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RESEARCH ARTICLE

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Site-based payment differentials for ambulatory services among individuals with commercial insurance

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Abstract

Objective: To compare prices paid by commercial insurers for ambulatory services in physician office and hospital outpatient settings.

Data Sources: MarketScan Commercial Claims and Encounters database obtained from Truven Health Analytics.

Study Design: We examined ambulatory service claims for a sample of privately insured individuals who were continuously enrolled in a health maintenance organization plan, preferred provider organization plan, high-deductible/consumer-driven health plan, or exclusive provider organization plan in 2018. We categorized services into five categories: Evaluation & Management, Medical Services & Procedures, Pathology/Lab, Radiology, and Surgical. We identified services commonly provided in both outpatient and office settings and computed the price differential between outpatient and office services overall and for each service category, controlling for observable patient characteristics and geography.

Data Collection: We examined 89 services (defined by Current Procedural Terminology [CPT] code) that were provided in both office and outpatient settings in our sample (102.7 million claims, 8.3 million individuals).

Principal Findings: Adjusting for patient and geographic characteristics and across all services, total payment for an ambulatory service was, on average, 145% higher in a hospital outpatient department than the same service in a physician office. Out-of-pocket spending was 109% higher. Price differences between outpatient and office services were highest for pathology/laboratory services. Patients receiving services in outpatient departments had higher mean risk scores and received more services on the date of their visit (in addition to the index CPT being studied) than patients receiving the same index CPT in a physician's office.

Conclusions: Payments in hospital outpatient departments were significantly higher than payments for the same services in physician offices among commercially insured patients. Policies such as site-neutral payment would lower costs and could reduce incentives for further consolidation in health care markets. Care must be given to adjusting for patient severity across settings.

KEYWORDS
access/demand/utilization of services, ambulatory/outpatient care, anti-trust/health care markets/competition, health care costs, health economics, health policy/politics/law/regulation, hospitals

What is known on this topic

- Documented payment differentials in Medicare have shown that payments are generally higher for services provided in hospital outpatient departments relative to the same services provided in physician offices.
- Private insurers pay, on average, double what Medicare pays for the same services, and therefore site-based payment differentials are likely to be larger in private insurance than in Medicare, however, there is little evidence on this topic.
- Payment differentials in Medicare have led to policies to institute "site-neutral payments," which could be applied to commercial insurance as well.

What this study adds

- In 2018, among individuals with employer-sponsored insurance, total payments across five categories of ambulatory care were, on average, 145% higher for services provided in hospital outpatient departments relative to the same services provided in physician offices.
- In six states, outpatient prices were over 200% higher than office prices for the same services.
- The average patient out-of-pocket payment was 109% higher for outpatient versus office services. The average outpatient patient also received more services during their visit than a patient receiving office-based care, potentially further raising costs.

1 | INTRODUCTION

Prices are the major driver of health care spending in the United States, prompting state and federal policy makers to develop approaches to control health care prices.[1] Recent studies have found that individuals with private insurance pay substantially higher prices for hospital and physician services than Medicare beneficiaries for similar services and that private sector prices vary widely across the country, associated at least in part with hospital concentration.[2–4] Developing market-based interventions that result in lower prices paid by private insurers has proven to be challenging since employers and payers typically lack sufficient market power for effective negotiation with hospitals, especially in highly-concentrated hospital markets.[5]

One area of particular concern is price differentials across settings of care, most notably for similar services provided in a hospital outpatient department ("outpatient") versus a physician office.[6] Relatively higher payment rates for outpatient services encourage hospitals to acquire physician practices and shift care from the office to the outpatient department. This type of vertical integration has been associated with higher prices and is something that private insurers and employers could address.[7–10]

While in some cases patients may actively seek care in an outpatient setting (and be willing to pay more), in other cases patients may be passively referred to or otherwise receive care at an outpatient facility that could have been provided in a physician office. Patients are unlikely to be aware of differences in price across sites given the lack of transparent price information for health care services but may be exposed to higher out-of-pocket costs for the same service depending on where they receive care.

