Research Report

The Price and Spending Impacts of Limits on Payments to Hospitals for Out-of-Network Care

Erin L. Duffy, Christopher Whaley, Chapin White

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Preface

There is growing interest among policymakers in using out-of-network payment limits as a tool to control rising health care spending in the United States. In this report, we analyze how the broad application of out-of-network payment limits for hospital care could affect negotiated in-network prices and total payments for hospital care. We consider four potential out-of-network payment limits: 125 percent of traditional Medicare payments, 200 percent of traditional Medicare payments, state average prices paid by private plans, and 80 percent of billed charges. These four scenarios reflect the variation in base measure (traditional Medicare, market price, and charges) and payment generosity among existing policy proposals. For each out-of-network payment limit scenario, we estimate the magnitude of the out-of-network limit at the hospital level, and we project negotiated in-network prices under that limit. We apply the estimated prices to assess the impact on total payments for hospital care. Although there are many examples of legislation that would enact out-of-network payment limits, we do not model any specific legislative proposal or proposals. This report can inform policymakers of the relative magnitudes and potential impacts of a variety of out-of-network payment limits as they consider potential out-of-network payment limit policies. This report also highlights the potential indirect effects of out-of-network payment limits on the negotiation process for in-network prices.

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RAND Health Care Communications
1776 Main Street
P.O. Box 2138
Santa Monica, CA 90407-2138
(310) 393-0411, ext. 7775
RAND_Health-Care@rand.org

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Contents

Figures

Tables

Summary

There is growing interest among policymakers in using out-of-network payment limits as a tool to control rising health care spending in the United States. Such policies cap the total amount that hospitals and physicians can be paid when they are not in network and prohibit providers from billing patients for an excess balance. For example, Medicare Advantage currently limits payments to out-of-network providers at traditional Medicare payment rates (Berenson et al., 2015), and the state of Oregon has recently enacted an out-of-network payment limit for its public employee insurance plans, set at 185 percent of Medicare payments (Hayes, 2017). Limits on out-of-network payments to hospitals have also been proposed by U.S. Senator Maggie Hassan (D-NH) (U.S. Senate, 2018), 2020 presidential candidates Pete Buttigieg and Mike Bloomberg (Buttigieg, 2019; Bloomberg, 2020), and the Progressive Policy Institute and the Council for Affordable Health Coverage, 2019. However, there is a lack of information on the potential impacts of applying such payment limits broadly to hospital services. This lack of information is complicated by the nuanced role that out-of-network limits play in the negotiation process for in-network prices. To fill this gap, we estimated the effects of four proposed out-of-network payment limits for hospital care—125 percent of Medicare payments (a strict limit), 200 percent of Medicare payments (a moderate limit), state average payment by private plans (a moderate limit), and 80 percent of average billed charges (a loose limit)—on negotiated in-network prices and total payments for hospital care.

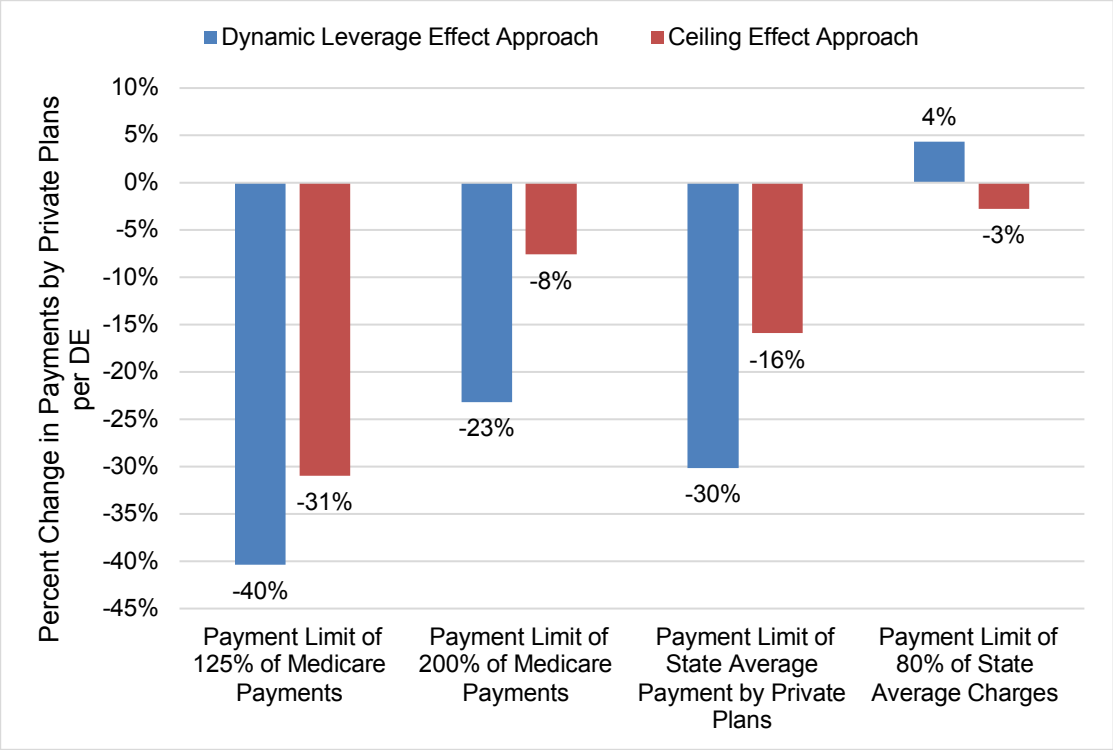
Data and Methods

We employed 2017 data from the Centers for Medicare and Medicaid Services Hospital Cost Report Information System, compiled and processed through the RAND Corporation's Hospital Data repository, to estimate status quo hospital operating expenses, Medicare payments, payments by private plans, and charges. Then, we estimated the potential effects of out-of-network payment limits on payments to hospitals by private plans and their insured patients. We employed two estimation approaches. In the first approach, the dynamic leverage effect approach, we assumed that limits on out-of-network payments could influence hospitals' leverage in price negotiations with private plans—payment limits below status quo out-of-network revenue levels would decrease hospitals' leverage, and payment limits above status quo out-of-network revenue levels would increase hospitals' leverage. In the second approach, the ceiling effect approach, we assumed that out-of-network payment limits would have a ceiling effect on negotiated payment rates.

Results

Employing these two approaches, we estimated that the strictest limit we evaluated—125 percent of Medicare payments—could substantially reduce negotiated hospital prices by 31 to 40 percent. More-moderate payment limits set at 200 percent of Medicare or at state average private payments are estimated to reduce negotiated hospital prices by 8 to 23 percent and 16 to 30 percent, respectively. We estimated modest price increases (4 percent) or decreases (–3 percent) under a payment limit of 80 percent of billed charges, depending on the estimation approach employed. Results are shown in Figure S.1.

Figure S.1. National Average of Hospital-Level Percentage Change in Payments by Private Plans per Discharge Equivalent Between Status Quo and Payment Limit Scenarios, Applying the Dynamic Leverage Effect Approach and the Ceiling Effect Approach



NOTE: DE = discharge equivalent.

Applying these estimated changes in negotiated prices from our two estimation approaches to the volume of hospital discharge equivalents observed in our data, the limit of 125 percent of Medicare payments would yield a $108 billion to $124 billion reduction in nationwide hospital spending. The more-moderate payment limits of 200 percent of Medicare payments and state average payments by private plans are estimated to reduce hospital spending by $56 billion to $94 billion and $23 billion to $70 billion, respectively. The payment limit set at 80 percent of

state average charges is estimated to either increase hospital spending by $13 billion or decrease spending by $7 billion, depending on the assumptions of the estimation approach used.

In addition, we conducted a sensitivity analysis adjusting our measure of payment by private plans to more closely align with higher magnitudes reported in a recent RAND study of an employer-led hospital price transparency initiative (White and Whaley, 2019). Applying higher status quo payments by private plans yielded larger estimated reductions in private payments under out-of-network payment limits, relative to our primary analysis.

Policy Implications

Our findings suggest that strict out-of-network payment limits on hospital care could yield cost containment similar to more-sweeping proposals, such as Medicare for All, rate-setting, and global budgets. Among these bold policy approaches to containing the costs of hospital care, out-of-network payment limits are arguably less heavy-handed, because this approach does not impose rate-setting for all providers or shift the source of health insurance coverage for a large share of the population. An out-of-network payment limit policy would also eliminate the burden of out-of-network hospital billing for individual patients.

Although cost containment can benefit patients facing rising health costs, such changes are disruptive to hospital revenues. A policy that reduces hospital revenues to an extent that results in hospital closures or lower quality of care would not be in the best interest of patients. Therefore, an out-of-network payment limit must be selected and implemented carefully to yield cost containment without negatively affecting access to hospital services and patient outcomes. This report can inform policymakers of the relative magnitudes and potential impacts of a variety of out-of-network payment limits as they consider potential out-of-network payment limit policies.

Abbreviations

CAHC	Council for Affordable Health Coverage
CMS	Centers for Medicare and Medicaid Services
DE	discharge equivalent
HCRIS	Hospital Cost Report Information System
MedPAC	Medicare Payment Advisory Commission
OON	out-of-network
PPI	Progressive Policy Institute

1. Background

A bipartisan consensus has emerged around the need to address "surprise medical bills," and setting limits on out-of-network payments to providers is recognized as a potential policy lever to that end (Chernew, Pany, and Frank, 2019). Surprise bills, also known as *balance bills*, can occur when an insured patient receives emergency care or chooses an in-network facility but receives care there from an out-of-network professional. The out-of-network professional bills full charges to the patient's insurer and receives an out-of-network allowed amount from the insurer. If this allowed amount is less than the professional's charges, then the professional can bill the patient for the balance. Surprise bill protections for the patient are typically limited to specific provider types (e.g., hospital-based physicians) and specific clinical settings (e.g., emergency care) (Hoadley, Lucia, and Kona, 2019). Several states have implemented policies to address surprise billing, and legislation has also been proposed in the U.S. Senate and the U.S. House of Representatives to restrict patient cost-sharing to in-network levels and employ federal limits on out-of-network payments (Bluth, 2018; U.S. Senate, 2018; U.S. Senate, 2019).

Although the recent public discourse on surprise billing and out-of-network payment limits has focused on out-of-network professionals, limiting out-of-network payments for all hospital services could more substantially affect overall health care expenditures because payments to hospitals account for a far greater share of health care spending than payments for physician and other professional services. Hospital services account for 44 percent of health care spending, and the prices that private insurers pay hospitals have been growing faster than the prices of hospital inputs and the prices paid by private insurers for physician services (Centers for Medicare and Medicaid Services [CMS], 2019; Cooper et al., 2019; Health Care Cost Institute, 2018). To illustrate, in the 2017 *Health Care Cost and Utilization Report* from the Health Care Cost Institute, average payments for emergency room services per privately insured person were more than four times greater for hospitals ($378) than physicians ($88) (Hargraves, Biniek, and Fehr, 2019).

