

Issue Brief

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Price Markups for Clinical Labs: Employer-based Insurance Pays Hospital Outpatient Departments 3X More Than Physician Offices and Independent Labs for Identical Tests

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Blood tests are a standard part of medical care. Used to prevent, diagnose, or monitor a variety of medical conditions, these and other clinical lab tests are the most common health care service in the United States. Approximately 14 billion tests are ordered annually and performed by approximately 260,000 laboratories. Whether a metabolic panel (to measure indicators like sugar level, kidney function, and liver function), a lipid panel (to measure cholesterol), or myriad other tests, many medical decisions are often dependent on results from clinical lab tests. By their very nature, these tests are standardized to be the same regardless of clinical settings, yet our research finds that hospital outpatient departments are typically billing private insurance three times more for the same lab test compared to physician offices and independent laboratories (Table 1).

Key Findings

- Employer-based insurance is typically paying 3 times more for clinical lab tests when billed by hospital outpatient departments compared to identical tests billed by physician offices and independent laboratories.
- Total spending on clinical lab tests in hospital outpatient departments has grown over 30% from 2016-2019, due almost entirely to price growth.
- In seven states, the markup for lab tests from hospital outpatient departments was over 6 times the median price for the same tests from physician offices in 2019 (Colorado, Indiana, Nevada, New Mexico, North Carolina, Texas, and West Virginia).
- State policymakers could consider implementing regulations to reduce the price markups associated with outpatient hospital-based lab tests for insurance plans regulated at the state level.

Table 1: Prices Paid for Common Lab Tests by Setting, 2019

MOST COMMON LABS	Price per Lab Test				Price Markup Ratio*
	Office/ Independent Lab		Hospital Outpatient Dept.		
	Median	90th percentile	Median	90th percentile	
Lipid Panel	\$10.58	\$22.55	\$38.29	\$120.58	3.62
Comprehensive Metabolic Panel	\$8.85	\$19.56	\$47.13	\$214.20	5.33
Complete Blood Count, with diff WBC	\$7.12	\$14.39	\$31.89	\$98.10	4.48
Hemoglobin; glycosylated (A1c)	\$8.34	\$17.09	\$32.11	\$88.47	3.85
Thyroid Stimulating Hormone (TSH)	\$14.13	\$28.50	\$49.06	\$129.19	3.47
General Health Panel	\$22.97	\$49.11	\$127.97	\$352.44	5.57
Vitamin D testing	\$24.81	\$43.86	\$72.32	\$179.51	2.92
Urinalysis, automated, with microscopy	\$2.72	\$5.83	\$21.39	\$77.15	7.87
Thyroxine Free	\$7.55	\$13.64	\$30.95	\$102.73	4.10
Strep A (infect agent antigen detection)	\$14.55	\$24.39	\$45.89	\$113.39	3.15
Urine Culture, Bacterial	\$6.77	\$12.10	\$30.93	\$96.46	4.57
Urinalysis, automated, without microscopy	\$2.37	\$4.77	\$13.58	\$57.55	5.73
Basic Metabolic Panel	\$7.75	\$17.08	\$38.84	\$149.11	5.01
OTHER LABS	\$11.99	\$39.00	\$37.18	\$135.77	3.10
ALL LABS	\$11.12	\$33.51	\$38.22	\$136.45	3.44

*Price Markup Ratio is calculated as a ratio of the hospital outpatient dept. price to the physician office/indep. lab median price. Prices are the amounts paid on claims. Source: HCCL commercial claims data

Background

Previous Health Care Cost Institute (HCCI) research has shown that a medical service received in a hospital outpatient department often has a higher price than the same service performed in a physician’s office. Unlike surgeries or other procedures, where clinical care may differ across settings due to physician practice or quality or patient complexity, such variation should not exist among clinical lab tests. Analysis of most non-emergent clinical lab tests on a specimen, such as a blood or urine sample, is identical regardless of factors such as where the test is performed or patient risk.

