Research Report

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Prices Paid to Hospitals by Private Health Plans

Findings from Round 5.1 of an Employer-Led Transparency Initiative

For more information on this publication, visit **www.rand.org/t/RRA1144-2-v2**.

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About This Report

Approximately 160 million Americans receive health insurance coverage through an employer or a union. Self-funded employers typically rely on insurance carriers and third-party administrators to negotiate prices and manage benefits but often have little insight into the prices negotiated on their behalf. Information on prices has not been traditionally available in a manner that allows employers and health care purchasers to easily compare provider prices.

We used 2020 to 2022 medical claims data from all U.S. states (except Maryland, which has an all-payer rate setting program) covering hospital and other provider spending to document variation in negotiated prices for the commercially insured population. We found wide variation in hospital prices across and within states, even after adjusting for geographic differences in cost of living. In 2022, case mix–adjusted hospital prices were below 200 percent of Medicare prices in Arkansas, Massachusetts, Michigan, Mississippi, and Rhode Island, and were above 300 percent of Medicare in California, Delaware, Florida, Georgia, New York, South Carolina, West Virginia, and Wisconsin. Washington's relative prices appeared significantly lower in the previous round of this study (Round 4, 2018–2020 data), mainly because some Medicare Advantage claims were erroneously included in that round from Washington's all-payer claims database. That error has been corrected in this study.

We have republished this Round 5.1 report in December 2024 after originally publishing the Round 5.0 report in May 2024 (Round 5.0 and Round 5.1 use 2020–2022 data). Updates have been made to both this report and its accompanying supplemental spreadsheet annex. Updates include removing duplicate claims that were previously used in the 5.0 version, adding more claims missing from the 5.0 analysis, and correcting inpatient claims from one data source. The net effect of removing duplicate claims and adding more claims is to increase the total number and dollar value of claims under analysis (see the "Study Sample" section in Chapter 3). These updates are mostly marginal changes for each hospital, system, and state that, in turn, changed some relative price rankings and national averages. Alabama hospitals and their state average changed after fixing a data error from one data contributor covering several employers that operate in Alabama, Florida, Georgia, Iowa, Illinois, Louisiana, Missouri, Mississippi, Ohio, Tennessee, and Texas. These claims data erroneously repeated total allowed amounts in each line of each claim, causing Round 5.0 to overstate inpatient claims volume and relative prices. Round 5.1 has corrected this error by deleting duplicate allowed amounts in each claim. We have also added hospital emergency department (ED) relative prices and a nominal average price index to Table 7 of the supplemental spreadsheet annex in addition to related methods notes in the supplemental file and in this report's appendix.

This report contains a high-level summary of findings. A supplemental spreadsheet annex provides additional detail (available online at www.rand.org/t/RRA1144-2-v2). This report follows four previous RAND studies on hospital prices and extends these studies by examining additional data sources, more-recent data, and prices for more providers than were previously analyzed. Furthermore, this report contains high-level information on prices for administered drugs. Unlike

many other studies that have examined health care price variation, we report average prices specific to named hospitals and groups of hospitals under joint ownership (*hospital systems*). The price information in this report can help employers and other purchasers of health care assess the prices that they pay for health care services. This report can also help contribute to policy discussions on hospital prices and health care prices for privately insured Americans.

This research was funded by the Robert Wood Johnson Foundation and participating employers and was carried out within the Payment, Cost, and Coverage Program in RAND Health Care and in collaboration with the Employers' Forum of Indiana (EFI).

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Summary

Background

Employers play a critical role in providing health benefits to more than half of the American population, thereby financing a significant portion of the U.S. health care system. Employers not only pay for health benefits for employees, but they also select which health plans to offer employees. To administer and design these employee benefits, employers often rely on third-party administrators, brokers, and consultants but usually have little insight into how their health benefit costs compare with what other employers are paying.

Over the past decade, nominal total premiums for employer-sponsored insurance plans have increased by approximately 50 percent. The total premium for a family coverage employer-sponsored insurance plan increased from $16,350 in 2013 to nearly $24,000 in 2023 (Claxton et al., 2023). One of the largest contributors to spending increases among privately insured populations is hospital price increases (Cooper et al., 2019a). In 2022, spending on hospital services accounted for 42 percent of total personal health care spending for privately insured individuals—approximately $486 billion (Centers for Medicare & Medicaid Services, 2023). Although many studies examine the variation in prices paid by private health insurers to providers, transparent information on hospital-specific and other provider-specific prices is not commonly available to those who purchase health benefits.

A defining characteristic of the U.S. health care system is the wide variation in prices both within and across markets (Anderson, Hussey, and Petrosyan, 2019; Anderson et al., 2003; Cooper et al., 2019b). Although some price transparency programs and tools have increased the availability of information about procedure-level prices to patients, employers do not commonly have practically useful information about the prices negotiated on their behalf—for example, the aggregate price levels of competing hospitals. Since 2021, federal policies have required hospitals to post prices for common services, through requirements that hospitals post prices for at least 300 shoppable services and that insurers post their full set of negotiated rates (U.S. Department of the Treasury, U.S. Department of Labor, and U.S. Department of Health and Human Services, 2020). Although illustrative, publicly posted price data have significant gaps in reporting. Many hospitals have not complied with these policies, and insurer-posted data contain duplicative information that often makes file sizes so large that they are difficult to use (McGinty, Mathews, and Evans, 2021; Nikpay et al., 2021; Whaley, 2023).

Goals and Approach

We designed this study to help fill this knowledge gap. Because hospitals account for the largest share of health care spending, this report focuses primarily on price variations in hospital services and for providers that frequently compete with hospitals for outpatient care. Employers can use this report

to become better-informed purchasers of health benefits and to evaluate whether the prices negotiated on their behalf align with other employers' prices paid to the same providers or to alternative providers within their markets. With this information, weighed together with quality and convenience information, employers can independently assess whether the prices they pay are reasonable. For broader policy and research audiences, the information in this report also highlights the levels and variations in hospital prices paid by employers and private insurers.

To shed light on these prices, we collected and analyzed claims data, including provider identifiers and allowed amounts, for enrollees in employer-sponsored health benefit plans from three types of data sources:

- self-insured employers that chose to participate in the study and that provided claims data for their enrollees
- state-based all-payer claims databases (APCDs) from Arkansas, Colorado, Connecticut, Delaware, Maine, Minnesota, New Hampshire, Oregon, Rhode Island, Utah, Vermont, and Washington
- health plans that chose to participate.

Together, these data sources include hospital and associated spending from more than 4,000 hospitals in all 50 states (except Maryland) from 2020 to 2022. At a national level, the final sample represents approximately 6 percent of U.S. commercial insurance hospital spending. We include facility and professional claims for inpatient and outpatient services provided by both Medicare-certified short-stay hospitals and other facility types, including ambulatory surgical centers (ASCs), which are free-standing facilities that perform outpatient surgical services. For each private claim, we reprice the service (i.e., we estimate what Medicare would have paid for that same service at that same time and location) using Medicare's grouping and pricing algorithms, which combine claim-level line items into procedural groupings. We report price levels and trends for states, hospitals, *hospital systems* (i.e., groups of hospitals under joint ownership), and other provider types (e.g., ASCs), all of which we identify by name.

We calculate and report the following two types of hospital prices:

- *standardized prices*, meaning the average allowed amount per standardized unit of service, where services are standardized using Medicare's relative weights
- *relative prices*, meaning the actual private insurer–allowed amount divided by the Medicare-allowed amount for the same services at the same hospital.

Relative prices have the advantage of incorporating all of Medicare's adjustments for case mix, wages, and inflation. Furthermore, relative prices are comparable across service lines (e.g., inpatient versus outpatient). Medicare prices are designed to provide modest profit margins for efficient hospitals (Medicare Payment Advisory Commission, 2022). Relative price comparisons also allow for an easier price comparison across hospitals and geographies because we are comparing intensity-weighted price ratios relative to Medicare rather than absolute price differences for specific services. We use Medicare prices as a common benchmark to compare many kinds of commercial prices, but we do not propose any percentage of Medicare price that employers *should* be paying hospitals and

other health care providers—instead, we focus on disclosing variations in private prices so that employers and others can assess value for themselves.

Additional Price Measures

In addition to hospital and health system–specific price measures, we include two price measures that were not analyzed in previous rounds of this study. First, we compare prices for common outpatient surgeries performed in ASCs with prices for hospital outpatient departments (HOPDs), which are outpatient departments connected to a hospital. ASCs and HOPDs frequently compete for outpatient procedures, but price differences between these two organizations have neither been publicly available nor well understood. Second, a growing concern for employers is high and rising prices for specialty prescription drugs—particularly those that are administered by clinicians (Schilling, undated). In this report, we compare prices for drugs administered in hospital settings with those that are administered in physician offices.

Key Findings

This report's key findings are as follows:

- In 2022, states with commercial prices averaging below 200 percent of Medicare prices were Arkansas, Massachusetts, Michigan, Mississippi and Rhode Island. Washington's relative prices appeared significantly lower in the previous round of this study (Round 4, 2018–2020 data), mainly because some Medicare Advantage claims were erroneously included in that round from Washington's APCD dataset. That error has been corrected in this study. States with commercial prices averaging above 300 percent of Medicare were California, Delaware, Florida, Georgia, New York, South Carolina, West Virginia, and Wisconsin.
- In 2022, across all hospital inpatient and outpatient services (including both facility and related professional claims), employers and private insurers paid, on average, 254 percent of what Medicare would have paid for the same services at the same facilities. That year, relative prices for inpatient hospital facility services averaged 254 percent of Medicare prices, outpatient hospital facility services averaged 279 percent, and all associated professional services (inpatient plus outpatient) averaged 184 percent of what Medicare would have paid for the same services.
- Changes in the composition of data contributors can introduce changes into the study sample and lead to differences in prices across the five study rounds. However, state-level median prices have remained stable across study rounds—254 percent of Medicare prices in 2018 (Round 3, 2016–2018 data), 246 percent in 2020 (Round 4), and 253 percent in 2022 (Round 5.1—the current study, 2020–2022 data).
- In 2022, prices for common outpatient services performed in ASCs averaged 170 percent of Medicare prices but, because of differences in Medicare payment models between ASCs and HOPDs, would have averaged approximately 107 percent of Medicare prices if paid using Medicare payment rates for HOPDs.

- Weighting each state's prices equally, commercial insurance prices for select administered drugs received in a hospital setting averaged 281 percent of the average sales price (ASP) compared with 106 percent of ASP paid by Medicare.
- Very little variation in prices is explained by each hospital's share of patients covered by Medicare or Medicaid, although a larger portion of price variation is explained by hospital market power.

Implications

Because employer-sponsored health care spending is part of employee wages and benefits, employers have a fiduciary responsibility to administer benefits "solely in the interest of participants and beneficiaries" (U.S. Department of Labor, undated). Employers and policymakers are unable to fulfill this obligation to their workforce without transparent and usable price transparency data. For many employers, the prices they and their employees pay for hospital care may represent the value (e.g., quality of care, access to specialty providers, breadth of network options) delivered by hospitals. Employers that believe that the prices they pay exceed the value they receive may wish to use these data and other information to negotiate lower health care prices. For those employers, negotiating prices based on contextualized data presents a practical way to reduce health care spending. Where quality and convenience are comparable, employers can use network and benefit design approaches to move patient volume away from higher-priced, lower-value hospitals and hospital systems and toward lower-priced, higher-value providers. Employers can also use this information to reformulate how contracts are negotiated on their behalf.

These types of changes are not possible without easily accessible, usable, transparent information on the prices paid to providers. However, price transparency alone will not lead to changes if employers do not or cannot act on price information. In some cases, employers might need state or federal policy interventions to rebalance negotiating leverage between hospitals and their health plans. Such interventions could include addressing noncompetitive health care markets, placing limits on payments for out-of-network hospital care, or allowing employers to buy into Medicare or another public option that pays providers the prices that are some multiple of what Medicare has set.

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Chapter 1

Background

Employers Bear Responsibility for Health Care Costs but Have Limited Access to Useful Information on Hospital Prices

Employers in the United States provide health insurance as an important benefit for more than 150 million Americans. In 2022, employer-sponsored insurance accounted for $1.3 trillion in spending, of which $486 billion was spent on hospitals (Centers for Medicare & Medicaid Services [CMS], 2023). The average annual premium (employer plus worker contributions) for a family employer-sponsored insurance plan was nearly $24,000 in 2023 (Claxton et al., 2023). Employees bear the costs of employer-sponsored health benefits through a combination of employee premium contributions, employee out-of-pocket costs, and employer contributions for health care that take the place of other forms of compensation, such as wages and retirement benefits (Arnold and Whaley, 2020; Baicker and Chandra, 2006).

There are two primary sources of employer-sponsored insurance: *fully insured* plans, in which employers pay state-regulated insurers a fixed premium per enrollee to provide benefits, and *self-insured* plans, in which employers are financially responsible for covered benefits but contract with third-party administrators (TPAs) to administer the plan and process claims. Although employers that sponsor self-funded plans bear risk for health care spending, many employers do not have the analytic or contracting expertise to negotiate the prices that they pay to providers. Instead, most self-funded employers rely on TPAs and insurers to negotiate contracts with providers (Whaley, Sachdev, et al., 2022). Employers commonly do not have access to critical information on the prices negotiated on their behalf. Additionally, many contracts between large provider systems and insurers have traditionally included *gag clauses* that prohibit sharing detailed pricing information with employers or patients, although federal legislation has prohibited the use of such gag clauses (Catalyst for Payment Reform, 2020). The lack of insight into negotiated prices limits employers' ability to prudently purchase health benefits and act as a responsible fiduciary of plan benefits.