There are both existing and proposed policies to limit out-of-network payments for a wider variety of services, including payments to hospitals, in the interest of reducing patients' out-of-pocket financial liability and curtailing national health care expenditures. For example, in Medicare Advantage, payments to providers for out-of-network care are capped at traditional Medicare payment rates, and providers are prohibited from billing patients for the balance (Berenson et al., 2015). The state of Oregon recently enacted an out-of-network payment limit for its public employee insurance plans, set at 185 percent of Medicare payments (Hayes, 2017). A bill sponsored by U.S. Senator Maggie Hassan (D-NH) proposes out-of-network payment limits for uninsured patients and non–group plan members that would extend to all providers, including hospitals, for emergency and nonemergency services (U.S. Senate, 2018). 2020

presidential candidates Pete Buttigieg and Mike Bloomberg have also proposed a limit on out-of-network payments to hospitals, set at 200 percent of Medicare payments, as part of their health policy agendas (Buttigieg, 2019; Bloomberg, 2020). The Council for Affordable Health Coverage (CAHC) has put forth a proposal to limit out-of-network and emergency services payments at 200 percent of Medicare payments in 2020, declining to 150 percent over five years (CAHC, 2019). The Progressive Policy Institute (PPI) proposes limiting out-of-network payments to 175 percent of Medicare payments in 2022, which would fall to 125 percent over 12 years (CAHC, 2019).

Discussions of out-of-network policies tend to focus on the direct effects of regulating out-of-network payments on patients' financial liability. However, the indirect effects of out-of-network payment limits, through their influence on in-network negotiated prices, might be far more important economically (Bindman, 2018). Hospitals derive leverage from the threat of not contracting with insurers. Network contracts with providers are valuable to insurers because they grant the plan enrollees easier access to providers and establish a lower contracted rate—as opposed to requiring enrollees to face a hospital's charges if they go out of network. If the hospital and insurer do not reach a contract, then the hospital may refuse to treat its insured patients for nonemergency services—or treat them and demand that they, or their plan, pay the high price tag of full billed charges (Melnick, Fonkych, and Zwanziger, 2018). Thus, an out-of-network payment limit lowers a hospital's leverage by shifting the threat point of out-of-network services from its self-imposed charges to the level of the out-of-network payment limit.

Although a nationwide out-of-network payment limit for all services for the privately insured population has never been implemented in the United States, we can draw inference on the potential effects from two existing out-of-network policies. First, a state policy in New Jersey limits patient cost-sharing for involuntary out-of-network care but requires that the insurer, rather than the patient, pay providers full billed charges net of any patient cost-sharing. Because billed charges are frequently much higher than negotiated rates, New Jersey's payment limit emboldened hospitals to cancel their network contracts and undermined plans' leverage in their negotiations over in-network rates (Avalere Health LLC, 2015). Second, Medicare Advantage caps out-of-network payments at Medicare fee-for-service prices. Because of this out-of-network limit, negotiated in-network prices paid by Medicare Advantage plans closely track traditional Medicare prices rather than payments by private plans (Baker et al., 2016; Chen, Hicks, and Chernew, 2018; Trish et al., 2017). These two examples indicate that out-of-network payment limits influence negotiated rates, inflating in-network prices when tied to providers' full billed charges and suppressing in-network prices when limited to traditional Medicare's fee-for-service payment rates.

In this report, we analyze nationwide limits on payments to hospitals by private insurers for out-of-network care, not merely as a protection against surprise billing, but as a policy lever to influence in-network hospital prices and reduce health care spending. We estimate the potential effects of limits on total payments to hospitals for all emergency and nonemergency out-of-

network care and consider all private insurance plan types, including self-funded and fully insured plans. We estimate the effects of four payment limits: 125 percent of Medicare payments (a strict limit), 200 percent of Medicare payments (a moderate limit), state average payment by private plans (a moderate limit), and 80 percent of average billed charges (a loose limit).

2. Data and Estimation Methods

Study Data

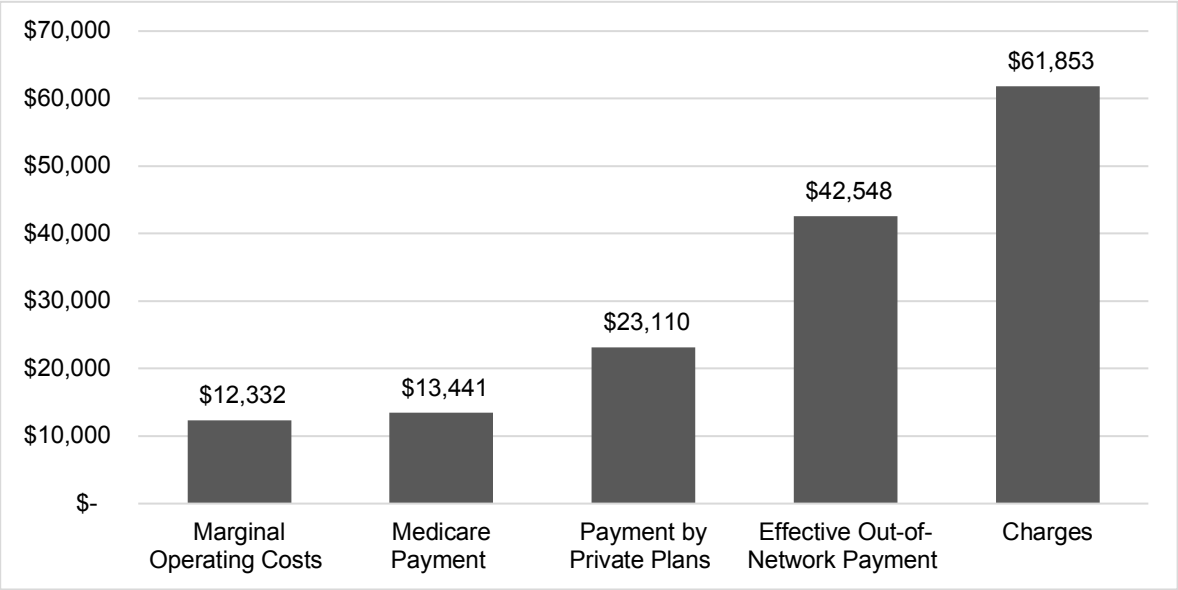
We used data from 2017, the most current year available, from the CMS Hospital Cost Report Information System (HCRIS), compiled and processed through the RAND Hospital Data repository (White, 2018). The HCRIS data are publicly available and contain detailed information on hospital revenues and volume across multiple payers for all Medicare-certified hospitals in the United States. These data are provided by hospitals, which are required as a condition of Medicare certification to submit an annual cost report with such information as facility characteristics, utilization data, cost, charges, revenues, and financial statement data.

Following previously published methods (White and Wu, 2014), we computed each hospital's combined inpatient and outpatient service volume using *discharge equivalents* (DEs), defined as the number of inpatient hospital discharges multiplied by the ratio of total operating expenses over inpatient operating expenses. Then, we derived per-DE estimates of average operating expenses, payment by private plans, Medicare payment, and charges for each hospital (Appendix A). We assumed that marginal operating expenses are 85 percent of average operating expenses, based on margins reported by the Medicare Payment Advisory Commission (MedPAC) (2017).

Our measure of payments by private plans builds on previous work that applied HCRIS data to estimate hospitals' non-Medicare payment rates (Dafny, 2009). We estimated revenues from private payers, starting with total net patient revenue and subtracting revenues for Medicare fee-for-service, Medicaid, Medicare Advantage, Children's Health Insurance Program, Medicaid disproportionate-share hospital payments, and revenues from state and local indigent programs.

There were 4,633 Medicare-certified short-stay hospitals in the 50 states and the District of Columbia in 2017. We excluded 176 hospitals because of missing values for key variables used to compute marginal operating expenses, commercial payment, Medicare payment, and charges. We also excluded hospitals in the state of Maryland because they are subject to a unique all-payer rate-setting policy that would likely continue under a federal policy change. Our final analytical sample comprised 4,410 hospitals. We estimated that national average marginal operating expenses per DE in 2017 were $12,332 (Figure 2.1). The average payment by private plans ($23,110) was approximately 1.9 times hospitals' average marginal operating expenses. Average charges ($61,853) were approximately 5.0 times marginal operating expenses and $38,743 higher than the average payment by private plans. We estimated that status quo average Medicare payments were $13,441 per DE.

Figure 2.1. National Average Marginal Operating Costs, Medicare Payment, Payment by Private Plans, Effective Out-of-Network Payment, and Charges per Discharge Equivalent, HCRIS 2017



We also estimated a status quo effective out-of-network payment. To compute an effective out-of-network payment, we considered how much a hospital would collect from both the insurer and the patient for out-of-network services. Hospitals bill their full charges for out-of-network care, and insurers pay the hospitals an out-of-network allowed amount. In practice, out-of-network allowed amounts can vary by private plan and are typically based on either an average of contracted rates, a local usual and customary amount, or a percentage of what Medicare would pay. We employed state average payments by private plans as a proxy for this average out-of-network allowed amount. As was discussed earlier, if the insurer's payment is less than the hospital's full charges, then the hospital can send a bill to the patient for the remaining balance. We defined a *balance bill* as the difference between billed charges and the out-of-network allowed amount. We assumed that the hospital bills the patient for the balance, but it collects only a share of that amount. Although the portion collected by hospitals is not well documented, several reports indicate that hospitals typically succeed in collecting roughly half the amount that they bill patients (Bartsch and Long, 2016; Hoadley, Lucia, and Schwartz, 2009; Pellathy and Singhal, 2010). Thus, we estimated the effective out-of-network payment for each hospital as the state average payment by private plans plus 50 percent of the difference between the hospital's charges and the state average payment by private plans, an average of $42,548.

Then, we estimated the potential effects of out-of-network payment limits on payments to hospitals by private plans and their insured patients using two different approaches. These methods are briefly described here, and the full details of our modeling methods are provided in Appendix A. Key terms and variables are described in Table 2.1.

Table 2.1. Key Terms and Variables

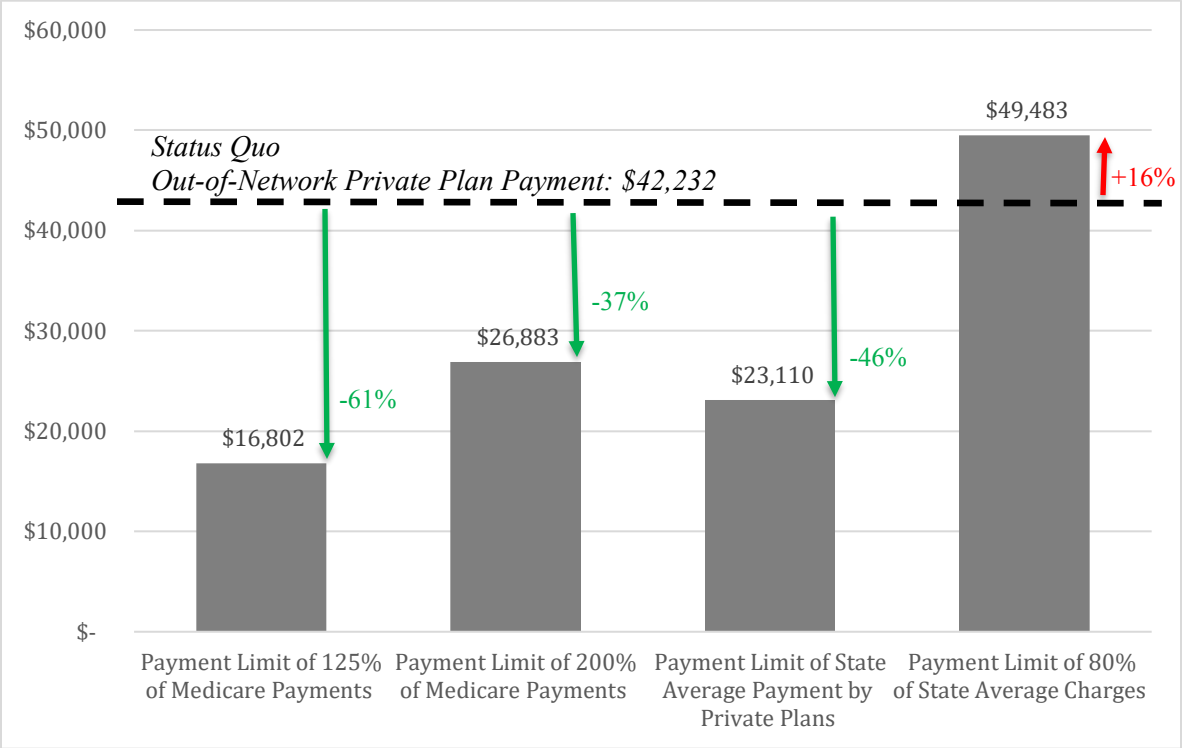
Term	Definition	Source
Hospital charges	Amount that the hospital bills for services	Hospital-level derived average charges per DE (HCRIS data)
Contracted rate	Payment amount that private plans and hospitals agree is acceptable for in-network services	Hospital-level derived average payment by private plans per DE (HCRIS data)
State average payments by private plans	Mean of hospital-level payments by private plans per DE, weighted by each hospital's volume of DEs	Calculated at the state level based on derived contracted rates (HCRIS data)
Out-of-network allowed amount	Amount that insurer pays for out-of-network services; typically based on either an average of contracted rates, a local usual and customary amount, or a percentage of Medicare	State average payments by private plans used as a proxy (HCRIS data)
Balance billing amount	Hospital charges minus out-of-network allowed amount	Calculated at the hospital level based on derived charges and state average payments by private plans (HCRIS data)
Collection rate	Rate at which the hospital is successful in collecting balance billing amounts owed from patients	Assumed to be 50 percent (Bartsch and Long, 2016; Hoadley, Lucia, and Schwartz, 2009; Pellathy and Singhal, 2010)
Effective out-of-network payment	Out-of-network allowed amount plus the product of the balance billing amount multiplied by the collection rate	Calculated at the hospital level per DE based on derived charges, state average payments by private plans, and assumed collection rates (HCRIS data)
Marginal operating costs	Average operating expenses for a hospital to provide care for a DE	Calculated at the hospital level per DE as 0.917 times the derived Medicare payment (HCRIS data)
Hospital net revenue from private plans	Hospital payment by private plans minus marginal operating costs per DE	Calculated at the hospital level per DE based on derived operating expenses and hospital-level derived average payment by private plans per DE (HCRIS data)