If outpatient quality is relatively higher than office quality, this could justify higher relative prices. The literature suggests, however, that price differences across hospitals are more likely to be attributable to market factors than quality.[11,12] While there is less evidence on the links between price and quality in ambulatory care settings (due in part to a lack of quality data reported by physician offices and other providers of these services), a growing body of work shows no systematic association between price and quality for physician services. In turn, this evidence suggests that quality differences are unlikely to be the main driver of price differentials across sites of care for ambulatory services.[13,14]

There has been substantial analysis of payment differentials across sites of care and the need for "site-neutral" payments in Medicare, however, there is limited evidence on payment differentials in private insurance.[6,15–19] Based on evidence that commercial payers pay approximately double Medicare rates for both inpatient and outpatient hospitals services, researchers have hypothesized that site-specific payment differences are likely to be magnified among the commercially insured population, but empirical studies have not tested this hypothesis.[20]

Existing research on payment differentials in commercially insured populations has shown evidence of higher prices in outpatient settings relative to the same services delivered in physician offices, but has focused on one type of service or one insurer.[21–26] A more comprehensive understanding of price differentials across settings is important for private payers, patients, and employers who pay a substantial portion of the price of care for their insured employees (including state and local governments who provide insurance for the public employees). If private insurers are unwilling or unable to reduce these price differentials, state or federal action may be necessary to

limit or prohibit outpatient price markups for common services that could be provided safely in a physician's office.

Therefore, in this study, we examined payment differentials across physician office and hospital outpatient settings for five broad categories of ambulatory services that accounted for 57% of combined office and outpatient volume in our data. We used 2018 claims data from the Truven MarketScan Database, which includes national data from over 350 payers, to compare commercial payments and patient out-of-pocket costs for ambulatory services across office and outpatient sites of care in the United States. We described characteristics of patients receiving the same services in the office versus outpatient settings and estimated price differentials between settings controlling for patient characteristics including risk. We calculated the percentage difference between outpatient and office prices overall and by service category and examined geographic variation in this difference.

We found that most payments were substantially higher for the same services in outpatient settings relative to physician offices, controlling for patient characteristics. Higher prices in outpatient settings relative to offices may adversely impact patients in several ways, including higher out-of-pocket prices at the point of care and through higher insurance premiums since insurers are responsible for the nonpatient component of higher total payments in outpatient departments. Further, we document that the average patient receiving a given service in an outpatient setting receives more additional services than the average patient receiving the same service in an office, potentially increasing costs. Evidence on payment differentials has the potential to inform private insurers and federal and state policy makers concerned about patients unwillingly or unknowingly paying higher prices in outpatient settings. In this paper, we provide the first comprehensive documentation of such price differentials in a national commercially insured population, to inform this policy development.

2 | DATA AND METHODS

2.1 | Data and sample

The main data source for this study was the MarketScan Commercial Claims and Encounters database created by Truven Health Analytics (MarketScan).[27] This large national database includes claims for individuals across all states and has been used in numerous studies to capture utilization of and payment for services for the commercially insured population.[23,25,28] Our sample consisted of individuals aged 18–64 who were continuously enrolled in one of the following plan types in 2018: health maintenance organization plans, preferred provider organization plans, high-deductible/consumer-driven health plans, or exclusive provider organization plans (8.3 million individuals with 102.7 million claims).

We analyzed in-network claims for services received in a hospital outpatient department or physician office. Claims with the place of service code of 19 ("Hospital – Off Campus") or 22 ("Hospital – On Campus") were classified as outpatient and claims with the place of service code of 11 ("Office") were classified as a physician office. Capitated claims were excluded (1.5%). A single claim may be associated with multiple claim lines; we aggregated all claim line items for a given patient on a specific day. For each claim, we used the current procedural terminology (CPT) code to identify the service provided (e.g., office visit).

To identify a sample of services that were performed in both office and hospital outpatient settings with reasonable frequency, we applied three criteria (Appendix Table A1). First, we limited our sample to services that were provided at least once in both outpatient and office settings in the 2018 MarketScan data. Second, we calculated the share of total service visits that occurred in each setting (e.g., the percent of each CPT occurring in the outpatient setting). We then identified services where at least 1% of the volume was provided in each setting. Finally, within each of the five service categories, we limited our sample to CPTs that represented at least 1% of total CPT claims to generate a sample of relatively commonly provided services.

Using this approach, we identified 89 services (CPTs) meeting inclusion criteria in 2018 (Appendix Table A2). We grouped services into five categories: Evaluation and Management (11 CPTs, 35% claims), Medical Services (13 CPTs, 25% claims), Pathology/Lab (20 CPTs, 27% claims), Radiology (27 CPTs, 10% claims), and Surgery (18 CPTs, 3% claims).[29] The percent of spending by setting varied across categories (Appendix Table A3).