In this brief, we compare prices (as determined by total payments on claims) for clinical lab tests between hospital outpatient departments (25% of tests in our study) and physician offices and independent labs (75% of tests in our study) among individuals with employer-based health insurance. This analysis uses HCCI’s [unique commercial claims dataset](#) which contains claims for 55 million Americans annually. In addition to analysis of individual clinical lab tests, we also examined variation across five broader categories following [previously established methods](#) relying on Common Procedural Terminology (CPT) codes:

- Chemistry tests (e.g., basic metabolic panel),
- Microbiology tests (e.g., immunoglobulin),
- Blood count tests (e.g., complete blood count),
- Urine tests, and
- Toxicology tests (e.g., drug screening).

Pathology labs were excluded from our analysis due to the larger role of professional services that often accompany these tests. Labs performed for emergency departments were excluded from the analysis.

Our final study sample included 232 million lab tests in 2019. Overall, spending on this sample of clinical lab tests (which represent about a third of the claims for these services among people with employer-sponsored insurance) was close to \$7 billion in 2019, with 54% of total spending on outpatient hospital-based labs. Further details of our analytical methods can be found in the Methods note at the end of the brief.

Price Markups for Clinical Labs in Hospital Outpatient Departments

Using HCCI's commercial claims data, our analysis finds that clinical lab tests performed in a hospital outpatient department (including on-and off-campus locations) were typically three to five times higher than those in a physician's office or independent laboratory. This setting-based markup (i.e., ratio between median prices in outpatient departments and physician office/independent labs) varied by test.

Among the two most common lab tests, the median price of a lipid panel in a hospital outpatient department was \$38 compared to \$11 in a physician office. The median price of a comprehensive metabolic panel was \$47 when performed in a hospital outpatient department versus \$9 in a physician office – a five-fold difference ([Table 1](#)). Prices at the 90th percentile reveal that under commercial insurance some hospital outpatient departments are being paid over \$200 for a metabolic panel, which has a median office-based price of \$9.

Of the clinical lab test claims in our sample, 54% were for chemistry tests, 24% were for microbiology tests, 10% were for blood count tests, 9% were for urine tests, and 4% were for toxicology tests. Price per lab (calculated as total payments/utilization) was greater when labs were conducted in hospital outpatient departments vs. physician offices and independent labs in all categories. The markup was highest for urine and blood count tests. The greatest dollar differences in these price markups were among toxicology and microbiology labs (both over a \$30 difference – equating to a three-fold difference in median price across sites of service) ([Table 2](#)).

Table 2: Prices Paid by Lab Test Category and Setting, 2019

	Share of Lab Tests	Median Price per Lab Test		Price Markup Ratio*
		Office/ Independent Lab	Hospital Outpatient Dept.	
Chemistry	54%	\$11.88	\$39.91	3.36
Microbiology	24%	\$16.50	\$47.80	2.90
Blood Count	10%	\$6.34	\$29.61	4.67
Urine	9%	\$4.33	\$24.39	5.63
Toxicology	4%	\$12.15	\$43.65	3.59
ALL LABS	100%	\$11.12	\$38.22	3.44

