

CHAPTER

# 6

---

**Revising Medicare's  
indirect medical education  
payments to better reflect  
teaching hospitals' costs**

---

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

- 6** The Congress should require CMS to transition to empirically justified indirect medical education adjustments to both inpatient and outpatient Medicare payments.

**COMMISSIONER VOTES: YES 14 • NO 0 • NOT VOTING 2 • ABSENT 1**

# Revising Medicare’s indirect medical education payments to better reflect teaching hospitals’ costs

## Chapter summary

Medicare supports teaching hospitals through two types of payments: direct and indirect medical education payments. In fiscal year 2019, the roughly 1,100 acute care teaching hospitals received nearly \$4 billion in Medicare direct graduate medical education payments, which help finance the direct costs of residency programs, such as resident stipends, supervisory physician salaries, and administrative overhead expenses. Medicare’s larger form of support to teaching hospitals, indirect medical education (IME) payments, are designed to support teaching hospitals’ higher costs of inpatient care and are implemented through IME adjustments in the inpatient operating and inpatient capital prospective payment systems. In 2019, teaching hospitals received over \$10 billion in IME payments, including \$6.7 billion in IME payments for fee-for-service (FFS) beneficiaries’ inpatient stays—or about 6 percent of teaching hospitals’ total inpatient and outpatient FFS payments—and an additional \$3.4 billion in IME payments for Medicare Advantage beneficiaries’ inpatient stays.

The Commission has noted two key concerns with Medicare’s current IME payment policy. First, IME policy is “inpatient-centric”—that is, it focuses exclusively on teaching hospitals’ additional costs of inpatient services—and does not reflect the range of hospital settings in which residents train and patients receive care. Second, IME payments do not accurately reflect the

## In this chapter

- Background
- Concerns about Medicare’s IME policy
- Principles for IME payment reform
- Effects of a revised budget-neutral inpatient and outpatient IME policy
- Recommendation

effect of teaching on patient care costs across settings, resulting in IME payments above teaching hospitals' additional costs for patient care in inpatient settings but below their additional costs for patient care in hospital outpatient settings. Together, these two features of current IME payment policy create financial penalties in the form of lost IME revenue when teaching hospitals safely shift care from inpatient to outpatient settings.

In response to these concerns, the Commission has included the following in its principles for IME reform:

- IME payments should be made for both inpatient and outpatient PPS services;
- IME payment adjustments should be based on hospitals' ratio of residents to patients; and
- Medicare should transition to empirically justified levels of IME payments, such as by maintaining aggregate IME payments equal to current policy until such time that they match empirically justified levels.

Following the principles above, we modeled a revised budget-neutral inpatient and outpatient IME policy that more accurately reflects teaching hospitals' additional costs. Under the revised IME policy, inpatient and outpatient IME payments would be based on their empirically justified levels and then scaled such that aggregate IME payments equaled those under current policy. The revised policy would result in a small aggregate change in total inpatient and outpatient FFS payments for most teaching hospitals and for most groups of teaching hospitals. However, the revised policy would shift IME payments toward teaching hospitals with additional costs not accounted for in the current policy, including most hospitals that currently treat a larger share of Medicare patients in outpatient settings. Over time, as care continues to shift to outpatient settings, we anticipate that empirically justified IME payments would match and then exceed those under current policy baseline; once that occurs, IME payments could be set at their (higher than current-law) empirically justified levels.

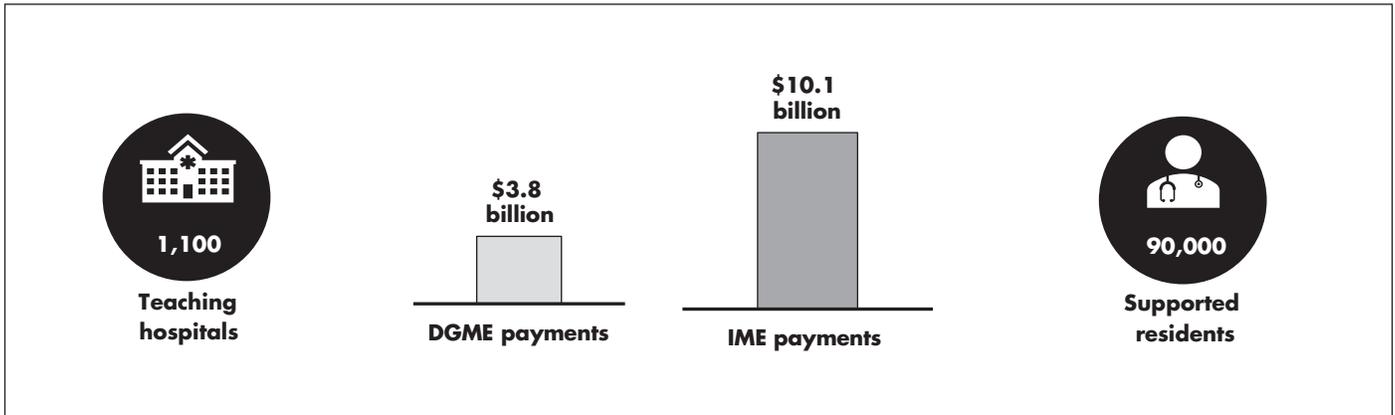
The Commission recommends transitioning to an empirically justified inpatient and outpatient IME policy such as the one we have modeled. A revised IME policy would better align IME payments with the contemporary spectrum of settings in which residents train and patients receive hospital care; reduce the financial penalty of lost IME revenue when teaching hospitals treat Medicare beneficiaries in appropriate outpatient, rather than inpatient, settings; and make IME payments more equitable for teaching hospitals that have shifted—or will shift in the future—to providing more care and resident training in hospital outpatient settings. Moving

forward, it will be important for CMS to monitor the effects of the revised IME policy and collect additional data to support further improvements to the accuracy of IME payments. At the same time, policymakers should continue to work toward broader graduate medical education reforms to support future workforce needs. ■



**FIGURE  
6-1**

**Medicare's support to IPPS teaching hospitals included \$10.1 billion in IME payments in 2019**



Note: IPPS (inpatient prospective payment system), IME (indirect medical education), DGME (direct graduate medical education). "Supported residents" refers to residents counted in the calculation of IME payments. Includes IPPS hospitals with complete cost reports having a midpoint in fiscal year 2019.

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

## Background

Medicare supports teaching hospitals through two types of payments: direct and indirect medical education payments (Figure 6-1).<sup>1</sup> In fiscal year 2019, the roughly 1,100 acute care teaching hospitals received \$3.8 billion in Medicare direct graduate medical education (DGME) payments, which help finance the direct costs of residency programs, such as resident stipends, supervisory physician salaries, and administrative overhead expenses. Medicare's larger form of support to teaching hospitals, indirect medical education (IME) payments, totaled \$10.1 billion in 2019 and is designed to support teaching hospitals' higher costs of inpatient care. In contrast to DGME payments, Medicare recognizes hospitals' higher inpatient care costs through adjustments to payments for inpatient hospital services.<sup>2</sup> These payments to teaching hospitals supported the training of about 90,000 residents, including over \$40,000 per resident in DGME payments and IME payments that averaged about \$1,300 per inpatient stay (or over \$110,000 per resident).<sup>3</sup>

Medicare's treatment of teaching hospitals' higher patient care costs not otherwise accounted for—and resulting

IME payments—vary across the three fee-for-service (FFS) prospective payment systems (PPSs) for short-term acute care hospitals: the inpatient operating PPS, the inpatient capital PPS, and the hospital outpatient PPS (Table 6-1, p. 212). Both the inpatient operating and inpatient capital PPSs include an IME adjustment whereby base payments to teaching hospitals are increased by a specified percentage. In addition, the Medicare program also makes inpatient operating IME payments for teaching hospitals' care of Medicare Advantage (MA) beneficiaries. In contrast, there is no IME adjustment in the outpatient PPS: Medicare's payments for hospital outpatient services do not vary depending on whether the hospital trains residents.

Of the \$10.1 billion in IME payments that teaching hospitals received in 2019, about \$6.2 billion were from adjustments to inpatient operating PPS payments and \$0.4 billion stemmed from adjustments to inpatient capital PPS payments for FFS beneficiaries' inpatient stays (Table 6-2, p. 212). This collective roughly \$6.7 billion in IME FFS payments was equivalent to about 6 percent of teaching hospitals' total FFS Medicare inpatient and outpatient payments (data not shown). The Medicare program also

**TABLE  
6-1****Medicare's treatment of teaching hospitals' indirect costs of medical education varies across the three hospital prospective payment systems**

IME adjustment	Inpatient operating PPS	Inpatient capital PPS	Outpatient PPS
Authority	Specified in statute	Flexibility in statute; added through rulemaking	Flexibility in statute; not added
Measure of teaching intensity	Specified in statute: Resident-to-bed ratio (RBR)	Residents per average daily inpatient census (RADCI)	N/A
Percentage add-on to base PPS payments	Specified in statute: $1.35 \times [(1 + \text{RBR})^{0.405} - 1]$ (or 0.66 multiplier for certain residents)	$e^{[0.2822 \times \min(1.5, \text{RADCI})]} - 1$	N/A
IME payments for MA beneficiaries	Specified in statute: Medicare program pays (and excluded from MA benchmarks)	Not directly paid by Medicare program	N/A

Note: IME (indirect medical education), PPS (prospective payment system), MA (Medicare Advantage), N/A (not applicable). The measures of teaching intensity are subject to caps.

Source: MedPAC summary of public laws (42 USC §1395ww(d)(5)(B), (d)(11), (g), §1395w-23(k)(4), and §1395l(t)(2)(E)) and regulations (42 CFR §412.105, §412.322, and §422.306(c)).

made \$3.4 billion in inpatient operating IME payments to teaching hospitals for MA beneficiaries' inpatient stays.

The ranges of IME adjustments are similar between the inpatient operating and capital PPSs, but the magnitude varies significantly across teaching hospitals. In 2019, the median IME percentage add-on to teaching hospitals' payment rates for both the inpatient operating and inpatient capital PPSs was about 6 percent. However, there was significant variation around this median value:

The bottom 5 percent of teaching hospitals received an IME adjustment of less than 0.3 percent, and the top 5 percent received an IME adjustment of over 33 percent. Within that distribution, the middle half of teaching hospitals received an IME adjustment of between 2 percent and 15 percent (Figure 6-2). The variation in IME adjustments reflects the wide range in the measures of teaching intensity, including some hospitals with a very large number of residents relative to their inpatient

**TABLE  
6-2****Medicare's IME payments, by hospital payment system and type of Medicare beneficiary, 2019**

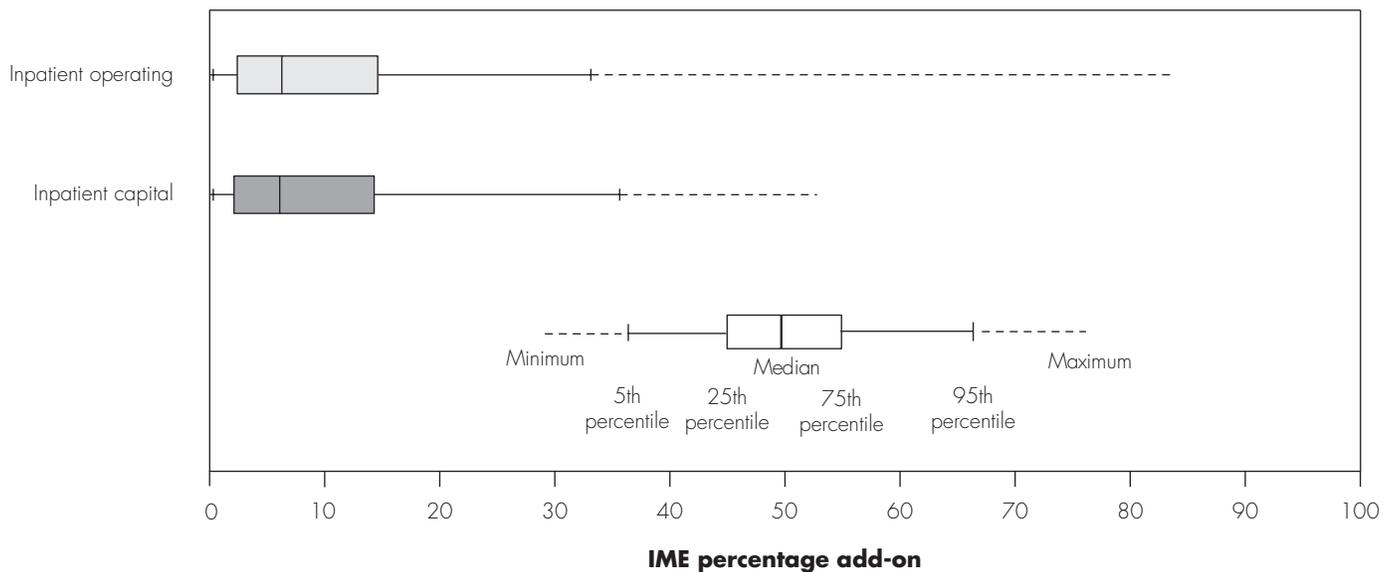
Type of Medicare beneficiary	IME payments (in billions)			
	Inpatient operating PPS	Inpatient capital PPS	Outpatient PPS	Total
Fee-for-service	\$6.2	\$0.4	N/A	\$6.7
Medicare Advantage	3.4	N/A	N/A	3.4
Total	9.6	0.4	N/A	10.1

Note: IME (indirect medical education), PPS (prospective payment system), N/A (not applicable). Includes payments to inpatient PPS hospitals with complete cost reports having a midpoint in fiscal year 2019. The Medicare program does not directly pay inpatient capital IME payments for Medicare Advantage (MA) beneficiaries; however, MA plans can include these payments as part of their contractual agreements with teaching hospitals. Components may not sum to totals due to rounding.