2.2 | Methods

The two main variables of interest were the total allowed amount per service inclusive of the amounts paid by the insurer and patient and (separately) the patient's out-of-pocket payment. The total allowed amount represents both facility fees and professional fees associated with a claim. The patient out-of-pocket payment was defined as the sum of copayment, deductible, and coinsurance amounts for each claim.

We first calculated unadjusted payment differentials for the same services provided in outpatient departments versus physician offices. Since the volume of each service varied between settings, we calculated weighted averages of CPT-level total and out-of-pocket payment amounts reported in the data for each service category in outpatient and office settings using total CPT volumes as weights. This approach allowed us to examine price differentials across settings holding volume fixed. For example, for CPTs in the evaluation and management category, we calculated the average payment for each CPT provided in outpatient departments and the average payment for the same CPT provided in the office setting. We weighted both by the total number of evaluation and management visits across both settings to isolate the payment differential independent of any volume differential.

To address the important concern that patient differences across settings could be driving payment differences (e.g., patients who seek a given service in an outpatient setting may have more complex needs than those who seek the same service in an office), we calculated

payment differentials adjusting for patient-year characteristics, including clinical risk score calculated using the Advanced Clinical Group (ACG) risk prediction software program.[30] The ACG algorithm predicts an "ACG score" for each enrollee which captures the relative health care cost for the individual over the year. The score is based on past diagnostic codes, expenditures, prescription drug consumption, age, and gender for each individual and individuals within a given ACG who experienced a similar pattern of morbidity and resource consumption over the course of a given year. A higher risk score is associated with worse health and higher expected health spending. We also used the ACG methodology to identify the total number of chronic conditions the patient had using procedure and diagnosis codes from the full enrollment year.

We extracted several other patient characteristics from MarketScan enrollment files, including patient age, gender, plan type, and geographic location. We controlled for patient health risk and plan type in a claim-level regression with fixed effects for each metropolitan statistical area to estimate the average payment differential between outpatient and office services for each service category within an area. We included CPT-level fixed effects to account for differences across services (e.g., the share of services performed in an outpatient department vs. office, whether the service is procedure-based vs. consultation-based).

Our main dependent variables were total and out-of-pocket payments at the claim level. We also used the log of these variables as dependent variables to estimate percent differences in payment. Our key explanatory variable was a binary variable indicating the setting of care. We ran a separate regression for each service category and clustered standard errors at the level of the metropolitan statistical area. We separately analyzed individuals in high-deductible/consumer-directed health plans as we might expect payment differentials to be higher in this group due to benefit design. Finally, we estimated the potential savings that insurers and patients could accrue if the services in our sample provided in the outpatient setting were paid at the median physician office price.[21,31]

We conducted several sensitivity analyses to test our results. We tested alternative approaches to address differences in patient health across settings: controlling for the number of chronic conditions rather than risk score, limiting the sample to patients with no comorbidities since patient complexity is less likely to explain payment differences in this sub-population,[32] employing inverse probability weighting to compare price differences across settings among patients with similar characteristics, and estimating our main effects without patient risk scores to assess whether including risk scores impacted estimated price differentials.

To control for potential differences in care received across settings, we estimated our main effects controlling for the number of other services received in addition to the "index" service by the same patient on the same day since additional services received can indicate if the focus service was part of a broader episode of care.[33] We also estimated our effects in a subsample of "standalone" services where no services other than the index service were recorded on that day.

Finally, to address the concern that our standard for identifying services that overlap outpatient and office settings is too low (a minimum of 1% in each setting for each service), we re-estimated our main effects in a sample of CPTs with at least 10% of service volume in the office setting and 10% in the outpatient setting. We also re-estimated our main effects in a sample of about 85% of the 2019 MarketScan data, however, the full 2019 data were not available at the time of analysis.

3 | RESULTS

3.1 | Patient characteristics across sites of care

We examined patient characteristics across outpatient and office settings for the services in our sample (Table 1). Patient age and sex were similar across settings for all service categories. The percent of patients with a high-deductible/consumer-driven health plan was slightly higher for office-based versus outpatient evaluation and management services (32% vs. 27%) and pathology/lab services (33% vs. 30%) but similar for other service categories. Patients in these plans may be more cognizant of higher prices due to their benefit design and therefore more likely to seek office-based care, though differences are moderate.

