1.19	-1	1.18
Most frail	1.18	0	1.18
Cognitively impaired	1.18	0	1.18
Medically complex			
Multiple body-system diagnoses	1.19	2	1.21
CCI	1.19	2	1.22
Severely ill (SOI = 4)	1.19	3	1.22
Highest acuity	0.95	12	1.07
Other stay and patient characteristics			
Low/no therapy share of costs: HHA stays	2.16	-4	2.07
Low/no therapy share of costs: Institutional PAC stays	1.25	2	1.28
High therapy share of costs: HHA stays	0.79	4	0.82
High therapy share of costs: Institutional PAC stays	1.09	0	1.09
Community admitted	1.19	0	1.19
Stays with prior hospital stay	1.19	0	1.18
Disabled	1.19	1	1.20
Dual eligible	1.18	1	1.19
ESRD	1.19	2	1.21
Very old (85+ years old)	1.18	-1	1.18

Note: PAC (post-acute care), PPS (prospective payment system), CCI (chronically critically ill), SOI (severity of illness), HHA (home health agency), ESRD (end-stage renal disease), SNF (skilled nursing facility) IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). The illustrative outlier policy set the threshold so that outlier payments would equal 5 percent of total estimated payments for home health providers and 5 percent of total estimated payments for institutional providers. Outlier payments would cover 80 percent of the costs above the fixed-loss threshold. Patients' level of frailty was determined using a frailty index. The table shows the ratios of average payments in 2013 to average costs in 2013 for all the PAC stays included in the group, as well as the ratios of estimated payments under a PAC PPS to average actual costs in 2013 for all the PAC stays in each group. A payment-to-cost ratio of 1.0 indicates that payments equal the actual costs. Estimated payments under a PAC PPS are based on a payment model that uses readily available administrative data such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. "Multiple body-system diagnoses" includes patients with diagnoses involving five or more body systems who were treated in institutional PAC settings. CCI stays include patients who spent eight or more days in an intensive care or coronary care unit during the preceding hospital stay or were on a ventilator in the PAC setting. Severely ill stays include patients who were categorized as SOI Level 4 during the immediately preceding hospital stay. "Highest acuity" refers to patients who were categorized as SOI Level 4 and received PAC in institutional settings only, were on dialysis, and had severe wounds or pressure ulcers. All LTCHs are included in the freestanding group. LTCH-qualifying stays are those that meet the patient-specific criteria to qualify for LTCH PPS payments.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

**TABLE
3-9**

Comparison of estimated payments under a PAC PPS with and without an illustrative high-cost outlier policy (cont.)

Reporting group	Ratio of payments to actual costs without an outlier policy	Percent change in payments with an outlier policy	Ratio of payments to actual costs with an outlier policy
Setting and provider characteristics			
HHA	1.19	0	1.19
SNF	1.29	-1	1.27
IRF	1.04	-2	1.03
LTCH			
All stays	0.81	14	0.93
Qualifying stays	0.90	12	1.00
Hospital based	0.98	0	0.98
Freestanding	1.22	0	1.22
Nonprofit	1.14	0	1.14
For profit	1.21	0	1.21
Government	1.03	2	1.05
Urban	1.19	0	1.19
Rural	1.19	0	1.19
Frontier	1.15	1	1.16

Note: PAC (post-acute care), PPS (prospective payment system), CCI (chronically critically ill), SOI (severity of illness), HHA (home health agency), ESRD (end-stage renal disease), SNF (skilled nursing facility) IRF (inpatient rehabilitation facility), LTCH (long-term care hospital). The illustrative outlier policy set the threshold so that outlier payments would equal 5 percent of total estimated payments for home health providers and 5 percent of total estimated payments for institutional providers. Outlier payments would cover 80 percent of the costs above the fixed-loss threshold. Patients' level of frailty was determined using a frailty index. The table shows the ratios of average payments in 2013 to average costs in 2013 for all the PAC stays included in the group, as well as the ratios of estimated payments under a PAC PPS to average actual costs in 2013 for all the PAC stays in each group. A payment-to-cost ratio of 1.0 indicates that payments equal the actual costs. Estimated payments under a PAC PPS are based on a payment model that uses readily available administrative data such as claims information from PAC stays and preceding hospital stays, demographic information from the Medicare enrollment files, beneficiary risk scores, and cost report information for PAC providers. The administrative models combine the results of a model that predicts the costs of routine and therapy care and one that predicts nontherapy ancillary costs. "Multiple body-system diagnoses" includes patients with diagnoses involving five or more body systems who were treated in institutional PAC settings. CCI stays include patients who spent eight or more days in an intensive care or coronary care unit during the preceding hospital stay or were on a ventilator in the PAC setting. Severely ill stays include patients who were categorized as SOI Level 4 during the immediately preceding hospital stay. "Highest acuity" refers to patients who were categorized as SOI Level 4 and received PAC in institutional settings only, were on dialysis, and had severe wounds or pressure ulcers. All LTCHs are included in the freestanding group. LTCH-qualifying stays are those that meet the patient-specific criteria to qualify for LTCH PPS payments.

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

care that is provided by a single PAC provider. Under a PAC PPS, some institutional providers may opt to offer a continuum of PAC services, yet, for these stays, the beginning and end of a PAC stay is less clear, especially for patients who are unlikely to recover to a prior level of functioning and whose PAC stay will at best stabilize or delay deterioration.

For example, a patient admitted to an institutional PAC provider for high-acuity care, such as prolonged mechanical ventilation, may need additional rehabilitative care after weaning and recovery from the ventilator. In the past, such a patient might have received PAC care in an LTCH and been discharged to a SNF or IRF for intensive

rehabilitation. Medicare would have made one payment (under the LTCH PPS) for the first PAC stay and another (under the SNF or IRF PPS) for the subsequent PAC stay. Under a unified PAC PPS, however, PAC providers might diversify by providing multiple levels of care, making it more difficult to determine when one PAC stay ends and another begins and therefore when a second payment should be triggered. The ventilator patient who receives care from a PAC provider with the capacity to provide both ventilator care and intensive physical therapy might not be discharged after weaning and recovery but instead remain in the facility for additional therapy. Medicare would need to determine when, and whether, to make a second (or subsequent) payment for additional care.

**TABLE
3-10**

Comparison of estimated payments under a PAC PPS with and without an illustrative short-stay policy

Reporting group	Ratio of payments to actual costs without a short-stay policy	Percent change in payments with a short-stay policy	Ratio of payments to actual costs with short-stay policy
All	1.19	0%	1.19
HHA episodes with 4 or fewer visits	3.36	-60	1.36
Shortest stay, 10th percentile			
SNF (6 or fewer days)	4.81	-63	1.77
IRF (7 or fewer days)	1.80	-56	0.80
LTCH (11 or fewer days)	2.23	-67	0.72

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). Payments under a PAC PPS reflect a stay-based payment. Payments with a short-stay policy reflect the illustrative short-stay policy that paid a per day (or per visit, in the case of HHA episodes) amount based on the average cost per day (or per visit).