A growing body of evidence highlights the wide variation in prices among the privately insured population (Chernew, Hicks, and Shah, 2020; Cooper et al., 2019a; Neprash et al., 2015). If price variation follows variations in underlying hospital quality, performance, or access, then price variation might simply reflect the underlying complexity of hospital markets (Garthwaite, Ody, and Starc, 2020). However, if price variation instead is driven by such factors as market power or negotiation ability, then addressing unwarranted variation in prices is important for employers and purchasers. Unfortunately, without access to data on hospital price and quality, employers are unable to weigh trade-offs to inform price negotiations.

Federal policies have sought to improve the transparency of prices in this market but have had little success. CMS policies require hospitals to post prices for common services. However, hospitals

are largely noncompliant, and CMS has been reluctant to enforce these requirements (Patient Rights Advocate, 2023). Penalties for noncompliance are low, and many hospitals do not post price information (Gondi et al., 2021). Some hospitals have sought to further hide price information from search results (McGinty, Mathews, and Evans, 2021). CMS also requires insurers to post their full set of negotiated rates. However, these data have not been useful, largely because of their size and complexity and because they lack context on service quantities and include data for providers that do not perform services (U.S. Department of the Treasury, U.S. Department of Labor, and U.S. Department of Health and Human Services, 2020; Chartock, Simon, and Whaley, 2023).

Other efforts have attempted to provide price information to patients through online tools and mobile applications. However, despite their innovative approaches, these tools have had only modest impacts (Desai et al., 2016; Desai et al., 2017; Whaley et al., 2014). Nearly all Americans with commercial insurance already have access to a consumer-facing price transparency tool, although these tools vary in their usability and features (Phillips and Labno, 2014). Even with access to price information, patients face nonprice information and access barriers to shopping for health care providers in the same ways that they do for other goods and services (Chernew et al., 2021). Furthermore, existing patient-focused price transparency tools are of limited use for employer health benefit design or negotiations.

Employers are typically wary of limiting the network of providers available to their employees, and the lack of price transparency further undermines self-insured employers' efforts to limit their insurance networks to lower-priced, high-quality hospitals. This lack of information also limits the ability of employers to monitor the prices negotiated on their behalf, to implement innovative insurance benefit designs, and to see whether insurers are negotiating favorable prices. Because employers are important buyers of health care services, equipping them with useful information on provider prices can help them to demand increased value from the health care system.

Although hospitals are just one component of the health care system, they account for 38 percent of total health care spending for the privately insured population (CMS, 2023). Hospital price increases have been identified in previous research as a key contributor to rising health care costs among the privately insured population (Cooper et al., 2019a; Health Care Cost Institute, 2019). Furthermore, the prices that employers and other private insurers pay for hospital services have grown even faster than price growth in public plans (Selden et al., 2015). Despite their importance, the prices that private health plans pay for hospital care have been characterized as "chaos behind a veil of secrecy" (Reinhardt, 2006).

The disparity in prices between private and public plans has been linked to provider consolidation that increases hospital price negotiation leverage (Berenson, Ginsburg, and Kemper 2010; Berenson et al., 2012; Gaynor, Ho, and Town, 2015). Despite higher prices, hospital consolidation has not been linked to either improved quality outcomes or to operating efficiency, and higher-priced providers often do not have higher quality than lower-priced providers (Beaulieu et al., 2020; Crespin and Whaley, 2023; Schmitt, 2017; Whaley, 2018a). Some evidence suggests that there have been improvements in quality among rural hospitals (Jiang et al., 2021). When the variation in hospital prices is not tied to commensurate differences in quality, then a portion of the prices that employers paid to higher-priced hospitals might constitute wasteful spending. At the same time, other studies have documented large price differences between hospitals and nonhospital sites of care (e.g.,

ambulatory surgical centers [ASCs] and free-standing imaging or laboratory testing centers), even though many nonhospital sites of care provide equivalent or higher-quality services than those provided in hospitals. For example, other studies find that, relative to hospital outpatient departments (HOPDs), ASCs are associated with lower complication rates but similar patient satisfaction rates (Gardner et al., 2005; Grisel and Arjmand, 2009; Munnich and Parente, 2014; Whaley, 2018b).

This variation in hospital prices is both a cause of high health care spending among the privately insured population and a potential opportunity for savings. Reducing the use of higher-priced hospitals and moving patient volume outside of hospitals to lower-priced sites of care is a potential way for employers to reduce health care spending without sacrificing quality. Likewise, employers taking a more active role in bargaining prices and monitoring the prices negotiated on their behalf can also lead to health care spending reductions for employers and their employees.

Scope and Contribution of the Study

This study builds on four previous studies that examined variation in hospital facility prices in Indiana (White, 2017), in 25 states (White and Whaley, 2019), and in 49 states over the 2016 to 2018 period (Whaley et al., 2020) and the 2018 to 2020 period (Whaley, Briscombe, et al., 2022). This series of reports is designed to provide a different, previously unavailable type of price transparency. Although existing price transparency tools provide a multitude of service-specific prices, they do not easily identify higher- and lower-priced providers for broad baskets of services. This absence of easily interpretable price rankings limits the ability of employers to knowledgeably develop or implement benefit design decisions. This report is designed to allow an easy comparison of hospital prices using a single metric. Employers can use this information to track and compare prices, which can help them assess the value of hospitals in their market.

This study extends these prior reports by expanding the analysis to 2020 to 2022, adding data for additional populations, and including variation in prices for nonhospital services. Because of the expanded study sample, the results of this report may not be directly comparable to previous reports. In particular, the inclusion of additional data from state all-payer claims databases (APCDs) allows for inclusion of more data from individual and fully insured insurance plans, which tend to have slightly lower prices than self-funded plans (Craig, Ericson, and Starc, 2018; Sen, Chang, and Hargraves, 2023). We examine differences in prices paid by private health plans for hospital inpatient, hospital outpatient, and nonhospital services relative to how much Medicare would have paid for the same services at the same facilities. Hospital inpatient services involve a stay of at least one night with a doctor's order for formal admission and discharge, whereas hospital outpatient services are typically provided on an ambulatory basis. Examples of common inpatient services provided to the privately insured include childbirth, knee replacements, and septicemia treatment. Examples of common hospital outpatient services include imaging, emergency department (ED) visits, and colonoscopies. For several services provided in HOPDs, we also compare prices for the same types of services provided in ASCs, which are freestanding surgical centers not attached to a hospital.

For hospitals, we limit the analysis to *community hospitals*, which we define as Medicare-certified nonfederal short-stay general hospitals. Community hospitals include academic medical centers but exclude specialty hospitals (such as cancer hospitals, psychiatric hospitals, long-term care hospitals,

and children's hospitals), skilled nursing facilities, inpatient rehabilitation facilities, and U.S. Department of Veterans Affairs facilities. The two most common types of hospitals are those paid under Medicare's inpatient prospective payment system (IPPS) and critical access hospitals (CAHs). To qualify as a CAH, a hospital must be very small and located in a rural area. Together, IPPS hospitals and CAHs comprise community hospitals—the population of interest for this study. We also include outpatient surgical services performed in nonhospital ASCs. ASCs can either be independent or owned in part by a hospital. They commonly compete with hospitals to provide outpatient surgical care (Munnich et al., 2021).

While other studies have examined variation in hospital prices (Cooper et al., 2019b; Franzini et al., 2014; Ginsburg, 2010; Maeda and Nelson, 2017; Selden et al., 2015; Weber et al., 2021; White, Reschovsky, and Bond, 2014), these studies generally analyze and report market- or state-level average hospital prices and do not report hospital-specific prices. This study extends the existing literature on hospital prices using claims data from a large population of privately insured individuals, including hospitals and other facilities from across the United States. An important innovation of this study is that our data use agreements (DUAs) allow us to report by name the hospitals and *hospital systems* (hospitals under joint ownership) whose prices we have analyzed. The ability to name prices for specific providers is rare among similar studies. DUAs for claims data used by other research studies commonly prohibit the identification of specific providers.

Chapter 2

Data and Methods

Data Sources

Medical Claims Data

The medical claims data in our analytic dataset were aggregated from several sources. First, we included claims data from self-insured employers that chose to participate in the study. The participating self-insured employers represent a variety of industries, including state and local governments, manufacturing, and higher education, and they range in the number of covered lives from a few hundred to more than 1 million. The data used in this report include employers from all U.S. states except for Maryland. The data include both employers that operate within a single market and employers with a national presence. We also include data from several state employee plans. In many states, the state employee health plan is the largest provider of health insurance benefits.

The second source of data are APCDs from 12 states: Arkansas, Colorado, Connecticut, Delaware, Maine, Minnesota, New Hampshire, Oregon, Rhode Island, Utah, Vermont, and Washington. The second round of the study included data from two APCDs (Colorado and New Hampshire); the third round added Connecticut, Delaware, Maine, and Rhode Island; and the fourth round added APCD data from Arkansas, Oregon, Utah, and Washington. As of 2024, 17 states operate an APCD with mandatory submission, five additional states have an APCD with voluntary submission, and several states are in the process of implementing an APCD (APCD Council, 2024). However, states vary in their data-release rules and costs to researchers for accessing data (APCD Council, 2024). Notably, some states collect data and operate an APCD but do not allow identification of provider-specific prices (Llopis-Jepsen, 2021). Not all residents of those states are represented in their APCDs, partly because of exemptions from reporting requirements for fully insured plans and partly because most self-insured plans exercise their legal right to opt out following the U.S. Supreme Court's *Gobeille v. Liberty Mutual Insurance Company* ruling (Fuse Brown and King, 2016). All data sources provided claim identifiers and line item–level detail on services provided and allowed amounts. We used the claim and line-item identifiers to group claims into both inpatient and outpatient procedures. A full description of this process is provided in the appendix.

Hospital Systems

Hospitals were linked to hospital systems, meaning groups of two or more hospitals under joint ownership. To link hospitals and other providers to systems, we used data provided by the Agency for Healthcare Research and Quality's (AHRQ's) Compendium of U.S. Health Systems (AHRQ, 2024). These data allow us to link specific hospitals to their broader health systems.

Ambulatory Surgical Centers

Outpatient services performed in ASCs were identified as claims having a bill-type code beginning with 83 on facility claims. We then used National Provider Identifiers and Taxpayer Identification Numbers to link those claims to a dataset of ASC ownership. Information on ownership of ASCs was obtained through a Freedom of Information Act request to CMS. ASC ownership data have been used in other studies to identify changes in physician behavior following ASC investment (Munnich et al., 2021). We flagged ownership shares of 5 percent or more that were affiliated with the following systems: Tenet (or subsidiary United Surgical Partners International), HCA, SurgCenter, Surgery Partners, Surgical Care Affiliates, and Envision (or its subsidiary AMSURG).

Administered Drugs

Following existing studies, we analyzed prices for approximately 50 administered drugs (Robinson, Whaley, and Dhruva, 2024) by calculating commercial prices for drugs administered in a hospital setting relative to average sales prices (ASPs). CMS collects ASP data and calculates average reimbursements paid to manufacturers, net of any rebates or discounts. ASP represents the average price paid to manufacturers for a given drug, regardless of the payer. Through the Part B benefit, Medicare reimburses for these drugs at ASP plus a 6 percent administration fee. Similar to other services, prices for commercial insurers are negotiated between providers and insurers. Because administered drugs are covered by the medical benefits, they are not subject to additional pharmacy benefit manager or commercial insurance rebates, which are common among patient-administered drugs covered by pharmacy benefits. Thus, the observed prices are the final transacted prices.

Quality

To incorporate quality metrics into the analysis, we used CMS's overall hospital star ratings from Hospital Compare, wherein one star is the worst rating and five stars is the best (YNHHSC/CORE, 2017). The star ratings summarize dozens of individual quality measures in seven domains that include mortality, safety, readmissions, and efficiency. Although many hospital quality measures are available, the CMS star ratings provide an accessible and thoroughly documented summary measure. We downloaded the Hospital General Information file from CMS Hospital Compare, which includes data on star ratings for hospitals paid under Medicare's IPPS (CMS, 2024). The star ratings were merged with the analytic dataset using Medicare Provider Numbers (MPNs). Of the hospitals in the study sample, 69 percent were matched to a CMS star rating.

Hospital Patient Mix and Market Share

We also examined data on hospital patient mix and volume using data from the Healthcare Cost Reporting Information System (HCRIS) compiled and processed through the RAND Hospital Data repository. All Medicare-certified institutions are required to submit an annual cost report to CMS with such information as facility characteristics, utilization data, cost, charges, revenues, and financial statement data. From the HCRIS data, we constructed each hospital's case mix–adjusted share of

patient discharges who are enrolled in either Medicare or Medicaid and each hospital's case mix–adjusted profit margins. We also measured each hospital's market share by measuring each hospital's share of beds relative to the total number of beds in a metropolitan statistical area (MSA).

Methods

Definition of *Price*

In this report, *price* refers to the amount paid to a health care provider per service, assuming that payers honor their contractual obligation to pay. The amount paid is often referred to as the *allowed amount*, and it includes amounts paid by the health plan and any amounts due from the patient, such as deductibles, copayments, and coinsurance. One challenge in comparing health care prices is that services differ widely in their intensity and complexity from patient to patient and from provider to provider. We used two approaches to make comparisons between hospitals: standardized prices and relative prices using Medicare as a benchmark. Both approaches were case mix–adjusted and accounted for differences in procedure composition among hospitals.