For all service categories, patients receiving outpatient services had more comorbidities, on average, than patients receiving the same services in an office. For example, outpatient evaluation and management patients had, on average, 3.6 chronic conditions compared to an average of 2.0 chronic conditions among office evaluation and management patients. This disparity may reflect true differences in patient health across settings. It is also possible, however, that this difference is associated with more comprehensive coding or upcoding in outpatient settings which may be better resourced than office-based providers.

We compared the number of total services received on the day of the index service for patients across settings. We found that patients receiving ambulatory services in outpatient settings had, on average, more services on the day of their visit relative to patients receiving the same services in office settings. This pattern was evident across all five service categories. Additional services may be reflective of patient complexity, patient preference, practice patterns, or other factors.

3.2 | Unadjusted payment differentials

We used CPT-level total and patient out-of-pocket payment amounts reported in the data to calculate weighted average payments for each service category in outpatient and office settings using total CPT volume as a weight to compare prices holding volume fixed. The average total payment per service was higher in the outpatient setting than an office for all service categories (Figure 1). The percentage difference in total payment ranged from 16% ($19) for evaluation and

TABLE 1 Characteristics of patients across sites of care by service category, 2018

	Evaluation and management	Pathology and laboratory	Radiology	Surgery	Medical services and procedures
Total individuals with outpatient services	490,651	2,000,362	2,152,484	388,075	694,645
Total individuals with office services	7,919,592	4,346,138	2,233,305	1,384,909	3,136,868
Mean patient age (SD)					
Outpatient	45.87 (12.81)	45.57 (12.80)	47.50 (11.86)	49.24 (11.60)	46.35 (12.71)
Office	43.78 (13.06)	44.43 (12.92)	46.29 (12.08)	48.07 (12.20)	44.40 (13.09)
Proportion female					
Outpatient	0.60 (0.49)	0.61 (0.49)	0.75 (0.43)	0.58 (0.49)	0.57 (0.49)
Office	0.56 (0.50)	0.60 (0.49)	0.73 (0.44)	0.59 (0.49)	0.58 (0.49)
Proportion in HDHP/CDHP					
Outpatient	0.27 (0.44)	0.30 (0.46)	0.30 (0.45)	0.29 (0.45)	0.30 (0.46)
Office	0.32 (0.46)	0.33 (0.47)	0.31 (0.46)	0.30 (0.45)	0.31 (0.46)
Proportion in an HMO					
Outpatient	0.10 (0.30)	0.08 (0.28)	0.09 (0.29)	0.09 (0.28)	0.08 (0.28)
Office	0.09 (0.29)	0.08 (0.27)	0.09 (0.29)	0.08 (0.28)	0.10 (0.30)
Proportion in a PPO					
Outpatient	0.48 (0.49)	0.50 (0.49)	0.51 (0.49)	0.52 (0.49)	0.50 (0.49)
Office	0.51 (0.49)	0.51 (0.49)	0.52 (0.49)	0.53 (0.49)	0.50 (0.49)
Average number of chronic conditions (SD)					
Outpatient	3.62 (3.23)	2.99 (2.74)	2.90 (2.75)	3.28 (2.87)	3.59 (3.13)
Office	2.00 (2.21)	2.29 (2.35)	2.54 (2.54)	2.86 (2.62)	2.37 (2.45)
Advanced clinical group risk score (SD)					
Outpatient	4.03 (5.59)	2.85 (4.32)	2.79 (4.30)	3.40 (4.45)	3.82 (5.29)
Office	1.66 (2.96)	1.95 (3.26)	2.45 (3.70)	2.69 (3.86)	2.17 (3.50)
Mean no. of services on day of visit (SD)					
Outpatient	3.53 (2.53)	4.77 (3.38)	3.42 (2.97)	3.71 (2.20)	4.79 (3.49)
Office	2.15 (1.27)	2.61 (1.50)	2.32 (1.13)	2.26 (0.92)	2.45 (1.21)

Note: Analysis at the patient level for patients aged 18–64 continuously enrolled in one of the following plan types: health maintenance organization (HMO) plans, preferred provider organization (PPO) plans, consumer-driven health plans and high-deductible health plans (CDHPs/HDHPs), and exclusive provider organization (EPO) plans.
Source: Authors' analysis of 2018 MarketScan data.

management services to 263% ($50) for pathology/lab services. The dollar difference was greatest for surgical services ($317). There was significant variation in payments for specific services within providers in each setting; in most cases, outpatient prices were characterized by a long right tail of high prices and there was substantially more variation in outpatient prices for each CPT relative to office prices for the same CPT (Appendix Figure A1).