Source: The Urban Institute analysis of 8.9 million PAC stays in 2013.

Under the current SNF PPS, a significant change in a beneficiary’s clinical status triggers a new assessment and a change in the daily payment rate. If this approach were used in a stay-based PAC PPS, volume growth would need to be carefully monitored to ensure that providers were not reassessing patients solely to generate additional stays and payments. A measure of resource use, such as Medicare spending per beneficiary–PAC, could help discourage this behavior. Ultimately, Medicare should move away from FFS payment and toward integrated payment and delivery systems, such as episode-based payments, that make providers responsible for the quality of care and spending throughout the episode of care (though the incentive to generate new PAC episodes would remain).

Alternatively, CMS could require physicians and other health professionals to attest that continued PAC is needed, require prior authorization for subsequent PAC use, or rely on a third-party benefit manager to control the provision of unnecessary PAC.

The complexity of defining a stay in a PAC PPS underscores the need to move as quickly as practicable to episode-based payments. Under episode-based payment, providers would be paid for services furnished during the entire episode of care, making it easier to determine the beginning and the end of the PAC encounter. That said, the definition of the episode will be arbitrary and providers will still have an incentive to generate new episodes.

A transition policy

A transition period will give providers time to adjust their costs and mix of patients, thereby protecting providers from large financial loss and beneficiaries from impeded access to care. A typical transition policy blends over multiple years the mix of payments under current policy with payments under a new policy, with current policy weighted more in early years and new payments weighted more in later years, until rates are fully established by the new system. The implementation of HHA, SNF, IRF, and LTCH PPSs included multiyear transitions with blended rates but allowed providers to bypass the transition and be paid the national PPS rates immediately, which many providers opted for. This bypass option could be contemplated with the implementation of the PAC PPS. If such a provision were included in the PAC PPS, low-cost providers and settings would likely choose this option. The recent merger and acquisition activity in the PAC industry indicates that many providers and health systems anticipate and welcome the integration of PAC (Medicare Payment Advisory Commission 2016). By eliminating the different rules and regulations for separate payment systems, a PAC PPS will allow providers to offer a broad array of PAC services to beneficiaries.

A transition policy might consider introducing a PAC PPS using administrative models sooner than the timetable laid out in IMPACT and transitioning to models that

include patient assessment data as they become available. This approach would allow the Secretary to implement a unified PPS sooner than under the current schedule. The Secretary is required to use two years of uniform patient assessment data in the design of a PAC PPS, and these data will not begin to be collected until October 2018. On this timetable, it is unlikely that a unified system could be proposed before 2024. Our results indicate that, at least in aggregate and for most of the patient groups we examined, the predicted costs of stays were generally accurate without the patient assessment information. However, these data were important for accuracy in predicting the costs for certain patient groups (such as patients with high and low function). The Secretary might consider introducing a PAC PPS without the functional assessment data earlier than the current time line and refine the PPS over time as these data become available. To help compensate for inaccurate payments for high-cost stays, a larger outlier pool could be established initially, with the pool size declining as assessment data and PPS refinements were incorporated into the PAC PPS.

The implementation of a PAC PPS should not detract from the need to revise the payment systems for HHAs and SNFs and to rebase the level of payments in these two settings. Even under a transition policy and increased payments from Medicare Advantage (MA) plans, payments generated by the existing PPSs are likely to constitute a portion of the payment for several years. In addition, under Medicare's broader structural reforms—such as accountable care organizations (ACOs), the bundled payment initiatives, CMMI's Comprehensive Care for Joint Replacement (CJR) Payment Model, and MA plans—payments or payment benchmarks are based on FFS payments. Therefore, accurate setting-specific FFS payments will remain highly relevant for years.

Level of payments

As a general principle, Medicare payments should be based on the resources needed to provide high-quality care efficiently in the most appropriate setting. However, the lack of evidence-based guidelines and studies comparing outcomes across settings limits the program's ability to do so. In the absence of such information, a conservative strategy in designing a PAC PPS would be to set payments initially based on the current mix of settings and costs.

As part of a transition, the Secretary will need to evaluate the level of aggregate payments. Our analysis of 2013 PAC stays found that aggregate payments for PAC exceeded the costs of care by 19 percent. The

Commission has repeatedly recommended reductions of or freezes on payments to providers in these four settings to bring Medicare's payments more closely in alignment with providers' costs (Medicare Payment Advisory Commission 2016). The Secretary could lower payments throughout the transition period or begin the reductions after the unified PPS is in place and providers have adjusted their practices and costs to the level of payments.

Policymakers could consider several ways to set an aggregate PAC spending level that is different from the current level. One alternative would be for the aggregate level to incorporate the Commission's standing recommendations regarding updates to PPS rates. For example, the aggregate pool of dollars could incorporate freezing the SNF, IRF, and LTCH rates, and reducing HHA rates.

Another alternative would be to apply our findings about efficient providers in HHAs and SNFs in establishing the aggregate pool of PAC spending. Our analysis of efficient HHAs found that their costs were 11 percent lower than other HHAs' costs, while efficient SNFs had costs that were 8 percent lower than those of other SNFs (Medicare Payment Advisory Commission 2016). Policymakers could establish an aggregate spending pool that reflects some or all of these differences in costs between efficient and other providers for at least these two settings. (Policymakers could also make assumptions about the cost differences between efficient and other providers in other sectors, but the Commission has not analyzed those.)

Alternatively, the Secretary could consider the geographic variation in PAC costs in setting the level of payments. Stay costs in 2013 varied 30 percent across CMS regions (from \$5,154 in New England to \$6,783 in Region 7, which includes Iowa, Kansas, Missouri, and Nebraska). These differences capture variation in the mix of PAC and, for HHAs and SNFs, the amount of care furnished to beneficiaries with similar characteristics. In earlier work, the Commission found that, across markets, Medicare spending on PAC varied more than any other service, reflecting variation in the mix of PAC providers and the frequency of PAC use (Medicare Payment Advisory Commission 2011b). Considering this variation, the Secretary could set payments based not on the average cost but at some level below the average, say at the 40th percentile of costs. Low-cost settings and providers located in markets without high-cost providers (such as New York state, where there are no LTCHs) could be at an advantage since nationally set rates would include some

use of high-cost settings. Conversely, high-cost settings and providers in markets with multiple high-cost providers would be under pressure to lower their costs more in line with the benchmark.

Periodic refinements to maintain the accuracy of the PAC PPS

Under a new PAC PPS, practice patterns would change as high-cost providers lower their costs and shift their mix of patients and services furnished. Also, costs for medically complex care could increase if providers make investments in staffing and equipment to treat a more complex mix of patients. In addition, coding practices are likely to improve, which could increase payments even though the stays and their associated costs did not change. Therefore, the Secretary should have the authority to periodically recalibrate and rebase the payments made for stays.