Standardized Prices

The *standardized price* of a basket of services equals the total allowed amount for those services divided by the number of standardized units of service. A *standardized unit* is a service of average intensity, with a relative weight equal to 1, where the relative weight reflects the intensity of the service. For example, a heart transplant is far more complicated and requires far more clinical resources than an uncomplicated childbirth. In 2023, a heart transplant with major complication or comorbidity had a relative weight of 28.15—and therefore accounted for 28.15 standardized units of inpatient service, while an uncomplicated vaginal childbirth accounted for 0.63 standardized units. A full definition of standardized prices is provided in the appendix.

Relative Prices Using Medicare as a Benchmark

Without context, standardized prices can be difficult to interpret. Is an inpatient standardized price of $15,000 high or low? How do we compare prices if one hospital is located in an area with a high cost of living and another is located in an area with a low cost of living? To summarize hospital prices and make them easier to interpret, we calculate and report *relative prices* using Medicare reimbursement amounts as a benchmark. The relative price is the allowed amount from private health plan claims divided by the Medicare allowed amount—for the same services provided by the same hospital, using Medicare's price-setting formulas. Medicare payments are adjusted for geographic variation in wages, using the Medicare wage index. In the appendix, we provide a detailed numerical example of how relative prices are calculated. The appendix also discusses the appropriateness of using Medicare as a price benchmark.

Although this report benchmarks commercial prices to Medicare rates, it does not identify what percentage of Medicare is the optimal price for commercial prices. Employers and other stakeholders

can use this information, along with knowledge of hospital quality, their employee population, and other market-specific information, to determine whether the relative prices that they are paying are appropriate.

Simulating Medicare Prices

Simulating Medicare prices involves two steps: grouping (i.e., assigning services to case-mix groups) and pricing (i.e., assigning a Medicare price for each service based on the national base rate, the case-mix group, hospital-specific adjustments, and outlier adjustments). For each service, we applied Medicare pricing algorithms to determine the amount Medicare would have paid for the same service and the same provider. The pricing algorithm reflects, to the extent possible, the details of Medicare's payment formula.

Overall, Medicare prices provide a useful benchmark, but they do have some drawbacks. For example, Medicare's case mix–adjustment weights are based on relative costs measured among Medicare beneficiaries, and those relative weights might not be appropriate for enrollees in employer-sponsored plans. Future work should examine the appropriateness of applying Medicare case-mix adjustments to commercially insured populations. Also, Medicare's uncompensated care adjustments for inpatient hospital stays can result in extremely high Medicare prices for some hospitals. In general, the Medicare program calculates each hospital's uncompensated care costs, and then calculates an add-on payment for each Medicare-covered stay, where the Medicare add-ons partially offset the hospital's uncompensated care costs. Hospitals that provide large amounts of uncompensated care and have very few Medicare-covered stays, such as hospitals that specialize in childbirth and delivery, can receive very large add-ons to their Medicare prices for inpatient care. We applied an adjustment, described in the appendix, to avoid using inappropriately large uncompensated care adjustments in calculating the Medicare price benchmark.

The allowed amounts reported by private health plans in claims data do not include nonclaims-based payments to providers, such as risk-sharing payments and pay-for-performance bonuses. Allowed amounts reported in claims data might also systematically exceed the amounts actually paid to the provider if the TPA applies a *spread price*, in which the TPA reimburses providers at a lower rate and retains a portion of the allowed amount (American Health Policy Institute, 2018). We are unable to include nonclaims payments, such as bundled or capitated payments. We also did not adjust prices to reflect systematic differences in hospitals' costs of treating the privately insured versus Medicare beyond that captured by Medicare's case-mix adjustment.

Limitations

This study has several limitations. First, the claims data used in this study were mainly available for enrollees in self-insured plans sponsored by the employers that chose to participate in the study, enrollees of health plans that contributed APCD medical claims, and enrollees in the private insurance plans that submitted data. The claims data included in the study represent only a portion of the entire population of privately insured patients, and it is possible that our estimates are not fully representative of the prices paid by the broader privately insured population. Although some other

commercial claims data resources offer broader scope in some states, these other resources do not typically allow researchers to identify hospitals and providers by name. In states with a participating APCD, our claims data come from a mix of fully insured plans and self-insured plans. Researchers using the Massachusetts APCD found that self-insured plans on average paid hospital prices 2 to 4 percent higher than fully insured plans (Craig, Ericson, and Starc, 2018). It is possible that our rankings and comparisons among states are affected by the mix of fully and self-insured claims data and by the volume of claims we were able to collect. It is also possible that the contributing employers and data contributors in some states or at some hospitals are not representative of other health care purchasers within those states or hospitals.

To ensure patient confidentiality, we suppressed reporting prices if fewer than 11 claims were available for a combination of hospital and type of service. Even in geographic areas with significant representation in our claims data, smaller hospitals and facilities might fail to meet the 11-plus claims threshold and thus might have been excluded from the portion of this study where hospitals and systems are named. Also, because hospitals tend to provide more outpatient services than inpatient, many hospitals meet the 11-plus claims threshold for their outpatient services but not for their inpatient services. For these hospitals, we report only their outpatient prices and not their inpatient nor inpatient plus outpatient prices. The system- and state-level prices and overall average prices for outpatient services include a broader set of hospitals than the corresponding average prices for inpatient services.

Our analysis is not limited to in-network providers, and the prices we report are a mixture of negotiated contracted rates paid to in-network providers and allowed amounts for services provided by out-of-network providers. Another limitation arises from the fact that the private claims data do not include MPNs. It is possible that there are inaccuracies in the matching of provider identifiers in the claims data to MPNs and of the assignment of hospitals to systems. In some cases, the provider identifiers identified only the billing provider (i.e., the provider that submits the claim and receives payment) and not the servicing provider (i.e., the provider that actually provided the service). Although significant effort went into creating those crosswalks and ensuring their accuracy, some discrepancies may remain. Finally, in the case of claim reversals, denials, and resubmissions, we used the final version of the claim.

Chapter 3

Findings

Study Sample

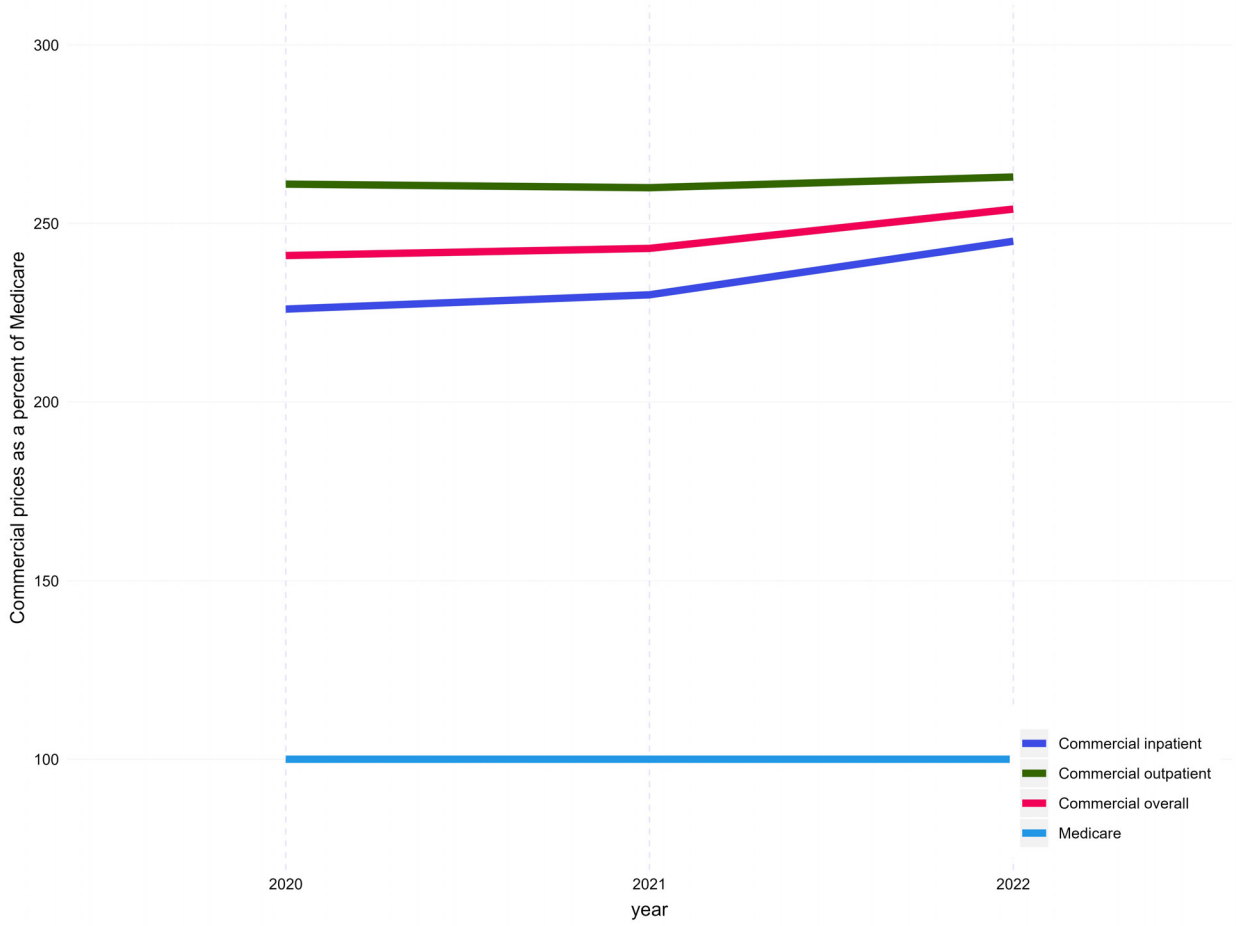
We used 2020–2022 data from all U.S. states besides Maryland and included more than 4,000 hospitals and more than 4,000 ASCs. We excluded data from Maryland because of Maryland's all-payer rate-setting program. Between 2020 and 2022, the fully processed data include $80.2 billion of spending on hospital services—$9.0 billion in professional spending, $34.9 billion for inpatient facilities, and $36.4 billion for outpatient facilities—and $3.1 billion on ASC procedures. Our analysis includes approximately 1.3 million inpatient hospital stays, 13.9 million hospital outpatient services, and 1.2 million ASC procedures. The simulated Medicare payments for the same services provided by the same facilities totaled almost $32.6 billion— $4.9 billion in professional spending, $14.5 billion for inpatient facilities, and $13.1 billion for outpatient facilities—and $1.8 billion on ASC procedures.

A detailed list of both relative and standardized prices for each facility, identified by name and MPN, is included in the supplemental annex (available online at www.rand.org/t/RRA1144-2-v2). The supplemental annex also includes CMS Hospital Compare star ratings for hospital facilities.

Trends in Hospital Relative Prices

A key goal of this report is to compare prices paid by employers relative to prices paid by Medicare to facilitate comparisons among hospitals, health systems, states, and time periods. We measure relative prices (including inpatient and outpatient care) for hospitals by calendar year. This analysis includes all hospitals in our analytic sample. As shown in Figure 3.1, from 2020 to 2022, average overall relative prices increased from 241 percent of Medicare in 2020 to 244 percent in 2021, reaching 254 percent in 2022, largely driven by increases in inpatient relative prices. Relative prices for inpatient hospital services are lower than relative prices for outpatient services but are rising faster. During the same period from 2020 to 2022, facility inpatient prices averaged 241 percent of Medicare, facility outpatient prices averaged 278 percent, and affiliated outpatient professional fees averaged 188 percent. These estimates align with the findings from previous rounds of this study.

Figure 3.1. All-State Trends in Relative Prices, 2020–2022

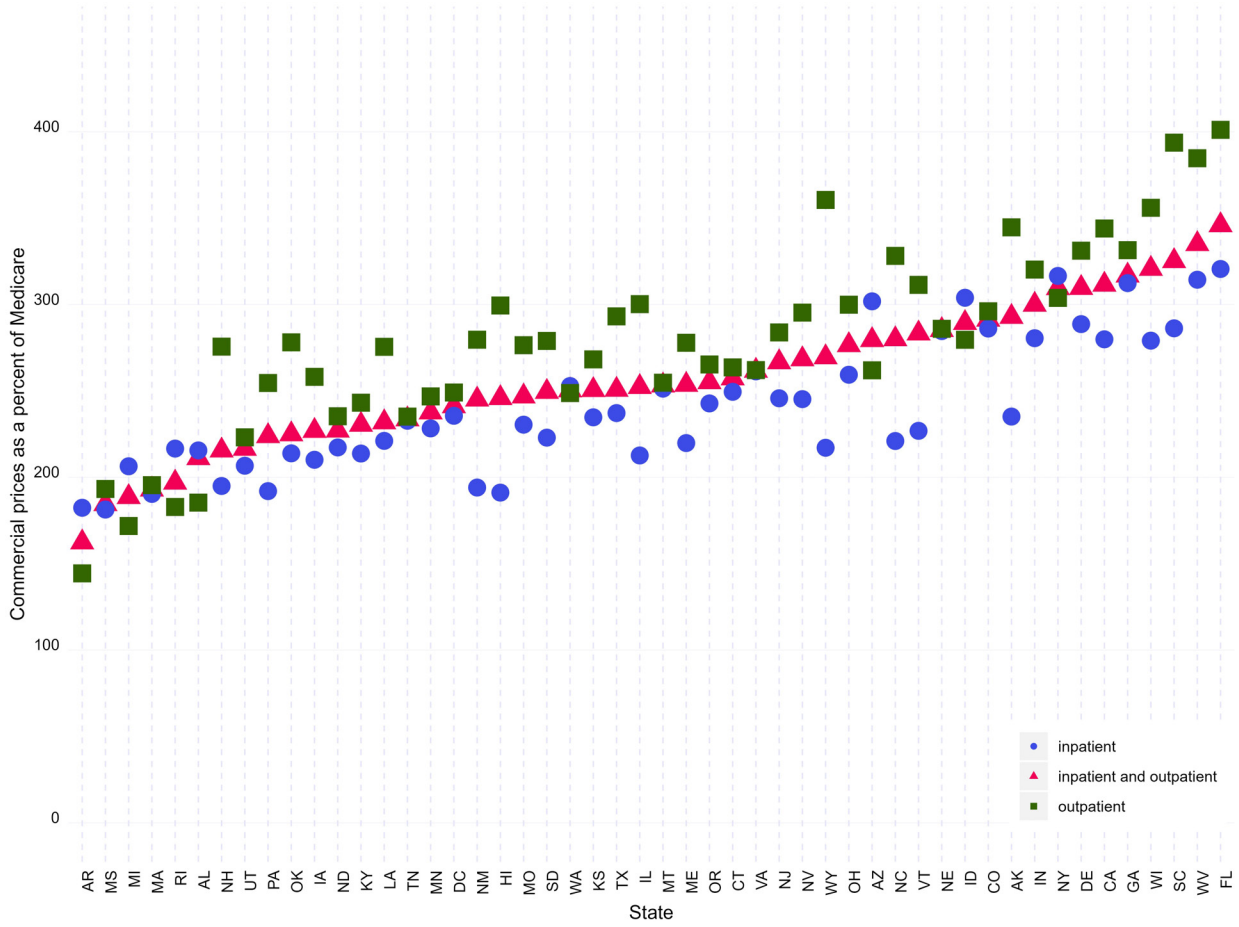


NOTE: Relative prices are the amounts actually paid divided by the amounts that would have been paid—for the same services provided by the same hospitals—using Medicare's price-setting formulas.