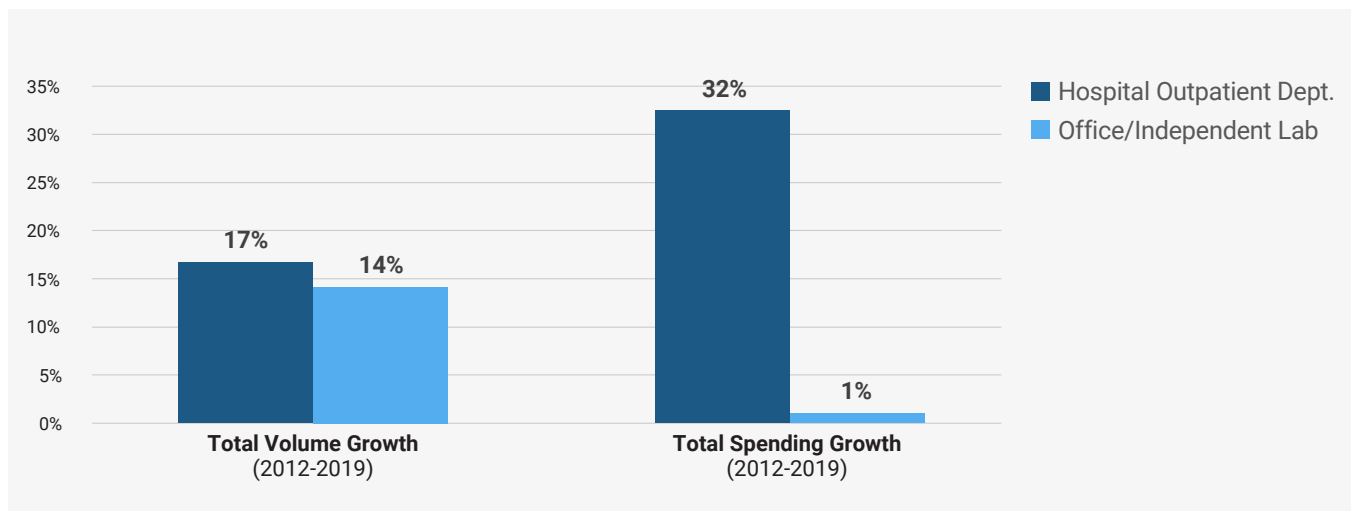
*Price Markup Ratio is calculated as a ratio of the hospital outpatient dept. median price to the physician office/indep. lab median price. Prices are amounts paid on claims. Source: HCCI commercial claims data

Growth in Volume and Spending on Clinical Lab Tests in Recent Years

While the volume of lab tests has grown at similar rates across settings, total spending by employer-based insurance has grown much faster for labs billed by hospital outpatient departments ([Figure 1](#)). Specifically, between 2012 and 2019, the volume of lab tests from hospital outpatient departments grew 17%, close to the 14% seen for physician offices and independent labs. Across categories of labs, there was also little variation in the share of volume by settings between these two time periods, although toxicology fluctuated somewhat in the between years (see [Downloadable Data/Appendix](#)).

In contrast, total spending on hospital outpatient department lab tests grew a remarkable 32% over this time period, much higher than the 1% growth in spending on lab tests from offices and independent labs. Therefore, given similar volume growth by setting, the rapid spending growth for hospital outpatient department lab tests is driven mostly by their higher prices relative to offices and independent labs on identical tests.

Figure 1: Percent Growth in Volume and Spending for Lab Tests by Setting, 2012-2019