In its ongoing maintenance of the PAC PPS, the Secretary should update the relative weights that adjust payments up or down for each type of case. These revisions would help ensure that Medicare's payments capture changes in the relative costs of stays. In addition, if ongoing monitoring of the PAC PPS uncovered systematic problems with the design, the Secretary would need to make revisions to correct them. For example, in existing PPSs, the patient classification systems and the risk adjustment methods are often revised over time to better differentiate stays and ensure that stays with similar resource requirements are paid similar amounts.

The Secretary should also have the authority to rebase payments if changes in practices and costs outpace changes in payments. Experience with PAC providers indicates they are highly nimble at adjusting to policy changes, and margins under new PPSs have generally increased substantially. To protect the program and taxpayers from excessively high payments relative to the cost of stays, the Secretary would need the authority to rebase payments, if necessary, to maintain the alignment of payments with the cost of stays.

Under a more aggressive implementation timetable than outlined in IMPACT, a PAC PPS could be implemented without functional data (with perhaps a larger outlier pool to compensate unusually high-cost stays) earlier than mandated. At a later date, newly available functional assessment data could refine the risk adjustment. Given the importance of functional data for gauging patient outcomes and improving the accuracy of payments for some patient groups, CMS should move as expeditiously

as possible in collecting uniform patient assessment information (even ahead of the time line laid out in IMPACT if possible).²⁰ Likewise, the PPS could evolve to use information gathered from PAC claims and the unified patient assessments. Doing so would facilitate the processing of claims and allow providers to estimate their payments for a stay more easily.

Changing regulatory requirements under a PAC PPS

Despite overlap in types of cases treated in the four PAC settings, Medicare has different regulatory requirements (in terms of payment policies and conditions of participation) for each setting (see online Appendix 3-B, available at <http://www.medpac.gov>). These requirements distinguish PAC settings from each other and from acute care hospitals. The regulatory requirements for LTCHs and IRFs are more stringent and costly to meet than those for SNFs and HHAs. For example, LTCHs and IRFs must meet all Medicare conditions of participation for acute care hospitals. The LTCH and IRF regulations influence the intensity of care provided, which can increase these providers' costs of care, even though the types of patients treated in these two settings are also treated in SNFs.

Because PAC payment reform would narrow differences in payments across settings, setting-specific regulations should also be reduced to the extent possible. Otherwise, providers in different settings would be paid the same for treating the same patient but would incur very different costs associated with their particular regulatory requirements. While overhauling Medicare's conditions of participation would be a complex undertaking, under a PAC PPS, CMS would need to consider leveling the regulatory playing field by waiving certain requirements specific to a particular setting. Over time, CMS should consider specifying regulatory requirements by patient type rather than by PAC setting. The Congress would need to make conforming changes to Medicare coverage for home-based and institutional PAC.

Near term: Waive certain regulatory requirements

Under a PAC PPS, because all conditions in PAC settings would be paid under a single payment system, policymakers would need to consider waiving regulatory requirements that raise the costs of IRFs and LTCHs. Many of these waivers would need to be implemented

concurrently with the start of the PAC PPS and, in some cases, the Secretary would need the authority to implement them.²¹ Otherwise, a provider could be paid PAC PPS rates but still be held to meeting setting-specific requirements, some of which raise the cost of care. Waiving certain requirements would allow providers to bring their costs more in line with the payments they would receive under a PAC PPS and give providers the flexibility to offer a range of PAC services to different patients. Having a provider meet different regulatory requirements based on the patient treated would be similar to current SNF policy for swing beds that permit small rural hospitals to use their beds for acute or SNF care, as needed.

In considering which policies to waive and what, if anything to replace them with, the Secretary would need to consider any unintended consequences of such actions and the feasibility of enforcement and monitoring compliance without medical record review. Policies that CMS could consider waiving include:

- the intensive rehabilitation therapy requirement for IRFs;
- the 60 percent rule for IRFs;
- the frequency of physician visits and on-duty presence of physicians in IRFs; and
- the 25-day length-of-stay requirement for LTCHs.

The Secretary could also consider standardizing the rules for therapy coverage across the four settings, including the number of therapy disciplines required, the allowed mix of therapy modalities (individual, group, and concurrent), and coverage for restorative/rehabilitation services and maintenance services.

Some regulations serve to limit inappropriate admissions. For example, the three-day hospital stay requirement for SNFs is an important barrier to prevent nursing homes from recertifying long-stay residents as Part A–covered SNF stays to receive higher Medicare SNF payments. The Commission previously recommended the Secretary allow up to two observation days to count toward the three-day requirement (Medicare Payment Advisory Commission 2015). If the hospital stay requirement is waived entirely, Medicare’s liability for PAC could increase substantially. Alternatively, for certain types of patients, Medicare might need to establish a uniform policy regarding preceding hospital stays that applies to all PAC providers. The three-day SNF requirement is waived for entities participating in

the Center for Medicare & Medicaid Innovation’s Bundled Payment for Care Improvement Initiative and some ACOs, and for hospitals participating in the CJR Model.²²

Shorter stays for patients treated in LTCHs could prompt some clinicians working in this setting to have more timely conversations with patients and their families about a patient’s prognosis, which might lead some beneficiaries to elect to use hospice care.

The effect of waiving requirements could be limited by state licensure or other regulations that providers in those states must meet. For example, state-mandated minimum staffing ratios for nursing homes could be more stringent than Medicare’s requirements, so waiving federal requirements would have little effect on providers that are certified for both Medicaid and Medicare. Providers required to meet such state regulations could have less flexibility than providers in other states.

Longer term: Develop a common set of PAC requirements

In the longer term, the Secretary could establish a single set of conditions of participation for institutional PAC providers. A common set of regulatory requirements for all institutional PAC providers would ensure a baseline level of competency while allowing providers the flexibility to adjust their mix of services and staffing to meet patients’ needs. Because of the large differences between home health care and facility-based PAC care, home health care could require its own set of regulations.

The domains of these requirements could include staffing levels and patient mix, physician availability, frequency and content of patient assessments and care plans, staff training and competency requirements, infection control, patient rights, compliance and ethics, use of multidisciplinary teams, and discharge planning.

Standardizing regulatory requirements across PAC providers should not necessarily result in the application of current SNF regulations to all institutional providers. A common set of requirements could raise the staffing and physician oversight requirements for SNFs and result in facilities having to meet separate requirements for PAC patients and long-term care patients, who typically require a lower level of care.²³

In addition to developing a common set of regulations across PAC settings, CMS could develop specific requirements for providers (in any setting) that opt to serve patients with particular care needs. For example,

**TABLE
3-11**

Cost sharing required of beneficiaries using post-acute care in 2016

HHA	SNF	IRF and LTCH
None	<ul style="list-style-type: none"> A daily copayment (\$161 in 2016) begins on day 21 of the SNF stay. No coverage after day 100 per spell of illness (a spell begins when a beneficiary has not had inpatient hospital care or skilled care in a SNF for 60 consecutive days). 	<ul style="list-style-type: none"> Hospital deductible (\$1,288 in 2016) generally met with a preceding acute hospital stay. For stays that exceed 60 days (the hospital stay plus the IRF or LTCH stay), the beneficiary is responsible for a \$322 daily copayment (in 2016) for days 61 through 90 of hospital care. For stays that exceed 90 days, in 2016 the daily copayment is \$644 and Medicare coverage is limited to a lifetime reserve of 60 days. For beneficiaries admitted from the community, there is a \$1,288 deductible (in 2016).