Relative Prices, Overall and by State

We also found wide variations in relative prices across states (see Figure 3.2). The states included in the study varied approximately twofold in their relative prices in 2022, ranging from below 170 percent of Medicare in Arkansas to above 335 percent of Medicare in Florida and West Virginia. In 14 states, outpatient prices were above 300 percent of Medicare, and in six states, inpatient prices were above 300 percent of Medicare. The state-level relative prices in Figure 3.2 are also reported in this report's supplemental annex, along with total private and Medicare allowed amounts and standardized prices.

Figure 3.2. Relative Prices, by State, 2022



NOTE: Relative prices are the amounts actually paid divided by the amounts that would have been paid—for the same services provided by the same hospitals—using Medicare's price-setting formulas.

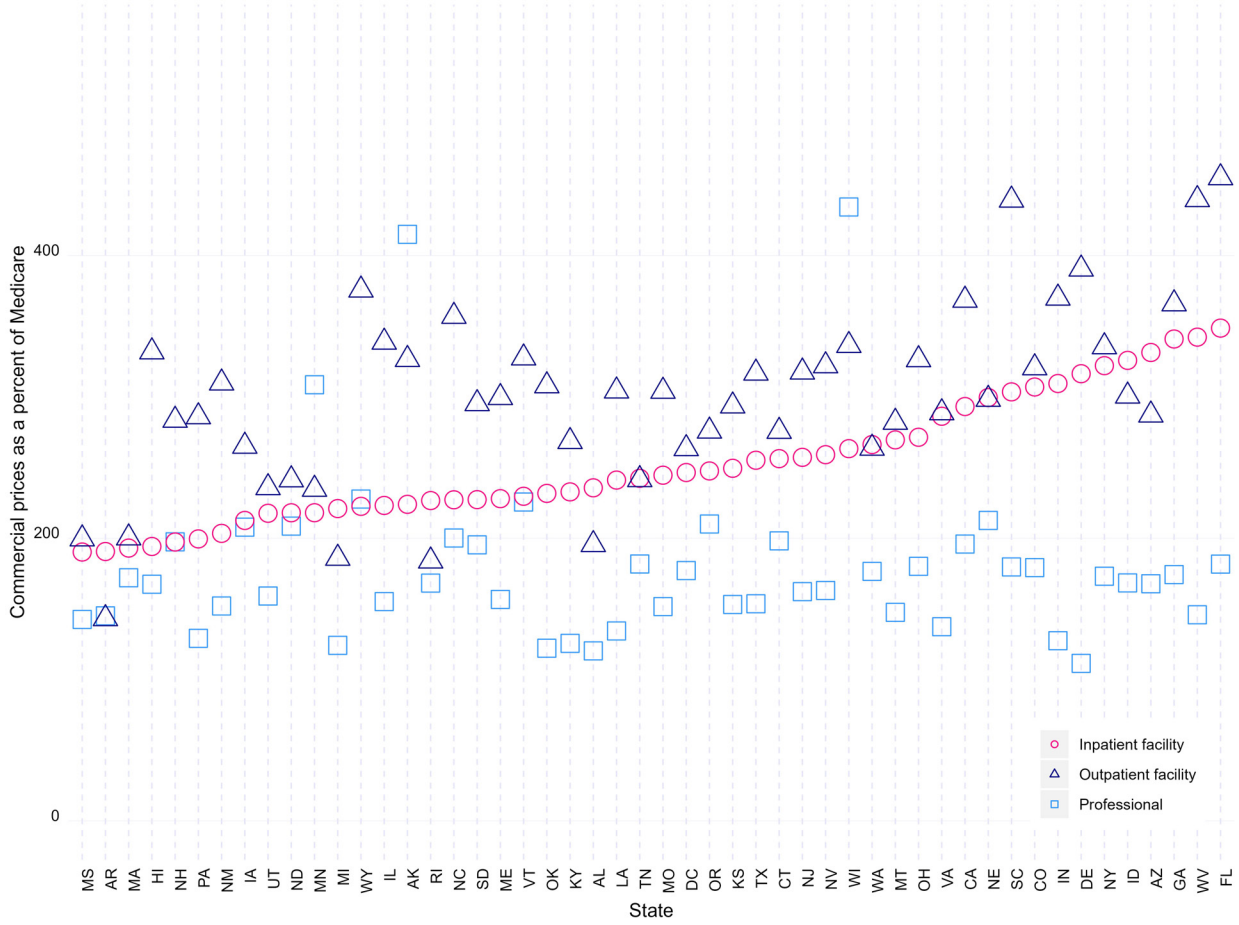
In 2022, the average overall relative price for hospital services compared with Medicare (including inpatient and outpatient facilities, plus associated professional fees, across all data contributors) was 254 percent. For inpatient services, the average relative price in 2022 was 244 percent, and hospital outpatient procedures averaged 263 percent relative to Medicare. Prices for facility payments averaged 267 percent of Medicare, and prices for professional services averaged 184 percent. When comparing across all states, the mean 2022 combined inpatient and outpatient hospital price was 257 percent of Medicare, and the median price was 253 percent. To compare across states, we estimated the average relative price per service in each state and weight each state equally when computing the state-level average.

These prices have limited comparability with previous rounds of this study, in part because large new data sources have been added to this round of the study, including one additional state APCD, several additional state public employee plans, and other new data contributors, together accounting for a large portion of the claims volume under analysis. Of the 12 states contributing APCDs, eight

have below-average prices, with Arkansas having the lowest 2022 relative prices. Washington's relative prices appeared significantly lower in the previous round of this study (Round 4, 2018–2020 data), mainly because some Medicare Advantage claims were erroneously included in that round from that state's APCD dataset. That error has been corrected in this round of the study.

In addition to overall combined facility and professional fees, we also separated prices by component: inpatient facility, outpatient facility, and professional fees. Facility fees accounted for approximately 87 percent of outpatient spending and 77 percent of inpatient spending. Figure 3.3 presents the state-level variation in the three price components. Overall, there is less variation in professional fees than there is for either inpatient or outpatient facility fees. In most states, professional fees are below 200 percent of Medicare.

Figure 3.3. Facility and Professional Relative Prices, by State, 2022



NOTE: Relative prices are the amounts actually paid divided by the amounts that would have been paid—for the same services provided by the same hospitals—using Medicare's price-setting formulas.

Chapter 4

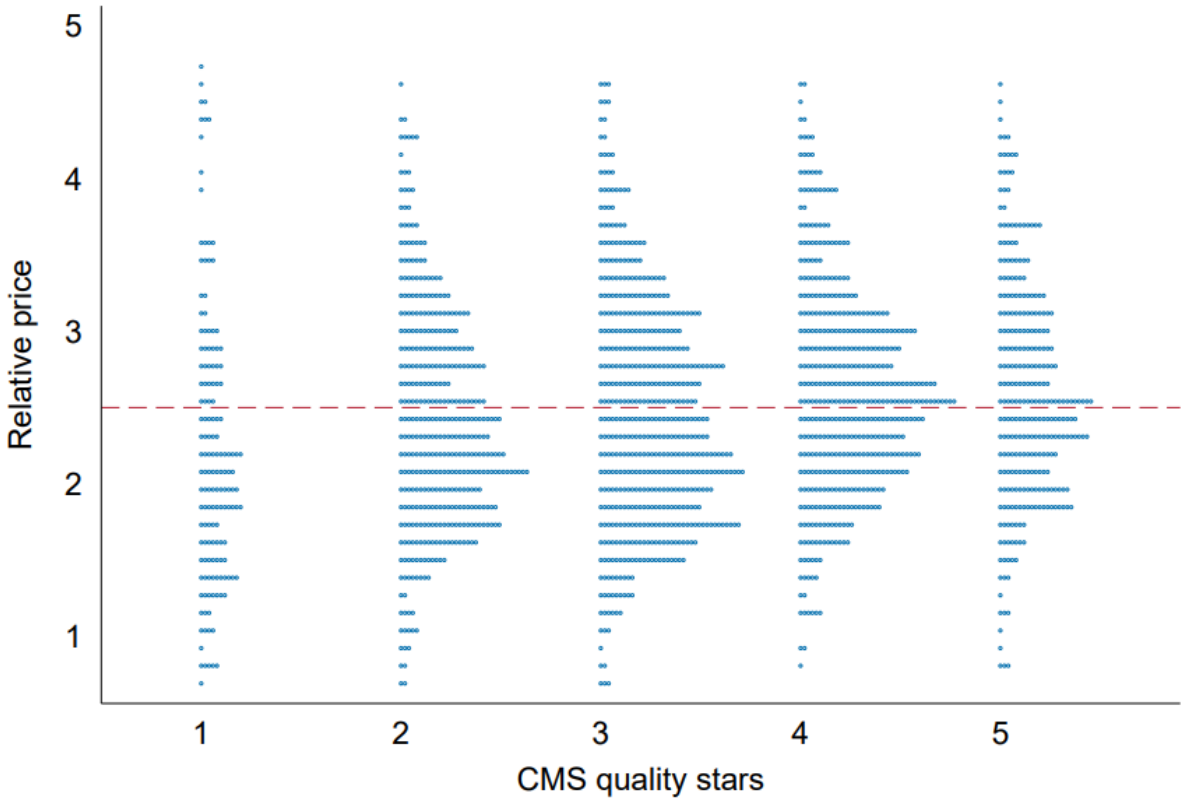
Additional Findings

Prices and Quality

As a proxy for hospital quality, we use CMS's star ratings. CMS uses a five-star quality rating system to measure the experiences that Medicare beneficiaries have with their health plan and health care system (CMS, 2024). Health systems are rated on a scale of one to five stars, with five being the highest quality. To assess the relationship between hospital price and quality, we calculated the distribution of hospital relative prices within each CMS star rating.

Figure 4.1 shows a wide distribution in the relationship between hospital price and quality. Average relative prices within each star range from 238 percent among one-star hospitals, 249 percent among two- and three-star hospitals, and 266 percent among five-star hospitals. However, within each star rating, there is a wide variation in prices, with each star group having hospitals with prices that range from close to Medicare rates to more than 400 percent of Medicare. This illustrates that employers and purchasers have options for high-value facilities that offer high quality at lower prices.

Figure 4.1. Relative Price Distribution Among Hospitals Receiving One Through Five Quality Stars from CMS



NOTE: The dashed line represents mean price.

While this analysis suggests that there is no clear link between hospital price and quality, this analysis of hospital quality and prices is incomplete for several reasons. The CMS measures we used to approximate hospital service value do not capture all the outcomes that health care purchasers value. To fully measure hospital value, one would have to also consider many other factors, including the prevalence and degree of positive health outcomes (the efficacy of prevention and treatments), not just hospital safety and patient experience, which form the basis of CMS quality measures.