Out-of-Network Payment Limit Scenarios

After deriving an estimate of current payments from private payers, we estimated the effects of four out-of-network payment limits on payments by private plans: 125 percent of Medicare payments, 200 percent of Medicare payments, state average payments from private payers, and 80 percent of state average charges. We chose these limits to provide a variety of estimates and because they are similar to the limits suggested in current federal policy proposals (Adler et al.,

2018b). We assumed that there would be a ban on balance bills and that the out-of-network limits would cap the total payment to the hospital for out-of-network services, including payments by the plan and patients' cost-sharing under their insurance plan design. We assumed that hospitals would be able to collect the full payment limit. For each scenario, we estimated state and national average payments by private payers, computed as the mean of the hospital-level payment by private payer measure, weighted by the volume of each hospital's DEs. Figure 2.2 illustrates each of these scenarios.

Figure 2.2. National Average Out-of-Network Payments per Discharge Equivalent Under Four Out-of-Network Payment Limit Scenarios, Compared with Status Quo



NOTE: The national average status quo out-of-network private plan payment and payment limits of 125 percent and 200 percent of Medicare payments are the average of hospital-specific payment limits, weighted by each hospital's service volume as represented by DEs. The national average payment limits set at 80 percent of state average charges and state average payments by private plans are the average of state-level limits, weighted by the number of DEs observed in each state.

Status Quo Scenario

Using hospital-level HCRIS data, we estimated the status quo scenario of 2017 hospital payments by private payers to be $42,232. Our derived payment by private payer measure represents the average payment across private payers for a given hospital and is standardized to a DE unit of service that incorporates the hospital's inpatient and outpatient services. This scenario presents the status quo payment by private payers in 2017 with no imposed out-of-network payment limit.

Scenario 1: 125 Percent of Medicare Payments

For each individual hospital, we estimated the magnitude of an out-of-network payment limit set at 125 percent of Medicare payments by multiplying our hospital-level derived measure of Medicare payments per DE by 1.25. This strict limit was selected based on a policy proposal by PPI because it is one of the lowest percentages of Medicare suggested among currently circulating proposals (CAHC, 2019), and we sought to capture effects of a wide variety of potential out-of-network limits.

We estimated that the national average of out-of-network payments by private plans would decrease to $16,802 (–61 percent) under an out-of-network payment limit of 125 percent of Medicare payments.

Scenario 2: 200 Percent of Medicare Payments

For each individual hospital, we estimated the magnitude of an out-of-network payment limit set at 200 percent of Medicare payments by multiplying our hospital-level derived measure of Medicare payments per DE by 2. This moderate limit was selected based on policy proposals by Pete Buttigieg and Mike Bloomberg (Buttigieg, 2019; Bloomberg, 2020) and as a transitional payment limit proposed by CAHC (CAHC, 2019).

We estimated that the national average of out-of-network payments by private plans would decrease to $26,883 (–37 percent) under an out-of-network payment limit of 200 percent of Medicare payments.

Scenario 3: State-Average Payments by Private Payers

We considered a scenario in which the out-of-network payment limit is set at the average of payments by private plans in a state, similar to recent state policies and federal proposals (Adler et al., 2018b; Adler et al., 2018a; U.S. Senate, 2018; State of California, 2018). This market-based payment measure was selected for analysis because it was included as a payment option in a bill proposed by Senator Hassan that would limit out-of-network payment for non–group plan members and uninsured patients and that would extend to all providers, including hospitals, for emergency and nonemergency services (U.S. Senate, 2018).

We computed the mean of status quo hospital-level payments by private plans per DE for each state and the District of Columbia, weighting by each hospital's volume of DEs. These state-level means were used as the out-of-network payment limits in their respective states. For each hospital, we applied these state-specific payment limits to estimate payments by private plans.

We estimated that the national average of out-of-network payments by private plans would decrease to $23,110 (–46 percent) under an out-of-network payment limit of state average payments by private plans.

Scenario 4: 80 Percent of State-Average Charges

Finally, we estimated a charge-based payment limit. This charge-based payment measure was included as a payment option in the bill proposed by Senator Hassan to limit out-of-network payments for services provided to non–group plan members and uninsured patients (U.S. Senate, 2018).

First, we calculated each state's mean charges per DE across hospitals, weighting by each hospital's DEs. Then, we multiplied the state-level mean of charges per DE by 0.8 to compute an out-of-network payment limit at 80 percent of state average charges. State-specific payment limits were applied to estimate payments by private plans.

We estimated an increase in the national average of private plan payments to $49,483 (+16 percent) under an out-of-network payment limit of 80 percent of state average charges.

Dynamic Leverage Effect Analytic Approach

In previous studies, researchers have examined the price negotiation process between insurers and hospitals (Gowrisankaran, Nevo, and Town, 2015; Ho, 2009; Ho and Lee, 2017). In standard price negotiation processes, prices are influenced by patient willingness to pay for access to given hospitals. Highly desired hospitals are able to use the threat of exclusion from an insurer's network—which would require all patients to pay out-of-network rates—to negotiate higher in-network prices. Our modeling approach—the dynamic leverage effect analytic approach—examines the impacts of limiting out-of-network prices, which, as the best alternative for hospitals to agreeing on in-network prices, serve as a bargaining lever for hospitals to negotiate higher prices.

Out-of-network payment limits directly affect out-of-network payments for hospital services and indirectly affect in-network payments for hospital services by shifting hospitals' leverage in negotiations with insurers. An out-of-network payment limit changes hospitals' best alternative to a negotiated agreement for in-network prices. As indicated above, in the status quo, a hospital that does not contract with an insurer can seek to collect its full billed charges from patients and insurers in the event that out-of-network services are provided. Insurers typically pay an out-of-network allowed amount to hospitals. The remaining balance (charges minus out-of-network allowed amount) is billed directly to patients, and, as was noted earlier, studies on hospital collection rates suggest that hospitals are able to collect approximately half the amount owed by patients (Bartsch and Long, 2016; Hoadley, Lucia, and Schwartz, 2009; Pellathy and Singhal, 2010). Under an out-of-network payment limit, the maximum possible revenue for out-of-network services shifts from the out-of-network payment in the status quo to the out-of-network limit determined by the new policy.

Hospital charges are the de facto prices for those without insurance or those receiving care from an out-of-network provider, and thus charges are a threat point in hospital price negotiations (Murray, 2013). Hospital charges, which many hospitals use as a basis for price

negotiation, have been growing rapidly (Table 2.2) (Bai and Anderson, 2015; Stichter, 2016). Although few patients pay full charges, chargemaster rates have been shown to be strategically set and meaningfully influence actual payments paid by plans and patients (Bai and Anderson, 2016; Batty and Ippolito, 2017). Many hospitals negotiate payment rates with insurers as a discount on their charges, indicating that charges are a reference point and computationally factor into negotiated rates (Bai and Anderson, 2016; Cooper et al., 2018; Weber et al., 2018).

Table 2.2. Trends in National Average Hospital Charges, 2011–2017

Year	Number of Hospitals	Average Ratio of Charges to Operating Costs	Average Charges per Discharge Equivalent	Annual Growth Rate of Average Charges	Growth Rate of Average Charges from 2011 Baseline
2011	4,557	4.14	$42,633	—	—
2012	4,571	4.33	$45,782	7%	4%
2013	4,557	4.48	$49,294	8%	8%
2014	4,545	4.66	$52,708	7%	12%
2015	4,511	4.88	$56,088	6%	18%
2016	4,479	5.07	$59,825	7%	22%
2017	4,410	5.15	$61,853	3%	24%

SOURCE: Authors' analysis of CMS HCRIS data.
NOTE: National average values are computed as the mean of all hospitals, weighted by each hospital's volume of services, measured in DEs. The baseline year for computing growth rates is 2011.

The threat point of full billed charges is only meaningful if there is the expectation of at least some utilization of hospital services by the insurer's enrollees in the event of failure to agree to a contract for in-network services. Out-of-network utilization is less frequent than in-network utilization in the current policy and market landscape. For instance, one study employing 2014 MarketScan commercial claims data found that 96 percent of inpatient episodes of care that did not originate in the emergency room occurred at in-network hospitals (Garmon and Chartock, 2017). However, the rarity of out-of-network utilization today reflects the predominance of broad-network preferred provider organization (PPO) plans, which, in turn, reflects the fact that extremely high out-of-pocket costs are a barrier to patients accessing out-of-network providers in the status quo. Thus, insurers that want to attract members with plans that enable affordable access to a desirable set of providers face severe downsides from failing to contract. We assumed that in a contracting landscape where network status is not a prerequisite to affordably access providers, the threat of out-of-network utilization at the legislated payment rate will influence negotiated rates.

We started with the observation that hospitals derive substantial leverage from the threat of demanding full billed charges for out-of-network services. We then assumed that the extent to which an out-of-network limit weakens or strengthens hospitals' leverage depends on the

difference between the status quo effective out-of-network payment level and the imposed out-of-network limit. We conceptualized a bargaining range for the price negotiations between private plans and hospitals. We assumed that the *floor* of the price bargaining range (i.e., the minimum price the hospital would willingly accept) is the hospital's marginal operating expense, because accepting a price below marginal operating costs would yield negative revenues. We assumed that the *ceiling* of the price bargaining range (i.e., the maximum price an insurer would ever offer) is a hospital's effective out-of-network payment level, because this is the amount the hospital would receive from private plans if they failed to negotiate a contract. Therefore, the status quo bargaining range for payments by private plans is the difference between the effective out-of-network (OON) payment and the hospital's marginal operating costs (Equation 2.1). We used DEs as a common unit of service to compute the floor and ceiling of the bargaining range and other financial measures.