Note: HHA (home health agency), SNF (skilled nursing facility), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital).

Source: Centers for Medicare & Medicaid Services. Medicare program; CY 2016 inpatient hospital deductible and hospital and extended care services coinsurance amounts. CMS-8059-N.

providers that admit patients who need prolonged ventilator care could be required to have sufficiently trained staff and equipment to provide appropriate nursing care and respiratory therapy and to demonstrate use of evidence-based ventilator weaning practices. Providers opting to treat patients with extensive wounds might need to demonstrate competence in wound care management. Those treating medically complex patients could be required to have adequate nursing and physician staff to manage these patients' care. Those treating patients with intensive rehabilitation care needs (such as patients with burns or those with brain or spinal cord injuries) could be required to have the therapy staff and equipment to furnish this care. Concentrating on requirements for treating types of patients rather than for settings could improve patient outcomes. For example, studies have found that severely ill patients benefit from LTCH care (Gage et al. 2012, Kennell and Associates Inc. 2010, Medicare Payment Advisory Commission 2004). Any PAC provider treating conditions with special care requirements would have to meet the relevant requirements for each condition, thus shifting the requirements from setting specific to condition specific.

Condition-based requirements may encourage some providers to specialize in certain types of conditions, such as ventilator care. By concentrating specialized services in providers that meet minimum standards for

these services, the quality of care beneficiaries receive is likely to increase. However, the concentration could result in beneficiaries having to travel farther to receive these specialized services, similar to referral centers treating beneficiaries from a larger geographic market than other hospitals.

Standardizing beneficiary cost sharing

Under Medicare's current rules, coverage for PAC and cost-sharing requirements differ, depending on where beneficiaries are treated, and can influence beneficiary choices about where to receive their care (Table 3-11). For example, under current policy, there is no cost sharing for HHA use, and there are no limits on coverage. In contrast, beneficiaries using SNF services face daily copayments beginning on day 21 of their SNF stay, and program coverage ends entirely on day 101 of a stay. In our analytic sample of 2.3 million SNF stays in 2013, one quarter of stays were 12 days or shorter, the median was 22 days, and one-quarter of stays were 39 days or longer. Although most Medicare supplemental policies cover the SNF cost sharing, two plans (enrolling about 6 percent of beneficiaries opting to purchase medigap policies) do not. A prior three-day hospital stay is also required for Medicare coverage, so beneficiaries who do not have a preceding inpatient stay or who have a hospital stay

shorter than three days are not covered by the program. Beneficiaries not meeting the SNF coverage rules, who have purchased supplemental policies that do not cover SNF cost sharing or who have not purchased supplemental coverage, can opt to be treated by HHAs or IRFs.

Beneficiaries using IRFs and LTCHs (settings that do not require a prior inpatient hospital stay for Medicare coverage) incur Part A deductibles if they are admitted directly from the community (about 15 percent of LTCH and IRF users). Although many IRF and LTCH users are unlikely to be candidates for home health care (which has no such deductible), some orthopedic procedures (such as knee replacements) are increasingly performed in ambulatory surgical centers. Some beneficiaries use IRFs because they do not meet SNF coverage rules but do meet the IRF coverage rules (because they can tolerate intensive rehabilitation therapy). Almost all medigap plans cover the Part A deductible, but one plan does not. Its enrollees (about 2 percent of medigap enrollees) and beneficiaries without supplemental coverage might avoid the institutional PAC settings because of financial considerations. In addition, beneficiaries without supplemental policies might avoid LTCHs or transfer out of that setting if their stays exceed 60 days since additional cost sharing begins on day 61 of the LTCH stay (the same is true for IRF users, but almost no IRF users stay that long).

As Medicare moves toward uniform payments for PAC care, the Secretary should consider standardizing its cost-sharing requirements across PAC settings. Consistent with the Commission's previous work on benefit redesign, a uniform cost-sharing arrangement across PAC settings could result in more rational PAC use for those beneficiaries who currently choose a PAC setting based at least in part on the cost-sharing requirements (Medicare Payment Advisory Commission 2012). For example, there could be a uniform copayment for the use of any PAC services. Beneficiaries would not have a financial incentive to select one PAC setting over another, thus making their choice of PAC independent of any financial consideration. A copayment would also encourage beneficiaries to consider the need to initiate or continue to use PAC. Uniform cost sharing would impose cost sharing for beneficiaries who use home health care, consistent with a Commission recommendation to impose cost sharing for community-admitted beneficiaries (Medicare Payment Advisory Commission 2011a). Because many beneficiaries have supplemental insurance, medigap policies would need to conform so that the cost-sharing policies are effective. The Secretary could consider

waiving the copayment requirement for low-income beneficiaries.

Companion policies to dampen FFS incentives

Under a PAC PPS, providers would still be paid on an FFS basis with all the financial incentives such a system entails. Providers would have an incentive to reduce the costs of care during the PAC stay by stinting on care or discharging patients prematurely. At the same time, they would have a financial incentive to increase the number of PAC stays, for example, by admitting patients with marginal care needs or by referring beneficiaries to subsequent PAC use.

Episode-based payments dampen these incentives by paying a provider for all services furnished during a defined period of time. Providers would be discouraged from increasing the number of back-to-back PAC stays or shifting care to after the PAC stay because they remain financially responsible for all care within the episode time frame. Episode-based payments encourage providers to furnish high-quality care because poor quality can result in costly readmissions. In short, bundled payments have the potential to meet several objectives simultaneously: improve care coordination and the quality of services, rationalize service use and lower program spending, and lower potentially avoidable readmissions.