Prices and Patient Composition

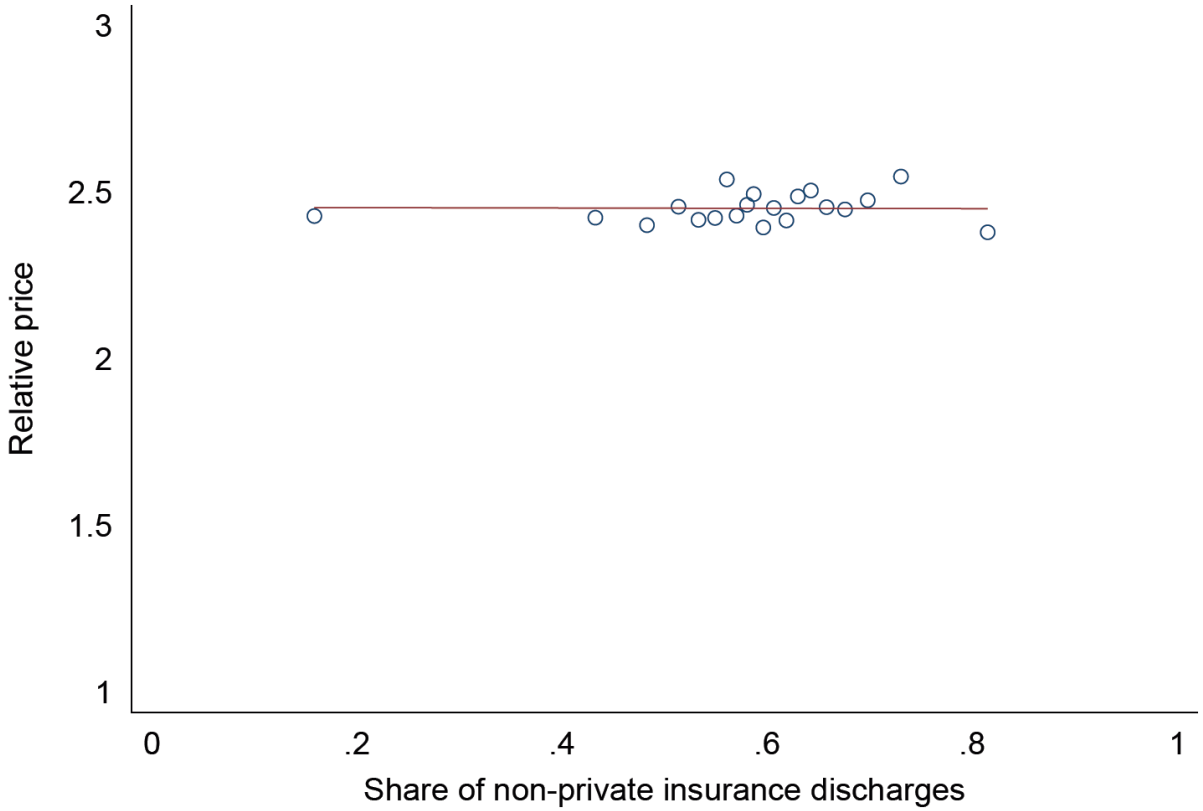
The wide variation in prices is notable, and addressing this variation could lead to substantial reductions in medical spending. However, the sources of this variation are important to understand before employers and policymakers implement policies that attempt to address the widening gap between Medicare and commercial prices.

Several possible causes of this variation exist. First, there are natural variations in wages, cost of living, and other such factors related to geography. However, the Medicare system adjusts for these differences systematically, so they are unlikely to significantly contribute to the observed differences in

relative prices. Second, they could be explained by differences in clinical quality. However, as illustrated above, we do not find strong relationships between prices and hospital quality.

A common theory raised by hospitals is the economic need to charge commercial payers higher prices to offset underpayments by public payers and losses because of uncompensated care. Rather than following the standard economic arguments of price discrimination and differential pricing, this theory argues that high commercial prices are causally due to underpayments from other payers. As a test of this *cost-shift* theory, Figure 4.2 plots relative prices and the share of each hospital's case mix–adjusted discharges that comes from nonprivate patients, including publicly insured Medicaid and Medicare patients and uncompensated and charity care patients. Discharges by payer are from the HCRIS data. For cost-shifting to be a main contributor to price differences, hospitals with higher shares of nonprivate patients should charge higher prices, while those with more privately insured patients should charge lower prices.

Figure 4.2. Hospital Relative Prices and Share of Discharges Attributed to Patients Without Private Insurance



NOTE: The red line represents regression slope. This analysis includes MSA fixed effects.

However, as reported in Figure 4.2, there is no strong relationship between hospital prices and the share of patients covered by nonprivate prices. The relationship between a hospital's share of its discharges from nonprivate payers and relative prices charged to commercial payers is not statistically significant. The absence of a strong correlation between hospital prices and payer composition does

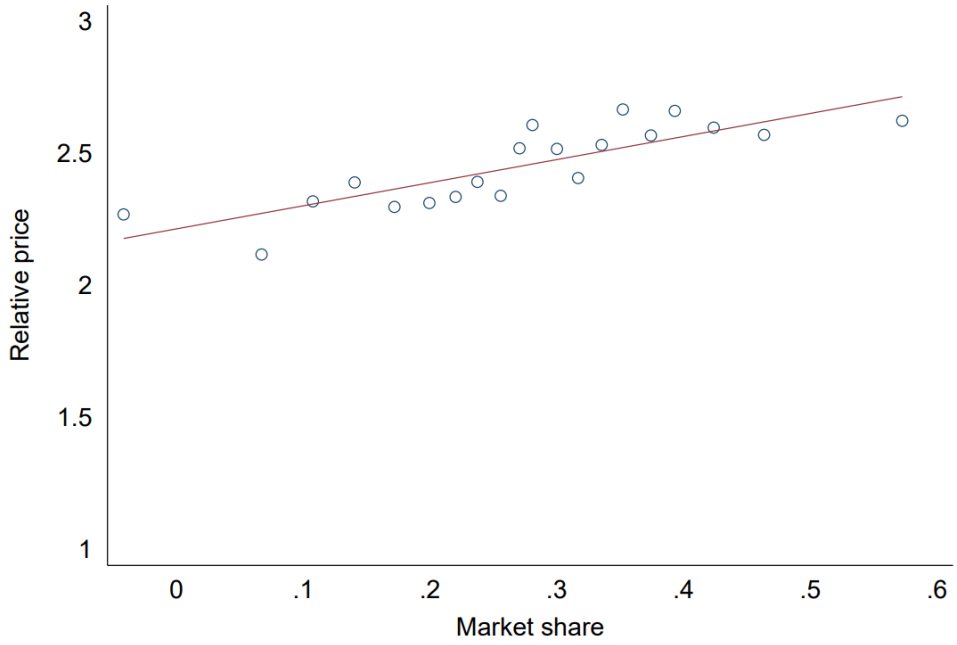
not support the hypothesis that higher hospital prices are in place to offset underpayments by public payers or hospitals' expenses for uncompensated care.

Prices and Market Share

An alternative argument raised by researchers is that provider market power and concentration contribute to hospital price variation. Accordingly, a substantial evidence base attributes increases in hospital prices to hospital mergers and market consolidation (Liu et al., 2022). To assess the impact of hospital consolidation on prices, we similarly examined the correlation between hospital market share and prices. To construct hospital market share, we measured each hospital's share of hospital beds out of the total number of beds in the hospital's MSA.

As shown in Figure 4.3, we found a positive correlation between hospital market share and prices. In a regression analysis, a 10 percentage-point increase in hospital market share is associated with a statistically significant 0.09 percentage-point increase in a hospital's price relative to Medicare. Of the variation in hospital relative prices, 18 percent is explained by differences in market share.

Figure 4.3. Hospital Relative Prices and Market Share



NOTE: The red line represents regression slope. This analysis includes MSA fixed effects.

Price Differences Between Hospital and Nonhospital Facilities

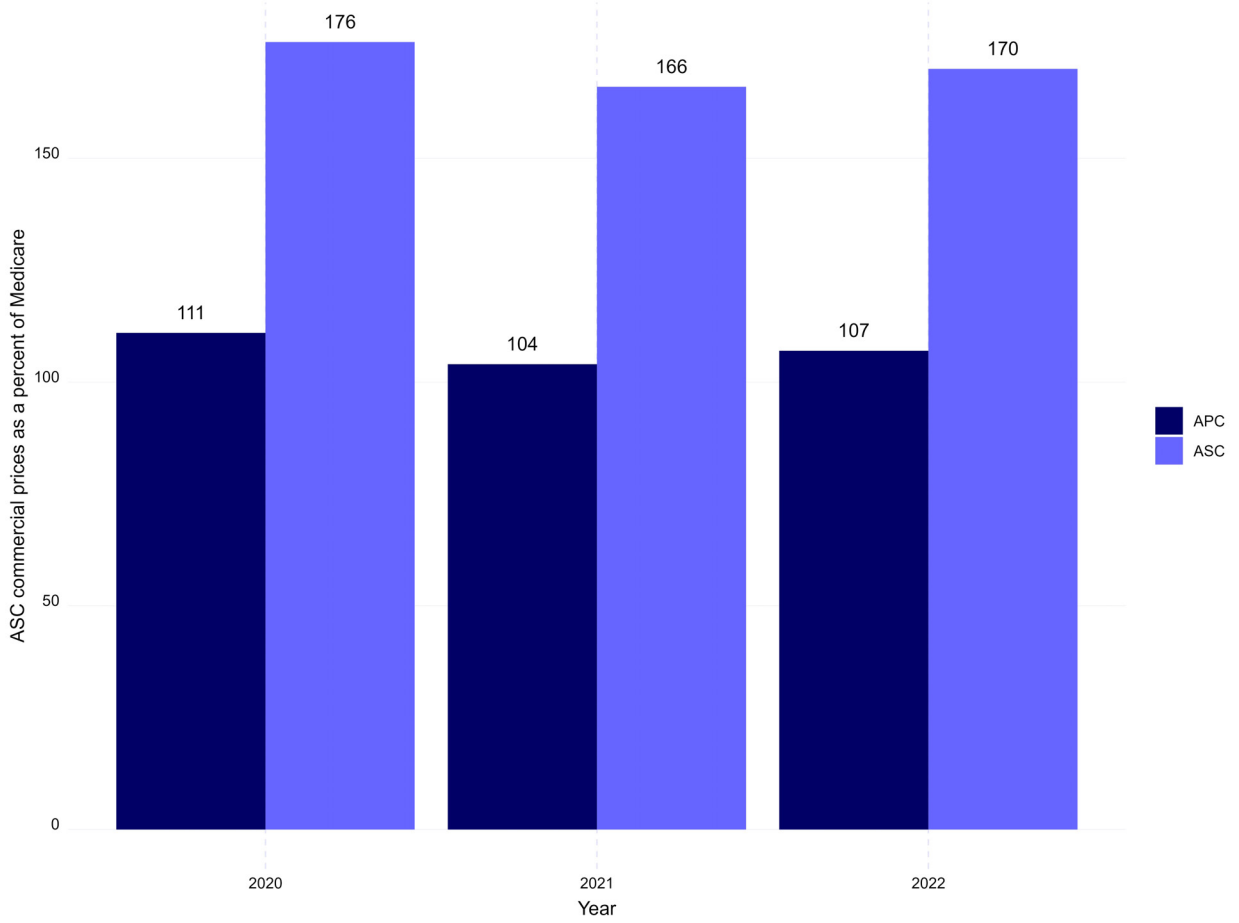
Many common services and procedures can be performed in either hospital or nonhospital facilities. ASCs are common nonhospital settings for outpatient surgeries and often compete with HOPDs. While some employer programs seek to increase the use of ASCs because of their lower

prices than HOPDs, nationwide comparisons of prices between ASCs and HOPDs are limited (Robinson, Brown, and Whaley, 2017).

A natural comparison is percentage differences in Medicare payments between ASCs and HOPDs. However, Medicare reimburses ASCs at a lower rate than HOPDs. Medicare ASC rates are set at approximately 60 percent of HOPD rates. Thus, applying the Medicare payment rate to ASC services will reflect the lack of site-neutral payments in Medicare. To account for Medicare payment differentials for site of care, we simulated Medicare payments using both Medicare payment rates to ASCs and simulated relative prices that apply the Ambulatory Payment Classification (APC) model that is used to pay HOPDs under Medicare. In other words, we calculated the commercial percent of Medicare for ASC services if the ASC was paid as a HOPD. Because Medicare has higher payment rates for HOPDs, this simulated percentage of Medicare reimbursement will be lower than the percentage of Medicare reimbursement that uses Medicare ASC payment rates.

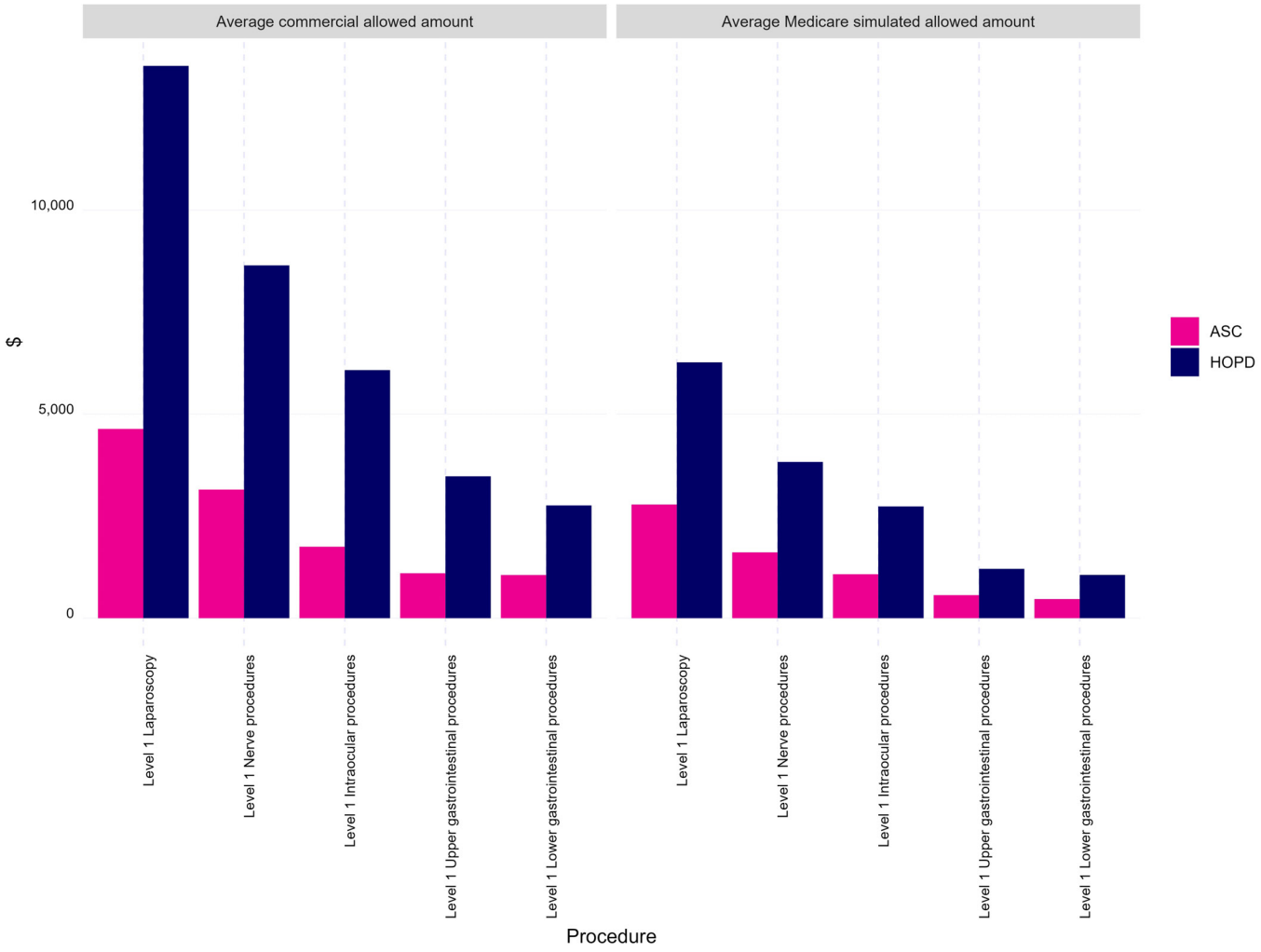
Figure 4.4 presents ASC commercial facility prices relative to Medicare prices. ASC commercial facility prices were stable, approximately 171 percent of Medicare between 2020 and 2022, but remained well below hospital outpatient relative prices (see Figure 3.1), which averaged 278 percent of Medicare for all hospital outpatient facility spending during this period. Figure 4.4 also reports relative prices using Medicare's APC pricing model for HOPDs. In other words, the APC payment bars in Figure 4.4 reflect relative prices for ASCs, if the ASC were paid the same as HOPDs in Medicare. In this scenario, relative prices for ASCs averaged 110 percent of Medicare in 2020, 104 percent in 2021, and 107 percent in 2022.