(Equation 2.1)

$$Status\ quo\ bargaining\ range = Effective\ OON\ payment$$

$$- marginal\ operating\ cost$$

We estimated the effective out-of-network payment for each hospital as the state average payment by private plans plus 50 percent of the difference between the hospital's charges and the state average payment by private plans (Equation 2.2). We developed this formula using the assumption that hospitals collect half of balances billed to out-of-network patients (Bartsch and Long, 2016; Hoadley, Lucia, and Kona, 2009; Pellathy and Singhal, 2010). Therefore, our estimation of hospitals' status quo bargaining ceiling in negotiations with insurance plans is dependent on the magnitude of their charges and our assumption about hospital collection rates.

(Equation 2.2)

$$Effective\ OON\ payment$$

$$= state\ average\ payment\ by\ private\ plans + 0.5$$

$$* (Charges - state\ average\ payment\ by\ private\ plans)$$

When an out-of-network payment limit policy is implemented, that limit becomes the new bargaining range ceiling because it is now the maximum amount the hospital could collect for

out-of-network services (Equation 2.3). We also calculated status quo net revenues from private plans as the difference between marginal operating costs and status quo payments by private plans (Equation 2.4).

(Equation 2.3)

$$New\ bargaining\ range = OON\ payment\ limit - marginal\ operating\ cost$$

(Equation 2.4)

$$Status\ quo\ net\ revenue = \ status\ quo\ payments\ by\ private\ plans$$

$$- marginal\ operating\ cost$$

If a hospital's average payment by private plans per DE is less than its marginal operating costs per DE, then the status quo net revenue is negative. This is the case for 6 percent of hospitals, representing 5.5 percent of DEs, in our sample. Some of these hospitals might be operating at a loss, and there might be data errors yielding some of these instances. We held status quo payment by private plans constant in our estimations for these hospitals.

We assumed that the change in bargaining range when a payment limit is introduced would be accompanied by a proportional change in negotiated prices (Equations 2.5 and 2.6). In doing so, we anchored the estimated magnitude of policy impacts to hospitals' status quo net revenues and charge-to-cost ratios. We made this assumption based on the conceptualization that hospitals' negotiating leverage and the resulting in-network payment by private plans reflect many factors beyond status quo out-of-network prices, including reputation, market competition, and breadth of service capacity. Implementing an out-of-network payment limit would influence status quo out-of-network prices but not the other factors that garner negotiating leverage for the hospital. Thus, we sought to estimate policy effects that reflect hospitals' status quo leverage to account for these sources of leverage that would continue to influence negotiations under out-of-network payment limits.

(Equation 2.5)

Assume $\frac{New\ bargaining\ range}{Status\ quo\ bargaining\ range} = \frac{Projected\ revenue}{Status\ quo\ net\ revenue}$

and solve for estimated revenue:

$$Projected\ revenue = Status\ quo\ net\ revenue * \frac{New\ bargaining\ range}{Status\ quo\ bargaining\ range}.$$

(Equation 2.6)

$$Projected\ negotiated\ price = marginal\ operating\ cost + projected\ revenue$$

There is substantial variation in charge-to-cost ratios across providers in the United States (Bai and Anderson, 2015; Bai and Anderson, 2017). In our approach, hospitals with higher charges will have their bargaining leverage more sizably undercut by strict out-of-network payment limits and, in turn, see their negotiated price reduced more substantially. However, a new policy will have a lesser effect on a hospital if the difference between the effective out-of-network payment and the imposed out-of-network payment limit is small. Payments by private plans would be expected to decrease if the imposed out-of-network payment limit is below the status quo out-of-network price and increase if the limit is above the status quo effective out-of-network price.

Ceiling Effect Analytic Approach

We employed an alternative approach—the ceiling effect analytic approach—to estimating payment by private plans under out-of-network payment limits that does not employ charges or marginal operating costs. We operationalized this approach as a two-part equation conditional on the relative magnitudes of the out-of-network payment limit and the status quo payment by private plans.

1. If OON payment limit ≥ Status quo payment by private plans, then:
   Payment by private plans under OON standard = Status quo payment by private plans.
2. If OON payment limit < Status quo payment by private plans, then:
   Payment by private plans under OON payment limit = OON payment limit.

We looked to observations within the Medicare Advantage (MA) market to develop this approach. In the MA market, participating providers are prohibited from billing out-of-network MA patients at rates higher than those of traditional Medicare. Provider reimbursement by MA plans tracks the rates of traditional Medicare closely rather than aligning with higher payment by private plans (Berenson et al., 2015; Pelech, 2018; Trish et al., 2017). However, in the case of laboratory services with payments by private plans below traditional Medicare, the MA price tracks with the lower payments by private plans rather than bumping up to traditional Medicare rates or decreasing further (Trish et al., 2017). Applying the evidence from the MA market, we

assumed that payers will not contract at a negotiated rate above the out-of-network payment limit and will maintain existing prices below the limit. Thus, the out-of-network limit becomes an in-network price ceiling.

Sensitivity Analysis

The average payments by private plans that we derived from HCRIS are approximately 40 percent lower than those reported in a recent RAND study of an employer-led hospital price transparency initiative (White and Whaley, 2019). There are several differences in payment measurement and sample that could account for this difference. First, White and Whaley, 2019, uses a convenience sample of claims, while the HCRIS data we employed are from a census of all Medicare-certified hospitals. Second, the private plan payments derived from HCRIS might be lower than those in White and Whaley, 2019, because the HCRIS data include self-pay by uninsured patients, exchange plans, and workers' compensation payments that generally pay less than the employer-sponsored plans that dominate the sample in White and Whaley, 2019. The states participating in the White and Whaley, 2019, study also have higher private payments than nonparticipating states, whereas the HCRIS data include nearly all hospitals in the United States. Additionally, the White and Whaley, 2019, study used allowed amounts in administrative claims to measure prices; in contrast, we derived private plan payment from HCRIS by subtracting Medicare and Medicaid revenues from each hospital's total revenues. We conducted a sensitivity analysis in which we inflated the payments by private plans derived from HCRIS to more closely align with the magnitude observed in White and Whaley, 2019 (detailed methods are shown in Appendix D).

Limitations

We assumed that there is a uniform mechanism by which out-of-network payment limits influence payments by private plans and applied the assumption to all hospitals. It is certain, however, that out-of-network payment limits would have heterogeneous effects on hospitals and insurers as they negotiate. Furthermore, in our dynamic leverage effect approach, we assumed that the change in bargaining range when a payment limit is introduced would be accompanied by a proportional change in negotiated prices. If this assumption does not hold, and the change in negotiated prices is less than the change in the bargaining range, then our analysis overestimates the effects of out-of-network payment limits on negotiated prices. In recognition of this limitation, we present an alternative ceiling effect approach to estimating the effects of payment limits on negotiated prices that does not employ such an assumption. Readers critical of this assumption might focus their attention on the results of the ceiling effect approach or interpret the estimates generated by the two analytic approaches as a variety of potential policy effects.

There are several limitations to the financial measures derived from HCRIS. First, we did not observe in-network and out-of-network payments to hospitals separately but rather derived an

overall average payment by private plans for each hospital. Thus, we employed state average payments by private plans as a proxy for out-of-network allowed amounts, which might not be an accurate estimate. Second, our simplified estimate of marginal operating costs as 0.917 times Medicare payment is based on MedPAC's estimate of Medicare margins (MedPAC, 2017), does not account for variation across hospitals, and could be an over- or underestimate of marginal operating costs for a given hospital. Third, we did not directly observe balance billing and related collection rates in HCRIS data and assumed a uniform collection rate of balances billed directly to patients, which does not account for variation in collection rates across hospitals. We also did not account for hospitals' administrative and legal fees to collect balance bills.

As noted above, the payments by private plans that we derived from HCRIS are lower than those observed in a recent employer-led hospital price transparency study (White and Whaley, 2019), and it is not possible to determine the accuracy of our measures in the absence of a comprehensive national data source on private plan payments to hospitals. We conducted a sensitivity analysis to address this concern by inflating the payments by private plans derived from HCRIS to more closely align with the magnitudes reported in White and Whaley, 2019 (see Appendix D).

Our analysis focuses on one recent year, 2017, and we implicitly compared long-run equilibrium outcomes in that one year without estimating the phase-in or timing of the transition. We did not model alternative approaches to updating out-of-network payment limits over time, which can have important implications. For example, repeatedly updating an out-of-network payment limit based on average in-network rates can lead to continual reductions in negotiated rates (Duffy, 2019), which we do not address in this report. Similarly, a charge-based limit could incentivize charge inflation, and we do not model a rate of charge inflation or account for these potential effects. Rather, our analysis assumes that payment limits are based on a pre-policy baseline year and are indexed based on external benchmarks. In addition, the threat point of charges is only meaningful if there is the expectation of utilization of hospital services by the insurer's enrollees in the event of contract failure. We also did not evaluate arbitration-based approaches to settling payment disputes between out-of-network hospitals and insurers.

Our estimations do not account for changes in overall utilization or secondary market effects that could be triggered by the disruption in leverage related to out-of-network limits. For example, providers experiencing a loss in leverage could consolidate to regain leverage (Duffy, 2019), and such effects were not incorporated here. We also did not account for the potential proliferation of narrow network health plan products under out-of-network payment limits (Prager and Tilipman, 2019). State network adequacy requirements might also interact with out-of-network payment limits and attenuate their effects, but we did not capture such interactions in our estimations.

Finally, the reductions in hospital spending would come at the cost of hospital revenues. Many hospitals will face financial pressure under an out-of-network payment limit and might need to adapt to remain profitable, as they would need to adapt under broad policy changes, such

as a single-payer or large public buy-in program (Schulman and Milstein, 2019). We did not quantify any increases in efficiency, reductions in profitability, or possible closures of service lines and facilities under an out-of-network payment limit.

3. Estimation Results

Figures 3.1 and 3.2 present the national average estimated payments by private plans and the hospital average percentage change from the status quo, with the dynamic leverage effect approach and the ceiling effect approach applied. The two estimation approaches yield similar estimations when the out-of-network payment limit is low and diverge at higher payment limits.

Under our dynamic leverage effect approach, the lowest payment limit evaluated—125 percent of Medicare payments—is estimated to decrease national average in-network rates by 40 percent, from the status quo level of $23,110 to $13,789, which is 12 percent above average marginal operating expenses ($12,332). As the status quo payment by private plans is 87 percent above average marginal operating expenses, this strict out-of-network payment would significantly reduce hospital revenues, and many hospitals might need to reduce costs to remain profitable and continue to operate. Applying the ceiling effect approach yields a smaller, yet still substantial, estimated 31 percent reduction in average in-network rates, to $15,961.

Applying a more moderate payment limit of 200 percent of Medicare payments, we estimated average negotiated payments of $17,758, which is 23 percent lower than the status quo, under the dynamic leverage effect approach. This estimated private plan payment level is 44 percent above status quo marginal operating costs, which is approximately half the magnitude of status quo average hospital margins (87 percent) for private plan payments. The ceiling effect approach yields a much smaller estimated reduction (8 percent) in negotiated rates, to $21,359.

