



May 2021

# Variation in Health Care Prices: The Problem Starts at Birth



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# Executive Summary

Health care prices are a key contributor to health care spending growth among the privately insured population, both [nationally](#) and in [New York State](#). Moreover, prices for similar medical services vary widely across providers, even when comparing those within the same [neighborhood](#). Prices and [quality](#) are not necessarily related; that is, higher prices do not always mean better quality. It is possible to reduce health spending without harming patients.

This report examines variation in what is paid for childbirth in each of the five boroughs of New York City. Childbirths are a [primary component](#) of health care utilization and spending for the population under the age of 65 covered by private insurance. This analysis uses data from nearly 10,000 vaginal and cesarean deliveries in 2017 in New York City that are in the Health Care Cost Institute (HCCI) commercial claims database, which represents people covered by employer-sponsored health insurance networks. The prices analyzed represent the sum of what both the insurance company and the consumer paid for childbirth hospitalizations, including services provided by physicians and other professionals during the hospital stay.

## KEY FINDINGS

- There is wide variation in prices for childbirth across New York City boroughs. In 2017, there was a 30% difference in median prices for vaginal deliveries between Brooklyn (\$12,718) and the Bronx (\$16,632).
- Substantial variation exists even within boroughs, with the highest-priced deliveries costing more than 13 times the lowest-priced deliveries within each borough.
- Capping prices for deliveries at the median or 75th percentile price for a delivery in a borough could lower the price per delivery by hundreds, if not thousands, of dollars for a substantial proportion of deliveries.

The extensive variation in prices for childbirth in New York City presents potential opportunities for savings without compromising quality of care or outcomes for patients. Health care purchasers could employ value-based insurance benefit designs, such as reference pricing or tiered provider networks, along with alternative payment models like bundled payments, to help promote and support the delivery of higher-value care. These models can help direct patients to hospitals, physicians, and other providers that better meet their needs and preferences while also identifying lower-cost providers that have proven to deliver care that meets certain quality standards. Versions of such models are being tested in New York State and throughout the country, offering opportunities for lessons learned and successful expansion.



## Why Worry About Variation in Health Care Prices?

Studies show that both [nationally](#) and in [New York State](#), prices are a key contributor of health care spending growth among the privately insured population. In addition, the price of a health care service, such as a [surgical procedure](#), is often multiples higher at one provider relative to another, even if they are within the [same neighborhood](#).

Paying more might be reasonable if it meant better quality and patient outcomes. However, that is [often not the case](#). Even services which should have little to no difference in quality across locations, such as for many [diagnostic imaging tests](#), have multifold differences in prices. Prices can also vary considerably for the same service [within the same hospital](#), depending on a person's health insurance coverage.

New York State is not immune to the price and quality conundrum. For example, a New York State Health Foundation (NYSHHealth)-funded [analysis](#) by Gorman Actuarial found that hospitals in New York State with higher prices were not necessarily those with higher quality. Likewise, those with lower prices did not necessarily have lower quality. As in other parts of the country, market leverage, including the use of contractual provisions that keep negotiated price information confidential, was identified as a primary driver of higher prices in New York State.

Decreasing the variation in prices that is not associated with greater value for patients could help reduce health care spending. Such reductions could translate to lower health care premiums. Moreover, with consumers taking on greater responsibility for health care costs through the increased use of [high-deductible health plans](#) and other arrangements, reducing excessive prices that represent low-value care could also provide financial relief to patients.



## Price Variation for Childbirth in New York City

In the United States, childbirth is the leading cause of hospital admission. Nearly [\\$16 billion](#) was spent on hospital services for maternity care in 2017, without including spending for physician and other professional services during hospital stays. There are more than [100,000 live births](#) annually in New York City alone. Thus, deliveries are a significant source of health care utilization and spending, representing one of the most expensive health care events for the population under the age of 65.

This analysis examines variation in prices for vaginal and cesarean deliveries performed in New York City hospitals. Potential opportunities for savings are also examined, based on the distribution of prices. Data from approximately 10,000 deliveries were used in the analysis, drawn from the HCCI commercial claims database. The study sample is limited to live births covered by employer-sponsored insurance in 2017 (data from 2015 through 2017 are provided in the accompanying [Data Appendix](#)).