Figure 4.4. Trends in Ambulatory Surgical Center Commercial Prices Relative to Medicare, 2020–2022



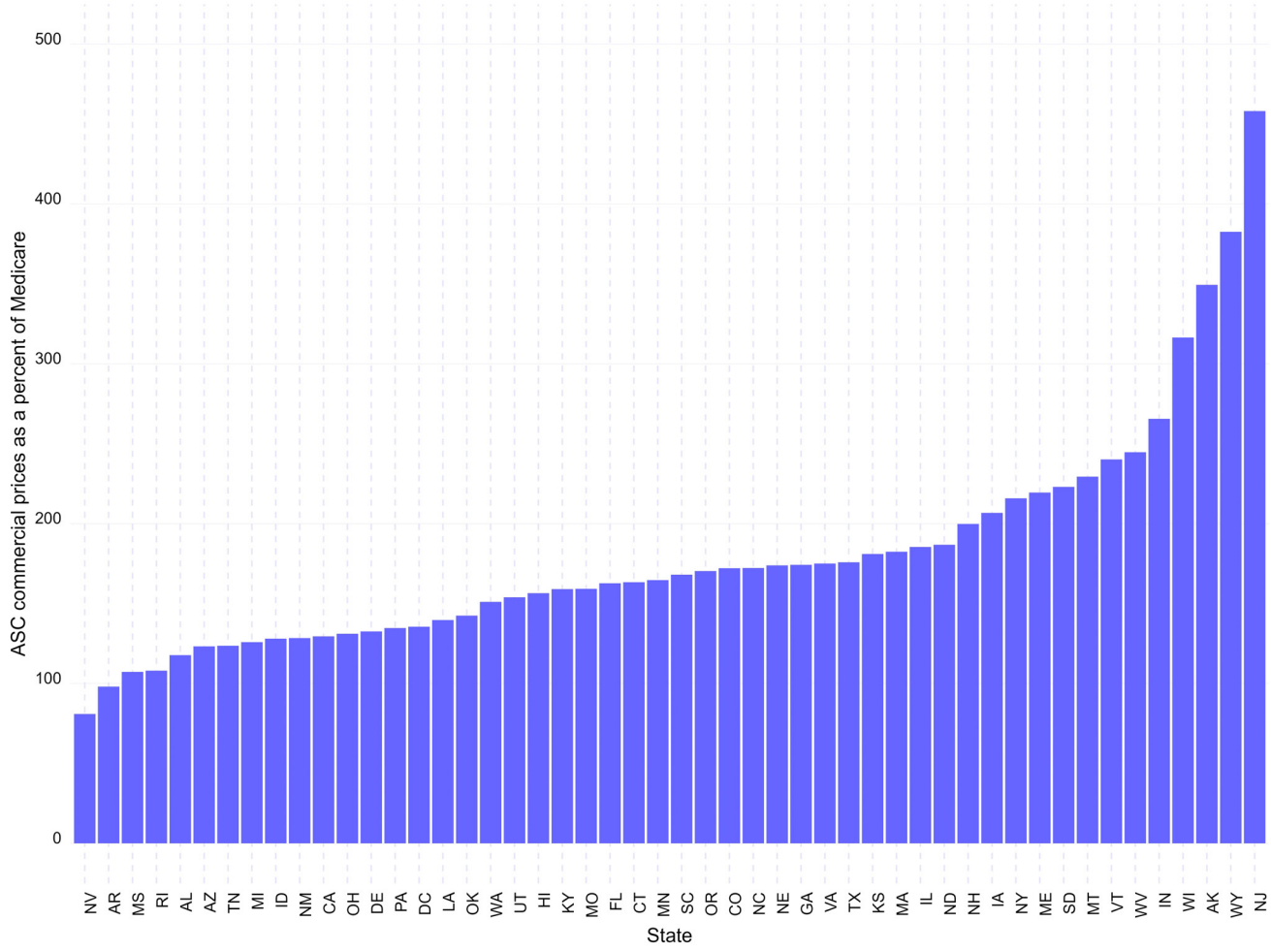
Differences in payments between ASCs and HOPDs are further reflected in Figure 4.5, which reports differences in mean private insurance and Medicare payments between ASCs and HOPDs for five common procedures. Among the privately insured population used in this study, private insurer payments to HOPDs were 2.9 times larger than payments to ASCs for these procedures. Across these procedures, Medicare per-procedure payments to HOPDs were 2.3 times larger than payments to ASCs. Thus, there exist slightly larger payment differences based on site of care among private insurers than Medicare.

Figure 4.5. Hospital Outpatient Department and Ambulatory Surgical Center Commercial and Medicare Prices for Common Procedures, 2020–2022



To illustrate the differences in prices based on site of care across states, Figure 4.6 plots state-level ASC relative prices. Relative prices ranged from lower than Medicare rates in Nevada and Arkansas to nearly 460 percent of Medicare in New Jersey.

Figure 4.6. State-Level Ambulatory Surgical Center Commercial Prices Relative to Medicare, 2022



Prices for Administered Drugs

Rising drug prices are a leading concern of employers. Drug price increases are concentrated in specialty drugs, e.g., drugs used to treat oncology, rheumatoid arthritis, and other advanced conditions (Frank, Hicks, and Berndt, 2022). Rather than being dispensed at pharmacies, many of these drugs are administered by physicians or other clinicians through injections and infusions. Because of their type of administration, these drugs are commonly covered by a patient's medical benefit rather than the pharmacy benefit. As a result, claims-based prices for these drugs are often not subject to rebates, unlike drugs covered under a patient's prescription benefit. Like other medical claims, allowed amounts in claims data reflect transacted prices.

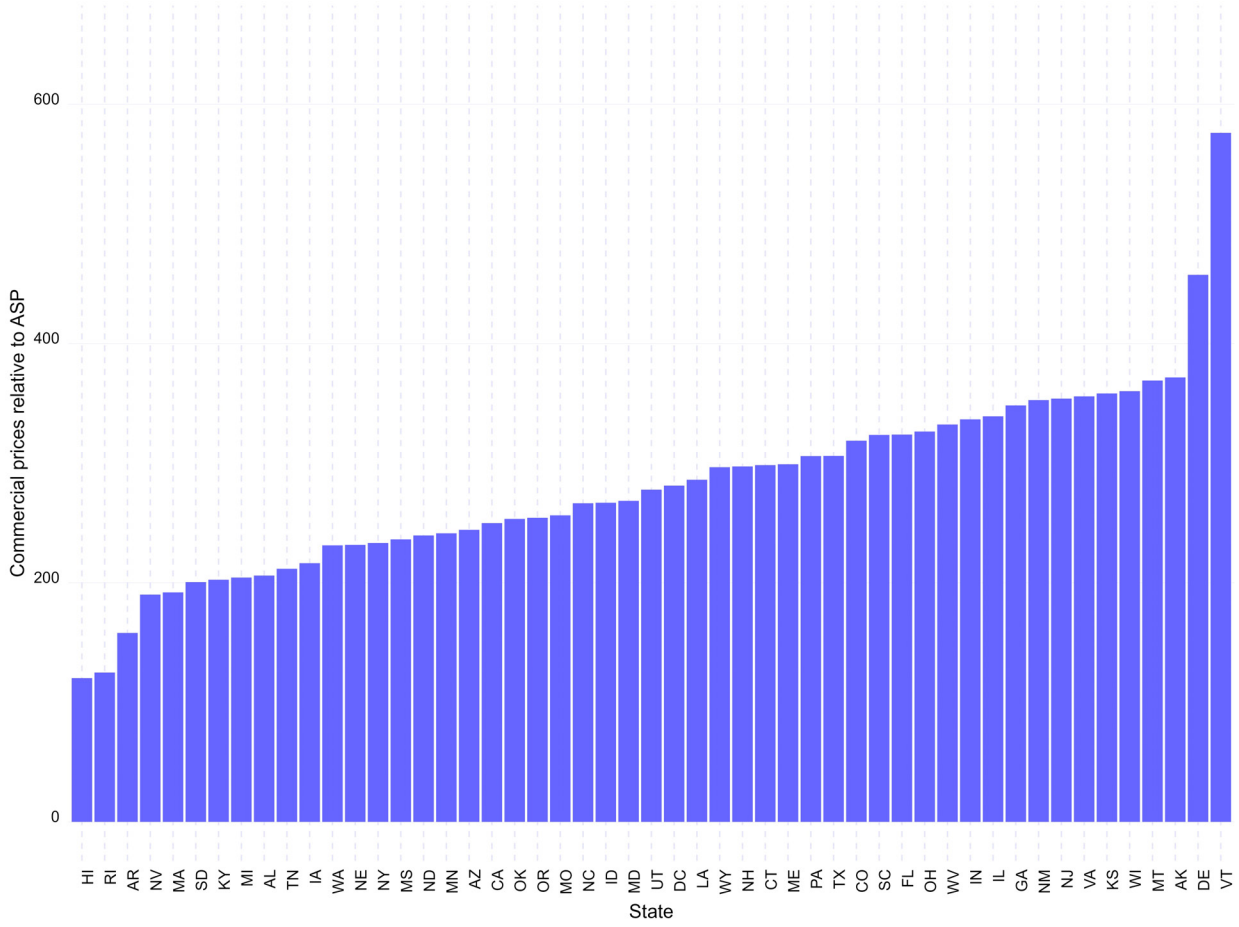
To examine prices for administered drugs, we followed the approach outlined by Robinson, Whaley, and Dhruva (2024) and examined commercial prices relative to a benchmark of ASP, which reflects the amount received by manufacturers, net of distributor rebates. We focused on prices for 58 drugs that are commonly administered in a hospital outpatient department. As with ASCs,

commercial prices vary by site of care. One national payer's payments for infusions received at hospitals were approximately double prices received in a physician's office (Robinson, Whaley, and Brown, 2021). Through the Part B benefit, Medicare reimburses at a rate of ASP plus 6 percent and administration fees, regardless of site of care.

Figure 4.7 reports differences in commercial prices relative to ASP for these conditions. Across all states, commercial prices for administered drugs received in a hospital setting averaged 2.8 times that of ASP, which is similar to estimated price markups relative to the Medicare baseline for hospital-based medical services.

Administered drugs have large variations across states, similar to the price markups in medical services. Median prices for administered drugs in Hawaii and Rhode Island are slightly higher than ASP rates, while average prices in Vermont are more than five times ASP.

Figure 4.7. State-Level Hospital-Administered Commercial Drug Prices Relative to ASP, 2020–2022



Chapter 5

Conclusion

Employers are the largest source of health insurance coverage and play a critical role in financing the U.S. health care system. As part of providing health insurance benefits, employers have a fiduciary responsibility to use plan dollars wisely and provide efficient access to care. Fulfilling this obligation is challenging without access to provider prices. Yet, many employers lack sufficient relevant information on prices that would allow them to be responsible purchasers of health benefits. The lack of usable price data hinders employers' ability to effectively make benefit design decisions and be prudent purchasers of health benefits. While existing studies have documented wide variation in health care prices, provider-specific data in formats usable by employers and health care purchasers are not commonly available.

For this study, we collected data from several sources, and we document wide variation in prices paid by employers and private insurers for hospital care in this report. Prices also vary widely based on site of care. This report presents private insurance prices relative to Medicare to compare private insurance prices to a common benchmark and as a way to apply a publicly available approach to fairly compare private insurance prices among different hospitals, states, and time periods. This report is paired with supplemental data that disclose prices for specific hospitals and health systems.