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

**FIGURE 6-2**

**IME adjustments to inpatient operating and inpatient capital PPS payments varied significantly across teaching hospitals, 2019**



Note: IME (indirect medical education), PPS (prospective payment system). Includes IME adjustments to inpatient PPS hospitals with complete cost reports having a midpoint in fiscal year 2019.

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

beds, or average daily inpatient census.<sup>4</sup> Teaching hospitals' FFS IME payments as a share of their total inpatient FFS payments had a similarly wide range, composing between 2 percent and 12 percent of inpatient FFS payments among the middle half of teaching hospitals and over 21 percent among the top 5 percent (data not shown).<sup>5</sup>

### Concerns about Medicare's IME policy

The Commission has expressed concerns with Medicare's IME policy, including its "inpatient-centric" approach—that is, exclusive focus on teaching hospitals' additional costs of inpatient services—which no longer reflects the range of settings in which residents train and patients receive hospital care, and the level of IME payments made to hospitals under the inpatient prospective payment system (IPPS), which is higher than empirically justified. As a result, Medicare overpays teaching hospitals for their indirect costs of medical education in inpatient settings

and underpays for their costs in outpatient settings, creating financial penalties in the form of lost IME revenue when teaching hospitals safely shift care from inpatient to outpatient settings.

### IME policy is inpatient-centric

The Commission has expressed concern that IME policy has remained inpatient-centric and has not evolved to reflect the contemporary spectrum of settings in which residents train and patients receive care.

### IME adjustments made to inpatient but not outpatient payments

Under current policy, Medicare makes IME adjustments to payments to teaching hospitals for inpatient services but not for outpatient services. The Congress required an IME adjustment to the inpatient operating PPS, but left discretion to the Secretary on which adjustments to include in the inpatient capital and outpatient PPS.<sup>6</sup> Although the Health Care Financing Administration (HCFA)—the predecessor of CMS—found a positive and significant relationship between teaching intensity

and outpatient costs among major teaching hospitals, the agency did not implement an IME adjustment to the outpatient PPS when it was established in 2001. HCFA cited several reasons for this decision, including that the issue of payment adjustments should be reexamined using data from the initial years of the implemented payment system, and that the impacts of such adjustments on overall Medicare payments were small because outpatient services accounted for only 10 percent of hospitals' Medicare payments.<sup>7</sup> Since that initial rule, CMS has stated periodically that it has not found an IME adjustment to the outpatient PPS to be necessary to ensure equitable payments to teaching hospitals and that it does not believe an IME adjustment is appropriate in a budget-neutral outpatient PPS where such changes would result in reduced payments to all other hospitals.<sup>8</sup> We note that because the level of the inpatient operating IME adjustment is set in statute and higher than empirically justified, in the absence of a corresponding decrease in inpatient IME payments, adding an outpatient IME adjustment would have further increased IME payments relative to empirically justified levels.

While delaying the decision on whether to include an outpatient IME adjustment until additional data under the outpatient PPS was reasonable, IME policy has not evolved to reflect the shift of patient care from inpatient to outpatient settings. In 2019, Medicare's payments for outpatient PPS services had grown to over 25 percent of Medicare's payments to IPPS hospitals, reflecting both a shift in complex surgical procedures from inpatient to outpatient settings and hospitals' acquisition of physician practices.<sup>9</sup> This shift from inpatient to outpatient PPS services is likely to continue in upcoming years, through changes such as the elimination of Medicare's "inpatient-only" list of services that can only be provided in inpatient settings.

Medicare's measures of teaching intensity—and therefore IME payments—do not depend on where in the hospital the resident trains; but some groups believe that the restriction of payment adjustments to only inpatient services can affect teaching hospitals' decisions on where to train residents.<sup>10</sup> For example, the Institute of Medicine noted that the statutes governing Medicare's graduate medical education payments were developed at a time when hospitals were the central—if not exclusive—site for physician training, and they continue to reflect that era, which could discourage physician training in the clinical settings where most health care is now delivered (Institute of Medicine 2014). The Council on Graduate Medical Education also noted that the focus of health care is shifting away from acute care,

and stated that the inpatient-centric IME payment structure leads hospitals to view residents' care of inpatients as the principal mission of their teaching programs and to view training residents in outpatient settings as less financially beneficial (Council on Graduate Medical Education 2017).

### **Measure of teaching intensity is inpatient-centric and inconsistent**

The measure of teaching intensity that Medicare uses to determine IME adjustments is also inpatient-centric and inconsistent across the two inpatient PPSs. Both the inpatient operating and capital PPSs measure teaching intensity as a ratio of the hospitals' total allowed residents—across all portions of the hospital—to an inpatient-only denominator.<sup>11</sup> The inpatient operating PPS measures teaching intensity as a hospital's ratio of residents to inpatient beds; as such, a hospital's calculated measure of teaching intensity depends on its inpatient capacity—regardless of how much of that capacity is used. The different measure of teaching intensity in the inpatient capital PPS—residents per average daily inpatient census—partially addresses this concern but still uses a numerator that counts residents across hospital settings and a denominator that is inpatient-only.

As care has shifted over time toward more outpatient settings, the current inpatient-centric measures have become less accurate measures of hospitals' teaching intensity. For example, the Commission has previously noted that the empirical relationship between hospitals' resident-to-bed ratio and their costs of inpatient care has decreased over time, in part because teaching hospitals have had lower growth in costs than other hospitals, on average (Medicare Payment Advisory Commission 2007b).<sup>12</sup>

### **IME payments do not accurately reflect teaching hospitals' additional costs**

The Commission has also repeatedly expressed concern that IME payments do not accurately reflect teaching hospitals' additional patient care costs and result in overpayments to teaching hospitals for their indirect costs of medical education in inpatient settings.

### **Inpatient operating PPS IME adjustment is well above empirically justified level**

The IME adjustment to the inpatient operating PPS is specified in statute and, though it has been periodically changed through statute over time, remains well above estimates of teaching hospitals' additional inpatient operating costs.

When the Congress originally established the inpatient operating PPS for hospital payments, it specified an IME adjustment that was two times greater than the effect of teaching on inpatient operating costs per case estimated by HCFA.<sup>13</sup> In doing so, the Congress cited concerns that the new PPS—which at the time had relatively limited adjustments—did not fully account for factors that increased teaching hospitals’ costs of patient care, such as severity of illness of patients requiring the specialized services and treatment programs provided by teaching hospitals, additional tests and procedures ordered by residents, and extra demands placed on other staff as they participate in the education process (U.S. House of Representatives 1983).

Since the enactment of the inpatient operating PPS, the Congress has periodically changed the IME adjustment, but it remains well above more recent estimates of teaching hospitals’ additional inpatient operating costs. The Congress first reduced the IME adjustment in the late 1980s after it added an adjustment to inpatient payments for hospitals that care for a disproportionate share of low-income patients; however, when setting this lower adjustment, the Congress still specified the IME adjustment at two times the updated estimate of teaching hospitals’ additional inpatient costs not otherwise accounted for in the modified inpatient PPS.<sup>14</sup> The Congress periodically changed—generally decreased—the IME adjustment between 1998 and 2008, eventually reducing the multiplicative factor down from 2 to its current level of 1.35.<sup>15</sup>

For decades, the Commission has expressed concerns with the level of inpatient IME payments and how they exceed teaching hospitals’ additional costs of inpatient care. For example, using 1999 data, the Commission estimated that the 2003 IME adjustment—which used a multiplicative factor of 1.35—was still twice the empirically justified level (i.e., only 50 percent was empirically justified) (Medicare Payment Advisory Commission 2003).<sup>16</sup> A subsequent analysis by the Commission using 2009 data estimated that the share of inpatient IME payments empirically justified by teaching hospitals’ additional costs of inpatient care had decreased to 40 percent to 45 percent of current levels (Medicare Payment Advisory Commission 2010). While some policymakers have argued that the portion of inpatient IME payments above the empirically justified level is appropriately used to help fund social missions (such as charity care and standby services), there is no requirement that teaching hospitals use IME payments to fund such missions nor is it

possible (with currently collected data) to determine how hospitals use IME payments (Medicare Payment Advisory Commission 2007b).

### **Inpatient capital IME adjustment is not empirically justified**

The IME adjustment to the inpatient capital PPS was not based on the effect of teaching on hospitals’ inpatient *capital* costs. When developing the inpatient capital PPS, HCFA initially determined that an IME adjustment to the inpatient capital PPS was not warranted.<sup>17</sup> However, HFCA ultimately decided to implement an adjustment based on its estimate of the effect of teaching on hospital inpatient capital and operating costs, under the premise that the inpatient operating and capital PPSs would eventually be merged into one system with uniform adjustments.<sup>18</sup>

In 2007, CMS stated that, in light of the Commission’s suggestion to seriously reexamine the appropriateness of the current capital IME adjustment, it had extended its analysis and found that the record of relatively high and persistent positive margins for teaching hospitals under the capital IPPS indicated that the teaching adjustment was unnecessary. Accordingly, CMS finalized regulations to reduce the inpatient capital IME adjustment to half of its current level in 2009 and eliminate it altogether starting in fiscal year 2010.<sup>19</sup>

However, through a combination of congressional legislation and CMS regulation, the elimination of the inpatient capital IME adjustment was deferred indefinitely.<sup>20</sup> As a result, the level of the inpatient capital IME adjustment has not been updated since its implementation and continues to exceed teaching hospitals’ additional capital costs.<sup>21</sup>

### **No IME adjustment to outpatient PPS**

In contrast to Medicare’s IME payments for inpatient care, the lack of an IME adjustment in the outpatient PPS results in underpayments to teaching hospitals for patient care provided in hospital outpatient settings. Teaching hospitals’ unaccounted-for higher outpatient costs contribute to their Medicare outpatient margin being consistently lower than that of nonteaching hospitals, and substantially lower among major teaching hospitals.<sup>22</sup>

### **Medicare does not consistently make IME payments for MA beneficiaries**

An additional issue with Medicare’s IME policy is its inconsistent treatment of teaching hospitals’ costs

**TABLE  
6-3**

**Key design features of the current inpatient-centric IME policy and a revised IME policy that better reflects teaching hospitals' additional costs**

<b>Design feature</b>	<b>Current inpatient-centric IME policy</b>	<b>Revised inpatient and outpatient IME policy</b>
<i>Does policy reflect range of settings in which residents train and patients receive care?</i>	No (inpatient-centric)	Yes (inpatient and outpatient)
Services IME adjustment applies to	Inpatient services	Inpatient and outpatient PPS services when teaching hospitals have additional costs
Measure of teaching intensity	Resident per inpatient bed (or per inpatient)	Resident per patient
<i>Does policy reflect teaching hospitals' additional costs not otherwise accounted for in the PPSs?</i>	No (higher than current empirically justified levels for inpatient; zero for outpatient)	Yes
<i>Does policy reflect additional costs of treating FFS and MA beneficiaries?</i>	Inconsistent	Yes

Note: IME (indirect medical education), PPS (prospective payment system), FFS (fee-for-service), MA (Medicare Advantage). The revised inpatient and outpatient IME policy would transition over time to empirically justified payments that reflect teaching hospitals' additional costs not otherwise accounted for in the PPSs.

of caring for MA beneficiaries. When the Congress established the Medicare+Choice program—now known as Medicare Advantage (MA)—it specified that the Medicare program would make inpatient operating IME payments for teaching hospitals' care of MA beneficiaries and carve out these IME (and DGME) payments from MA benchmarks.<sup>23</sup> The Commission supported this decision because it helps teaching hospitals compete with lower cost community hospitals and helps ensure MA plans have incentives to direct enrollees to use teaching hospitals when appropriate (Medicare Payment Advisory Commission 2002). To support the Medicare program's inpatient operating IME payments to teaching hospitals for their care of MA beneficiaries, hospitals are required to submit informational claims for MA beneficiaries' inpatient stays.<sup>24</sup> However, because it was not specified in statute, Medicare does *not* make inpatient capital IME payments to hospitals for care provided to MA beneficiaries (and these IME payments are not carved out from MA benchmarks). While the Medicare program does not make inpatient capital IME payments for MA beneficiaries, MA plans may include inpatient capital IME payments as part of their contractual agreements with teaching hospitals.