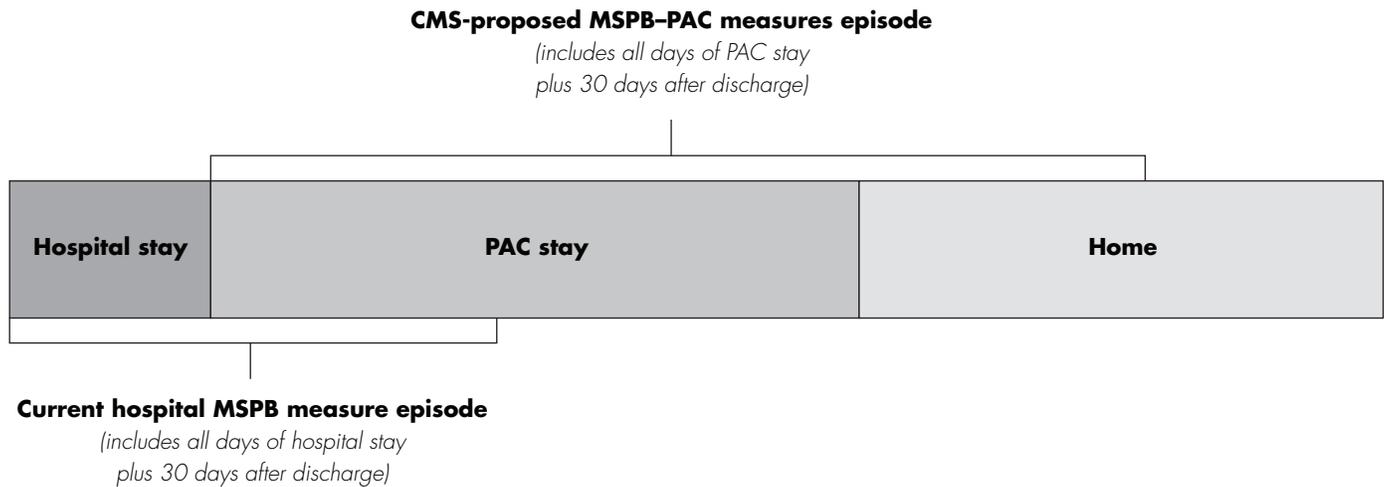
However, until these broad structural reforms are in place, CMS must implement companion policies to dampen the FFS incentives to generate serial PAC stays and to stint on care. The companion policies include value-based purchasing (VBP) (including a measure of Medicare spending per beneficiary) and a readmissions policy. CMS could also consider outsourcing the management of PAC services to a third party. In addition to implementing companion policies with the new PAC PPS, CMS must closely monitor provider response to the new payment system to guard against unintended consequences that adversely affect quality of care for Medicare spending.

Value-based purchasing

To counter the FFS incentives to generate unnecessary volume, delay care until after the PAC stay, and stint on services, CMS would need to implement VBP concurrently with the implementation of a PAC PPS. By tying a portion of payments to measures of quality and resource use, providers would have an incentive to provide adequate care

**FIGURE
3-1**

Comparison of the current hospital MSPB measure and proposed MSPB-PAC measures



Note: MSPB (Medicare spending per beneficiary), PAC (post-acute care).

to achieve good outcomes while using resources efficiently within an episode's fixed payment. Without such a policy, providers could lower their costs by stinting on services and could generate subsequent PAC stays as a way to increase revenue. In addition to encouraging efficient care, Medicare spending per beneficiary–post-acute care (MSPB–PAC) measures could detect stinting by identifying providers with unusually low spending.

A VBP program must include quality measures and resource use measures both. Otherwise, providers could sacrifice quality to keep spending low. Resource use measures could include the MSPB–PAC measures, which the Secretary is required by IMPACT to develop.²⁴ In January 2016, CMS proposed measures to gauge spending during a PAC stay and the 30 days after discharge from the PAC setting. Similar to the hospital MSPB measure, the MSPB–PAC measures would include spending for the admission to a PAC setting and spending on services furnished within 30 days of discharge (Figure 3-1). For post-acute care use following a hospital stay, the MSPB–PAC measures would align the incentives of hospitals (and the related physician services) and PAC providers.

Quality measures could include risk-adjusted rates of potentially avoidable readmissions (to hospitals and PAC settings) and community discharge and changes in

function (once these data are routinely collected by PAC providers). Measures of care coordination could include the number of days between discharge from the hospital and follow-up care with a primary care practitioner and potentially avoidable emergency department visits.

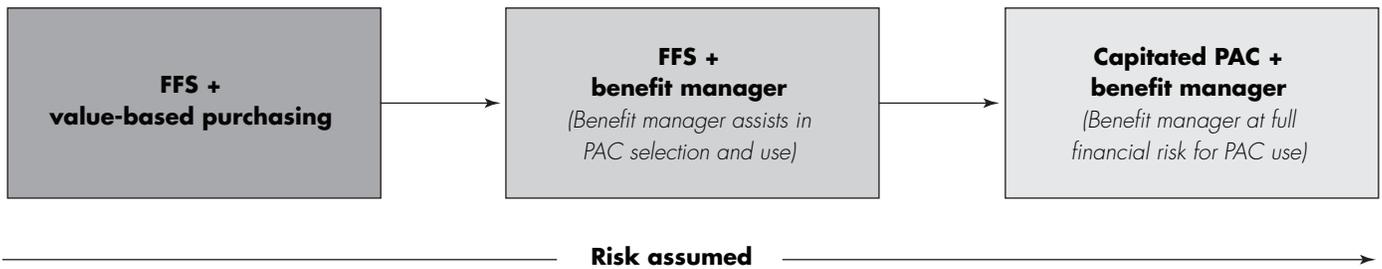
The current status of VBP varies by PAC setting. In January 2016, CMS implemented a VBP program for HHAs in 9 states, which began with monitoring performance on 24 measures. In the Protecting Access to Medicare Act of 2014, the Congress required CMS to design a VBP program for SNFs that will affect payments beginning October 2018. The SNF VBP program begins with an all-cause all-condition readmission measure, but the law requires the Secretary to replace it with a measure of potentially avoidable readmissions as soon as practicable. Although a provision in the Patient Protection and Affordable Care Act of 2010 requires VBP pilot programs in LTCHs and IRFs by 2016, competing priorities and a lack of funding have prevented CMS from initiating work on these pilots.

A readmission policy

The other companion policy that needs to accompany a PAC PPS is a readmission policy for all PAC providers. By holding providers accountable for readmissions to hospitals that occur during PAC stays, a readmission

**FIGURE
3-2**

Options for a third-party benefit manager shifts the risk from Medicare onto third-party benefit managers



Note: FFS (fee-for-service), PAC (post-acute care).

policy creates incentives for providers to furnish adequate quality of care to keep patients out of the hospital. A readmission policy thus counters the incentive under any PPS to stint on care. Ideally, readmission rates would be one of the measures in a VBP program so that a single program's incentives shape provider behavior.

The status of readmission policies varies by PAC setting. In 2012, the Commission recommended that CMS implement a readmission policy for SNFs, and in 2014 it recommended that CMS implement a home health readmission policy for post-acute home health episodes. CMS is moving forward with readmission policies for SNFs and HHAs as part of VBP programs. Although LTCHs and IRFs do not have readmission or VBP policies in development, providers in both settings are subject to pay-for-reporting on this measure.²⁵ The 30-day readmission rates for certain types of LTCH patients are currently lower than other settings, likely due to the hospital-level capabilities of the setting (Gage et al. 2012). (See online Appendix 3-A, available at <http://www.medpac.gov>, on comparing outcomes across PAC settings.) Given the potential regulatory changes made concurrent with a PAC PPS, LTCHs may have more incentive to discharge patients earlier, which could potentially increase readmissions. A readmission policy would counter the financial incentive that all providers, including LTCHs, would have to underprovide care.