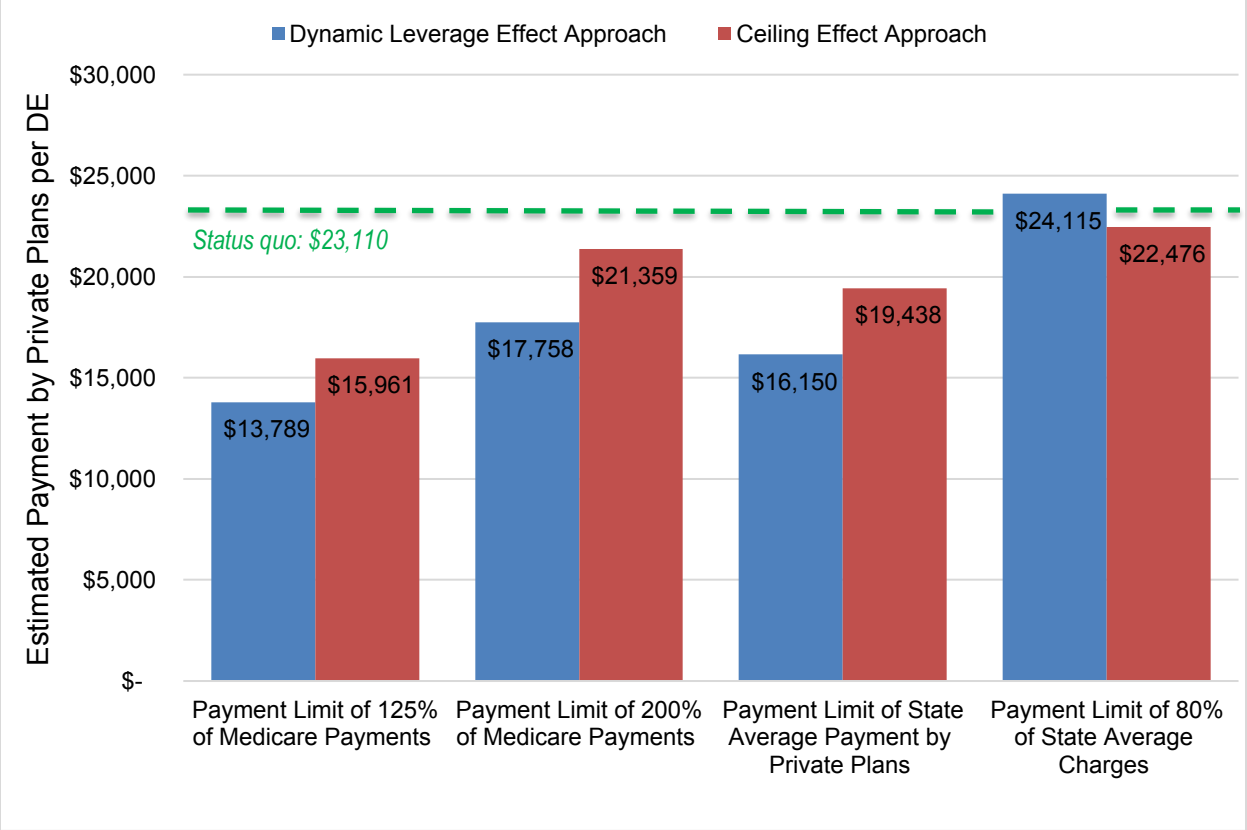
A limit of state average payments by private plans is estimated to decrease national average in-network rates by 30 percent, from $23,110 to $16,150, under our dynamic leverage effect approach. This estimated payment by private plans is 31 percent above status quo marginal operating costs. Using the ceiling effect approach, we estimated a smaller policy effect whereby average negotiated rates would decrease by 16 percent to $19,438 under a payment limit of state average payments by private plans.

Using the dynamic leverage effect approach, we estimated that an out-of-network payment limit set at 80 percent of state average charges would yield an increase in average negotiated payments by private plans to $24,115, representing a 4 percent average increase in payments by private plans across all hospitals. In contrast, the ceiling effect approach yields an estimated 3 percent reduction in average negotiated payments, to $22,476.

Our estimations under the two approaches are generally consistent for the four out-of-network payment limits that we analyzed, particularly when the out-of-network limit is much lower than the status quo payment by private plans. However, we expected greater divergence in estimations under the two approaches at higher out-of-network limits, as observed in the case of a limit at 80 percent of state average charges. Appendixes B and C present the state-level

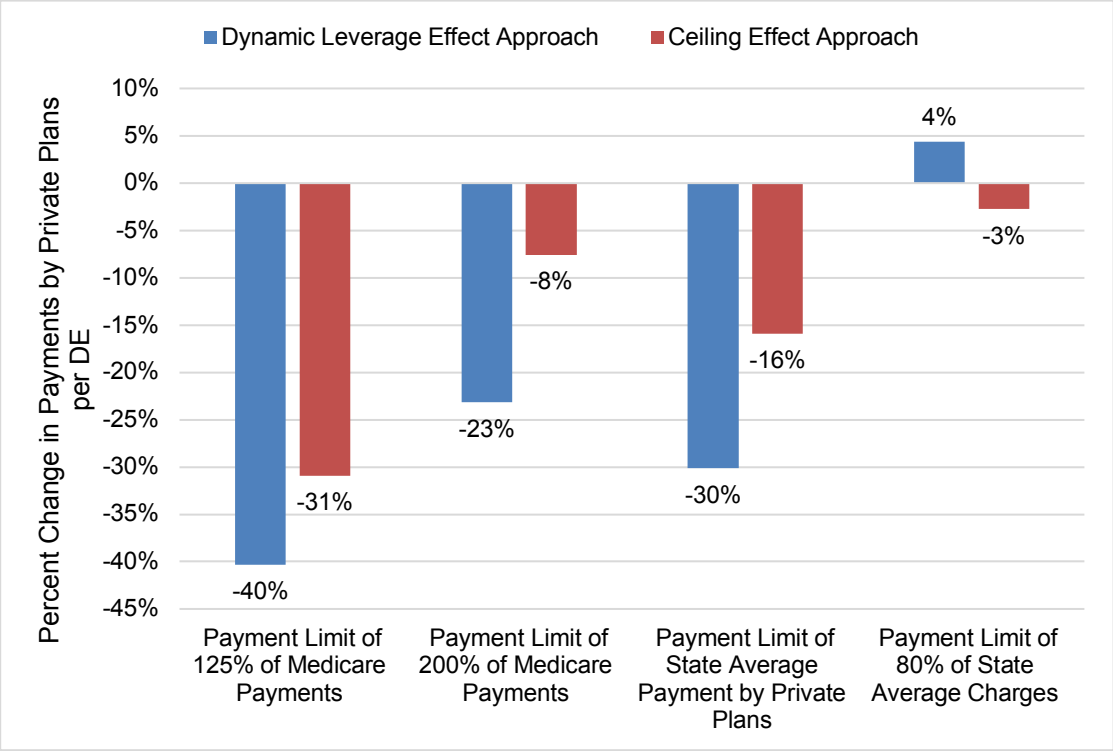
estimated payments by private plans under the four out-of-network payment limits. We observe variation in the magnitude of effects across states.

Figure 3.1. Estimated National Average Private Plan Payment Under Out-of-Network Payment Limits, Applying the Dynamic Leverage Effect Approach and the Ceiling Effect Approach



NOTE: The national average is calculated as the mean of hospital-level estimations weighted by each hospital's service volume as measured by DEs.

Figure 3.2. National Average of Hospital-Level Percentage Change in Payments by Private Plans per Discharge Equivalent Between Status Quo and Payment Limit Scenarios, Applying the Dynamic Leverage Effect Approach and the Ceiling Effect Approach



Applying these estimated reductions in negotiated prices from our two estimation approaches to the volume of hospital DEs observed in our data, the payment limit of 125 percent of Medicare payments would yield a $108 billion to $143 billion reduction in nationwide hospital spending (Table 3.1). The more-moderate payment limits of 200 percent of Medicare payments and state average payments by private plans are estimated to reduce hospital spending by $23 billion to $81 billion and $56 billion to $107 billion, respectively. The payment limit set at 80 percent of state average charges is estimated to increase hospital spending by $12 billion or decrease spending by $7 billion.

Relative to the $1.2 trillion in health expenditures for the privately insured population in 2017 (Martin et al., 2018), these estimated changes in hospital prices under our two estimation approaches equate to respective changes in this population's health care spending of a 9 to 12 percent decrease under a limit at 125 percent of Medicare payments, a 2 to 7 percent decrease under a limit of 200 percent of Medicare payments, a 5 to 9 percent decrease under a limit of state average payments by private plans, and a 1 percent increase or 1 percent decrease under a limit set at 80 percent of state average charges.

Table 3.1. Estimated National Cost Savings and Percentage Change in the $1.2 Trillion in 2017 Health Expenditures for Privately Insured Population

Payment Limit	Estimate Using Dynamic Leverage Effect Approach	Estimate Using Ceiling Effect Approach
125 percent of Medicare payments	–$143 billion (–12 percent)	–$108 billion (–9 percent)
200 percent of Medicare payments	–$81 billion (–7 percent)	–$23 billion (–2 percent)
State-average payments by private plans	–$107 billion (–9 percent)	–$56 billion (–5 percent)
80 percent of state-average charges	+$12 billion (+1 percent)	–$7 billion (–1 percent)

Comparisons of estimations generated by the dynamic leverage effect and ceiling effect approaches suggest that our estimations might be more robust at lower payment limits than at higher limits. We find substantial reductions in negotiated rates under a payment limit of 125 percent of Medicare payments under both estimation methods. However, the direction of the estimated effects is inconsistent at the highest out-of-network limit of 80 percent of charges. Under this charge-based limit, the ceiling effect approach employs a boundary condition that does not allow for estimation of prices above the status quo payment by private plans. In contrast, the dynamic leverage effect approach has the flexibility to project payment by private plans above or below the status quo level and projects an increase in payment under this policy scenario.

As a sensitivity analysis, we inflated our estimated payments by private plans to align with a recent RAND report on hospital pricing (White and Whaley, 2019). In this analysis, the national average status quo payment by private plans is estimated to be $32,381, and the estimated reductions in negotiated payments are larger under each out-of-network payment limit (detailed results in Appendix D). Applying the dynamic leverage and ceiling effect approaches, we estimated 49 to 54 percent reductions in negotiated rates under a payment limit of 125 percent of Medicare payments, 23 to 35 percent reductions under a payment limit of 200 percent of Medicare payments, 16 to 27 percent reductions under a payment limit of state average payments by private plans, and 4 to 7 percent reductions under a payment limit of 80 percent of state average charges.

4. Conclusions and Policy Implications

In this analysis of four potential out-of-network hospital payment limits, we estimated that by altering the balance of negotiations between hospital and insurers, out-of-network payment limits set below status quo effective out-of-network payments could substantially reduce hospital payment levels for in-network services. We estimated that the strictest limit we consider, 125 percent of Medicare payments, could drastically reduce hospitals' net revenue from private plans to a degree that hospitals might be forced to seek substantial reductions in operating costs to remain profitable. In contrast, an out-of-network payment limit above the status quo effective out-of-network payment, such as 80 percent of state average charges, could induce increases in hospital payments by private plans, based on our dynamic leverage effect estimation approach. Thus, the level of the out-of-network payment limit is critical to avoid inflating hospital expenditures or deflating private plan payments to an extent that results in catastrophic losses to hospital revenues and facility closures. The direction and general magnitude of spending changes we estimated are consistent with preliminary analyses of the PPI and CAHC proposed policies to limit out-of-network payments for all out-of-network services (CAHC, 2019).