As care continues to shift from inpatient to outpatient settings and Medicare enrollment continues to shift from FFS to MA, the disconnect between current Medicare IME policy and teaching hospitals' additional costs of caring for Medicare beneficiaries will continue to grow.

### **Principles for IME payment reform**

Responding to the concerns with current Medicare IME policy, the Commission has identified three key design features that should be changed under a revised IME policy (Table 6-3). The corresponding principles for IME payment reform discussed in the subsequent sections are consistent with the Commission's broader advocacy for site-neutral payment policies: Medicare's payment policy should not provide incentives for teaching hospitals to provide services in an inpatient setting when they could be safely provided at a lower cost in an outpatient setting. (Paying more for services provided by teaching hospitals does not go against this principle because Medicare is essentially buying two services: the medical service to the patient—which may be more expensive at teaching hospitals in ways not captured in the PPSs—and the training of residents.)

## **IME policy should reflect the range of hospital settings in which residents train and patients receive care**

One key step to improve the accuracy of IME payments is to revise IME policy to better reflect the range of hospital settings in which teaching hospitals train residents and patients receive care. Such revisions include the following:

- ***Medicare should make IME payments for both inpatient and outpatient PPS services when teaching hospitals incur additional costs.*** Under current IME policy, teaching hospitals receive IME payments only for inpatient services, even though they may incur additional costs related to teaching when providing outpatient services. For example, the costs of both inpatient and outpatient service bundles could be higher at teaching hospitals due to unmeasured differences in patient severity, additional tests and procedures ordered by residents, and extra demands placed on other staff as they participate in the education process. However, these criteria do not necessarily hold for all items, services, and locations. To increase the accuracy of the IME payments and to minimize potential adverse incentives, Medicare should make IME payments only when teaching hospitals have additional patient care costs that are not accounted for in the current PPSs.
- ***Medicare should not make IME payment adjustments for separately payable drugs and devices.*** The costs of inputs paid separately outside of the PPS, such as separately payable Part B drugs and devices, do not have a relationship to patient severity or the presence of residents.<sup>25</sup> Excluding IME payments for these separately payable inputs would avoid creating adverse incentives, such as moving drug administration to teaching hospitals.
- ***Medicare should make IME payment adjustments only for services provided in a location where residents train.*** The costs of patient care in off-campus hospital outpatient departments are unlikely to be affected by whether the location is owned by a teaching hospital, unless residents train at that location. Limiting the IME adjustment to locations where residents train would also create incentives for hospitals to expand their residency training to include the range of outpatient locations in which the hospital treats patients.

- ***Medicare should base IME payment adjustments on a hospital's ratio of residents to patients.*** Under current IME policy, the measure of teaching intensity varies across the inpatient operating and inpatient capital PPSs; however, in both cases the numerator includes residents—including time spent in both inpatient and outpatient settings—while the denominator is inpatient-centric (either inpatient beds or average inpatient daily census). Switching to a resident-to-patient ratio measure of teaching intensity, where the numerator and denominator both reflect the range of hospital settings in which teaching hospitals train residents and patients receive care, would better reflect hospitals' teaching intensity. In addition, the use of a resident-to-patient ratio in setting hospitals' IME adjustment avoids creating an adverse incentive for hospitals to acquire physician practices because doing so would simultaneously increase the set of services for which IME payments are made (by increasing Medicare outpatient services) and decrease the magnitude of the IME adjustment for all services (as the additional patients decrease the hospital's resident-to-patient ratio).<sup>26</sup>

## **IME policy should transition to empirically justified payments**

A second key step to improve the accuracy of IME payments is to transition to empirically justified levels of inpatient and outpatient IME payments. The Commission has long believed that an IME adjustment should be based on an empirically derived estimate of the relationship between teaching and Medicare cost per case, using the most recent data available (Prospective Payment Assessment Commission 1989). However, under current policy, the inpatient IME adjustments are based on historical data and remain well above the current empirically justified levels; at the same time, the lack of an outpatient IME adjustment results in payments lower than teaching hospitals' additional costs of outpatient care. Re-estimating the extent to which hospitals' teaching intensity is associated with additional costs not otherwise accounted for under the hospital PPSs and transitioning to these empirically justified levels would dramatically improve the accuracy of IME payments.

The transition to empirically justified IME payments should be constructed to minimize any adverse effects on teaching hospitals. For example, aggregate IME payments could initially be made budget neutral to those under current policy by applying a budget-neutrality adjustment

to empirically justified inpatient and outpatient IME payments; over time, as outpatient services continue to increase and empirically justified IME payments match and then exceed those under current policy baseline, IME payments could be set at their (higher than current-law) empirically justified levels. Such a transition would initially maintain—and eventually increase—Medicare’s support to teaching hospitals. In addition, maintaining budget neutrality to the level of aggregate IME payments under current law but allowing these to shift among the inpatient and outpatient PPSs would also avoid materially affecting inpatient or outpatient payments to nonteaching hospitals and would therefore address CMS’s concern about adding an IME adjustment to the outpatient PPS in a manner that maintains aggregated outpatient PPS payments.

### **Teaching hospitals should receive equal IME support for care of FFS and MA beneficiaries**

A final step in improving the accuracy of IME payments would be for Medicare to provide equal support to teaching hospitals for their care of FFS and MA beneficiaries. Under current IME policy, Medicare makes inpatient operating (but not inpatient capital) IME payments to hospitals for their care of MA patients, calculated using information claims on MA inpatient services that hospitals are required to submit. To help ensure that MA plans have incentives to direct enrollees to use teaching hospitals when appropriate and that teaching hospitals receive equal IME support for their care of FFS and MA beneficiaries in all hospital settings, the Medicare program should consistently make IME payments for care provided to MA beneficiaries (and remove these payments from MA benchmarks).

---

### **Effects of a revised budget-neutral inpatient and outpatient IME policy**

---

For the purposes of illustration, we modeled a revised budget-neutral inpatient and outpatient PPS IME policy consistent with the principles noted earlier. (See text box, pp. 230–231, for methodological details.) We found:

- IME payments would be redistributed toward outpatient care;
- the empirical effect of teaching on hospitals’ patient care costs is less than current policy for inpatient

operating costs, not significant for inpatient capital costs, and largest for outpatient costs;

- the majority of teaching hospitals would experience a small change in total FFS payments as a result of the revised IME policy; and
- IME payments would shift toward teaching hospitals with additional costs not accounted for under the current inpatient-centric policy, including most that treat a larger share of their Medicare patients in outpatient settings, as well as all that will in the future.

Illustrative examples of IME payments under current IME policy and under the revised IME policy we modeled are included in the text box.

We estimated the effects of the revised IME policy in a single year (2019) in which the policy was budget neutral and assumed no behavioral response; the longer-term effects of a revised IME policy are less certain. However, over time, as care continues to shift to outpatient settings, we anticipate that empirically justified IME payments would match and then exceed those under current policy baseline; once that occurs, IME payments could be set at their (higher than current-law) empirically justified levels.

### **Revised IME policy would redistribute payments toward outpatient care**

Under a revised budget-neutral inpatient and outpatient IME policy, aggregate IME payments would equal those under current policy, but would be redistributed toward outpatient care settings. According to results from our modeling, 2019 IME payments would have gone from being solely for care provided in inpatient settings under current policy to split roughly evenly between care provided under the inpatient and outpatient PPSs—the same split as under a fully empirically justified policy (Figure 6-3, p. 222).

This relatively even distribution of IME payments between inpatient and outpatient PPS settings under the revised policy reflects two factors that roughly offset each other:

- **Medicare’s inpatient payments are nearly twice outpatient payments.** In 2019, Medicare’s inpatient operating base PPS payments to IPPS teaching hospitals for the care of FFS beneficiaries totaled \$53 billion, nearly twice the roughly \$29 billion in base outpatient PPS payments (exclusive of separately

## Illustrative examples of IME payments under current and modeled revised IME policy

To demonstrate how indirect medical education (IME) payments are calculated under current policy and under the revised budget-neutral inpatient and outpatient policy we modeled, we present details for three example teaching hospitals (Table 6-4, pp. 220–221).<sup>27</sup>

- **Hospital A**—which has values near the median teaching hospital—would receive a small increase in IME payments under the revised policy. Under current policy, the hospital would receive \$2.4 million in IME fee-for-service (FFS) payments, all for inpatient services. Under the revised policy, which adds an IME adjustment for outpatient services (and removes the IME adjustment in the inpatient capital prospective payment system

(PPS)), the set of base payments for IME-eligible services provided to Medicare FFS beneficiaries would increase 50 percent (from \$38 million to \$57 million). At the same time, the hospital's calculated teaching intensity would decrease 29 percent, from the primary resident-to-bed ratio under the current policy of 0.12 (30 residents per 250 beds) to 0.09 (30 residents per 350 patients). As a result of these two changes and the revised IME adjustment formulas, which are based on their empirical levels times a budget-neutrality adjustment, the new \$1.3 million in outpatient IME payments under the revised policy would slightly exceed the decrease in inpatient IME payments (from \$2.4 million to \$1.2 million). The net result is that the hospital would receive a 4 percent increase in IME payments, and

*(continued next page)*

payable drugs and devices). We assumed the same relationship held for teaching hospitals' care of MA beneficiaries.

- **The outpatient IME adjustment percentage is nearly twice the inpatient adjustment.** We estimated that the empirically justified IME adjustment in the outpatient PPS is nearly twice that in the inpatient operating PPS and that an IME adjustment to the inpatient capital PPS is not warranted (see text box on the effects of teaching on costs, p. 225). Under the revised budget-neutral policy, the IME adjustments would initially be higher than empirically justified levels, but the IME adjustment to the inpatient operating PPS would remain well below current policy for most hospitals (Figure 6-4, p. 223).

### Revised IME policy would result in a small change in total FFS payments for most teaching hospitals

For the majority of teaching hospitals, a revised budget-neutral inpatient and outpatient IME policy would result in a small change in total FFS payments. We estimate that the

revised IME policy would result in a negligible change in total inpatient and outpatient FFS payments for the median teaching hospital, a less than 0.5 percent change for the majority of teaching hospitals, and a less than 1 percent change for nearly three-quarters of teaching hospitals (Figure 6-5, p. 224). This estimate reflects two results: (1) For many teaching hospitals, the decrease in inpatient IME payments would be roughly offset by the addition of outpatient IME payments under the revised policy, and (2) among the subset of hospitals that would experience larger percentage changes in IME payments, IME payments tended to constitute a smaller share of their total FFS payments.<sup>28</sup>

Because the small subset of teaching hospitals that would be more substantially affected were relatively evenly distributed across different groups of teaching hospitals, for most groups of teaching hospitals the budget-neutral inpatient and outpatient IME policy would result in a small change in aggregate total FFS payments. In particular, we estimated that aggregate total (inpatient and outpatient) FFS payments would change by less than 0.2 percent among for-profit, nonprofit, and government-owned teaching hospitals; teaching hospitals in urban and rural

## Illustrative examples of IME payments under current and modeled revised IME policy (cont.)

**TABLE  
6-4**

**Illustrative examples of IME FFS payment calculations under current and modeled revised IME policy**

	Hospital A (values near median)	Hospital B (same characteristics as A, except more Medicare outpatients)	Hospital C (same characteristics as A, except more non-Medicare outpatients)
<b>Hospital characteristics</b>			
Residents (Medicare allowed)	30	30	30
Inpatient beds	250	250	250
<i>All-payer patients</i>			
Inpatients (average daily census)	150	150	150
Outpatients (inpatient equivalents)	200	200	<b>250</b>
Total	350	350	<b>400</b>
<i>Medicare base payments (millions)</i>			
Inpatient operating	\$35	\$35	\$35
Inpatient capital	\$3	\$3	\$3
Outpatient	\$22	<b>\$25</b>	\$22
<b>Current inpatient-centric IME policy</b> <i>(same payments regardless of Medicare outpatient services or total patients)</i>			
Medicare FFS base payments for IME-eligible services (inpatient operating and capital) (millions)	\$38	\$38	\$38
<i>Measures of teaching intensity</i>			
RBR	0.12	0.12	0.12
RADC	0.21	0.21	0.21
<i>IME APs</i>			
Inpatient operating ( $1.35 \times [(1 + \text{RBR})^{0.405} - 1]$ )	6%	6%	6%
Inpatient capital ( $e^{(0.2822 \times \min(1.5, \text{RADC}))} - 1$ )	6%	6%	6%
<i>IME FFS payments (AP × base) (millions)</i>			
Inpatient operating	\$2.2	\$2.2	\$2.2
Inpatient capital	\$0.2	\$0.2	\$0.2
Total	\$2.4	\$2.4	\$2.4

Note: IME (indirect medical education), FFS (fee-for-service), RBR (residents-to-(inpatient)bed ratio), RADC (resident per average daily (inpatient) census), AP (adjustment percentage), RPR (resident-to-patient ratio), e (Euler's number). "Resident-to-patient" ratio calculated as allowed residents divided by all-payer average daily inpatients plus outpatient equivalents, where outpatient equivalents are calculated as daily inpatients multiplied by the ratio of all-payer outpatient to inpatient revenue. Modeled revised policy adjustment percentages and budget-neutrality adjustments based on analysis of inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019; as such, the modeled policy is budget neutral across all hospitals (but not for these three example hospitals). Components may not sum to totals due to rounding.