Average patient out-of-pocket payment per service was also higher for outpatient services compared to the same services provided in an office setting for all service categories except evaluation and management (Figure 2). For services in other categories, the percent difference in out-of-pocket payment ranged from 92% ($35) higher for services provided in an outpatient setting versus office for surgery services to 220% ($11) higher for outpatient pathology/laboratory services relative to the same services provided in an office. The out-of-pocket dollar difference was greatest for surgical services ($35) and radiology services ($34).

3.3 | Adjusted payment differentials across care settings

We controlled for observable patient characteristics (ACG score, plan type, area of residence) in a claim-level regression to estimate the total and out-of-pocket payment differential between outpatient and office services for each service category. Total payments for outpatient department services relative to office-based services were significantly higher for all service categories (Table 2, Appendix Tables A4a, b). Average adjusted payment differentials ranged from 13% higher ($15) for evaluation and management services in outpatient versus

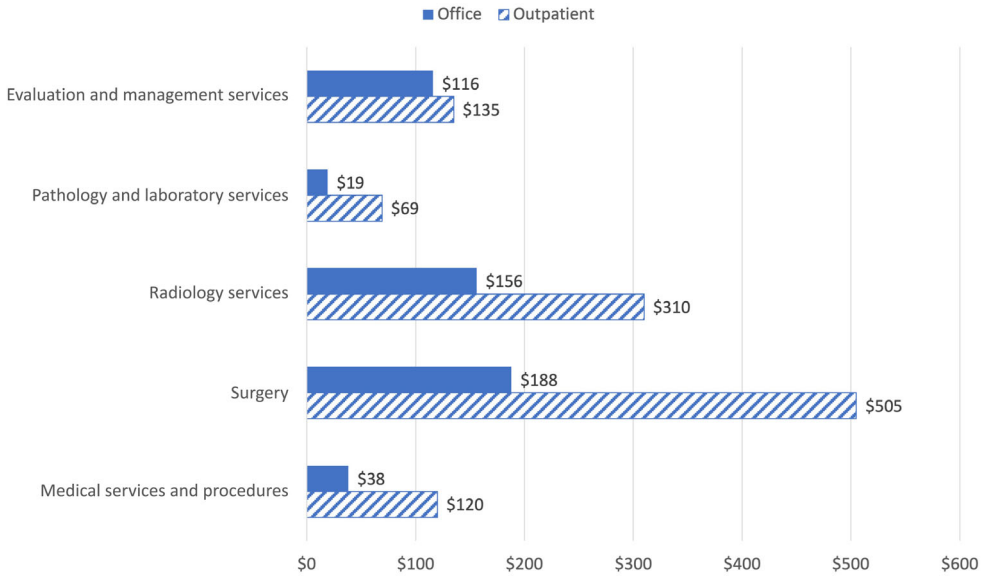

FIGURE 1 Weighted mean total payment across sites of care by service category, 2018. Analysis at the claim level for patients aged 18–64 continuously enrolled in one of the following plan types: health maintenance organization plans, preferred provider organization plans, consumer-driven health plans and high-deductible health plans, and exclusive provider organization plans. Total payment represents allowed amounts and includes payments on professional and facility claims. Payments are at the service (CPT) level. Weighted mean payment is calculated using CPT-level payments weighted by total CPT-level volume. *Source*: Authors' analysis of 2018 MarketScan data [Color figure can be viewed at wileyonlinelibrary.com]