For some employers, the hospital prices that we report here might reflect the value that these hospitals deliver to their workforce. Other employers might view the prices of some hospitals as excessive. This report is not designed to make this distinction for employers. We, as researchers, have little insight into the appropriate relative price that private insurers should pay hospitals. Instead, this report and supplemental annex are designed to provide information that allows employers, purchasers, and policymakers to make this judgment for themselves. Employers and purchasers that view the prices negotiated on their behalf as higher than they are comfortable paying might seek to use this study's information to reduce spending. This information can complement employers' existing benefit approaches in two ways.

First, the report highlights variation in prices, both among hospitals and between hospital and nonhospital facilities. Innovative employers and purchasers, such as California Public Employees' Retirement System (CalPERS), have used this type of data to design programs that steer patients toward lower-priced hospitals and nonhospital facilities. For example, the CalPERS reference-based pricing program caps reimbursement for higher-priced hospitals and directs patients to lower-priced hospitals and ASCs. Evaluations of this program find meaningful reductions in savings, albeit for the narrowly defined set of procedures for which the program has been applied (Robinson, Brown, and Whaley, 2017). Other employers offer tiered or narrow network plans, which likewise lead to meaningful reductions in health care spending (Sinaiko, Landrum, and Chernew, 2017).

A potential disadvantage of consumer-focused approaches, such as reference pricing, is that they add a layer of complexity to the patient's journey through the U.S. health care system. Regardless of

insurance benefit design, patients still face challenges of referral patterns and navigating a rapidly consolidating health care system (Chernew et al., 2021). Even with robust information on prices, patients often have limited agency in selecting providers for downstream care. These challenges are exacerbated by the rapid consolidation in physician markets. Physicians employed by a hospital or health system are likely to refer patients to a hospital instead of lower-priced sites of care (Richards, Seward, and Whaley, 2022; Whaley et al., 2021). These structural changes to the U.S. health care system hinder the ability of patient-focused information or financial incentives to meaningfully reduce spending.

A second potential use of the information contained in this report is to apply insight into the prices negotiated on behalf of employers and their workers to hold third parties accountable for prices negotiated on their behalf. For example, earlier rounds of this study highlighted that the Parkview Health System in Fort Wayne, Indiana, had among the highest prices in the country when measured relative to Medicare rates. Several Fort Wayne–area employers used this information to place pressure on their TPA to negotiate a new contract with lower prices (Slater, 2020). Equipped with information on negotiated prices, employers were able to place pressure on a large hospital system and TPAs to achieve lower prices for their workforce (Long, 2020). Other employer and policymaker pressures in Indiana led the Indiana University Health system to announce plans to reduce prices to the national average rate (Rudavsky, 2021).

Other employers have used similar price transparency information to monitor prices negotiated on their behalf. Perhaps the most well-known example is the State of Montana Benefit Program, which, starting in 2016, instructed its TPA to cap prices at approximately 235 percent of Medicare rates. The introduction of this price cap was followed by substantial reductions in health care spending and a flattening of premium and patient deductible costs (Allen, 2018). This model addresses hospital prices upstream from the point of decision by patients and relies on purchasers to monitor the price negotiation process rather than relying on patients to navigate the complexities of the U.S. health care system. The state of Oregon adopted a similar model, which capped hospital prices at 200 percent of Medicare for state employees and teachers. Evaluations of this program found more than $100 million in savings with no apparent impacts on hospital operations (Murray et al., 2024).

In either of these approaches, employers that view hospital prices as excessive can use price transparency information to inform benefit design choices and to have insight into the prices that are negotiated on their behalf. The choices that employers make around health benefits dictate how a large and rising share of employee compensation is allocated and affect out-of-pocket costs for employees. For some employers, reducing growth in take-home wages to offset rising health care costs is an informed choice. For other employers, innovative approaches can be used to reduce spending on health care and increase the relative amount of compensation provided in wage benefits. Responsible employers can make either choice but should use information on prices to ensure that this decision is an informed one.

Appendix

Background on Hospital Markets and Pricing

How Private Health Plans Set Hospital Prices

Private health plans and hospitals generally agree to prices through a complex process of contract negotiations. If the hospital and plan are able to agree on a set of contracted prices, then the hospital will be included in the plan's network, and patients typically face lower cost-sharing payments at in-network facilities compared with out-of-network facilities. If the health plan and hospital do not agree to a contract, patients who use services at that hospital will face out-of-network cost sharing, or the services will not be treated as a covered benefit at all. In this case, patients will also potentially be subject to balance billing by the hospital, in which the hospital charges the patient for services not covered by insurance.

Both hospitals and private insurers have consolidated, in part, to increase their respective bargaining leverage. Many hospitals have joined hospital systems, which allows them to jointly negotiate prices. Some hospital systems have instituted all-or-nothing clauses, which require all hospitals to be in the network if a single hospital is in the network. These clauses limit the ability of employers to design lower-priced networks. Finally, several dominant hospital systems have implemented gag clauses that limit the ability of price transparency tools to display negotiated prices for these hospitals (Catalyst for Payment Reform and Health Care Incentives Improvement Institute, 2015; Gold, 2017).

The prices that result from the contract negotiations between health plans and hospitals can vary widely. In general, hospitals and plans both consider the hospital attributes that are important for patients (e.g., hospital safety, convenience, reputation, quality scores). The hospitals for which patients have stronger preferences are generally able to negotiate higher prices, and health plans with larger market shares are generally able to demand lower prices (Trish and Herring, 2015). However, idiosyncratic factors, such as market environment, appear to play a large role, and the wide variation in prices has led to an increased focus on price transparency initiatives.

How Medicare Calculates Prices Paid for Hospital Services

Medicare, rather than negotiating with providers, sets prices administratively based on legislation enacted by Congress. Although some variation exists in Medicare's hospital prices, the variation is much narrower than for private health plans and is clearly related to specific hospital and patient characteristics. For each procedure and service, CMS establishes a fee schedule, which is publicly available. Medicare then adjusts this fee schedule based on geographic market and hospital type (e.g.,

teaching hospital, CAH). For hospital services, Medicare uses different price-setting formulas depending on the type of hospital and the type of service.

For Medicare payments, case-mix adjustment is applied based on the type of service that an individual patient receives and is designed to account for the fact that services vary in their resource requirements. In the inpatient setting, Medicare uses the Medicare Severity Diagnosis Related Groups (MS-DRGs), and, in the outpatient setting, Medicare uses APCs (Medicare Payment Advisory Commission [MedPAC], 2018). For ASCs, Medicare uses APCs but also reduces payments by an ASC adjustor. Hospital-specific adjustments are applied to all services provided by a given hospital and are designed to account for differences in local wages among hospitals, the cost of doing business, and other hospital characteristics (e.g., teaching status). Outlier payments are added in a small number of cases to lessen hospitals' financial losses from treating cases that are exceptionally costly.

Detailed Method

Obtaining and Processing the Claims Data

We entered into DUAs with TPAs, the organizations that maintain APCDs, data warehouses, employers, and health plans. The DUAs describe the data-security protocols and restrict the data to be used only for this project, and sometimes also for related follow-on studies. The data security protocols and analytic plan were approved by RAND's Human Subjects Protection Committee.

Each participating employer instructed its health plan administrator or data warehouse to transmit paid claims data to us, based on these criteria:

- only enrollees in a plan sponsored by one of the participating employers
- facility claims and claims for professional services, but no pharmacy claims
- services provided from 2020 through 2022
- only claims from private health plans (this excludes enrollees in Medicare Advantage plans and Medicaid managed-care organizations)
- employer-sponsored plans with medical coverage (this excludes enrollees in dental-only plans or vision-only plans)
- employer-sponsored plans as enrollees' primary payer (this excludes claims paid as secondary payer—e.g., through a Medicare supplemental plan or through coordination of benefits with another private health plan).

The claims data that were transmitted to us excluded any direct patient identifiers (e.g., name or member number), and they were transmitted by secure file transfer protocol. Some data contributors provided limited datasets that contained protected health information, namely dates of service and date of birth. Before analyzing limited datasets, we created a fully deidentified dataset. Deidentification required stripping out any data elements that could be used to indirectly identify patients while retaining the minimum data necessary for the pricing analysis. Date of birth was used to calculate age (in years) at the time of service, and age was kept while date of birth was stripped out. Similarly, the "from" and "to" dates on the claim were used to identify the year in which a service was

provided and the length of the service in days. The year of the service and length of service were kept while the specific dates of service were stripped out. All analysis was performed on a secure server.

A *claim* is a request for payment for a set of services provided by a specific facility to an individual patient over a period of one or more days. A claim may consist of many line items, where each line item represents one specific service and diagnosis. We applied the following criteria to limit the types of services and providers included in the analysis:

- only facility and professional claims for hospital inpatient or hospital outpatient services, or services performed in an ASC
- only claims for facilities whose identities in the private claims data could be matched to MPNs for hospitals or to an ASC location
- claims for services provided by Medicare-certified community hospitals—that is, short-stay hospitals that are paid by Medicare either under the IPPS or the CAH payment system
- claims for services covered by Medicare and paid through the IPPS or the outpatient prospective payment system (OPPS).

Each claim in the database includes detailed information on the procedure or service performed, the provider that performed the service, the price for that procedure that was negotiated by the provider and the insurer, and the amount of that price that was paid by the patient. Flags for in- versus out-of-network providers were generally either unavailable or not reported consistently. Therefore, the analysis included claims regardless of provider network status.

Measuring Relative Prices for Hospital Inpatient and Outpatient Services

Subsetting to Hospital Inpatient and Outpatient Services

To measure hospital prices, we had to identify claims for hospital services, as opposed to services provided by other types of facilities (e.g., skilled nursing facilities). To select hospital inpatient and outpatient services, we *subsetted* our data to include only claims with the place of service reported as hospital inpatient (type-of-bill code beginning with 11), hospital outpatient (type-of-bill code beginning with 13), or ASC (type-of-bill code beginning with 83).

Subsetting to Hospital Emergency Department Services

We examined both weighted average relative prices and weighted average nominal price indexes (allowed amounts, unadjusted for inflation) for ED professional physician and facility claims. The numeric results are published in Table 7 of the supplemental annex (available online at www.rand.org/t/RRA1144-2-v2).

The ED analysis in the supplemental annex presents state and national weighted average relative prices and a weighted average nominal price index for each year from 2018 to 2022 for claim lines with Current Procedural Terminology (CPT) codes 99283, 99284, and 99285 using only data sources that provided 2018–2022 data for this study. These data sources included all 12 ACPDs but not all of the self-insured data contributors. By keeping the set of data contributors consistent across each year of the index, we hoped to minimize any effect that changing data contributors might have on the trajectory of the index and the relative price calculations. By setting all indexes such that 2018

weighted average allowed amounts was 100 and then allowing the indexes to reflect weighted average nominal price growth in 2019, 2020, 2021, and 2022, readers can apply whatever inflation index that they feel is most appropriate to deflate the index if an inflation-adjusted index is desired.

ED professional physician claims have been matched to physicians with a specialty of emergency medicine or pediatric emergency medicine (a subset of all professional claims). Hospitals were included in the analysis only if they had more than ten facility claims or more than ten professional claims in each of the five years. Hospitals that met this inclusion criteria were then weighted by each hospital's share of 2018–2022 ED claim line volume.

Facility and professional claims were weighted separately because of the different number of hospitals that met inclusion criteria: 2,474 hospitals were included in the nationwide facility calculations, and 2,109 were included in the nationwide professional calculations. Weighting is also performed specifically in each state for state-specific indexes and jointly across all states for the national indexes. This weighting prevents changes in each hospital's share of the state or national average to influence that average. We attempt to exclude the influence of shifting hospital use or shifting claims data availability on these ED-specific findings because we want this analysis to capture actual changes in prices from only two sources: (1) changes in relative use of the three most commonly used CPT codes in ED evaluations and (2) CPT-specific negotiated changes in allowed amounts.

Relative prices are calculated using the same methods illustrated in the following sections of this appendix. The only step we added to calculate ED-specific state and national relative prices is weighting each hospital's relative price by its 2018–2022 share of state-specific or nationwide ED facility or professional physician claims. For example, if State A has ten hospitals, and if each hospital's share of 2018–2022 ED facility claim lines is 10 percent, then each hospital's average relative price for each year becomes 10 percent of that state's average relative price, regardless of whether that hospital had fewer or more claims in any particular year. At the national level, each hospital's share of 2018–2022 claim lines is different than that hospital's share of its state's claims, so national level weights are calculated separately from state-level weights. Also, as noted previously, because the number of hospitals in the sample is different for facility versus professional physician calculations, hospital weights are also calculated separately for facility and professional physician relative prices and nominal price indexes.

Weighting by hospital is appropriate for this ED-specific analysis but would not be an appropriate technique to apply to the broader study's relative price calculations for several reasons: Restricting the analysis to data contributors and hospitals that have data in all years of analysis (a prerequisite to weighting by hospital) would not be appropriate in the broader study primarily because the broader study attempts to capture changes in relative prices caused by a broad variety of factors, including changes in which hospitals are used from years to year. For example, increased inpatient claims for coronavirus disease 2019 (COVID-19) treatments might shift the volume of claims to certain hospitals away from others, and the overall price effects of this shift to other hospitals should be reflected in state and national average prices and not ignored. Additionally, weighting each hospital by its average number of claim lines works only in a very narrow context in which claim lines are similar in nature. The ED analysis' focus on three CPTs used for ED evaluation are similar enough to all count as single claim lines, whereas the broader analysis uses the full range of hospital services, whose

claim lines differ so much that their number of claim lines would not be representative of their contribution to overall relative prices.