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

its IME payments would go from being entirely for inpatient services to being roughly evenly split between inpatient and outpatient services.

- **Hospital B**—which has the same values as Hospital A except it is more Medicare outpatient-centric—would receive a larger increase in IME payments. Hospital B would see the same decrease

(continued next page)

## Illustrative examples of IME payments under current and modeled revised IME policy (cont.)

**TABLE  
6-4**

**Illustrative examples of IME FFS payment calculations under current and modeled revised IME policy (cont.)**

	Hospital A (values near median)	Hospital B (same characteristics as A, except more Medicare outpatients)	Hospital C (same characteristics as A, except more non-Medicare outpatients)
<b>Modeled revised inpatient and outpatient policy</b> <i>(shifts payments toward hospitals with larger increases in Medicare outpatient services or calculated teaching intensity)</i>			
Medicare FFS base payments for IME-eligible services (inpatient operating and outpatient) (millions)	\$57	<b>\$60</b>	\$57
<b>Change versus current policy</b>	+50%	<b>+58%</b>	+50%
Measure of teaching intensity			
RPR	0.09	0.09	<b>0.08</b>
<b>Change versus current policy</b>	-29%	-29%	<b>-38%</b>
IME APs, with budget-neutrality adjustment (based on all hospitals)			
Inpatient operating $(1.36 \times [(1 + RPR)^{0.30} - 1])$	3%	3%	<b>3%</b>
Outpatient $(1.36 \times [(1 + RPR)^{0.52} - 1])$	6%	6%	<b>5%</b>
IME FFS payments (millions)			
Inpatient	\$1.2	\$1.2	<b>\$1.0</b>
Outpatient	\$1.3	<b>\$1.5</b>	<b>\$1.1</b>
Total	\$2.5	<b>\$2.7</b>	<b>\$2.2</b>
<b>Change versus current policy</b>	+4%	<b>+12%</b>	<b>-8%</b>

Note: IME (indirect medical education), FFS (fee-for-service), RBR (residents-to-(inpatient)bed ratio), RADC (resident per average daily (inpatient) census), AP (adjustment percentage), RPR (resident-to-patient ratio), e (Euler's number). "Resident-to-patient" ratio calculated as allowed residents divided by all-payer average daily inpatients plus outpatient equivalents, where outpatient equivalents are calculated as daily inpatients multiplied by the ratio of all-payer outpatient to inpatient revenue. Modeled revised policy adjustment percentages and budget-neutrality adjustments based on analysis of inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019; as such, the modeled policy is budget neutral across all hospitals (but not for these three example hospitals). Components may not sum to totals due to rounding.

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

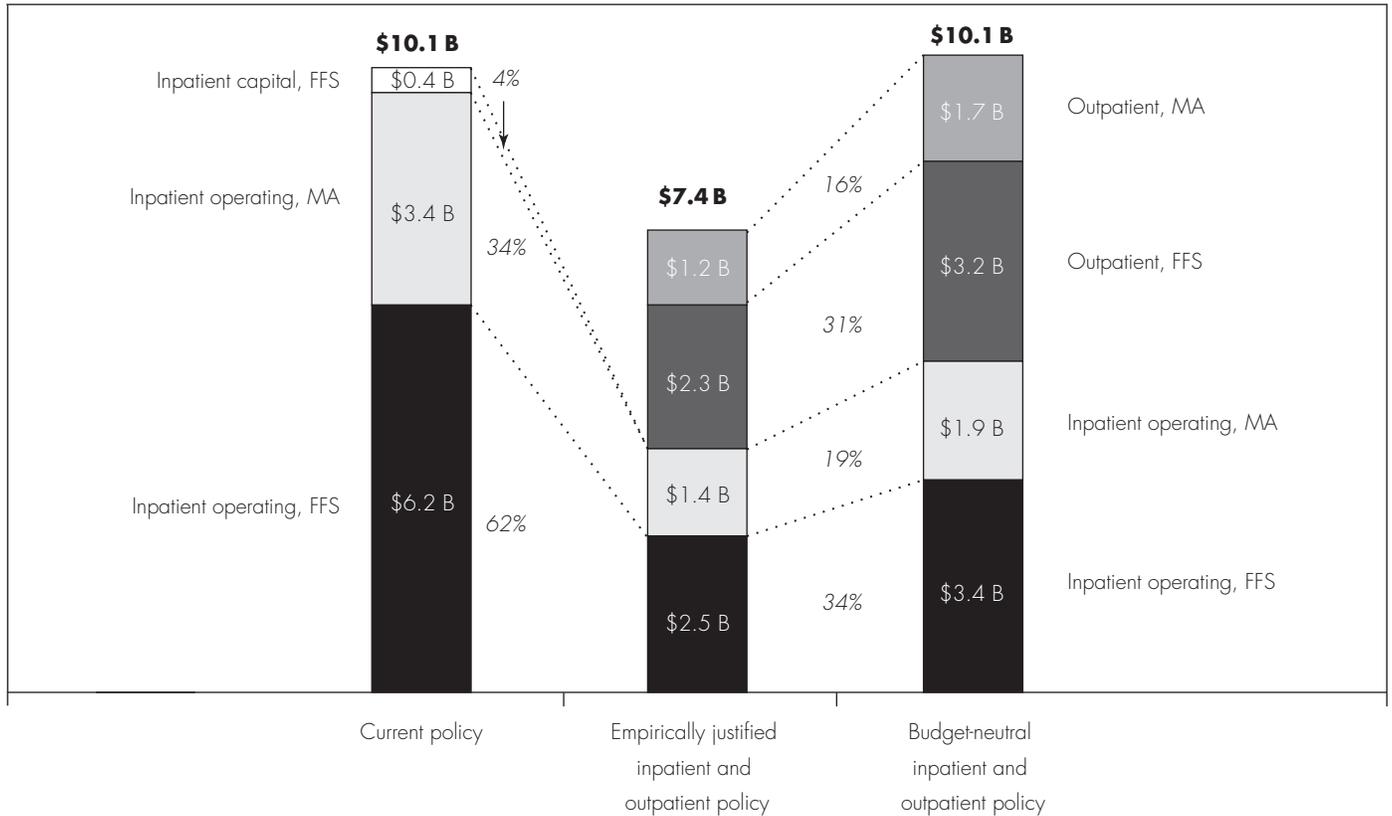
in inpatient IME payments as Hospital A, but the greater IME-eligible outpatient services (\$25 million vs. \$22 million in outpatient base PPS payments for FFS beneficiaries) would raise the outpatient IME payments to be higher (\$1.5 million vs. \$1.3 million). The net result would be a 12 percent increase in IME payments.

- **Hospital C**—which has the same values as Hospital A except that it treats more non-Medicare outpatients—would receive a decrease in IME

payments. Hospital C would have the same increase in IME-eligible services as Hospital A, but its resident-to-patient ratio would drop (–38 percent). Applying this lower measure of teaching intensity (0.08, or 30 residents per 400 patients) to the same Medicare base payments would generate lower IME adjustments and therefore a lower inpatient IME payment (\$1.0 million vs. \$1.2 million) and outpatient IME payment (\$1.1 million vs. \$1.3 million). The net result would be an 8 percent decrease in IME payments. ■

**FIGURE 6-3**

**Revised budget-neutral inpatient and outpatient policy would redistribute IME payments toward outpatient care, 2019**



Note: IME (indirect medical education), B (billion), FFS (fee-for-service), MA (Medicare Advantage). Under the revised IME policy, the Medicare program would make IME payments for IME-eligible inpatient and outpatient services provided to Medicare FFS and MA beneficiaries; each teaching hospital's teaching intensity is calculated as its ratio of allowed residents to all-payer average daily inpatients plus outpatient equivalents; and the levels of the IME adjustments are set at their empirically justified levels—capped at 25 percent—multiplied by a budget-neutrality adjustment such that aggregate IME payments are the same as under current policy. The percentages between the bars are the share of dollars for that part of the bar. For example, for inpatient operating FFS, the share of the left bar (current policy), is 62 percent (\$6.2 B of \$10.1 B), while the inpatient operating FFS share of both the middle (empirically justified) and right (budget-neutral) bars equals 34 percent. Results include inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019. Components may not sum to totals due to rounding.

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

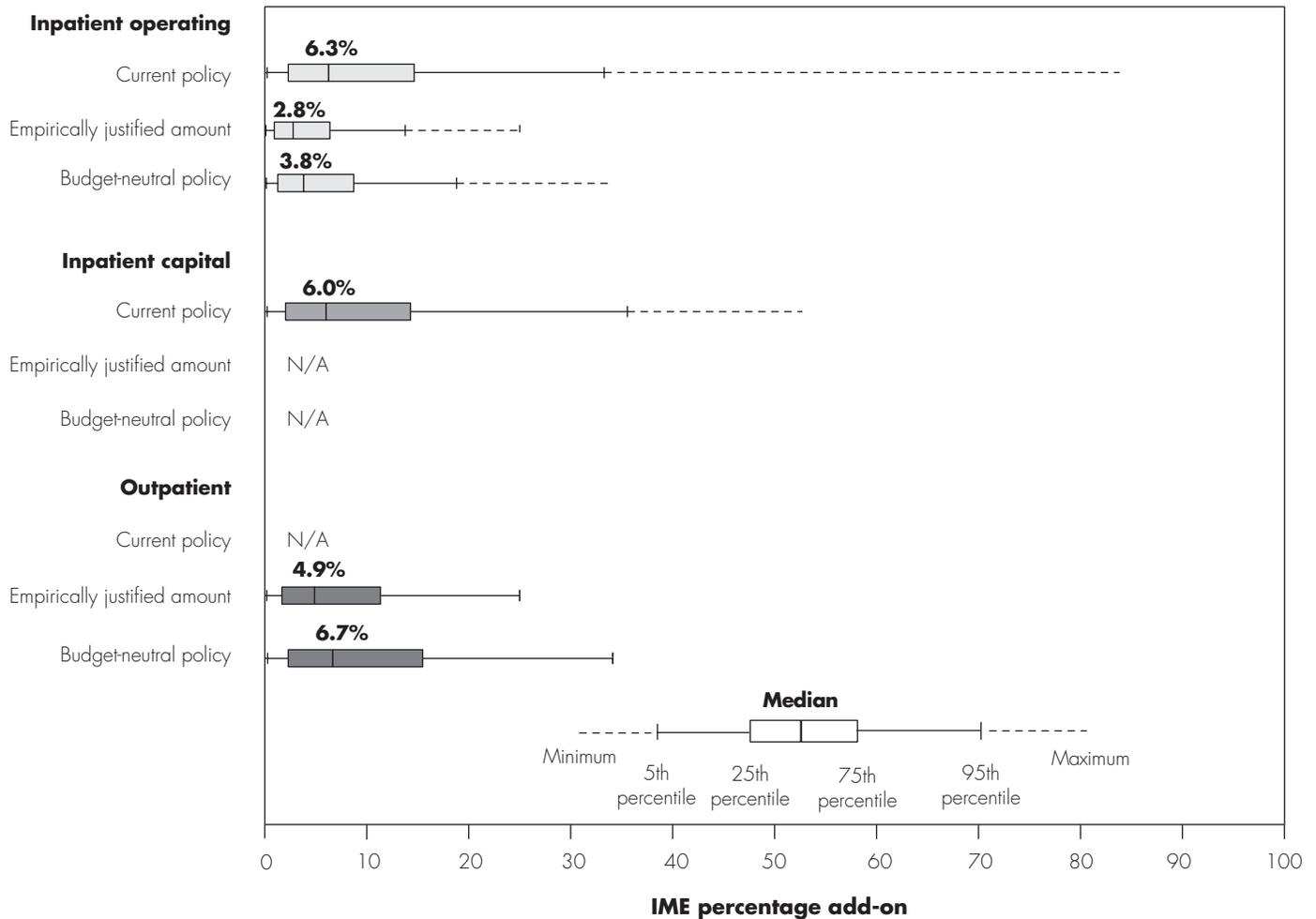
locations; and teaching hospitals that treat low and high shares of low-income patients. The two groups that would experience the largest changes in aggregate total FFS payments are small teaching hospitals, which would see an increase of 0.7 percent, and hospitals in the highest quartile of residents per beds, which would see a decrease of 0.5 percent.<sup>29</sup> However, even within these two groups, the effect of the revised IME policy varied, including more than one-quarter that would see a decrease and more than one-quarter that would see an increase in their total FFS payments (Table 6-5, p. 226).