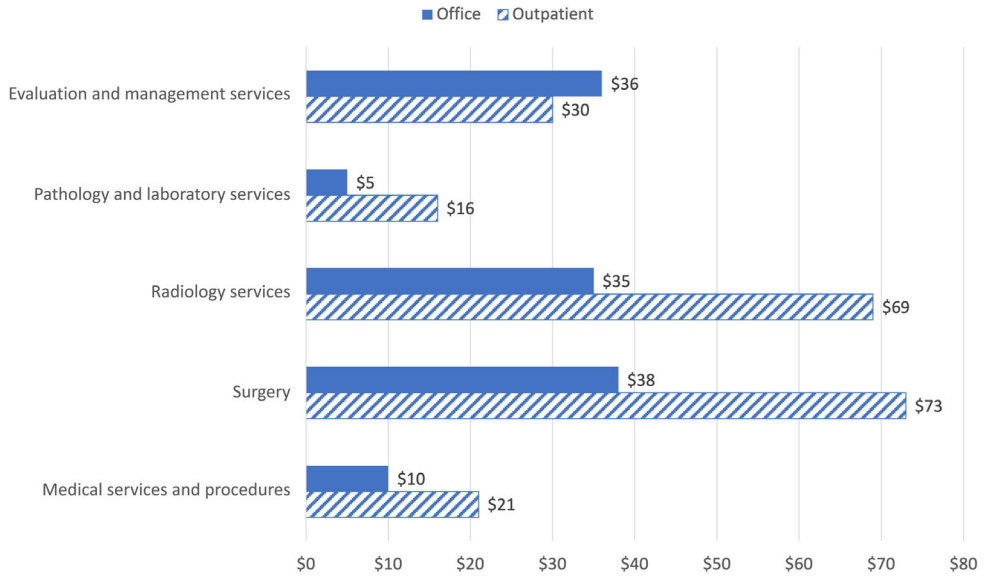

FIGURE 2 Weighted mean patient out-of-pocket payment across sites of care by service category, 2018. Analysis at the claim level for patients aged 18–64 continuously enrolled in one of the following plan types: health maintenance organization plans, preferred provider organization plans, consumer-driven health plans and high-deductible health plans, and exclusive provider organization plans. Out-of-pockets payment includes payments on professional and facility claims. Payments are at the service (CPT) level. Weighted mean payment is calculated using CPT-level payments weighted by total CPT-level volume. *Source*: Authors' analysis of 2018 MarketScan data [Color figure can be viewed at wileyonlinelibrary.com]

office settings to 239% higher ($45) for outpatient pathology/laboratory services relative to the same services in physician offices. Across all five service categories, total payment for outpatient services was 145% higher than payment for the same services in an office setting ($68). This percentage ranged considerably across states, from 31% higher in Hawaii to 334% higher in Texas (Appendix Table A5). State results are not adjusted for hospital concentration levels or other characteristics that might explain variation across states.

Average out-of-pocket payments were meaningfully higher for services in outpatient versus office settings for four service categories (Table 2). The percent difference in out-of-pocket payment for services in the outpatient setting relative to the office setting was highest for pathology/laboratory services at 179% ($11) and lowest for evaluation and management services at 4% (−$2). Overall, the average out-of-pocket payment for an outpatient service was 109% ($14) higher than the out-of-pocket payment for the same service in an office setting. Out-of-pocket payment differentials were relatively higher for enrollees in high-deductible/consumer-directed health plans (Appendix Table A6).

We computed potential savings to insurers and patients if the outpatient services in our sample were paid at the median office rates for the same services. The results show a 48% reduction in total spending ($1.2 billion) and a 19% reduction in out-of-pocket spending (24.5 million). The largest estimated total savings were for medical services and procedures (70%) and pathology/lab services (64%). The largest out-of-pocket savings were for surgery (48%) and medical services and procedures (47%) (Table 3). There were no out-of-pocket spending reductions for evaluation and management visits or pathology/lab visits since the majority of these services take place in physician offices and repricing based on median physician office price may lead to increased spending.

3.4 | Sensitivity checks

Total and out-of-pocket payment differentials across outpatient and office settings were consistent when we used alternative approaches to control for patient health, including replacing the ACG risk score with the number of chronic conditions (Appendix Table A7), limiting the sample to patients with no comorbidities (Appendix Figure A2), and using inverse probability weighting to re-estimate results after balancing on covariates included in the main specification (Appendix Tables A8a,b). Finally, we estimated our main specification without any measures of patient health risk/severity and found consistent differentials, suggesting that our measures of patient severity did not meaningfully influence the difference in prices across settings (Appendix Table A9).

TABLE 2 Estimated payment differentials across sites of care by category of services, 2018

	Total payment		Out-of-pocket payment	
	Estimated price differential (HOPD – office), [95% confidence interval]		Estimated price differential (HOPD – office), [95% confidence interval]	
Dependent variable	$	%	$	%
Evaluation and management	15 [8.44, 21.04]	13% [7, 19]	−2 [−4.01, −0.97]	4% [1, 8]
Pathology/laboratory	45 [39.25, 50.72]	239% [201, 282]	11 [9.66, 12.14]	179% [154, 207]
Radiology	145 [132.39, 158.59]	67% [56, 78]	36 [31.25, 40.75]	75% [63, 87]
Surgery	367 [280.76, 453.48]	113% [97, 130]	44 [37.71, 49.80]	101% [84, 119]
Medical services	80 [74.04, 85.93]	177% [161, 195]	12 [11.22, 13.30]	115% [104, 127]
Overall	68 [61.45, 74.51]	145% [125, 166]	14 [12.60, 15.88]	109% [96, 123]