Our estimations suggest that a low out-of-network payment limit could yield savings comparable to broader-reaching policy changes, such as single-payer Medicare-for-All proposals. Although existing Medicare-for-All proposals do not specify the exact payment rate to hospitals under universal Medicare expansion, analyses by five leading economists and research organizations suggest that payment rates between 100 and 109 percent of current Medicare rates could reduce health care spending (Katz, Quealy, and Sanger-Katz, 2019). A Mercatus Center study estimated that extending the current Medicare fee schedule to all patients would result in a 40 percent reduction from current private insurance prices (Blahous, 2018). In another study, Schulman and Milstein, 2019, estimated that Medicare-for-All applying current Medicare rates would cut annual hospital payments by $151 billion. These estimated cost savings under Medicare-for-All are on par with our estimation of a 31 to 40 percent decrease in payments by private plans and an annual savings of $108 billion to 143 billion under an out-of-network payment limit set at 125 percent of Medicare payments.

Notably, single-payer health care options seek to expand coverage in addition to controlling costs. In comparison, out-of-network payment limits directly address the cost of care for privately insured patients without directly expanding coverage among uninsured and underinsured people. This distinction is important in considering the potential impacts of these health reforms for different subsets of the U.S. population and the policy objectives of proponents of these different approaches.

Proposals for out-of-network payment limits share some similarities with two other prominent cost containment policy proposals: all-payer rate-setting and global budgets.

Understanding the distinctions between out-of-network payment limits, all-payer rate-setting, and global budgets is critical for developing informed policy proposals that are feasible and align with policymakers' objectives. The all-payer rate-setting model was employed in Maryland from 1971 to 2013 and yielded substantial cost containment, and Maryland adopted a global budget policy in 2014 that has demonstrated some savings in early impact evaluations (Kastor and Adashi, 2011; Shah et al., 2018). This state's experience provides an informative reference point for illuminating the distinction across these three cost containment policies.

All-payer rate-setting policies directly regulate the prices paid to hospitals for specific services by private and public payers, regardless of network status. Under this policy, public payers and private insurers pay the same amount to a given hospital, but prices might vary across hospitals. This model generally requires public payers to pay more than they traditionally would, and Maryland received a special exemption from the traditional Medicare fee schedule to pursue this payment model. Although rate-setting is based on a fee-for-service model, the global budget model expands on the rate-setting model by additionally limiting growth in total hospital expenditures through oversight by a regulatory committee. This pressures hospitals to control the total cost of care.

In contrast, out-of-network payment limits, as considered in this report, apply a limit only to payments for out-of-network services provided to privately insured patients, not to in-network services for privately insured patients or any services for patients with public insurance (i.e., Medicare and Medicaid). We find that out-of-network limits would indirectly influence in-network payments by private plans, but this model is not a form of direct price regulation of contracting private health plans and hospitals. Thus, although out-of-network payment limits would be a bold cost containment reform, they are arguably not as heavy-handed as the rate-setting and global budget models that Maryland has adopted. Out-of-network payment limits also only regulate payments by private health plans and would not directly require adjustments to payments by Medicare and Medicaid.

The United States has higher health care spending than other countries, and high prices for the privately insured population explain a large portion of this difference (Anderson, Hussey, and Petrosyan, 2019; Anderson et al., 2003; Papanicolas, Woskie, and Jha, 2018). National health expenditures in 2017 were $3.5 trillion and accounted for 17.9 percent of gross domestic product (GDP), with hospital expenditures composing nearly 6 percent of GDP (CMS, 2019). Private health insurance paid $455 billion to hospitals in 2017, and individual patients paid an additional $34 billion in out-of-pocket hospital payments (CMS, 2019). Health care expenditures will occupy increasingly larger portions of the national GDP and household budgets unless bold policy action is taken. The general public and political leaders are dissatisfied with this status quo, and some advocate reforms to contain costs. Although cost containment can benefit patients facing rising health costs, such changes will be disruptive to hospital revenues and risk resulting in hospital closure or reduced quality of care. Therefore, bold approaches to cost containment—including out-of-network payment limits—must balance cost, access, and quality impacts. Our

estimates of hospital spending under payment limits can inform policymakers as they consider out-of-network payment limits as a potential approach to cost containment among a wide variety of health reform policy options.

Appendix A. Detailed Variable Construction Methods

We computed the hospital-level average operating costs (for clinical services), charges, and Medicare and payments by private plans per DE using variables, shown in Table A.1, from the RAND Hospital Data web tool (White, 2018). These data are composed of longitudinal CMS HCRIS data that have been processed and corrected for outlier and error values.

We constructed the marginal operating cost per DE variable as (100/109) times the Medicare payment. This factor is derived from reported Medicare margins in a MedPAC briefing on hospital payment adequacy (MedPAC, 2017).

Our analytical variables were constructed from the data in the RAND Hospital Data web tool using the SAS code that follows.

```
   /*CHARGES PER DISCHARGE EQUIVALENT*/

charges_perde = sum(inpat_charges_total, outpat_charges_total) /
      discharge_equivalents;

   /*MEDICARE PAYMENT PER DISCHARGE EQUIVALENT*/

mdcr_discharge_equivalents = mdcr_inpat_discharges + (discharge_equivalents -
      all_inpat_discharges) * (mdcr_outpat_charges / outpat_charges_total);

mdcr_rev_perde = sum(mdcr_inpat_revs, mdcr_outpat_revs) /
      mdcr_discharge_equivalents;

   /*(COMMERCIAL) PAYMENT BY PRIVATE PLAN PER DISCHARGE EQUIVALENT*/

comm_discharge_equivalents = discharge_equivalents * (gross_patient_rev -
      sum(mdcr_inpat_charges, mdcr_outpat_charges, mdcd_charges,
      schip_charges, chgs_charity_patients_only10, stloc_indigent_charges,
      mdcr_adv_charges_est)) / gross_patient_rev;

comm_rev = max(0, net_patient_rev - sum(mdcd_net_revenue_only10,
      mdcd_DSH_revenue_only10, schip_net_revenue_only10,
      stloc_indigent_net_rev_only10, priv_grants_for_charity_only10,
      govt_grants_for_uncomp_only10, pymt_insured_charity_only10,
      mdcr_inpat_revs, mdcr_outpat_revs, mdcr_adv_rev_est));

comm_rev_perde = comm_rev / comm_discharge_equivalents;

   /*OPERATING COSTS PER DISCHARGE EQUIVALENT*/

marg_op_costs_perde_raw = mdcr_rev_perde perde * (100/109);
```

Table A.1. RAND Hospital Data Variables Used in Analysis

Variable Name	Description	Formula or Source (2552 Worksheet, Column, and Line Number)
discharge_equivalents	Discharge-equivalents	=all_inpat_discharges*min(10,sum(inpat_totcosts,outpat_totcosts)/inpat_totcosts);
inpat_charges_total	Inpatient charges, total	n10_C000001_00600_20200
outpat_charges_total	Outpatient charges, total	n10_C000001_00700_20200
mdcr_inpat_discharges	Inpatient discharges, Medicare	n96_S300001_1300_01200
all_inpat_discharges	Inpatient discharges (all)	n96_S300001_1500_01200; n10_S300001_01500_01400
mdcr_outpat_charges	Medicare outpatient charges	n96_D00A185_0200_10400; n10_D00A185_00200_20200
mdcr_inpat_revs	Medicare inpatient revenues	=sum(mdcr_inpat_revs_pps_woimeadj, mdcr_inpat_revs_costreimb);
mdcr_outpat_revs	Medicare outpatient revenues	=sum(mdcr_outpat_lesser_costchg,mdcr_outpat_pps_pymts);
gross_patient_rev	Total patient revenues (gross, i.e. charges)	n96_G300000_0100_00100; n10_G300000_00100_00100
mdcr_inpat_charges	Medicare inpatient charges	=sum(mdcr_inpat_charges_adpeds,mdcr_inpat_charges_ICU,mdcr_inpat_charges_CCU,mdcr_inpat_charges_BICU,mdcr_inpat_charges_SICU,mdcr_inpat_charges_OSCU,mdcr_inpat_charges_anc_outp_oth);
mdcd_charges	Medicaid charges	n96_S100000_0100_02800; n10_S100000_00100_00600
schip_charges	Stand-alone SCHIP charges	n96_S100000_0100_02600; n10_S100000_00100_01000
chgs_charity_patients_only10	Total initial obligation (charges) of patients approved for charity care	n10_S100000_00300_02000
stloc_indigent_charges	Charges for patients covered under state or local indigent care program	n96_S100000_0100_02300; n10_S100000_00100_01400
mdcr_adv_charges_est	Estimate of billed charges for services (inpatient plus outpatient) provided to enrollees in Medicare Advantage plans	=sum(mdcr_inpat_charges,mdcr_outpat_charges)*(mdcr_hmo_inpat_days/mdcr_inpat_days);
mdcd_net_revenue_only10	Net revenue from Medicaid	n10_S100000_00100_00200
net_patient_rev	Net patient revenue (charges minus contractual allowances and discounts)	n96_G300000_0100_00300; n10_G300000_00100_00300

Variable Name	Description	Formula or Source (2552 Worksheet, Column, and Line Number)
mdcd_DSH_revenue_only10	DSH or supplemental payments from Medicaid	n10_S100000_00100_00500
schip_net_revenue_only10	Net revenue from stand-alone SCHIP	n10_S100000_00100_00900
stloc_indigent_net_rev_only10	Net revenue from state or local indigent care program	n10_S100000_00100_01300
priv_grants_for_charity_only10	Private grants, donations, or endowment income restricted to funding charity care	n10_S100000_00100_01700
govt_grants_for_uncomp_only10	Government grants, appropriations, or transfers for support of hospital operations	n10_S100000_00100_01800
pymt_insured_charity_only10	Partial payment by insured patients approved for charity care	n10_S100000_00200_02200
mdcr_adv_rev_est	Estimate of revenues for services (inpatient plus outpatient) provided to enrollees in Medicare Advantage plans	=mdcr_adv_charges_est*mdcr_rev_to_charges;

NOTE: DSH = Disproportionate Share Hospital. SCHIP = State Children's Health Insurance Program.

Appendix B. State Summary of Status Quo and Estimated Payment Measures Under Dynamic Leverage Effect Estimation Approach

Table B.1 presents the state-level estimated payments by private plans under the four out-of-network payment limits, with the dynamic leverage effect estimation approach applied.