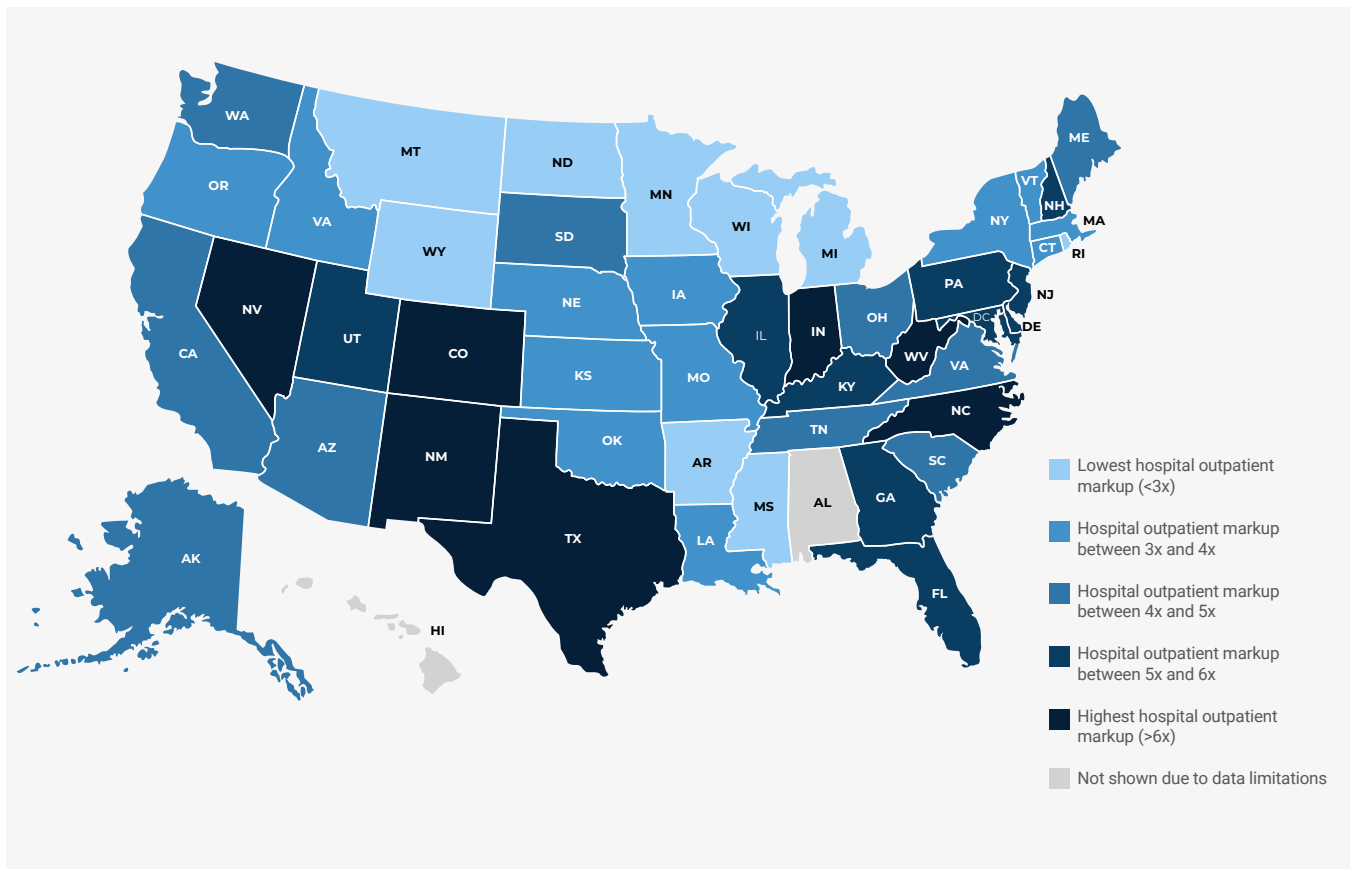
Source: HCCL commercial claims data

Geographic Variation in Relative Price Markups by Setting

We calculated state-level price markups associated with hospital outpatient department lab tests and found that markups ranged from just under 2x (i.e., hospital outpatient lab prices were 2 times the price of the same labs in office/independent lab settings) to over 6x ([Figure 2](#)). (Two states were excluded from state-level analysis due to data limitations.) Only three states had markups lower than 2 times the office-based price (North Dakota, Arkansas, and Minnesota). In seven states, the markup for labs from hospital outpatient departments was over 6 times the median price for labs from physician offices (Colorado, Indiana, Nevada, New Mexico, North Carolina, Texas, and West Virginia).

Even within states, relative markups for labs in hospital outpatient departments varied considerably. For example, in Philadelphia, Pennsylvania, the average price difference between hospital outpatient departments and physician offices for lipid tests was \$34, but in Pittsburgh the price difference was only \$17. In Tallahassee, Florida, the price for an outpatient hospital-based lipid test was a remarkable \$111 more than the same test in a physician office or independent lab; in Jacksonville, the average difference was \$37.

Figure 2: Level of Markup for Hospital Outpatient Department Lab Tests Relative to Offices and Independent Labs by State, 2019



State-level markups are calculated based on a weighted average of outpatient and office/lab price ratios for each lab service in the state (i.e., CPT-level outpatient-to-office ratios), weighted by 2019 national share of CPT-level use.

Source: HCII commercial claims data

Effect of Clinical Lab Test Prices on Patients and Employers

Among the 40% of labs with cost sharing, out-of-pocket costs were higher for labs when they were billed by a hospital outpatient department compared to an office-based or independent lab setting. For example, one of the most common lab tests with cost sharing—a lipid panel—typically cost about \$9 out-of-pocket for patients when billed by a physician office compared to \$25 out-of-pocket when billed by a hospital outpatient department ([Downloadable Data/Appendix](#)). In many cases, patients may be surprised to discover when they pay cost sharing that their physician's practice is billing as an 'off campus' hospital outpatient department.