Pay a third party to manage PAC

Medicare could also consider contracting with a third-party benefit manager to manage PAC services. The benefit manager could receive a separate payment to

manage PAC services or, accepting more risk, could be financially responsible for the costs of PAC services in a given market. Because the third-party manager would be at risk for all care within the market for a defined period, it would have a financial incentive to steer beneficiaries toward the lowest cost appropriate setting for PAC. Beneficiaries would retain their freedom of choice, but the third-party manager could encourage beneficiaries to select certain providers or settings over others.

A third-party benefit manager typically compares data on an individual patient's characteristics (comorbidities, functional and activity status, and cognition) with data on other patients. Using these matched patients' experience, the benefit manager estimates the time (the number of days) likely needed to achieve a functional outcome (such as a certain gain in function), length of stay in different PAC settings, and risk of hospital readmission. These predictions inform the selection of the setting and specific provider. The third-party manager achieves savings by avoiding PAC use altogether, shifting use from high-cost to low-cost PAC settings, and by lowering the amount of PAC used.

There are conflicting views about the need for and desirability of a third-party benefit manager. The need for a PAC benefit manager and the form such management would take would depend in part on how effective outcome measures were at changing provider behavior and where the financial risk lies for appropriate, low-cost PAC (Figure 3-2). At one end of the risk continuum, FFS would remain in place, and value-based purchasing would offer risk and rewards for good outcomes and low resource use

over an episode of care (current policy). If the incentives are sufficiently large, providers would deliver low-cost, high-quality care and benefit managers would not be needed. Those with reservations about benefit managers believe that the clinical team should drive placement decisions and that tracking meaningful outcomes and making providers responsible for them is the best way to ensure good care for beneficiaries. For them, benefit managers are overly focused on lowering costs without a focus on the care needs of the beneficiary.

At the other end of the risk spectrum, a benefit manager would accept full risk for all PAC. A benefit manager would pay PAC providers and Medicare would no longer make FFS payments for these services. Medicare would thus shift the risk for PAC to the benefit manager, who would have financial incentives to ensure that beneficiaries received high-quality, well-coordinated care. In a middle strategy, a benefit manager could assist beneficiary decision making and help manage PAC use over an episode of care. Benefit managers would be paid a nominal amount and would likely share in any savings achieved by avoided readmissions or lower PAC spending.

A benefit manager would insert a third party into the decision making and management of care provided to beneficiaries, which could enhance beneficiary decision making but add administrative burden to an already complex discharge process. From the beneficiary perspective, a benefit manager could facilitate the decision about where to get PAC and guide beneficiaries to high-quality providers. The manager could also determine whether the beneficiary required institutional PAC or could be safely treated at home. The providers included in the manager's network would determine whether the choices were convenient for the family and included high-quality providers. However, a thin network or one composed of marginal-quality providers could raise concerns that care is more difficult to access and is inadequate. In addition, some clinicians could oppose needing to get approval from a third party that may be unfamiliar with the patient's circumstances, especially if it increases their administrative burden. The process the benefit manager used to make referral decisions would influence how well the managers were received. Referral decisions based on direct interaction with the patient and caregivers would be more likely to gain acceptance than referrals based on information indirectly conveyed by a benefit manager.

Currently, some MA plans, ACOs, and participants in CMS's bundling initiative contract with a benefit manager to manage PAC use. Kindred, a diversified provider of PAC services, recently launched a national referral service staffed by nurses to provide consumers with PAC resources, including PAC referrals and insurance coverage information. Kindred plans to develop a PAC benefit management model to manage specific patient populations on behalf of payers and health system entities like ACOs (Kindred 2016).

Monitoring provider responses to a PAC PPS

Under payment reforms such as episode-based payment, providers will be at risk for the quality and cost of services over a sustained period. Providers will have a financial interest to furnish efficient, high-quality care to keep their episode costs low, thereby reducing the need for the Secretary to monitor undesirable provider responses. However, until such payment reforms are implemented, the Secretary must carefully monitor provider behavior, including providing poor-quality care, selectively admitting certain types of stays over others, and generating unnecessary PAC stays to generate revenue. Similarly, monitoring the early results of a PAC PPS and making modifications as needed will be essential.

To monitor quality, the Secretary should track potentially avoidable readmission rates, potentially avoidable complication rates, changes in patient function during the PAC stay, and beneficiary experience. Measures that are tracked over longer periods of time, such as rates for 60 or 90 days, would hold providers accountable for a longer recovery period that may make more sense for PAC but could begin to include events unrelated to the initial reason for PAC. For stays admitted directly from the community, the Secretary should also track admission rates. To assess care coordination, the Secretary could monitor rates of potentially avoidable emergency department visits and rates of observation stays, as well as the number of days between discharge from the hospital and follow-up care with a physician or other clinician. Patient-reported satisfaction with care would add a valuable perspective on the success of care coordination among providers and settings.

To evaluate whether providers were engaged in patient selection, the Secretary should monitor changes in the

rates of PAC use and the mix of patients across settings. If PAC providers considered the payment rates for certain types of cases to be too low, these patients might be difficult to place and could remain in hospitals. Therefore, hospital lengths of stay by condition would also need to be monitored. Because we expect large changes in the mix of patients across the different settings, the Secretary will need to identify providers' aberrant practice patterns and conduct focused reviews of their claims. If the Secretary decides to move forward with implementing a PAC PPS sooner than is legislated, using administrative data, particular attention should be paid to access to PAC for patient groups for which payments relative to costs may be lower than for other patient groups. Some patient selection may be unavoidable under any PPS, but the Secretary should identify a handful of patient types of most concern (for example, the sickest or frailest) and monitor PAC use rates across providers. Systematic patterns could indicate a problem with the PPS that refinements (such as changes to the risk adjustment) could address. Provider responses could also prompt changes in policy, such as larger penalties under a readmission policy or larger financial risks under a VBP program.

To gauge whether providers were generating unnecessary PAC stays, the Secretary should monitor PAC use rates, including initial PAC use after discharge from the hospital and from any subsequent PAC provider. The use rates of subsequent PAC would also suggest whether providers were shifting care to another PAC provider rather than managing the care themselves. The Secretary should also monitor changes in PAC lengths of stay. Three of the four settings already have incentives to keep stays (or episodes) short, but we expect SNF stays to shorten under a stay-based payment system. Under a unified PAC PPS, we also expect lengths of stay to equilibrate across settings. However, without simultaneously monitoring quality metrics, we would not be able to determine whether any changes in lengths of stay represented better or worse care.

Similar to the efficient provider work the Commission has conducted, the Secretary could evaluate the share of providers that are low cost *and* high quality. Over time, the Secretary could assess the PAC PPS's impact on providers' ability to be both. This analysis could also provide benchmarks for PAC providers and for the VBP program.