**Revised IME policy would shift payments toward teaching hospitals with additional costs not accounted for under the current policy**

While a revised budget-neutral inpatient IME policy would result in a small change in total FFS payments for most teaching hospitals and groups of hospitals, it would shift IME payments toward hospitals with additional costs that are not accounted for under the current inpatient-centric policy. These teaching hospitals include those that (1) provide a larger share of their care to Medicare beneficiaries in outpatient settings and

**FIGURE 6-4**

**Empirically justified IME adjustment varies across hospital care settings and differs from current policy**



Note: IME (indirect medical education), N/A (not applicable). Under the modeled revised IME policy, the Medicare program would make IME payments for IME-eligible inpatient and outpatient services provided to Medicare fee-for-service or Medicare Advantage beneficiaries; each teaching hospital's teaching intensity is calculated as its ratio of allowed residents to all-payer average daily inpatients plus outpatient equivalents; and the levels of the IME adjustments are set at their empirical levels—capped at 25 percent—multiplied by a budget-neutrality adjustment such that aggregate IME payments are the same as under current policy. Results include inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019.

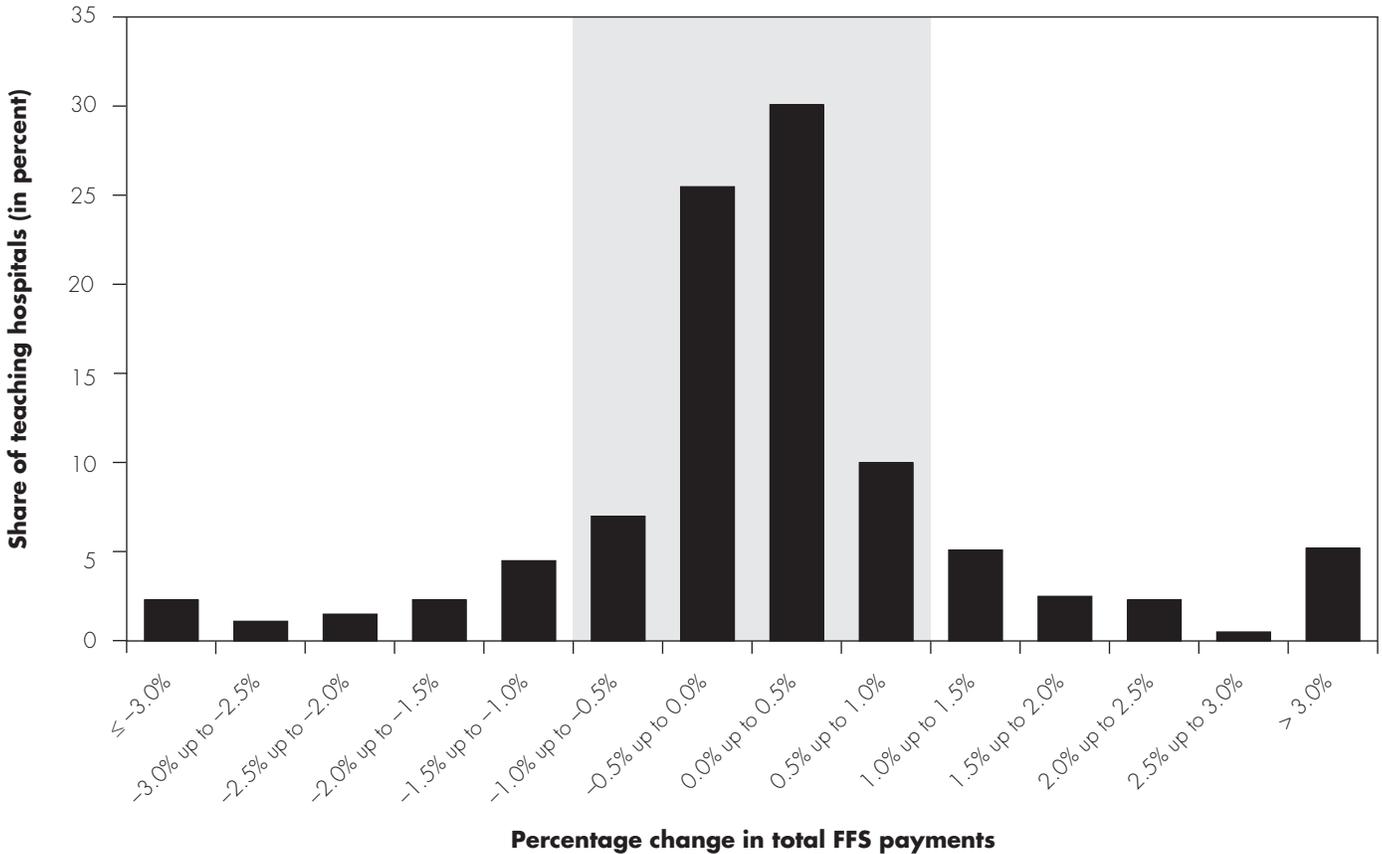
Source: MedPAC analysis of Medicare cost report data from CMS.

(2) have an inpatient-and-outpatient measure of teaching intensity (resident-to-patient ratio) that is relatively high compared with the primary inpatient-capacity measure used in current policy (resident-to-bed ratio) (Table 6-6, p. 227). Among the subset of hospitals for which IME FFS payments constitute a large share of their total FFS payments, the shift in IME payments would result in large increases in their total FFS payments.

For many teaching hospitals, the revised budget-neutral inpatient and outpatient IME policy would result in a relatively small change in IME FFS payments because the addition of outpatient IME payments would be roughly equal to its decrease in inpatient IME payments. This result occurs because teaching hospitals that are more outpatient-centric in their care of Medicare beneficiaries often also have a resident-to-patient ratio that is low relative to its resident-to-bed ratio.<sup>30</sup> For example, the

**FIGURE 6-5**

**Effect of revised budget-neutral inpatient and outpatient IME policy on total FFS payments would be less than 1 percent for nearly three-quarters of hospitals**



Note: IME (indirect medical education), FFS (fee-for-service). Under the modeled revised IME policy, the Medicare program would make IME payments for IME-eligible inpatient and outpatient services provided to Medicare FFS or Medicare Advantage beneficiaries; each teaching hospital's teaching intensity is calculated as its ratio of allowed residents to all-payer average daily inpatients plus outpatient equivalents; and the levels of the IME adjustments are set at their empirical levels multiplied by a budget-neutrality adjustment such that aggregate IME payments are the same as under current policy. "Percentage change in total FFS payments" is calculated as change in inpatient and outpatient Medicare FFS payments (including uncompensated care payments) under the revised policy (relative to current policy); it does not include all Medicare payments to teaching hospitals, such as those for other types of services, direct graduate medical education payments, or IME payments for Medicare Advantage beneficiaries. Results include inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019.

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

median teaching hospital's 41 percent increase in base FFS PPS payments for IME-eligible services (from the addition of outpatient IME payments) would slightly more than offset its lower inpatient IME payments (from the change to an inpatient plus outpatient measure of teaching intensity and lower, closer to empirically justified, inpatient IME adjustment percentage), resulting in a small (4 percent) increase in IME FFS payments under the revised policy. This 4 percent increase in IME FFS payments for the median teaching hospital would translate

to a less than 0.05 percent increase in total inpatient and outpatient FFS payments.

However, some teaching hospitals have large differences between their additional patient care costs and current IME payments, and the subset of these for which IME payments constitute a large share of their total FFS payments would correspondingly see larger changes in their total FFS payments. For example, the teaching hospitals that would see a greater than 3 percent decrease in their total FFS payments either are highly inpatient-

## Effect of teaching on costs is less than current policy for inpatient operating costs, insignificant for capital costs, and largest for outpatient costs

In estimating the empirical effect of teaching on hospitals' additional patient care costs not otherwise accounted for in each of the three hospital prospective payment systems (PPSs), we found the following:

- ***The empirical indirect medical education (IME) adjustment to inpatient operating PPS is well below current policy.*** We found a moderate effect of teaching on inpatient operating costs, well below current policy. Our resulting estimate that empirically justified inpatient operating IME payments are about 40 percent (\$2.5 B / \$6.2 B) of current policy (Figure 6-3, p. 222) is consistent with prior work by the Commission and others.<sup>31</sup>
- ***An IME adjustment to the inpatient capital PPS is not warranted.*** We found no statistically significant effect of teaching on inpatient capital costs. This finding is consistent with prior CMS analyses and conclusions.
- ***An IME adjustment to the outpatient PPS is warranted and is larger than for the inpatient adjustment.*** We found that hospitals with higher

teaching intensity had higher outpatient care costs that were not accounted for in the PPS and that this effect was larger than for inpatient care costs. Our finding of a significant relationship between teaching intensity and outpatient costs is consistent with prior Commission work that found teaching hospitals' outpatient costs per unit of service were significantly above the national average (Medicare Payment Advisory Commission 2014). Our finding that teaching had a larger effect on outpatient costs than inpatient costs could be driven by several factors. First, our estimates capture teaching hospitals' additional costs not related to current payment adjustments, and the outpatient PPS includes fewer adjustments for patient characteristics than the inpatient PPS.<sup>32</sup> Second, resident labor substitutes for nursing or other clinical labor in inpatient settings, offsetting some of the indirect costs of teaching (Institute of Medicine 2009). Third, inpatient care includes a larger share of room and board services than outpatient care, and these room and board services are more fixed across patient severity and resident involvement. ■

centric in their care of Medicare beneficiaries or have a very low resident-to-patient ratio relative to resident-to-bed ratio;<sup>33</sup> these hospitals are overpaid under the current inpatient-centric and higher than empirically justified IME policy. In contrast, the teaching hospitals that would see a greater than 3 percent increase in their total FFS payments either are highly outpatient-centric in their care of Medicare beneficiaries or have a much higher resident-to-patient ratio relative to resident-to-bed ratio.<sup>34</sup> Both the teaching hospitals that would see a more than 3 percent decrease and those that would see a more than 3 percent increase in total FFS payments under the revised IME policy include a mix of for-profit, nonprofit, and government-owned hospitals; hospitals that treat a low and high share of low-income patients; and small (fewer than 150 beds) and large (more than 400 beds) hospitals. However,

almost all teaching hospitals that would see an over 3 percent decrease or increase in their total FFS payments have a high teaching intensity (both a resident-to-bed ratio and resident-to-patient ratio among the top half of hospitals) because these are hospitals for which IME FFS payments tend to constitute a larger share of their total FFS payments.

---

### Recommendation

---

Transitioning to an empirically justified inpatient and outpatient IME policy would address concerns with current IME policy and could be done while initially maintaining—and eventually increasing—Medicare's

**TABLE  
6-5**

**Aggregate effects of revised budget-neutral inpatient and outpatient IME policy on total FFS payments would be small for most groups of teaching hospitals**

Teaching hospital group	Percentage change in total FFS payments				
	Aggregate	5th percentile	25th percentile	75th percentile	95th percentile
All	-0.1%*	-2.0%	-0.3%	0.5%	3.0%
<b>Ownership</b>					
For profit	-0.1	-2.2	-0.2	0.7	4.7
Nonprofit	-0.2	-1.7	-0.3	0.4	2.1
Government	0.2	-2.3	-0.5	1.1	4.3
<b>Location</b>					
Urban (metropolitan)	-0.1	-2.1	-0.3	0.5	3.1
Rural	0.0	-1.1	-0.1	0.6	2.3
<b>Share of low-income patients</b>					
Lowest (<25%)	0.0	-1.3	-0.2	0.4	2.3
Medium low	-0.2	-1.7	-0.3	0.3	1.6
Medium high	-0.2	-1.4	-0.2	0.5	3.4
Highest (>42%)	-0.1	-3.1	-0.4	0.9	3.5
<b>Inpatient beds</b>					
Small (<150)	0.7	-1.3	0.0	1.3	5.9
Medium small	0.0	-2.0	-0.2	0.6	2.1
Medium large	0.0	-2.3	-0.3	0.4	1.9
Large (>400)	-0.3	-2.3	-0.6	0.3	1.3
<b>Resident-to-bed ratio</b>					
Lowest	0.1	-0.1	0.0	0.1	0.5
Medium low	0.1	-0.6	-0.2	0.5	1.7
Medium high	0.1	-1.3	-0.4	1.1	3.8
Highest	-0.5	-3.9	-1.5	0.9	5.0

Note: IME (indirect medical education), FFS (fee-for-service). Under the modeled revised IME policy, the Medicare program would make IME payments for IME-eligible inpatient and outpatient services provided to Medicare FFS or Medicare Advantage (MA) beneficiaries; each teaching hospital's teaching intensity is calculated as its ratio of allowed residents to all-payer average daily inpatients plus outpatient equivalents; and the levels of the IME adjustments are set at their empirically justified levels multiplied by a budget-neutrality adjustment such that aggregate IME payments are the same as under current policy. "Percentage change in total FFS payments" is calculated as change in inpatient and outpatient Medicare FFS payments (including uncompensated care payments) under the revised policy (relative to current policy); it does not include all Medicare payments to teaching hospitals, such as those for other types of services, direct graduate medical education payments, or IME payments for MA beneficiaries. Results include inpatient prospective payment system hospitals with complete cost reports having a midpoint in fiscal year 2019.