Note: Analysis at the claim level for patients aged 18–64 continuously enrolled in one of the following plan types: health maintenance organization plans, preferred provider organization plans, consumer-driven health plans and high-deductible health plans, and exclusive provider organization plans. Dependent variables are claim-level total payment and log(claim-level total payment) and claim-level out-of-pocket payment and log(claim-level out-of-pocket payment). Regression run for each service category separately and includes controls for patient plan type and ACG risk score and fixed effects for MSA and current procedural terminology. Full regression results shown in Appendix S1. All p-values <0.05.
Source: Authors' analysis of 2018 MarketScan data.

TABLE 3 Estimated reduction in spending if outpatient services were paid at office rates, 2018

	Total spending reduction		Out-of-pocket spending reduction	
Service category	$	%	$	%
Evaluation and management	15,106,250	10	−14,338,983	0
Pathology/laboratory	238,790,383	64	−5,441,607	0
Radiology	492,496,455	44	26,935,072	36
Surgery	215,443,221	43	3,793,338	48
Medical services	203,165,313	70	9,362,869	47
Overall	1,165,001,621	48	24,472,505	19

Note: Spending reduction estimated by calculating the difference between current (total and out-of-pocket) outpatient expenditure and estimated outpatient expenditure if each current procedural terminology (CPT) payment were equal to the median payment amount for that CPT in the office setting. Percent spending reductions calculated based on 2018 outpatient total and out-of-pocket spending.
Source: Authors' analysis of 2018 MarketScan data.

The results were also consistent when we controlled for the number of other services received in addition to the "index" CPT by the same patient on the same date (Appendix Table A10) and when we compared payments for "standalone" ambulatory services (Appendix Figure A3). The greater number of additional services in outpatient versus office settings suggests that the full "bundle" of care received may be meaningfully different by setting. While measuring additional services on the same day may incompletely capture the full breadth of an episode of care or patient experience, limiting the analysis to situations where the index service is the only service received allowed us to compare patient care experiences that are plausibly similar and to control for patient risk indirectly.

We found higher percentage price differentials in a sample of 51 CPTs defined by having at least 10% of service volume provided in an outpatient setting and at least 10% of volume provided in an office in 2018 (i.e., greater overlap across settings than our main sample). In this subsample, total payment was 172% higher and out-of-pocket payment was 135% higher for outpatient versus office services compared to 145% higher and 109% higher, respectively, in our main sample (Appendix Table A11). The main results were consistent when estimated in a sample of the 2019 MarketScan data (Appendix Figures A4a,b).

4 | DISCUSSION

In this study of payment differentials for ambulatory care between hospital outpatient and physician office settings among individuals with private health insurance, we found that total payments were substantially higher for services provided in outpatient departments than the same services provided in physician offices. Adjusting for patient and area characteristics, outpatient services had 145% higher total and 109% higher out-of-pocket payments than the same services provided in a physician office setting. There was considerable variation in this percentage difference across states.

Receiving services in outpatient departments that could be provided in offices may impose a considerable financial burden on patients through higher out-of-pocket payments at the point of care, receipt of additional services which generate costs, and potentially higher health insurance premiums. It is notable that site-based price differences were greater than average for enrollees in high-deductible/consumer-directed health plans. Enrollees in these plans were slightly more likely to use office settings than outpatient settings, but effects were moderate relative to the hope that these plans promote cost-conscious "shopping."

The payment differential between services provided in an outpatient versus office setting may reflect several factors but does not appear to be driven by patient differences across settings. One component of the differential is the facility fee, which hospitals charge to cover standing costs such as ancillary staffing, licensure, technology systems, and maintaining standby capacity. A previous study estimated that close to half of the increase in physician services prices following hospital acquisition was due to this facility fee.[10] More research is needed to assess whether revenue from these fees is spent on patient care or increased margins or administrative costs.