Table B.1. State Summary of Status Quo and Estimated Payment Measures Under Dynamic Leverage Effect Estimation Approach

		Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
State	*N*	Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Alabama	86	$9,805	$10,777	$12,486	$37,164	$61,784	$9,936	–17%	$10,939	–10%	$9,683	–16%	$12,950	5%
Alaska	16	$23,727	$20,542	$42,489	$64,629	$86,473	$23,458	–45%	$33,860	–24%	$30,957	–25%	$42,630	0%
Arizona	66	$12,580	$15,063	$23,041	$49,067	$75,080	$15,144	–31%	$18,301	–19%	$15,976	–26%	$25,348	10%
Arkansas	72	$9,571	$10,373	$12,925	$28,275	$43,604	$10,132	–20%	$11,692	–9%	$10,089	–20%	$13,938	7%
California	287	$19,533	$17,981	$36,406	$66,842	$96,943	$18,310	–43%	$24,179	–30%	$23,882	–27%	$37,516	6%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Colorado	75	$16,717	$14,314	$29,632	$54,436	$79,021	$14,275	–47%	$18,978	–33%	$19,630	–30%	$31,818	7%
Connecticut	28	$14,942	$14,716	$22,568	$38,225	$53,881	$15,263	–31%	$19,235	–14%	$16,791	–23%	$23,570	6%
Delaware	6	$15,264	$12,978	$25,301	$33,359	$41,418	$14,610	–41%	$20,706	–17%	$19,948	–19%	$24,579	–2%
District of Columbia	6	$18,225	$17,861	$27,097	$51,001	$74,906	$18,240	–30%	$22,419	–16%	$19,472	–23%	$27,764	4%
Florida	181	$11,077	$11,953	$21,595	$50,714	$79,828	$12,075	–41%	$14,631	–30%	$13,873	–32%	$24,647	14%
Georgia	128	$13,028	$12,085	$19,892	$38,665	$57,321	$12,008	–34%	$14,936	–21%	$13,475	–26%	$21,191	7%
Hawaii	17	$19,489	$18,497	$23,103	$37,742	$52,382	$17,110	–21%	$22,031	–4%	$17,004	–21%	$23,489	3%
Idaho	40	$14,371	$11,981	$22,840	$30,983	$38,742	$13,350	–40%	$18,670	–17%	$17,681	–20%	$22,090	–2%
Illinois	172	$13,850	$12,636	$22,357	$40,938	$59,417	$13,178	–39%	$17,007	–23%	$15,544	–27%	$24,078	9%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Indiana	120	$15,077	$12,140	$26,052	$41,750	$57,383	$12,727	–47%	$17,313	–31%	$17,871	–26%	$26,310	4%
Iowa	116	$11,804	$11,395	$16,859	$27,774	$38,652	$12,037	–28%	$15,609	–9%	$12,660	–22%	$17,555	6%
Kansas	133	$13,666	$11,364	$20,352	$37,823	$55,145	$11,900	–40%	$15,233	–24%	$14,029	–27%	$21,203	6%
Kentucky	88	$11,827	$11,246	$18,634	$35,952	$53,259	$11,547	–37%	$14,342	–22%	$13,026	–27%	$19,865	8%
Louisiana	113	$12,965	$13,497	$18,519	$39,057	$59,526	$12,637	–28%	$15,460	–15%	$13,293	–24%	$20,985	11%
Maine	32	$16,116	$11,780	$22,983	$28,175	$32,996	$13,709	–39%	$20,251	–13%	$18,472	–16%	$20,552	–8%
Massachusetts	59	$16,640	$14,989	$21,197	$31,849	$42,356	$15,793	–19%	$20,663	–3%	$16,656	–13%	$20,692	0%
Michigan	129	$12,981	$12,894	$17,273	$29,480	$41,663	$13,103	–22%	$16,318	–6%	$13,177	–19%	$17,729	5%
Minnesota	125	$17,012	$14,866	$25,981	$35,527	$44,858	$16,561	–36%	$23,164	–13%	$20,065	–18%	$24,469	–3%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Mississippi	90	$11,500	$10,416	$15,322	$35,110	$54,889	$10,219	–29%	$12,193	–18%	$10,881	–24%	$16,790	10%
Missouri	105	$13,428	$11,988	$19,821	$36,363	$52,810	$12,313	–36%	$15,577	–21%	$13,958	–26%	$20,828	7%
Montana	58	$16,086	$12,449	$24,178	$30,423	$35,370	$14,165	–39%	$20,572	–14%	$18,697	–19%	$20,752	–12%
Nebraska	87	$16,202	$13,262	$25,984	$36,150	$46,022	$14,860	–41%	$20,934	–20%	$19,814	–21%	$25,482	–1%
Nevada	33	$12,240	$14,318	$21,229	$59,905	$98,581	$13,660	–33%	$15,663	–25%	$14,217	–29%	$23,138	9%
New Hampshire	25	$15,423	$12,248	$23,252	$33,441	$43,622	$13,519	–41%	$18,668	–20%	$17,401	–22%	$22,936	1%
New Jersey	63	$13,315	$13,907	$30,995	$54,682	$78,369	$15,352	–39%	$21,656	–28%	$19,983	–24%	$34,767	9%
New Mexico	34	$13,847	$11,583	$16,430	$29,992	$43,198	$10,785	–28%	$13,210	–16%	$11,698	–22%	$16,856	3%
New York	161	$18,173	$17,261	$23,823	$42,198	$60,287	$16,612	–25%	$20,575	–12%	$17,240	–20%	$23,650	3%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
North Carolina	103	$12,814	$12,004	$21,529	$36,098	$50,615	$12,729	–40%	$16,613	–23%	$15,135	–26%	$22,325	6%
North Dakota	42	$16,684	$13,158	$21,299	$29,002	$36,505	$14,509	–30%	$20,004	–6%	$16,687	–19%	$20,672	–1%
Ohio	163	$13,896	$12,333	$21,641	$38,539	$55,399	$12,867	–37%	$16,534	–22%	$14,852	–25%	$22,110	6%
Oklahoma	112	$12,752	$11,990	$20,179	$41,245	$62,143	$12,191	–38%	$15,085	–24%	$13,702	–28%	$21,754	10%
Oregon	57	$17,185	$15,102	$28,870	$36,730	$44,220	$17,235	–40%	$24,859	–15%	$23,299	–18%	$27,106	–5%
Pennsylvania	158	$13,472	$12,973	$20,551	$46,243	$71,895	$13,076	–33%	$15,865	–21%	$14,300	–25%	$22,215	10%
Rhode Island	11	$15,454	$14,054	$19,396	$33,606	$47,815	$14,461	–25%	$17,995	–8%	$14,828	–22%	$20,822	8%
South Carolina	58	$13,568	$11,550	$22,520	$41,473	$60,419	$12,142	–44%	$15,633	–30%	$15,156	–30%	$24,748	11%
South Dakota	55	$15,944	$12,163	$23,906	$34,816	$45,061	$13,331	–43%	$18,230	–23%	$17,717	–23%	$23,282	–2%

State	N	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Tennessee	104	$11,391	$11,913	$18,576	$39,305	$60,011	$12,025	–33%	$14,555	–21%	$12,768	–27%	$19,874	8%
Texas	375	$13,114	$12,112	$20,140	$46,550	$72,756	$11,489	–36%	$14,166	–26%	$12,740	–29%	$22,316	10%
Utah	45	$14,014	$13,090	$23,359	$33,235	$43,070	$14,381	–39%	$19,776	–16%	$18,108	–21%	$23,343	0%
Vermont	14	$17,361	$12,607	$23,288	$28,981	$34,455	$14,392	–37%	$20,764	–11%	$18,743	–16%	$21,143	–6%
Virginia	78	$13,043	$11,846	$21,922	$38,208	$54,488	$12,584	–42%	16,452	–25%	$15,469	–27%	$23,706	9%
Washington	87	$17,948	$14,868	$29,120	$44,288	$59,344	$16,334	–43%	$22,429	–24%	$20,645	–24%	$28,536	2%
West Virginia	48	$13,955	$11,780	$24,503	$33,554	$42,436	$13,175	–45%	$18,716	–24%	$18,526	–21%	$23,418	–2%
Wisconsin	123	$16,426	$12,387	$26,479	$36,085	$45,259	$13,937	–45%	$19,737	–24%	$19,886	–20%	$24,839	–3%
Wyoming	26	$18,730	$13,690	$26,819	$34,481	$42,074	$15,775	–41%	$23,028	–15%	$21,449	–17%	$25,255	–4%

State	*N*	Status Quo, 2017: Marginal Operating Cost per DE	Status Quo, 2017: Medicare Payment per DE	Status Quo, 2017: Private Plan Payment per DE	Status Quo, 2017: Effective OON Price per DE	Status Quo, 2017: Charges per DE	Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits per DE: Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
United States	4,410	$12,332	$13,441	$23,110	$42,548	$61,853	$13,789	–40%	$17,758	–23%	$16,150	–30%	$24,115	4%

NOTE: *N* = Number. The state of Maryland is excluded from this analysis because hospitals in Maryland are subject to a unique all-payer rate-setting policy that would likely continue under a federal policy change.

Appendix C. State Summary of Status Quo and Estimated Payment Measures Under Ceiling Effect Estimation Approach

Table C.1 presents the state-level estimated payments by private plans under the four out-of-network payment limits, with the ceiling effect estimation approach applied.

Table C.1. State Summary of Status Quo and Estimated Payment Measures Under Ceiling Effect Estimation Approach

		Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
State	*N*	Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Alabama	86	$9,805	$10,777	$12,486	$37,164	$61,784	$11,727	–4%	$12,311	0%	$10,411	–8%	$12,321	0%
Alaska	16	$23,727	$20,542	$42,489	$64,629	$86,473	$25,530	–38%	$38,932	–7%	$38,845	–6%	$41,428	–1%
Arizona	66	$12,580	$15,063	$23,041	$49,067	$75,080	$17,924	–18%	$22,044	–2%	$20,120	–8%	$22,799	0%
Arkansas	72	$9,571	$10,373	$12,925	$28,275	$43,604	$12,095	–6%	$12,910	0%	$11,683	–7%	$12,907	0%
California	287	$19,533	$17,981	$36,406	$66,842	$96,943	$21,018	–34%	$30,421	–10%	$28,843	–11%	$35,103	–1%

State	N	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Colorado	75	$16,717	$14,314	$29,632	$54,436	$79,021	$16,457	–40%	$25,060	–13%	$25,599	–10%	$29,557	0%
Connecticut	28	$14,942	$14,716	$22,568	$38,225	$53,881	$18,085	–18%	$22,330	–1%	$20,215	–8%	$22,503	0%
Delaware	6	$15,264	$12,978	$25,301	$33,359	$41,418	$16,223	–34%	$24,129	–4%	$23,568	–6%	$25,094	–1%
District of Columbia	6	$18,225	$17,861	$27,097	$51,001	$74,906	$21,773	–16%	$27,097	0%	$22,861	–11%	$27,097	0%
Florida	181	$11,077	$11,953	$21,595	$50,714	$79,828	$14,691	–28%	$20,348	–4%	$18,973	–8%	$21,330	0%
Georgia	128	$13,028	$12,085	$19,892	$38,665	$57,321	$13,899	–24%	$18,410	–5%	$16,664	–10%	$19,836	0%
Hawaii	17	$19,489	$18,497	$23,103	$37,742	$52,382	$19,433	–12%	$23,061	0%	$18,994	–13%	$22,948	0%
Idaho	40	$14,371	$11,981	$22,840	$30,983	$38,742	$14,889	–33%	$21,758	–4%	$20,710	–7%	$22,486	–1%
Illinois	172	$13,850	$12,636	$22,357	$40,938	$59,417	$15,400	–28%	$21,136	–4%	$19,338	–9%	$22,326	0%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Indiana	120	$15,077	$12,140	$26,052	$41,750	$57,383	$14,469	–40%	$22,168	–12%	$22,251	–9%	$25,555	–1%
Iowa	116	$11,804	$11,395	$16,859	$27,774	$38,652	$13,936	–16%	$16,736	–1%	$15,090	–6%	$16,736	0%
Kansas	133	$13,666	$11,364	$20,352	$37,823	$55,145	$14,118	–28%	$19,704	–3%	$17,935	–8%	$20,281	0%
Kentucky	88	$11,827	$11,246	$18,634	$35,952	$53,259	$13,883	–24%	$18,304	–1%	$16,490	–8%	$18,602	0%
Louisiana	113	$12,965	$13,497	$18,519	$39,057	$59,526	$14,757	–15%	$17,808	–1%	$15,675	–10%	$18,227	0%
Maine	32	$16,116	$11,780	$22,983	$28,175	$32,996	$14,705	–32%	$21,513	–4%	$19,205	–10%	$20,374	–7%
Massachusetts	59	$16,640	$14,989	$21,197	$31,849	$42,356	$16,835	–11%	$19,633	–3%	$16,337	–10%	$18,715	–4%
Michigan	129	$12,981	$12,894	$17,273	$29,480	$41,663	$15,141	–10%	$17,177	0%	$15,003	–8%	$17,009	–1%
Minnesota	125	$17,012	$14,866	$25,981	$35,527	$44,858	$18,552	–27%	$25,213	–2%	$22,294	–9%	$24,684	–3%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Mississippi	90	$11,500	$10,416	$15,322	$35,110	$54,889	$12,234	–15%	$14,739	–1%	$13,284	–8%	$15,041	0%
Missouri	105	$13,428	$11,988	$19,821	$36,363	$52,810	$14,632	–24%	$19,234	–2%	$17,187	–9%	$19,819	0%
Montana	58	$16,086	$12,449	$24,178	$30,423	$35,370	$15,333	–33%	$22,335	–5%	$20,507	–11%	$22,312	–5%
Nebraska	87	$16,202	$13,262	$25,984	$36,150	$46,022	$16,505	–34%	$23,819	–7%	$23,351	–7%	$25,675	–1%
Nevada	33	$12,240	$14,318	$21,229	$59,905	$98,581	$16,679	–19%	$21,087	0%	$19,279	–7%	$21,197	0%
New Hampshire	25	$15,423	$12,248	$23,252	$33,441	$43,622	$15,303	–33%	$22,464	–3%	$20,909	–7%	$23,047	–1%
New Jersey	63	$13,315	$13,907	$30,995	$54,682	$78,369	$16,863	–27%	$22,785	–5%	$22,480	–5%	$24,449	–2%
New Mexico	34	$13,847	$11,583	$16,430	$29,992	$43,198	$12,209	–18%	$15,037	–6%	$13,576	–11%	$16,310	0%
New York	161	$18,173	$17,261	$23,823	$42,198	$60,287	$18,982	–16%	$23,418	–1%	$19,482	–10%	$23,686	0%