Finally, the Secretary would need to monitor indicators of the adequacy of Medicare's payments (such as cost growth and Medicare margins) to ensure beneficiary access to care. This monitoring would include examining not only

indicators in the aggregate but also distributions and the types of providers whose experience differed from the average. Such deviations could detect problems in the payment system warranting correction.

In 2014, the Congress moved to correct the lack of comparable outcome measures and standardized patient assessment information for PAC providers. IMPACT requires the Secretary to develop standardized quality measures across the four PAC settings, including measures of functional and cognitive status, changes in function and cognition, medication reconciliation, incidence of major falls, hospital readmissions, discharge to community, resource use, and accurate communication and transferring of health information and patient preferences. The Act also requires PAC providers to gather standardized patient assessment information at admission and discharge, including measures of function, cognition, specialized services (such as ventilator care, dialysis, and central line placement), medical conditions and comorbidities, and impairments (such as incontinence and difficulty swallowing). This information can be used to risk adjust costs and outcomes so that fair comparisons can be made across and within settings.

Implications for the design of a PAC PPS

A PAC PPS is feasible and would break down the silos between settings. Payments would be based on patient characteristics, not the setting, and would correct some of the shortcomings of current PPSs. Our work informs the design of a PAC PPS along with the adjusters that should be considered and those that do not appear to be warranted. Concurrent with the implementation of a PAC PPS, the Secretary should consider waiving select setting-specific regulatory requirements to give providers more flexibility in furnishing PAC care. In the future, the Secretary should also consider conditions of participation that focus on requirements to treat certain types of patients. Because a PPS will retain the FFS incentives to furnish unnecessary PAC stays, the Secretary needs to implement companion policies to dampen these incentives. Finally, the Secretary needs to develop a monitoring program to detect any unintended or inappropriate provider responses. Over the longer term, the Secretary needs to move forward with broader payment reforms that put providers at risk for furnishing high-quality, efficient care over an episode. The Commission underscores that until a PAC PPS is implemented, CMS and the Congress

need to move forward with our standing recommendations that would improve the accuracy and equity of payments within each setting. Because the current time line for implementing a PAC PPS is years away, these refinements to the individual payment systems would better align program payments to providers' costs, eliminate known biases in the payment systems, and help ensure access for beneficiaries with varying care needs.

Overall design of the PAC PPS

With respect to the design of the PAC PPS, our work confirms the following:

- A common unit of payment (a stay) and a common risk adjustment method are possible.
- Patient and stay characteristics (without indicators of therapy use) can form the basis of risk adjustment.
- Given differences in coverage across the PAC settings, separate models should be used to establish payments for NTA services and for the combination of routine and therapy services.
- Because the costs are so much lower in HHAs compared with institutional PAC care, payments for home health stays will need to be adjusted to avoid large overpayments to this setting.
- Administratively available data can accurately predict the costs for most stays, but patient data are needed to accurately predict the costs of certain types of stays.
- Initial payments can be based on current practices and costs, but, over time, payments should be revised to reflect efficient, appropriate care.

Payment adjusters

The goal of a PAC PPS is to establish common payments for similar patients (aside from the needed adjustment for HHA stays). Therefore, any adjustment made to a payment for a stay should apply to stays treated in any setting. Further, under a PAC PPS, we expect providers to change their providers' costs and practices; adjusters that undercut these intended impacts (e.g., adjusters for high-cost settings) should be avoided.

Our work indicates the need for the following adjusters:

- a short stay policy and
- an outlier policy.

There was less clear evidence of a need for:

- a broad rural or frontier adjustment and
- a teaching adjustment for IRFs.

More work needs to be done:

- to examine the need for an adjustment for low-volume, isolated providers;
- to confirm the need for an adjustment for providers treating high shares of low-income patients; and
- to define and adjust for medically complex patients.

Policy considerations in implementing and maintaining a PAC PPS

The Secretary will need to consider:

- the definition of a *stay*;
- the transition period—the number of years of the transition and how to blend “old” and “new” payments during this period;
- the level of payments; and
- periodic refinements to maintain the accuracy of payments.

Changing regulatory requirements under a PAC PPS

As Medicare begins to pay PAC providers under a single payment system, it needs to give providers more flexibility to offer services that span the PAC continuum of care. In addition, the program could consider standardizing cost sharing when beneficiaries use PAC services. Two time lines should be considered for waiving regulatory requirements:

- **Near term**—At the same time the PPS is implemented, waive select setting-specific requirements; and
- **Longer term**—Develop a common “core” set of conditions of participation for all PAC providers and specific requirements for providers that opt to treat patients who require specialized resources.

Companion policies to adopt with the implementation of a PAC PPS

Although a common PPS for PAC stays would begin to rationalize Medicare's payments, it would not correct the underlying incentives in FFS payment to generate

unnecessary PAC stays or to provide low-quality care if it is less costly. Therefore, the Secretary will need to implement the following companion policies to dampen these incentives:

- establish a readmission policy to prevent unnecessary hospital readmissions and
- tie payments to outcomes to protect beneficiaries against stinting.

The Secretary could consider using benefit managers to improve care coordination and efficiency of PAC.

In the longer term, Medicare needs to move toward putting providers at risk for spending over an episode of care. Because providers would be at risk for readmissions and downstream spending, there would be less need for these companion policies.

Monitor provider responses to the PAC PPS

The Secretary must establish a monitoring program to detect inappropriate provider responses, including:

- stinting on care, which may lower quality and outcomes;
- patient selection, which may impair some beneficiaries' access to care;

- unnecessary PAC stays; and
- delays in care that shift, but do not lower, program spending.

As indicators of the adequacy of Medicare's payments, the Secretary should also track:

- Medicare margins;
- cost growth; and
- a count of "efficient" providers—that is, providers that are relatively low cost and high quality.

As any unintended consequences of the PAC PPS are documented, the Secretary will need to make revisions. ■

Section 2(b)(1) of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT)