There is also the potential that patients receive meaningfully different care in a hospital outpatient department compared to a physician office. Hospital-based care may include more services, as we observe in our data; hospitals may also be more likely to invest in the coordination of care and care management, which are difficult to observe in claims data. Further, there may be unobservable differences (e.g., prestige and credibility of a hospital) which patients value and may justify differences in prices. The extent to which patients value additional care and other features of hospital-based care, and whether these differences are associated with improved patient health or satisfaction, is unclear and likely varies by patient, service, and facility. If quality and outcomes are equivalent, at least for a subset of services, then observed price differentials are difficult to justify. For example, we found that the total payment for outpatient pathology/lab services is, on average, 239% higher than the same services provided in an office setting. Quality differences are unlikely to explain this differential fully given we are comparing the same set of services.

This and related analyses of outpatient prices raise more general concerns regarding the level of and variation in outpatient prices, which have been understudied relative to inpatient prices. Recent evidence showed that hospital outpatient procedures averaged 167% above Medicare prices, compared to 131% among inpatient services.[2] Our study compares commercial outpatient prices to a different benchmark, office prices for the same services, however, the two studies are consistent in their finding that hospital outpatient department prices are meaningfully higher than relevant benchmarks. Policy makers may want to protect patients from high out-of-pocket costs when they receive services in an outpatient facility, which could have been safely provided in an office setting with equivalent quality, especially if patients are unaware of higher outpatient costs. Higher prices in outpatient settings may impose an additional financial burden on patients, which is likely to deter care.[34] Evidence of payment differentials has motivated a phase-in of site-neutral payments in Medicare which could be a foundation for similar efforts among commercial insurers. Previous work suggests that this type of payment reform could reduce incentives for vertical integration and thereby restrain some price growth for private insurers.[20]

The federal government has a limited role in private insurance contracts but could take some action. Federal efforts are underway to increase price transparency, which would provide additional public information regarding payment differentials and could encourage private insurers and employers to adopt site-neutral payments or shift services from outpatient to office settings. Per recent guidelines regarding vertical merger review, the Federal Trade Commission could investigate if price differentials introduce incentives for hospitals to acquire physician practices, which increases provider market power and is associated with higher prices.[35]

Given the substantial market consolidation in health care provider markets, however, more direct regulation at the state level may be necessary. Ongoing state efforts include creating regulated public

health insurance options, monitoring health care spending growth, and introducing out-of-network price limitations.[36,37] State policy makers might consider introducing site-neutral payments for services where quality and patient experience is equivalent across settings and for populations over which the state has direct jurisdiction (e.g., state employees). Some states have introduced regulations motivated by price differentials across providers (e.g., reference pricing in the California Public Employees' Retirement System and Medicare price benchmarks in the Montana State Employee Health Plan); but these initiatives have been slow to expand.

This study has several limitations. First, we did not compare patient outcomes across settings of care. Existing work suggests that higher spending and an increased percent of services provided in outpatient settings over office settings following vertical integration was not associated with changes in quality, however, there may be unmeasured dimensions of patient outcomes.[38]

Second, our main analysis was focused on comparing claim-level payments without accounting for variation in the overall "bundle" of care (i.e., volume and scope of services) across settings. We mitigated this issue to a certain extent by comparing prices for standalone services, controlling for the number of other services received, and holding volume fixed in our price comparisons. Further, while comparing "bundle" prices may be useful for patients in the context of price transparency, the objective of using CPT-claim-level data is to ensure an "apples-to-apples" comparison of payments across settings. A related limitation is that we cannot reliably disentangle facility fees and professional fees in the MarketScan data.

Finally, we controlled for patient risk in several ways, however, there may be unobserved differences in patient characteristics across settings that contribute to differences in payment. One concern is that the ACG measures are at the patient-year level and not a direct measure of patient needs or complexity at the point of receiving the specific services we study. Further, the ACG risk score is based on individual characteristics (e.g., comorbidities) and health service utilization, which are a function of the care patients receive. For example, if a patient receives outpatient care, their volume of services may be higher and they may be more likely to have comorbidity recorded, which in turn raises their risk score. We ran several sensitivity analyses to address these concerns; however, unobserved differences in patient risk or upcoding may remain.

Absent higher levels of outcomes or patient satisfaction, higher prices in outpatient departments place a financial burden on patients who may not have a choice in terms of where to seek services or may rely on physician referrals without awareness of price differentials. Policies such as site-neutral payments for commercially insured individuals may produce savings for health insurers, employers, and patients without adverse consequences for patient health and safety.[39] Optimizing payment for ambulatory services among commercially insured populations has the potential to play an important role in improving patient experience and lowering prices.

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