\*The revised policy maintains the aggregate level of FFS and MA IME payments from the Medicare program. Medicare currently pays capital IME payments for FFS patients but does not directly pay capital IME for MA patients. Because FFS capital IME payments are being removed from FFS patients' payments but not from MA patients' IME payments, the net change in IME payments will be slightly negative for FFS patients (who lose capital IME) and slightly positive for MA patients (who do not lose capital IME). However, some MA plans may be paying capital IME payments to hospitals. To the degree that MA plans stop paying capital IME add-ons when the FFS program ceases capital IME add-ons, the benefit that hospitals with MA patients see from the change in our model could be offset by reduced IME payments paid by plans in their negotiated rates. There is some uncertainty on the net effect because we do not know how often capital IME is built into hospitals' negotiated rates with MA plans.

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

aggregate support for teaching hospitals' indirect costs of medical education. Reforming IME policy consistent with the principles outlined earlier would help align IME payments with the contemporary spectrum of settings in which residents train and patients receive hospital care; reduce the financial penalty of lost IME revenue

when teaching hospitals appropriately treat Medicare beneficiaries in outpatient, rather than inpatient, settings; and make IME payments more equitable for teaching hospitals that have shifted—or will shift in the future—to providing resident training and care of Medicare beneficiaries in hospital outpatient settings.

**TABLE  
6-6**

**Revised inpatient and outpatient IME policy would shift payments to teaching hospitals that are more outpatient-centric in their care of Medicare beneficiaries or have more residents per patients than per beds**

**Medicare services provided in outpatient settings,  
relative to inpatient settings**

		Low	High
<b>Residents per patients relative to residents per beds</b>	<b>High</b>	Minimal changes in IME FFS payments	Increases in IME FFS payments
	<b>Low</b>	Decreases in IME FFS payments	Minimal changes in IME FFS payments

Note: IME (indirect medical education), FFS (fee-for-service). The effect of a revised inpatient and outpatient IME policy on a teaching hospital’s IME FFS payments would primarily depend on the interaction of these two factors. Hospitals with a given value of one factor could see increases, minimal changes, or decreases in their IME FFS payments, depending on the value of the other.

Within these broad principles, CMS should use the formal rule-making process to finalize:

- **The set of services and locations that should be excluded from an IME adjustment.** While we found an IME adjustment to the outpatient PPS to generally be warranted, there may be certain services beyond separately payable drugs and devices for which an IME adjustment is not warranted, such as certain lab services.<sup>35</sup>
- **The measure of teaching intensity.** Especially to the extent CMS is able to collect additional data, there will be opportunities to further improve on the residents-to-patients measure we modeled. For example, CMS could explore separate measures for inpatient and outpatient settings or for residents in different specialties or different years of training. CMS could also solicit feedback on options for ensuring stability in hospitals’ resident-to-patient ratios, such as using a rolling average of patients.
- **The formulas to convert teaching intensity to an IME adjustment.** The Commission previously noted the absence of data on the net costs of residents—including both financial costs and benefits of training residents—and how those costs varied by specialty, and recommended that the Department of Health and Human Services report on how residency programs affect financial performance and whether all specialties should be supported equally (Medicare Payment Advisory Commission 2010).<sup>36</sup> Even with existing data, CMS could explore whether different

adjustment formulas are warranted for hospitals with different levels of teaching intensity and at what level IME adjustments should be capped.

- **Measuring MA outpatient services.** To accurately calculate IME payments for hospital outpatient care provided to MA beneficiaries, Medicare could start requiring hospitals to submit informational claims on MA beneficiaries’ use of hospital outpatient services (as they currently do for inpatient services)—a requirement that would not only support more equitable IME payments but also provide a valuable data source to validate MA plan-submitted encounter data. Until such informational claims are available, Medicare could estimate MA outpatient use with currently available data, such as FFS outpatient use and the ratio of MA to FFS inpatient use.
- **How to transition to empirically justified IME payments.** To minimize the effect on teaching hospitals, the Commission believes Medicare’s aggregate support to teaching hospitals should be maintained, at least in the short term. However, CMS could solicit feedback on different approaches to transition to empirically justified levels. For example, one alternative option to maintain aggregate IME payments could be to immediately provide empirically justified outpatient IME payments and apply a budget-neutrality adjustment only to increase empirically justified inpatient IME payments. In addition, while the revised IME policy would result in a small change in total FFS payments for the majority of teaching hospitals, a phase-in could be implemented for the

## The Commission's prior recommendations on graduate medical education

In 2010, the Commission made several recommendations on graduate medical education (GME), including using Medicare's funding of GME to support future workforce needs and requiring the Secretary to conduct and publish analyses that would inform future reforms (Medicare Payment Advisory Commission 2010). These recommendations included that:

- the Congress authorize the Secretary to change Medicare's funding of GME to support the workforce skills needed in a delivery system that reduces cost growth while maintaining or improving quality;
- the Secretary should annually publish a report that shows Medicare medical education payments received by each hospital and each hospital's associated costs, and that information should be publicly accessible and clearly identify each hospital, the direct and indirect medical education payments received, the number of residents and other health professionals that Medicare supports, and Medicare's share of teaching costs incurred;
- the Secretary should conduct workforce analysis to determine the number of residency positions needed in the U.S. in total and by specialty and to examine and consider the optimal level and mix of other health professionals, which should be based on the workforce requirements of health care delivery systems that provide high-quality, high-value, and affordable care;
- the Secretary should report to the Congress on how residency programs affect the financial performance of sponsoring institutions and whether residency programs in all specialties should be supported equally; and
- the Secretary should study strategies for increasing the diversity of our health professional workforce (e.g., increasing the shares from underrepresented rural, lower income, and minority communities) and report on what strategies are most effective to achieve this pipeline goal. ■

subset of hospitals that would see more substantial changes. For example, one option could be to limit the percentage change in FFS payments in each year to the annual update to inpatient and outpatient PPS payments in that year. Furthermore, to the extent that policymakers are concerned about the effects on certain groups of teaching hospitals that provide important social missions or want to encourage development of a certain workforce, CMS could also explore other transition options, such as setting aside a portion of current-law IME payments above empirically justified levels to distribute outside of the PPSs to teaching hospitals that meet certain criteria.

- **Cost sharing and premiums.** Depending on flexibility granted by the Congress, CMS could also use the formal rule-making process to finalize an approach to reflect IME payments in Medicare cost sharing and premiums. Because Medicare beneficiaries are

generally responsible for 20 percent of Medicare's payment rate for outpatient services (covered under Part B), absent any modifications, the addition of outpatient IME payments would increase beneficiary cost sharing by the same percentage as the outpatient IME adjustment percentage (a median of 6.7 percent, or \$1 on a typical evaluation and management service). Similarly, because Part B premiums are based on expected Part B spending, Part B premiums would also increase by about 1.5 percent. Conversely, because cost sharing for inpatient services (covered under Medicare Part A) is based on a deductible and daily copayments derived from the prior year's amounts times the annual update to the IPPS, Part A cost sharing would not change. CMS could explore options for phasing in changes to Part B cost sharing, if any subset of IME payments should be exempt from associated cost-sharing requirements, and the extent to which lower anticipated Part A spending should

be reflected in lower Part A cost sharing versus be exclusively used to improve the solvency of the Part A trust fund (or whether outpatient IME payments should continue to be paid by Part A).

Having the Congress outline principles for IME reform but leave more detailed implementation decisions to CMS to make through rulemaking and periodic updates would provide flexibility for stakeholders to offer input and for CMS to update IME policy over time as warranted. CMS should assess the need to update IME policy over time as additional and newer data become available and CMS makes other changes to the PPSs and GME policy.

Transitioning to empirically justified IME payments for both inpatient and outpatient PPS services would make IME payments more equitable for teaching hospitals that have shifted—or will shift in the future—to providing more care and resident training in hospital outpatient settings. However, CMS should monitor the effects of the revised IME policy and collect additional data to support further improvements in IME payment accuracy—such as data on MA outpatient services and the net costs of training residents by specialty. At the same time, policymakers should continue to explore opportunities to address broader concerns with graduate medical education funding. In 2010, the Commission made several recommendations on graduate medical education, including using Medicare’s funding to support future workforce needs, such as an adequate supply of primary care providers and those practicing in rural areas (see text box on prior recommendations).

## RECOMMENDATION 6

**The Congress should require CMS to transition to empirically justified indirect medical education adjustments to both inpatient and outpatient Medicare payments.**

## RATIONALE 6

The Commission has expressed concerns with Medicare’s IME policy, including its inpatient-centric approach, which no longer reflects the range of settings in which residents train and patients receive care, and the level of IME payments made to hospitals under the IPPS, which is higher than empirically justified. As a result, Medicare overpays teaching hospitals for their indirect costs of medical education in inpatient settings and underpays for those costs in outpatient settings, creating financial penalties in the form of lost IME revenue when teaching hospitals safely substitute an inpatient admission with outpatient treatment.

Responding to these concerns, the Commission recommends that IME policy be transitioned from the current policy to an empirically justified policy that accurately reflects teaching hospitals’ additional costs of both inpatient and outpatient care. The transition to empirically justified IME payments should be constructed to minimize any adverse effects on teaching hospitals. For example, Medicare could transition to these empirically justified levels by maintaining aggregate IME payments (which exceed the empirically justified amounts) until such time as they reach an empirically justified level, from which point Medicare’s IME adjustment would be based on empirically justified levels.

## IMPLICATIONS 6

### Spending

- By design, this recommendation is expected to maintain aggregate IME payments in the short term—both in the first year and over the first five years. Over time, as care continues to shift to outpatient settings, empirically justified IME payments would match and then exceed those under current policy baseline; once that occurs, IME payments could be set at their (higher than current-law) empirically justified levels.
- Medicare spending on Part A services would decrease while spending on Part B services would increase, unless the Congress specified that outpatient IME payments should be paid out of the Part A trust fund.

### Beneficiary and provider

- We do not anticipate this recommendation will have adverse effects on beneficiaries’ access to hospital care or hospitals’ willingness to treat Medicare beneficiaries.
- Medicare beneficiaries would face slightly higher cost-sharing liability for outpatient services at teaching hospitals and for Part B premiums, unless the Congress and CMS acted to exempt the new outpatient IME payments from cost-sharing and premium calculations.
- Transitioning to an IME policy that better reflects teaching hospitals’ additional costs across hospital settings would make IME payments more equitable for teaching hospitals that have already shifted—or will shift in the future—to providing more resident training and patient care in hospital outpatient settings. ■

## Methodological details on modeled revised IME policy

### Estimating the empirical effect of teaching on patient care costs

To estimate the empirical effect of teaching on patient care costs, we used hospital cost reports for corresponding fiscal years 2016 and 2017 as well as inpatient and outpatient claims over the hospitals' cost reporting periods.<sup>37</sup>

We ran separate robust regressions for the inpatient operating, inpatient capital, and outpatient prospective payment systems (PPSs) in 2016 and in 2017. For each regression:

- ***The dependent variable was (logged) standardized costs per case.*** We calculated standardized costs per case as the hospital's PPS-reimbursed Medicare costs, divided by the (transfer-adjusted) number of Medicare fee-for-service (FFS) cases in the cost reporting period, and standardized for differences in patient severity, area wages, and outliers by dividing by cost-related components of current policy as well as a factor that accounted for differences in cost reporting periods.<sup>38</sup> Because our revised policy does not include an indirect medical education (IME) adjustment on separately payable Part B drugs and devices, we excluded estimates of Part B drugs when constructing our measure of standardized outpatient costs per case.<sup>39</sup> The resulting standardized cost per case is an estimate of the costs per case each hospital would have had if it had been located in an average market area, treated an average mix of cases, and had a uniform cost-reporting period—given the current policy adjustments for geography, case mix, and outliers. We took the natural log of standardized costs per case to make the cost distributions more normally distributed.
- ***The primary independent variable was (logged) ratio of residents to patients (plus 1).*** We chose a resident-to-patient ratio (RPR) over the inpatient-centric measures used in current policy because it better reflects hospitals' teaching intensity over the range of settings in which residents train and patients receive care. Because the costs of treating and the time residents spend with patients varies across settings, it would be inappropriate to count inpatients and outpatients equally. Therefore, we calculated an all-payer inpatient plus outpatient equivalent daily census as the hospital's average daily inpatient census, scaled up by 1 plus the hospital's ratio of all-payer outpatient to total inpatient charges. (Given currently available data, we could not exclude outpatient charges for separately payable drugs or devices or services provided in locations where residents do not rotate.) For our regressions, we calculated the RPR using the (uncapped) number of residents training in the hospital in that year because that is the truest measure of the hospital's teaching intensity. We then took the natural log of 1 plus RPR because logged teaching intensity has a stronger theoretical foundation than an unlogged RPR, which would implicitly assume the effect on costs per case of adding one resident was constant, regardless of the number of residents the teaching hospital already has.<sup>40</sup>
- ***The other independent variables were hospital characteristics that are associated with current payment adjustments to Medicare payments and whether the hospital was under fiscal pressure.*** By including variables for characteristics that are associated with current adjustments to Medicare payments but letting the coefficients on these adjustments float, we have the teaching intensity coefficient pick up the costs associated with teaching that are not associated with other payment characteristics (without assuming that these policy-based adjustments are at the empirically justified level or letting any differences skew the teaching hospital coefficient).<sup>41</sup> We identified hospitals under fiscal pressure consistent with our payment adequacy work and included them in our regressions because hospitals under fiscal pressure tend to have lower costs, and fiscal pressure is slightly correlated with teaching status.<sup>42</sup> The resulting teaching intensity regression coefficients can be interpreted as the percentage