(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. ■

Endnotes

- 1 In an analysis of 22 conditions frequently treated in IRFs and SNFs, beneficiaries had similar risk profiles (or the lower cost SNF patients had higher risk profiles) (Medicare Payment Advisory Commission 2016, Medicare Payment Advisory Commission 2015). Many areas of the country have no LTCHs, and patients who might otherwise go to LTCHs are discharged from acute care hospitals to SNFs and IRFs (Medicare Payment Advisory Commission 2014). The Post-Acute Care–Payment Reform Demonstration conducted by CMS found considerable overlap in the patients treated across the four settings (Gage et al. 2012).
- 2 In the PAC–PRD sample, routine costs made up 38 percent of LTCH stay costs, 47 percent of IRF stay costs, 49 percent of HHA stay costs, and 60 percent of SNF stay costs.
- 3 In contrast, voluntary demonstrations can draw participation from providers most able to innovate but unlikely to be representative of the industry, making it difficult to draw conclusions about how a demonstration will scale up to the entire industry.
- 4 The assessment gathered baseline information about a patient’s status before the current spell of illness, as well as current medical information, functional and cognitive status, impairments, and discharge information.
- 5 A spell of illness begins when a beneficiary has not had inpatient hospital care or skilled care in a SNF for 60 consecutive days. Each beneficiary has a lifetime reserve of 60 additional inpatient hospital days that can be used after the 90 days of inpatient hospital coverage have been exhausted.
- 6 Nontherapy ancillary services include drugs, respiratory care, ventilator services, and other miscellaneous ancillary services such as laboratory tests and radiological exams. They account for 13 percent of SNF and IRF stay costs and 35 percent of LTCH stay costs.
- 7 Our analysis of PAC–PRD stays had the following composition: 60 percent were treated in HHAs, 12 percent in SNFs, 17 percent in IRFs, and 11 percent in LTCHs. This composition differs considerably from the nationwide distribution of 2013 PAC stays: 70 percent in HHAs, 25 percent in SNFs, 4 percent in IRFs, and 2 percent in LTCHs. Our analysis of the 107 PAC–PRD providers had the following composition: 38 percent were HHAs, 26 percent were SNFs, 22 percent were IRFs, and 13 percent were LTCHs. This provider mix also differs considerably from the nationwide distribution in 2013: 52 percent were SNFs, 43 percent were HHAs, 4 percent were IRFs, and 1 percent were LTCHs.
- 8 The relative weight measured each stay’s relative routine resource use compared with all stays for that provider.
- 9 Because the overhead share of the total cost of a stay was similar across settings (though the levels differed), we did not model fixed and variable costs separately.
- 10 An alternative approach could have estimated the average routine cost per day (readily available from the cost report) and then multiplied that figure by each stay’s length. However, we know that patient care costs vary by more than length of stay, which our chosen approach attempts to capture.
- 11 Severe wound care includes patients with a nonhealing surgical wound; an infected wound; a wound for a patient who is morbidly obese; a fistula; osteomyelitis; or a Stage III, Stage IV, or unstageable pressure wound.
- 12 The measure of frailty we used was the JEN Frailty Index, an algorithm developed by JEN Associates Inc. to identify frail older adults who may be at risk of institutionalization. The index is based on 13 grouped categories of diseases or signs found to be significantly related to concurrent or future need for long-term care services. The algorithm uses diagnosis codes from claims. We included the 13 components to the index in the administrative models because functional status information was not available.
- 13 Compared with ordinary least squares regression, the Poisson regression gives less emphasis to infrequent but exceptionally high-cost stays. In addition, Poisson models can more easily handle dependent variables with zero values (such as stays with no NTA or therapy costs).
- 14 Across institutional PAC stays, three-quarters of stays did not qualify for any definition of *medically complex*. Of those that did, about 40 percent qualified for more than one definition. Across HHA stays, most stays (96 percent) did not qualify for the definitions of medically complex that included HHA stays (severity of illness Level 4 and chronically critically ill). Of the small share of HHA stays that did, most qualified for only one of the definitions, while 21 percent qualified for both definitions.
- 15 The share of the variation explained by the full and administrative models is high because the indicator for the use of home health care (compared with institutional care) gives the models a strong boost in predicting the cost of the stay. Further, both models include over 60 clinical characteristics to predict the cost of stays. The results of the full and administrative models (using the PAC–PRD stays) are similar because both include the same key patient characteristics—the home health indicator, the primary reason to treat, and

- secondary diagnoses—and both models have sufficient cases (6,400) to handle the number of variables (about 100) included in them.
- 16 This list is expanded from the previous tables because the stay counts were high enough to report their results. The 13 clinical groups account for 75 percent of stays. We examined several other clinical groups, and the results were similar to those reported here. We did not report them separately because each group either accounted for less than 1 percent of stays or were a mix of clinical conditions (such as “other surgical”) for stays that did not fall into one of the clinically meaningful groups listed.
 - 17 About two-thirds of HHA users, 12 percent of IRF users, 9 percent of LTCH users, and 10 percent of SNF users did not have a hospital stay within the preceding 30 days and were considered community admissions for this study.
 - 18 Beginning October 1, 2015, the LTCH PPS applies only to LTCH discharges that had an immediately preceding acute care hospital stay if the acute care stay included at least three days in an intensive care unit or the patient received prolonged ventilator services in the LTCH. All other LTCH discharges are paid an amount based on Medicare acute care hospital PPS.
 - 19 Since 2013, LTCH payment policies have changed, with large reductions in payments for stays that do not meet LTCH criteria. In response to these policies, we expect LTCHs to change the mix of patients they treat and their cost structures. Although we did not attempt to model any changes in LTCH behavior, by using data collected after the implementation of the new policy, the Secretary would be able to take these changes into account in the PAC PPS design.
 - 20 IMPACT requires PAC providers to submit standardized patient assessment information beginning October 1, 2018, for IRFs, SNFs, and LTCHs, and January 1, 2019, for HHAs.
 - 21 The Secretary has the authority to define inpatient rehabilitation facilities, including a compliance rate (although by law the compliance rate cannot be higher than 60 percent). The definition of a long-term care hospital is in statute.
 - 22 The three-day hospital stay is waived for entities participating in Bundled Payments for Care Improvement (BPCI) Initiative Model 2 (including the initial hospital stay and all Part A and Part B services during the episode), but a hospital admission is still required (Lewin Group 2015). ACOs waive the inpatient stay requirement entirely, allowing admissions to SNFs directly from a beneficiary’s home, physician’s office, observation status, the emergency room, or a hospital stay shorter than three days. The requirement is not waived for beneficiaries who reside in a nursing home (Centers for Medicare & Medicaid Services 2015a). Both alternative payment models waive certain requirements to allow limited home health care visits. BPCI waives the direct supervision requirement for 1 home visit every 30 days (and pays for the visits under the physician fee schedule), while ACOs allow limited home visits for beneficiaries who do not meet the homebound requirement (Centers for Medicare & Medicaid Services 2015b, Lewin Group 2015). The three-day hospital stay requirement is also waived for hospitals participating in the hip and knee replacement demonstration if the nursing home has at least a 3-star rating.
 - 23 In 2015, CMS proposed long-term care regulations that overhaul the requirements for long-term care facilities (Centers for Medicare & Medicaid Services 2015c). Among its revisions, the proposal would require nursing facilities to have sufficient staff to provide nursing care to each resident in accordance with his or her care plan and individual needs and ensure that their staff has appropriate competencies and skill sets to assure resident safety. CMS did not rule out more stringent minimum nursing-hour requirements, such as a requirement that a registered nurse be present at all times.
 - 24 IMPACT requires the Secretary to implement a resource use measure in the quality public reporting programs for PAC providers beginning October 1, 2016, for SNFs, LTCHs, and IRFs and on January 1, 2017, for HHAs.
 - 25 Both settings have interrupted-stay policies in place. A provider does not receive a second stay payment if a beneficiary’s stay is interrupted for a predetermined amount of time with an admission to an acute care hospital.

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