State	N	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
North Carolina	103	$12,814	$12,004	$21,529	$36,098	$50,615	$14,957	–28%	$20,926	–2%	$18,568	–10%	$21,510	0%
North Dakota	42	$16,684	$13,158	$21,299	$29,002	$36,505	$16,384	–20%	$20,816	–1%	$19,179	–7%	$20,784	–1%
Ohio	163	$13,896	$12,333	$21,641	$38,539	$55,399	$15,072	–26%	$20,484	–3%	$17,954	–9%	$21,239	–1%
Oklahoma	112	$12,752	$11,990	$20,179	$41,245	$62,143	$14,745	–25%	$19,705	–3%	$17,656	–8%	$20,136	0%
Oregon	57	$17,185	$15,102	$28,870	$36,730	$44,220	$18,869	–34%	$27,595	–4%	$26,192	–8%	$28,716	0%
Pennsylvania	158	$13,472	$12,973	$20,551	$46,243	$71,895	$15,719	–19%	$19,899	–2%	$16,974	–11%	$20,528	0%
Rhode Island	11	$15,454	$14,054	$19,396	$33,606	$47,815	$17,288	–10%	$19,396	0%	$17,216	–9%	$19,396	0%
South Carolina	58	$13,568	$11,550	$22,520	$41,473	$60,419	$14,386	–33%	$20,490	–7%	$19,802	–9%	$22,520	0%
South Dakota	55	$15,944	$12,163	$23,906	$34,816	$45,061	$15,204	–34%	$21,833	–7%	$21,556	–6%	$23,371	–1%

State	N	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
Tennessee	104	$11,391	$11,913	$18,576	$39,305	$60,011	$14,586	–18%	$18,373	–1%	$15,946	–10%	$18,570	0%
Texas	375	$13,114	$12,112	$20,140	$46,550	$72,756	$13,588	–25%	$18,328	–5%	$16,546	–10%	$19,900	0%
Utah	45	$14,014	$13,090	$23,359	$33,235	$43,070	$16,316	–30%	$22,862	–2%	$21,708	–6%	$23,344	0%
Vermont	14	$17,361	$12,607	$23,288	$28,981	$34,455	$15,759	–30%	$23,077	0%	$20,205	–9%	$21,831	–4%
Virginia	78	$13,043	$11,846	$21,922	$38,208	$54,488	$14,795	–31%	$20,925	–4%	$19,290	–9%	$21,917	0%
Washington	87	$17,948	$14,868	$29,120	$44,288	$59,344	$18,539	–34%	$27,240	–4%	$24,837	–8%	$27,911	–2%
West Virginia	48	$13,955	$11,780	$24,503	$33,554	$42,436	$14,550	–38%	$22,208	–8%	$21,223	–10%	$24,257	0%
Wisconsin	123	$16,426	$12,387	$26,479	$36,085	$45,259	$15,447	–37%	$22,994	–10%	$22,801	–9%	$25,536	–1%
Wyoming	26	$18,730	$13,690	$26,819	$34,481	$42,074	$17,104	–35%	$25,248	–5%	$24,201	–6%	$25,560	–2%

State	*N*	Status Quo, 2017					Estimated Payment by Private Plans and Percentage Change from Status Quo Under Out-of-Network Payment Limits							
		Marginal Operating Cost per DE	Medicare Payment per DE	Private Plan Payment per DE	Effective OON Price per DE	Charges per DE	Payment Limit: 125 Percent of Medicare Payments		Payment Limit: 200 Percent of Medicare Payments		Payment Limit: State Average Private Plan Payment		Payment Limit: 80 Percent of State Average Charges	
							$	%	$	%	$	%	$	%
United States	4,410	$14,435	$13,441	$23,110	$42,548	$61,853	$15,961	–25%	$21,359	–4%	$19,438	–9%	$22,476	–1%

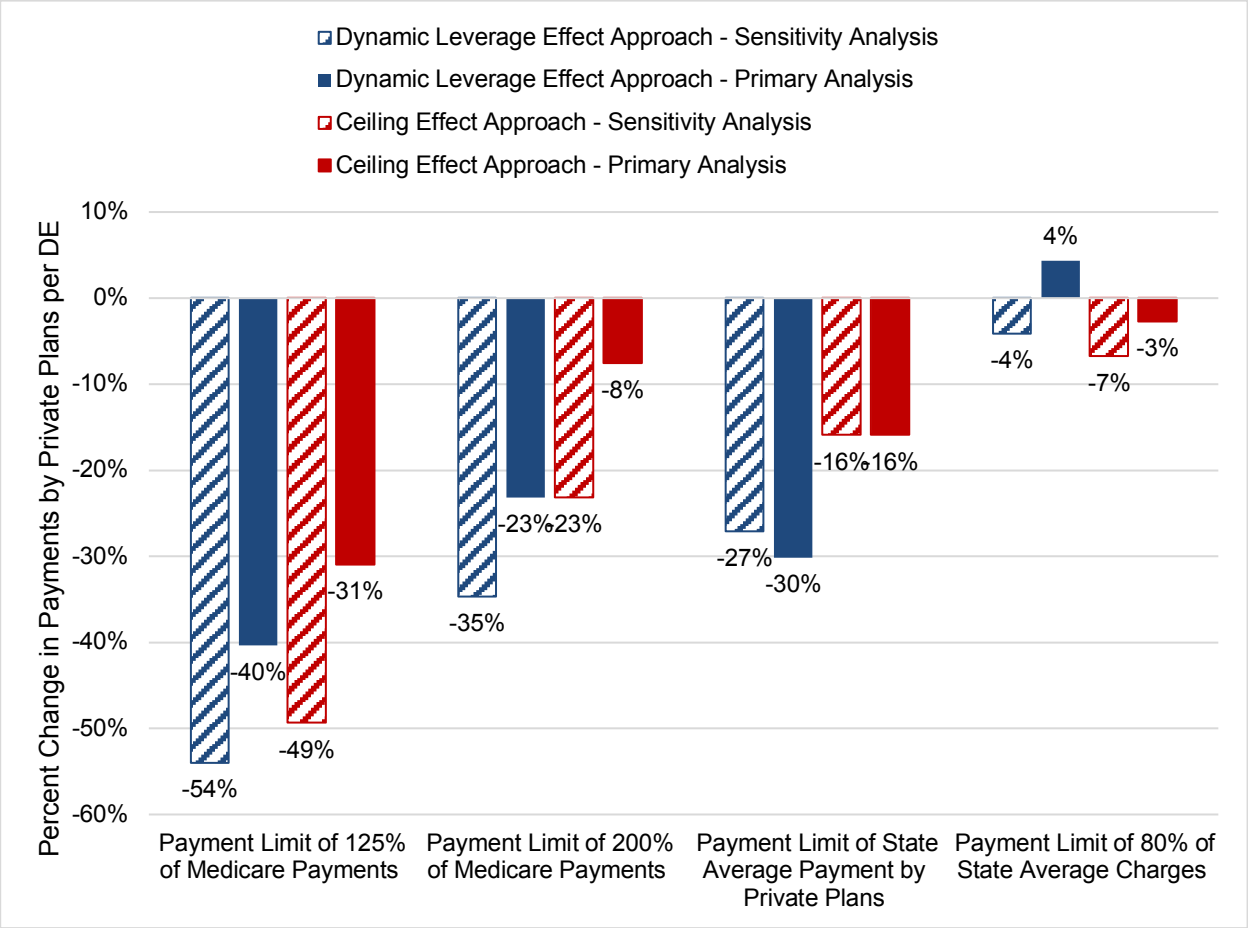
NOTE: *N* = Number. The state of Maryland is excluded from this analysis because hospitals in Maryland are subject to a unique all-payer rate-setting policy that would likely continue under a federal policy change.

Appendix D. Sensitivity Analysis of Status Quo Payment by Private Plan Estimate

A recent RAND study of an employer-led hospital price transparency initiative (White and Whaley, 2019) reported payments by private plans that are approximately 40 percent higher than those derived from HCRIS in our study. We estimated that payments by private plans are 1.72 times the magnitude of Medicare payments, and White and Whaley, 2019, estimates that private plans pay 2.41 times Medicare. Differences in the measurement of private plan payment and sample that could account for the lower estimated payment by private plans in our study are enumerated in Chapter 2.

As a sensitivity analysis, we increased each hospital's estimated status quo private plan payment derived from HCRIS by 40 percent, then applied this value in the application of the dynamic leverage and ceiling effect approaches to estimating negotiated payments under out-of-network payment limits. The national average status quo payment by private plans is estimated to be $32,381 (increased from $23,110) and the status quo effective out-of-network payment is estimated to be $47,504 (increased from $42,548). Applying these values, we estimated larger reductions in negotiated payments than in the analyses where lower values for private plan payments are used, as shown in Figure D.1.

Figure D.1. National Average of Hospital-Level Percentage Change in Payments by Private Plans per Discharge Equivalent Between Status Quo and Payment Limit Scenarios, Applying Alternative Estimates of Status Quo Payments by Private Plans



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About the Authors

Erin L. Duffy is an adjunct policy researcher at the RAND Corporation. Her current research focus is consumer financial liability for involuntary out-of-network health care utilization—a phenomenon coined "surprise" medical billing. She also conducts qualitative and quantitative research on health system performance, strategies for health care cost containment, provider payment policies, and socioeconomic and racial disparities in health outcomes. Duffy holds a Ph.D. in policy analysis.

Christopher Whaley is an associate policy researcher at RAND. His research focuses on using large-scale medical claims data to examine how information and financial incentives influence patients' choice of providers and the associated quality effects of provider choice, how providers respond to changes in consumer incentives, and what explains heterogeneous responses to cost and information programs across diverse patient populations. Whaley holds a Ph.D. in health economics.

Chapin White is a health policy researcher who specializes in health economics. In his role at RAND as a senior policy researcher, White combined quantitative and qualitative methods and focused on provider payment reform and the implementation and impacts of the Affordable Care Act. White holds a Ph.D. in health policy.