In contrast to medical services, less frequent cost-sharing for lab tests likely reflects a combination of factors including plan benefit design and bundling of lab tests with other services and procedures. Notably, when patients have no out-of-pocket costs for a lab test, they are not expected to 'shop' for better prices, nor are they likely to be aware of high price markups. Overall, spending increases on lab tests contribute to the continuing upward pressure on health insurance premiums, borne by employers, patients and consumers.

Conclusion

Among individuals with employer-sponsored insurance, we observe substantially higher prices paid for common lab tests when these tests were billed by hospital outpatient departments (including on and off-campus locations) compared to when they were performed in physician offices and independent labs. Price differences across settings are essentially markups given that the cost of performing most clinical lab tests on a specimen are standardized and not expected to vary as much by setting as other types of health care services, which can incorporate other factors such as patient complexity.

The relative markups associated with outpatient hospital-based lab tests likely reflect broader market power dynamics, including hospital and health system consolidation, which [has been shown to raise prices](#). The ability of independent labs to gain market share can also affect regional prices. Further research on these and other drivers could be informative for [employers](#), policymakers, and state regulators. In many markets, neither insurers nor employers have the market power against hospital systems to negotiate substantially lower prices. In these cases, public policy intervention may be needed to achieve lower prices for hospital outpatient-based services, including labs.

Although the federal government currently has limited scope to influence private insurance markets, state policymakers could reduce the markup associated with outpatient hospital-based lab tests through site-neutral payment policies for insurance plans regulated at the state level. Where negotiations are possible, health insurers and self-insured employers may also have the opportunity to limit site-based payment differentials for their enrollees and employees. Such policies have the potential to protect patients from unexpected price markups as well as lower overall national health spending and insurance premiums.

Methods

Ambulatory laboratory tests between 2012 and 2019 were identified in both facility (hospital outpatient departments) and professional claims (associated with office visits) and classified into blood counts, chemistry, microbiology, pathology, toxicology, and urine tests using Current Procedural Terminology (CPT) codes identified in [Song, Lillehaugen and Wallace \(2021\)](#).

We restricted our analysis to adjudicated claims with an employer-sponsored insurer health plan as the primary payer and allowed amounts greater than \$1. We categorized site of test as hospital outpatient department if place of service was billed as an off-campus hospital outpatient department (POS=19) or on-campus hospital outpatient department (POS=22). We also analyzed claims with place of service billed as independent laboratory (POS=81) or office (POS=11). We grouped lab tests from physician offices and independent labs to examine the pricing and utilization differences between hospital-based and non-hospital-based settings. We found that prices were fairly comparable between physician office and independent lab settings in 2019. Our final sample included 232 million lab tests in 2019.

For precision in calculation of the price markup ratio by state in 2019, we first calculated the national share of total lab use, denoted as ω_p in 2019 for each distinct lab service (defined as CPT code). Within each state, we calculated the weighted price markup ratio for each distinct lab service:

$$\left(\frac{\text{Average outpatient price}_p}{\text{Average office price}_p} \times \omega_p \right) \text{ where } p \text{ denotes CPT.}$$

To calculate a composite price markup ratio for each state, we took the average of all the weighted price markup ratios within each state.

Data limitations prohibit us from identifying ordering and referring physician for a specific lab as well as the specific site of where laboratory samples were analyzed (e.g., on site or sent out to independent laboratory facilities). Additionally, the HCCI data include individuals with employer-sponsored insurance and, therefore, are not representative of the full U.S. population. Lastly, our data is a convenience sample which limits state-level representativeness.



ABOUT HCCI

The Health Care Cost Institute is an independent, non-profit research institute. HCCI's mission is to get to the heart of the key issues impacting the U.S. health care system by using the best data to get the best answers. HCCI stands for truth and consensus around the most important trends in health care, particularly those economic issues that are critical to a sustainable, high-performing health system. Our values are simple: health care claims data should be accessible to all those who have important questions to ask of it. Health care information should be transparent and easy to understand. All stakeholders in the health care system can drive improvements in quality and value with robust analytics.

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