(continued next page)

## Methodological details on modeled revised IME policy (cont.)

increase in costs per case for each approximate percentage increase in teaching intensity among hospitals under fiscal pressure after accounting for current cost-based payment adjustments and the empirically justified effect of other payment adjustments.<sup>43</sup>

### Estimating empirically justified IME payments

In estimating empirically justified IME payments under our revised policy, we made several key decisions related to the base payments to which the IME adjustment would be made and the extent to which teaching intensity and resulting IME adjustment would be capped. We:

- **Included IME payments for care of Medicare Advantage (MA) beneficiaries.** In estimating IME payments, we applied the IME adjustment to estimated base payments for the care of MA beneficiaries. Because hospital claims and cost reports currently capture only MA beneficiaries' inpatient stays and associated simulated inpatient operating PPS base payments, we imputed simulated base payments for MA beneficiaries' hospital outpatient services as each hospital's outpatient PPS base payments for FFS beneficiaries multiplied by its ratio of MA to FFS inpatient operating payments.
- **Excluded separately payable drugs and devices from the IME adjustment.** We excluded outpatient PPS base payments for separately payable drugs and devices from the new outpatient IME adjustment as costs for these services costs do not have a theoretical relationship with teaching intensity. To identify outpatient PPS base payments exclusive of those for separately payable drugs and devices, we used outpatient claims (because cost reports do not have this detailed information) and estimated base payments by deflating the total outpatient PPS payment by the sole community hospital adjustment as applicable.<sup>44</sup>
- **Applied to all outpatient PPS locations.** Because CMS does not currently collect data on locations within a hospital where residents trained, we did not exclude any locations. For locations that received a lower outpatient PPS rate equivalent to the rate under the Medicare physician fee schedule, we applied the IME adjustment to the lower rate.<sup>45</sup>
- **Maintained current policy caps on residents.** While we estimated the empirical effect of teaching on costs using uncapped residents, when calculating each hospital's IME adjustment percentage in each setting, we maintained current policy restrictions on residents. (We treated residents added through the Medicare Modernization Act the same as other residents (in contrast to current policy, which applies a lower IME adjustment percentage to these residents).)
- **Added a cap to IME percentage adjustment.** In addition to maintaining the current policy restrictions on hospitals' residents, we also capped the maximum IME adjustment at 25 percent. We added a cap for two main reasons. First, for theoretical reasons, we believe there is a threshold beyond which each percentage increase in teaching intensity does not result in a proportional increase in costs. Second, most other hospital policy adjustments are capped (e.g., the disproportionate share hospital adjustment is capped at 12 percent for most hospitals, the low-volume adjustment capped at 25 percent, and inpatient capital IME at 53 percent). We selected a cap of 25 percent—a level that we estimated would limit the inpatient operating IME percentage add-on for less than 1 percent of teaching hospitals and the outpatient IME percentage add-on for about 5 percent of teaching hospitals—as a balance between existing caps on other adjustments.

Under these modeling decisions, we estimated 2019 IME payments under a revised inpatient and outpatient IME policy and then scaled the payments in each setting such that IME payments were budget neutral to those under current policy. ■

## Endnotes

---

- 1 Teaching hospitals are those with approved residency programs in medicine, osteopathy, dentistry, and/or podiatry. This chapter is limited to Medicare's indirect medical education payments to short-term acute care teaching hospitals, defined as teaching hospitals paid under the inpatient prospective payment system; it does not address payments to other types of teaching hospitals, such as rehabilitation and psychiatric hospitals.
- 2 Teaching hospitals' Medicare DGME costs are excluded from the inpatient prospective payment systems and continue to be paid separately. Medicare's DGME payments to teaching hospitals are per resident payments calculated as the product of three hospital-specific factors: the hospital's allowed residents, a hospital-specific per resident dollar amount, and the share of the hospital's inpatient days that were for Medicare fee-for-service or Medicare Advantage beneficiaries. This product is then reduced by a percentage to fund Medicare Advantage nursing and allied health education payments.
- 3 Teaching hospitals paid under the inpatient prospective payment system trained a total of over 104,000 residents in fiscal year 2019, but residents above the allowed resident level (currently set at about 90,000 residents) do not increase teaching hospitals' IME (or DGME) payments.
- 4 The 5 percent of teaching hospitals with an inpatient operating IME adjustment over 33 percent had a resident-to-bed ratio of 0.73 or higher. These hospitals had varying characteristics, including some with fewer than 50 allowed residents and beds (such as some eye hospitals) and some with more than 750 residents and beds (such as some academic medical centers).
- 5 We limited these calculations to IME payments for FFS beneficiaries because the Medicare program does not make per service payments for the care of MA beneficiaries (other than inpatient operating IME payments). Uncompensated care payments were not counted as inpatient payments. The distribution of FFS IME payments as a share of teaching hospitals' total inpatient FFS payments is slightly lower than the distribution of IME adjustments to inpatient payments because some components of inpatient PPS payments are not proportional to payment rates (such as outlier payments).
- 6 When the Congress established the inpatient operating PPS in the Social Security Amendments Act of 1983, it specified that the Secretary of the Department of Health and Human Services shall use an educational adjustment factor. In contrast, when the Congress established the inpatient capital PPS in the Omnibus Budget Reconciliation Act 1987, it left many details to the discretion of the Secretary, including that the PPS may provide an adjustment to take into account variations in the relative costs of capital for different types of hospitals. The Congress left similar discretion to the Secretary when it established the outpatient PPS in the Balanced Budget Act of 1997, stating that the Secretary shall establish other adjustments, in a budget-neutral manner, as determined necessary to ensure equitable payments for certain classes of hospitals.
- 7 In a 1998 proposed rule, HCFA discussed a potential IME adjustment to the outpatient PPS and its rationale for not including one (Health Care Financing Administration 1998b). In final rules, HCFA stated it would carefully consider whether permanent adjustments should be made in the outpatient PPS after the expiration of transition provisions, which provided additional payments through 2003 to hospitals whose outpatient PPS payments fell below pre-PPS levels (Health Care Financing Administration 2000a, Health Care Financing Administration 2000b).
- 8 CMS stated that a teaching adjustment to the outpatient PPS was not necessary to ensure equitable payments to teaching hospitals in the 2008 and 2010 final rules (Centers for Medicare & Medicaid Services 2010, Centers for Medicare & Medicaid Services 2007a).
- 9 This estimate of 25 percent excludes payments for separately payable drugs and devices.
- 10 Hospitals' decisions on where to train residents depend on numerous factors, including Accreditation Council for Graduate Medical Education requirements.
- 11 In order to be counted, the resident must be assigned to the portion of the hospital subject to the IPPS, to a provider-based hospital outpatient department, or to certain other "nonprovider" outpatient settings (such as freestanding clinics or physician offices) in which the hospital incurs the costs of resident training.
- 12 A second reason the empirical relationship between teaching and costs has declined is that increases in the resident-to-bed ratio do not necessarily correspond to higher costs of patient care. Over time, hospitals have both increased their resident counts and decreased their inpatient beds, but the resulting rise in measured teaching intensity does not necessarily boost costs per case. Note that Medicare policies limit a hospital's ability to increase its measure of teaching intensity used in calculating IME payments (e.g., policies cap the number of allowed residents a hospital can count, and IME payments are set using the lesser of a hospital's resident-to-bed ratio in the current year and in the prior year).

- 13 The Social Security Act Amendments Act of 1983 set the IME adjustment factor at twice the factor provided under existing routine cost limit regulations. At the time of enactment, this factor was a 6.06 percent increase in inpatient operating costs per case per every 0.1 increase in a hospital's resident-to-bed ratio (RBR) (Health Care Financing Administration 1982). In the final rule implementing the inpatient operating PPS effective fiscal year 1984, HCFA updated its estimate (to 5.795 percent). As a result, the initial IME adjustment was  $0.1159 \times 10 \times \text{RBR}$  (Health Care Financing Administration 1983).
- 14 The Consolidated Omnibus Budget Reconciliation Act of 1985 specified an IME adjustment formula effective May 1, 1986, equal to  $2 \times [(1 + \text{RBR})^{0.405} - 1]$ . The 0.405 exponent is the estimated teaching coefficient obtained by the Congressional Budget Office in 1985 using 1981 data, and 2 is the multiplier set by the Congress (Nguyen and Sheingold 2011). (This adjustment formula is often described as representing a  $c \times 0.405 \times 10$  (e.g.,  $8.7 = 2 \times 0.405 \times 10$ ) increase in IME payments for every 10 percent increase in the resident-to-bed ratio (RBR), but more accurately is a  $c \times 0.405 \times 10$  increase in IME payments for every 10 percent increase in  $(1 + \text{RBR})$ , where  $c$  is the multiplier specified by Congress.) The Omnibus Budget Reconciliation Act of 1987 increased the disproportionate share adjustment and correspondingly reduced the multiplier to the IME adjustment from 2 to 1.89 (PL 100-203 §4003). These adjustments were extended at the same level through 1998.
- 15 The Balanced Budget Act of 1997 set out a multiyear transition to the IME adjustment multiplicative factor to eventually decrease it to 1.35 by fiscal year 2001. (It also made other changes to IME policy, including eliminating the IME adjustment applied to outlier payments, and capping each hospital's allowed resident slots that could be counted toward the IME adjustment at the number training at the hospital in 1996, subject to exceptions and adjustments.) Subsequent legislation changed this transition schedule (including some years with increases) such that the multiplicative factor to the IME adjustment eventually reached 1.35 by fiscal 2008. The Medicare Modernization Act of 2003 also created a second, lower IME adjustment formula with a multiplicative factor 0.66 that applied only to the small number of resident lots redistributed through the Act.
- 16 The inpatient operating IME adjustment for the first part of 2003 was  $1.35 \times [(1 + \text{RBR})^{0.405} - 1]$ , roughly equivalent to a 5.5 percent increase in IME payments for every 10 percent increase in the resident-to-bed ratio. The Commission estimated that the empirically justified level was 2.7 percent (or 2.8 percent if capital costs were included). This 2.7 percent is equivalent to reducing the multiplicative factor from 1.35 to 0.66, which is the level the Congress applied to resident slots redistributed through the Medicare Modernization Act of 2003.
- 17 In the 1992 inpatient capital PPS proposed rule, HCFA stated that its regression models consistently indicated that an IME adjustment in the inpatient capital PPS was not warranted, with the negative teaching coefficient indicating that the other payment variables more than fully accounted for the higher capital costs of teaching hospitals (Health Care Financing Administration 1991a). Updated regression results also showed a negative relationship between teaching and capital costs (Cotterill 1992).
- 18 HCFA finalized the initial inpatient capital IME adjustment in the 1992 final rule (Health Care Financing Administration 1991b). HCFA noted—but did not present results on—a positive relationship between teaching intensity and capital costs under a modified specification.
- 19 CMS finalized regulations to remove the inpatient capital IME adjustment in the 2008 final rule (Centers for Medicare & Medicaid Services 2007b). The Commission's comment letter on the proposed rule stated that the Secretary should seriously reexamine the appropriateness of the current capital IME adjustment and that a reduction in the capital IME adjustment would be consistent with the Commission's finding that the IME adjustment (based on an analysis of operating and capital costs combined) is set too high (Medicare Payment Advisory Commission 2007a).
- 20 The American Recovery and Reinvestment Act of 2009 required that teaching hospitals continue to receive the full inpatient capital IME adjustment for fiscal year 2009, but did not affect CMS's plan to eliminate inpatient capital IME payments starting in fiscal year 2010. However, in the inpatient final rule for 2010, CMS determined that eliminating the inpatient capital IME adjustment was not prudent at that time because its updated margins analysis indicated a decline in teaching hospitals' positive capital margin in 2007. CMS noted it would continue to analyze the data concerning the adequacy of payments under the capital IPPS and could propose adjustments in the future if its analysis indicated such adjustments were warranted (Centers for Medicare & Medicaid Services 2009).
- 21 The inpatient capital IME adjustment formula has not been changed since enactment; however, beginning in fiscal year 1999, teaching hospitals' residents per average daily census was capped at 1.5 (Health Care Financing Administration 1998a).
- 22 For example, using 2009 data, the Commission estimated that the Medicare outpatient margin among nonteaching hospitals was -7.8 percent, but -21.0 percent among major teaching hospitals (those with a resident-to-bed ratio above 0.25) and -8.4 percent among other teaching hospitals (Medicare Payment Advisory Commission 2014).