The calculation steps for Table 7 in the supplemental annex are as follows. For the ten columns labeled *Index of Nominal Weighted Average Allowed Amounts*:

1. Calculate average nominal allowed amounts (across all three CPTs) for each hospital that met inclusion criteria.
2. Multiply each hospital's average nominal allowed amount by that hospital's share of all ED claims in our sample (for the national level row of the table) or by that hospital's share of ED claims in the state (for each state-level row of the table).
    a. For example, if that hospital's 2018–2022 ED claim lines represent 10 percent of that state's 2018–2022 ED claim lines, assign each year of that hospital's average nominal allowed amount 10 percent of the weight of that state's weighted average nominal allowed amount.
3. For each year, add together each hospital's weighted contribution to the national nominal average allowed amount (for the national level row of the table) or to the state (for all other rows of the table).
4. Divide each year's result by the corresponding 2018 result, thereby translating the weighted average nominal allowed amounts into an index.

For the ten columns labeled *Weighted Average Relative Prices*:

1. For each hospital that meets the inclusion criteria, follow the steps outlined in the section "A Numerical Example" in this appendix. These are the same steps that this study always uses for calculating relative prices.
2. Multiply each hospital's average relative price by that hospital's share of all ED claims in our sample (for the national level row of the table) or by that hospital's share of ED claims in the state (for each state-level row of the table).
    a. For example, if that hospital's 2018–2022 ED claim lines represent 10 percent of that state's 2018–2022 ED claim lines, assign each year of that hospital's average relative price 10 percent of the weight of that state's weighted average relative price.
3. For each year, add together each hospital's weighted contribution to the national average relative price (for the national level row of the table) or to the state (for all other rows of the table).

Subsetting to Community Hospitals and Assigning Medicare Provider Numbers

We excluded from the analysis hospitals that are not Medicare certified or that are not AHA members, and we excluded hospitals other than IPPS or CAHs and subunits within community hospitals. Excluded facilities include cancer hospitals, children's hospitals, long-term care hospitals, and inpatient rehabilitation facilities. We also excluded from the analysis federal hospitals operated by the U.S. Department of Veterans Affairs.

Standardized Price Definition

Standardized units are defined and applied differently depending on the type of service:

- In the *hospital inpatient* setting, a standardized unit is one inpatient stay with relative weight equal to 1. We used MS-DRG relative weights, although there are other algorithms available for assigning relative weights for inpatient stays, including All Patient Refined Diagnosis Related Groups and Pediatric Modified Diagnosis Related Groups. Relative weighting algorithms are designed to assign relative weights based on the clinical characteristics of the stay and the expected resource requirements.
- In the *hospital outpatient* setting, a standardized unit is one service with a relative weight equal to 1. In the outpatient setting, Medicare uses APCs to assign relative weights to services. Like diagnosis-related groups, APCs are designed to assign relative weights to services based on the clinical characteristics of the patient and service and the expected relative resource requirements.
- In the *ASC* setting, a standardized unit is one service with a relative weight equal to 1. Medicare uses the same APC system as hospital outpatient services but multiplies by an ASC conversion factor, which is approximately 60 percent of the hospital outpatient conversion factor.

Appropriateness of Medicare as a Price Benchmark

Medicare provides a useful price benchmark for several reasons:

1. Medicare is the largest purchaser of health care services in the world and, in many ways, defines and enforces the technical standards used for claims processing and payment in the U.S. health care system.
2. Private health plans negotiate prices with providers, and those negotiated prices reflect the negotiating leverage of both the plan and the provider. Medicare prices, in contrast, are not affected by bargaining leverage but are instead set with the overarching goal of compensating providers fairly based on their costs of doing business and the services they provide (MedPAC, 2022). Medicare's price-setting formulas are not perfect (Hayes, Pettengill, and Stensland, 2007), but they have been refined over time based on ongoing analysis of legitimate sources of cost variation (Institute of Medicine, 2012) and with the goal of balancing the competing interests of providers, taxpayers, and beneficiaries.
3. Medicare hospital prices are adjusted for several key sources of legitimate variation in costs (MedPAC, 2022), including
    a. annual updates based on empirical measures of overall inflation in wages and prices of inputs used to produce hospital services, with a downward adjustment for expected improvements in productivity over time
    b. geographic adjustments based on local variation in wages and the cost of doing business
    c. hospital-specific adjustments for medical education and treating low-income patients and uninsured patients

d. case-mix adjustment based on the diagnoses and treatments provided to an individual patient
e. additional outlier payments for cases that are exceptionally costly relative to Medicare's standard price.

4. The federal government makes freely and publicly available detailed data on the prices paid (see, for example, CMS, 2016a; CMS, 2016b), detailed descriptions of the formulas that determine those prices (see, for example, U.S. Department of Health and Human Services and CMS, 2015), and the methods used to measure and summarize those prices (CMS, 2020).
5. A growing body of research reports private prices relative to Medicare prices, allowing benchmarking and comparisons with the findings from the current study (Ginsburg, 2010; White, 2012; Selden et al., 2015; Clemens and Gottlieb, 2017; Trish et al., 2017; Pelech, 2017; Sen et al., 2019).
6. Finally, using Medicare as a price benchmark allows for comparisons of price ratios and not comparisons of absolute price differences. Price ratios are less likely to be influenced by outlier procedures.

Simulating Medicare Payment Amounts for Inpatient Services

The private claims data were reported at the line-item level, whereas Medicare inpatient payments are determined based on services provided over the course of an inpatient stay. Therefore, we first collapsed our private claims data to the stay level, summing charges and allowed amounts across line items and maintaining a list of all diagnoses and treatment codes over the course of the stay.

For stays occurring at IPPS hospitals, we fed our stay-level claims data through version 40.0 of the MS-DRG grouper software in batch mode (CMS, 2022). The grouper software assigns an MS-DRG based on diagnoses and procedures reported on the claims data, automatically applying the appropriate grouper version based on the federal fiscal year of the date of discharge. The grouper software is compatible with International Classification of Disease versions 9 and 10 codes, and it successfully assigned MS-DRGs to almost all inpatient stays at IPPS hospitals. Stays that could not be assigned a valid MS-DRG were dropped from the analysis.

We then assigned the Medicare payment amount for each inpatient stay at an IPPS hospital incorporating MS-DRG relative weights, hospital-specific adjustments, and any outlier payments. The factors applied to the hospital-specific adjustments include

- local wage indexes
- successful reporting of hospital quality indicators, as mandated by Section 501(b) of the 2003 Medicare Prescription Drug, Improvement, and Modernization Act
- meaningful use of electronic health records
- disproportionate share hospital adjustments for hospitals that treat large shares of low-income patients
- indirect medical education adjustments for teaching hospitals
- increased payments for Medicare-dependent hospitals, sole community hospitals, and essential access community hospitals

- uncompensated care adjustments
- Hospital Readmission Reduction Program penalties
- value-based payment adjustments.

As described in the report, Medicare's uncompensated care adjustments can result in very high Medicare prices for a handful of hospitals that provide large amounts of uncompensated care and have few Medicare discharges. To avoid using inappropriately high Medicare inpatient prices as a benchmark in those cases, we applied a correction factor to each hospital's Medicare-uncompensated care adjustment. The correction factor, which was calculated separately for each hospital year, equaled the number of Medicare discharges divided by the sum of the number of Medicare discharges and the number of private discharges, both calculated from RAND Hospital Data (2022). Private discharges were estimated as total discharges minus the sum of Medicare discharges and Medicaid and Children's Health Insurance Program discharges. Conceptually, the correction factor follows the spirit of the Medicare price benchmark (i.e., what would private plans pay if they followed Medicare's price setting?) and Medicare's uncompensated care adjustment (i.e., by how much does the price for each inpatient stay have to increase so that the hospital receives an appropriate amount in the aggregate?). In other words, if private health plans were paying Medicare prices, then the aggregate Medicare uncompensated care payments would be spread over a base that includes both Medicare discharges and private discharges, and so the per-discharge adjustment would be correspondingly smaller. Most data contributors provided claims data that included billed charges, and, for those claims, outlier payments were calculated based on billed charges multiplied by cost-to-charge ratios from the provider-specific file. A few data contributors did not agree to provide claims data that included billed charges, and, for those claims data, we simulated outlier payments for inpatient stays by adding a uniform 5 percent add-on. A few minor payment adjustments were not included in the analysis: add-on payments for new technologies, downward adjustments for short-stay transfers, and adjustments for low-volume hospitals.

CAHs are paid by Medicare for inpatient and outpatient services based on their reasonable costs plus 1 percent (CMS and Medicare Learning Network, 2022). Therefore, for inpatient stays occurring at CAHs, we simulated Medicare payment amounts as billed charges multiplied by the hospital's Medicare inpatient cost-to-charge ratio multiplied by 1.01. The Medicare inpatient cost-to-charge ratio for each CAH and federal fiscal year was calculated using RAND Hospital Data (2022), which are based on data reported in the Healthcare Cost Report Information System form 2552-10.

Simulating Medicare Payment Amounts for Outpatient Services

To simulate Medicare payments for outpatient services provided at IPPS hospitals, we first fed our line item–level claims data through the Integrated Outpatient Code Editor (IOCE) software in batch mode. The IOCE determines, for each line item, whether the service is eligible for payment under the Medicare OPPS and, if so, the appropriate APC. Under Medicare's OPPS, line items may fall into one of three categories:

- assigned an APC and eligible for payment by Medicare

- eligible for payment by Medicare but *packaged*, meaning that the line item is not paid separately and is instead subsumed within a larger service with its own APC (CMS and Medicare Learning Network, 2022)
- ineligible for payment under the Medicare OPPS.

We define an *outpatient service* as a line item that is assigned an APC. In some cases, a single patient visit can generate payment for several separate services.

We excluded from the analysis any line items that were flagged by the IOCE as ineligible for payment under the Medicare OPPS (such as outpatient therapy services, which are paid by Medicare under a fee schedule), nonallowed, or paid under special pass-through provisions. After excluding those line items, we identified all line items with valid APCs and assigned Medicare payment amounts to those line items, taking into account the relative weight of the APC, geographic wage adjustments, discounting for multiple procedures, and outlier payments. For claims from data contributors that did not provide billed charges, a uniform 1 percent add-on was applied for outlier payments. Payments for services provided by a sole community hospital (a type of IPPS hospital) were increased by 7.1 percent. Outpatient claims without any valid APCs were dropped from the analysis.

Some outpatient claims have two or more APCs, in which case we calculated the share of Medicare payments generated by each APC within a claim. We then summed the allowed amounts in the private claims data for each claim and allocated those allowed amounts to line items with APCs: This approach allowed us to calculate relative prices for different types of outpatient services.

To simulate Medicare payments for outpatient services provided by CAHs, we multiplied the billed charges for each line item by the Medicare outpatient cost-to-charge ratio and then multiplied the result by 1.01.

A Numerical Example

Suppose a hospital provided 50 inpatient hospital stays to enrollees in plans sponsored by employers that participated in the study. To calculate the relative price of those services, we follow these steps (see Table A.1):

1. Sum the total actual allowed amount in the private health plan claims data for those 50 stays ($1.5 million).
2. Group each inpatient stay using Medicare's MS-DRG grouper and assign a relative weight based on MS-DRGs and Medicare's relative weights (1.5).
3. Calculate the number of standardized services as the sum of the relative weights for all the stays or, equivalently, the number of stays multiplied by the average relative weight (75).
4. Calculate the standardized price as the total actual allowed amount divided by the number of standardized services ($20,000).
5. Simulate the amount that Medicare would have paid for those 50 stays ($10,000), taking into account relative weights and applying, as precisely as possible, the payment formulas used in the Medicare fee-for-service program ($750,000).
6. Calculate the relative price as the ratio of the total actual allowed amount over the simulated amount calculated in step 5 (2.00).

Table A.1. Calculating Relative Prices: A Simplified Example

Calculation Steps	Values	Note
Number of services (A)	50	
Total actual allowed amount (B)	$1,500,000	
Case mix (average MS-DRG weight) (C)	1.5	
Standardized units of service (D)	75	= A * C
Standardized price (E)	$20,000	= B / D
Simulated Medicare payment amount (F)	$750,000	
Medicare price (G)	$10,000	= F / D
Relative price (H)	200%	= E / G

Calculating Standardized and Relative Prices for Hospitals, Hospital Systems, States, and Types of Services

Table A.1 illustrates the calculation of the standardized price and the relative price of inpatient care for a single hospital. Extending this concept, the relative price of inpatient care for a group of hospitals equals the sum of the allowed amounts for services provided by the group of hospitals divided by the sum of the simulated Medicare-allowed amounts for those services. Similarly, the standardized price for a group of hospitals equals the sum of the allowed amounts divided by the sum of the standardized units. The same general approach is used to calculate standardized prices and relative prices for specific types of services (e.g., hospital outpatient ED visits and hospital inpatient stays for orthopedic procedures).

The overall relative price for a single hospital equals the total allowed amount (including inpatient and outpatient services) divided by the simulated Medicare payments for services provided by the hospital (including inpatient and outpatient services).

Abbreviations

AHRQ	Agency for Healthcare Research and Quality
APC	Ambulatory Payment Classification
APCD	all-payer claims database
ASC	ambulatory surgical center
ASP	average sales price
CAH	critical access hospital
CalPERS	California Public Employees' Retirement System
CMS	Centers for Medicare & Medicaid Services
CPT	Current Procedural Terminology
DUA	data use agreement
ED	emergency department
EFI	Employers' Forum of Indiana
HCRIS	Healthcare Cost Reporting Information System
HOPD	hospital outpatient department
IOCE	Integrated Outpatient Code Editor
IPPS	inpatient prospective payment system
MedPAC	Medicare Payment Advisory Commission
MPN	Medicare Provider Number
MSA	metropolitan statistical area
MS-DRG	Medicare Severity Diagnosis Related Group
OPPS	outpatient prospective payment system
TPA	third-party administrator

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