- 23 The Balanced Budget Act of 1997 created the Medicare+Choice program and specified that, beginning in 1998, the Medicare program should phase in inpatient operating IME payments for the care of MA beneficiaries and should carve out these IME payments and DGME payments from the calculation of MA rates. While both changes were meant to be complete by 2002, floors and minimum updates to MA rates delayed the removal of Medicare’s medical education payments from MA rates in many areas.
- 24 The Medicare program uses these informational claims on MA beneficiaries’ inpatient stays to estimate what base diagnosis related group payments for these stays would have been under the inpatient operating PPS and then makes IME payments by applying the hospital’s inpatient operating IME adjustment to these base payments.
- 25 Many teaching hospitals already have lower acquisition costs (and higher profits) on drugs and a comparative advantage over physician offices due to the 340B Drug Pricing Program (Medicare Payment Advisory Commission 2020).
- 26 In contrast, if the current policy inpatient-centric measure were used, there would be an incentive for hospitals to acquire physician practices because the teaching hospital’s measure of teaching intensity would not change, but the adjustment percentage would be applied to a larger set of services.
- 27 Because hospitals can vary in the extent to which they receive inpatient capital IME payments for the care of Medicare Advantage (MA) beneficiaries through their contracts with MA plans, we limited this case study to IME payments for the care of fee-for-service beneficiaries.
- 28 We estimate that IME FFS payments would have increased 4 percent for the median teaching hospital and ranged from a 9 percent decrease to a 24 percent increase among the middle half of teaching hospitals. Among the hospitals outside this range (i.e., the quarter with the highest and the quarter with the lowest percentage change in IME FFS payments), the effects for most corresponded to a less than \$1 million dollar change.
- 29 Among these two groups, the percentage change in aggregate IME FFS payments was much larger for small teaching hospitals (19 percent increase) than for high RBR hospitals (5 percent decrease); however, they resulted in similar changes in total inpatient and outpatient FFS payments because IME payments constituted a smaller share of small teaching hospitals’ total payments.
- 30 This result reflects in part that teaching hospitals that are more outpatient-centric in their care of Medicare beneficiaries often treat a larger number of all-payer outpatient equivalents, which decreases the hospitals’ resident-to-patient ratio.
- 31 In our 2003 report, we estimated that about 50 percent of current IME payments were empirically justified (Medicare Payment Advisory Commission 2003). In our 2010 report, we revised this estimate to 40 percent to 45 percent (Medicare Payment Advisory Commission 2010). The slight decrease in our estimates over time could reflect multiple factors, including new adjustments in the inpatient operating PPS (such as the introduction of Medicare severity–diagnosis related groups in 2007). Using slightly different model specifications, Nguyen and Sheingold estimated that 34 percent of inpatient operating IME payments were empirically justified (Nguyen and Sheingold 2011).
- 32 Besides adjustments for geography and clinical factors, the outpatient PPS includes an adjustment for sole community hospitals. By contrast, the inpatient PPS includes numerous adjustments, such as an adjustment for hospitals that treat a disproportionate share of low-income patients.
- 33 All of the teaching hospitals that would see a greater than 3 percent decrease in their total FFS payments were in the lowest quartile either of Medicare outpatient-centricity (i.e., base FFS payments for IME-eligible outpatient PPS services relative to inpatient services) or of residents to patients relative to residents per beds.
- 34 All but one of the teaching hospitals that would see a greater than 3 percent increase in their total FFS payments were in the highest quartile either of Medicare outpatient-centricity or of residents-to-patients relative to residents-per-beds.
- 35 CMS could solicit comments on the most appropriate method to identify hospitals’ costs for separately payable drugs and devices as well as any other excluded services. Longer term, CMS could consider adding cost reporting lines to capture outpatient PPS base payments and costs for separately payable drugs.
- 36 A subsequent 2013 RAND report funded by the Commission qualitatively described key factors by which net costs varied by specialty but was unable to quantify these effects (Wynn et al. 2013).
- 37 We limited the analysis to hospitals paid under the inpatient prospective payment system that had a cost report of 10–14 months with a midpoint in the fiscal year of interest and complete cost report data. We excluded hospitals with inconsistent indicators of their teaching status (such as those that indicated they were teaching hospitals but had missing inpatient operating indirect medical education (IME) payments, inpatient capital IME payments, or current-year residents). We also excluded hospitals that charge using an all-inclusive rate and those in Puerto Rico, due to differences in their cost reporting.

- 38 The cost-related components of current policy that we used to standardize costs were geography (the geographic adjustment factor applied to base payment rates), patient severity (the average transfer-adjusted diagnosis related group or ambulatory payment classification weight per case across the hospital's cost reporting period, as calculated from claims), and unmeasured patient severity captured through outliers (as measured by the hospital's outlier payments as a share of base payments, plus 1).
- 39 Referring to CMS estimates in its 2012 outpatient prospective payment system (OPPS) rule, we estimated that 75 percent of each hospital's outpatient drug costs were for separately payable drugs. When using claims to calculate each hospital's OPPS cases and average case mix, we similarly excluded claims for separately payable drugs and devices.
- 40 We added 1 before taking the log (consistent with the current inpatient operating adjustment) because teaching intensity is 0 for nonteaching hospitals and the log of 0 is undefined.
- 41 The independent variables for other characteristics with payment adjustments under current policy were as follows: for inpatient operating models, (logged) adjustment factors for disproportionate share of low-income patients, new technology, additional payments to sole community and Medicare-dependent hospitals, and low volume; for inpatient capital models, (logged) adjustment factors for disproportionate share of low-income patients, and low volume; and for outpatient models, whether the hospital was a sole community hospital. As sensitivity tests, we also ran models constraining the coefficients on these policy adjustments to their values under current policy—which yielded similar teaching intensity coefficients—and models adding independent variables besides those under current policy (such as standby-service intensity and, in the outpatient PPS model, a disproportionate share adjustment)—which materially lowered the teaching intensity coefficients.
- 42 We categorized a hospital as under fiscal pressure if it had a median non-Medicare margin over the prior five years of less than 1 percent and growth in fund balances that would have been less than 1 percent if the Medicare margin was zero.
- 43 Because our independent variable is 1 plus teaching intensity, and not just teaching intensity, the coefficient is not a pure elasticity. For the results presented in this chapter, we took the average of the coefficients from the 2016 and 2017 regression models (which were within 0.03 of each other) and rounded to the nearest hundredth.
- 44 The resulting estimates of outpatient PPS base payments still include outlier payments, but these are limited to 1 percent of aggregate outpatient PPS payments and so would have a minimal effect on our results.
- 45 In accordance with the Bipartisan Budget Act of 2015, CMS has implemented lower outpatient PPS payment rates for services provided in some hospitals' off-campus provider-based departments. CMS intends for the lower outpatient PPS rates to approximate the rates paid in physician offices under the Medicare physician fee schedule, on average. For 2017 and 2018, the effects of this policy were limited and had a small effect on spending because the policy originally applied only to new off-campus hospital outpatient departments. However, CMS expanded this policy in 2019 so that hospitals must bill clinic visits provided in all off-campus settings at the lower outpatient PPS rate that approximates the physician fee schedule rate. The American Hospital Association challenged in court the policy CMS implemented in 2019 and the U.S. District Court for the District of Columbia vacated the policy for 2019. On December 12, 2019, the Department of Health and Human Services filed notices of appeal.

## References

---

- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2010. Medicare program: Hospital outpatient prospective payment system and CY 2011 payment rates; ambulatory surgical center payment system and CY 2011 payment rates; payments to hospitals for graduate medical education costs; physician self-referral rules and related changes to provider agreement regulations; payment for certified registered nurse anesthetist services furnished in rural hospitals and critical access hospitals. Final rule. *Federal Register* 75, no. 226 (November 24): 72129–72580.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2009. Medicare program; changes to the hospital inpatient prospective payment system and updates to certain IPPS-excluded hospitals. *Federal Register* 74, no. 165 (August 27): 43768.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007a. Medicare program: Changes to the hospital outpatient prospective payment system and CY 2008 payment rates, the ambulatory surgical center payment system and CY 2008 payment rates, the hospital inpatient prospective payment system and FY 2008 payment rates; and payments for graduate medical education for affiliated teaching hospitals in certain emergency situations; Medicare and Medicaid programs: Hospital conditions of participation; necessary provider designations of critical access hospitals. Final rule with comment. *Federal Register* 72, no. 227 (November 27): 66580–67225.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007b. Medicare program; changes to the hospital inpatient prospective payment systems and fiscal year 2008 rates. Final rule. *Federal Register* 72, no. 162 (August 21): 47129–48175.
- Cotterill, P. G. 1992. Prospective payment for Medicare hospital capital: Implications of the research. *Health Care Financing Review* 1991, Suppl. (March): 79–86.
- Council on Graduate Medical Education. 2017. *COGME 23rd report: Towards the development of a national strategic plan for graduate medical education*. Washington, DC: COGME.
- Health Care Financing Administration, Department of Health and Human Services. 2000a. Medicare program; prospective payment system for hospital outpatient services. Interim final rule with comment period. *Federal Register* 65, no. 219 (November 13): 67798–67846.
- Health Care Financing Administration, Department of Health and Human Services. 2000b. Office of Inspector General; Medicare program; prospective payment system for hospital outpatient services. Final rule. *Federal Register* 65, no. 68 (April 7): 18434–18820.
- Health Care Financing Administration, Department of Health and Human Services. 1998a. Medicare program; changes to the hospital inpatient prospective payment systems and fiscal year 1999 rates. Final rule. *Federal Register* 63, no. 147 (July 31): 40954–41131.
- Health Care Financing Administration, Department of Health and Human Services. 1998b. Medicare program; prospective payment system for hospital outpatient services. Final rule. *Federal Register* 63, no. 73 (September 8): 47552–48036.
- Health Care Financing Administration, Department of Health and Human Services. 1991a. Medicare program; inpatient hospital prospective payment system; capital-related costs. Proposed rule. *Federal Register* 56, no. 40 (February 28): 8257–8680.
- Health Care Financing Administration, Department of Health and Human Services. 1991b. Prospective payment system for inpatient hospital capital-related costs. Final rule. *Federal Register* 56, no. 169 (August 30): 43358–43546.
- Health Care Financing Administration, Department of Health and Human Services. 1983. Medicare program; prospective payments for Medicare inpatient hospital services. Interim final rule with comment period. *Federal Register* 48, no. 171: 39752–39890.
- Health Care Financing Administration, Department of Health and Human Services. 1982. Medicare program; Medicare hospital reimbursement reforms: Limitations on reimbursable costs and the rate of hospital cost increases. Interim final rule with comment period. *Federal Register* 47, no. 190 (September 30): 43282–43338.
- Institute of Medicine. 2014. *Graduate medical education that meets the nation's health needs*. Washington, DC: National Academies Press.
- Institute of Medicine. 2009. *Committee on optimizing graduate medical trainee (resident) hours and work schedule to improve patient safety*. Washington, DC: National Academies Press.
- Medicare Payment Advisory Commission. 2020. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2014. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2010. *Report to the Congress: Aligning incentives in Medicare*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2007a. Comment letter to CMS on the proposed rule entitled: Medicare program; proposed changes to the hospital inpatient prospective payment systems and fiscal year 2008 rates. June 11.

Medicare Payment Advisory Commission. 2007b. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2003. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2002. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Nguyen, N. X., and S. H. Sheingold. 2011. Indirect medical education and disproportionate share adjustments to Medicare inpatient payment rates. *Medicare & Medicaid Research Review* 1, no. 4: E1–E19.

Prospective Payment Assessment Commission. 1989. *1990 adjustments to the Medicare prospective payment system*. Washington, DC: ProPAC. [https://upload.wikimedia.org/wikipedia/commons/1/1c/Adjustments\\_to\\_the\\_Medicare\\_prospective\\_payment\\_system\\_-\\_report\\_to\\_the\\_Congress\\_%28IA\\_adjustmentstomed00unit\\_1%29.pdf](https://upload.wikimedia.org/wikipedia/commons/1/1c/Adjustments_to_the_Medicare_prospective_payment_system_-_report_to_the_Congress_%28IA_adjustmentstomed00unit_1%29.pdf).

U.S. House of Representatives. 1983. *House Ways and Means Committee report number 98–25*. Washington, DC: U.S. House of Representatives.

Wynn, B. O., R. Smalley, and K. M. Cordasco. 2013. *Does it cost more to train residents or replace them?* Santa Monica, CA: RAND Health.