Prices are measured using allowed amounts (i.e., the maximum amount that an insurer would pay for a covered service, which is also known as the negotiated rate). The allowed amount includes both what the insurer pays and patient out-of-pocket spending (e.g., co-pays, coinsurance, and deductibles). To provide a more complete picture of health care spending associated with deliveries, this analysis combined allowed amounts from the hospital facility and professional claims associated with each inpatient admission for a delivery. The distribution of prices reported in this analysis represents the variation both across hospitals (i.e., how prices differ among hospitals) and within a hospital (i.e., how much prices for deliveries vary within the same hospital). Additional information on the data and methods is provided in the [Methods](#) section below.

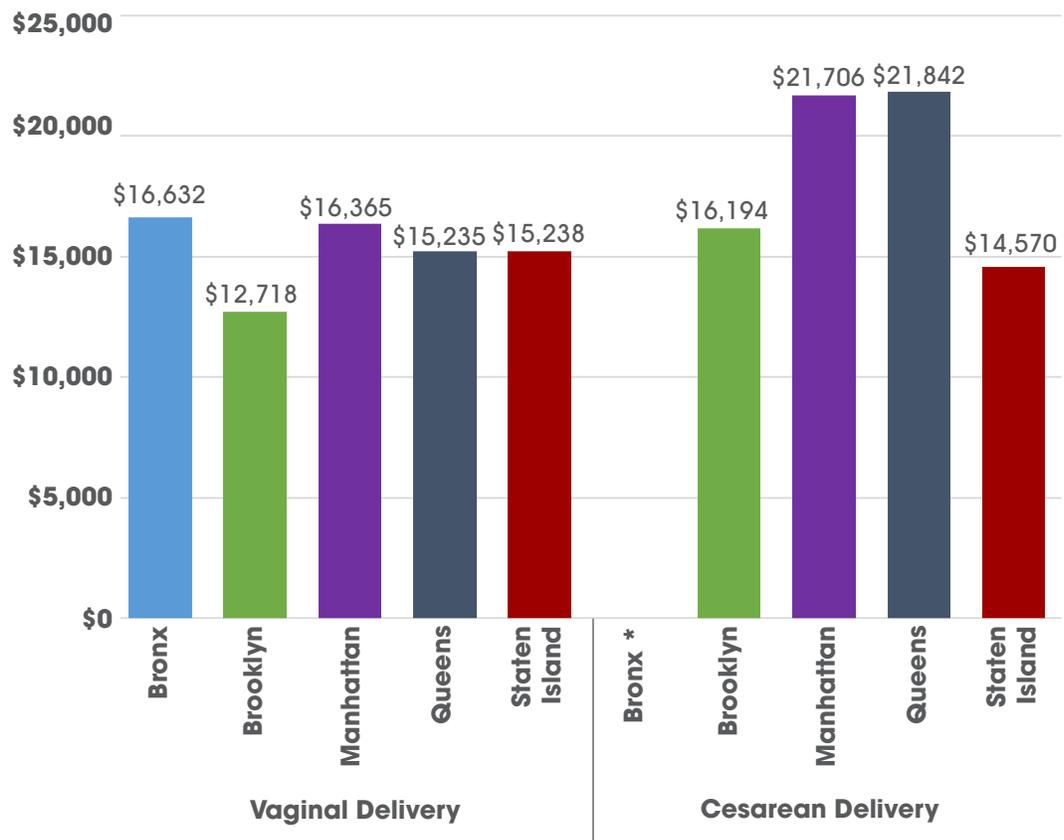


## Price Variation for Childbirth in New York City (continued)

### Substantial Differences in Median Prices for Childbirths Across New York City Boroughs

Figure 1 displays the median price of vaginal and cesarean deliveries across each of the five boroughs of New York City in 2017. There was close to a 30% difference in median prices between the boroughs with the lowest and highest prices for vaginal deliveries (\$12,718 in Brooklyn compared with \$16,632 in the Bronx). The range was even wider for cesarean deliveries, with nearly a 50% difference (\$14,570 in Staten Island compared with \$21,842 in Queens).

FIGURE 1. Median Prices for Vaginal and Cesarean Deliveries Across New York City Boroughs, 2017



Source: New York State Health Foundation analysis of the Health Care Cost Institute commercial claims database.

\* The median cesarean delivery price is not reported for the Bronx because of a small sample size. See the [Methods](#) and [Data Appendix](#) for more details about the sample size.



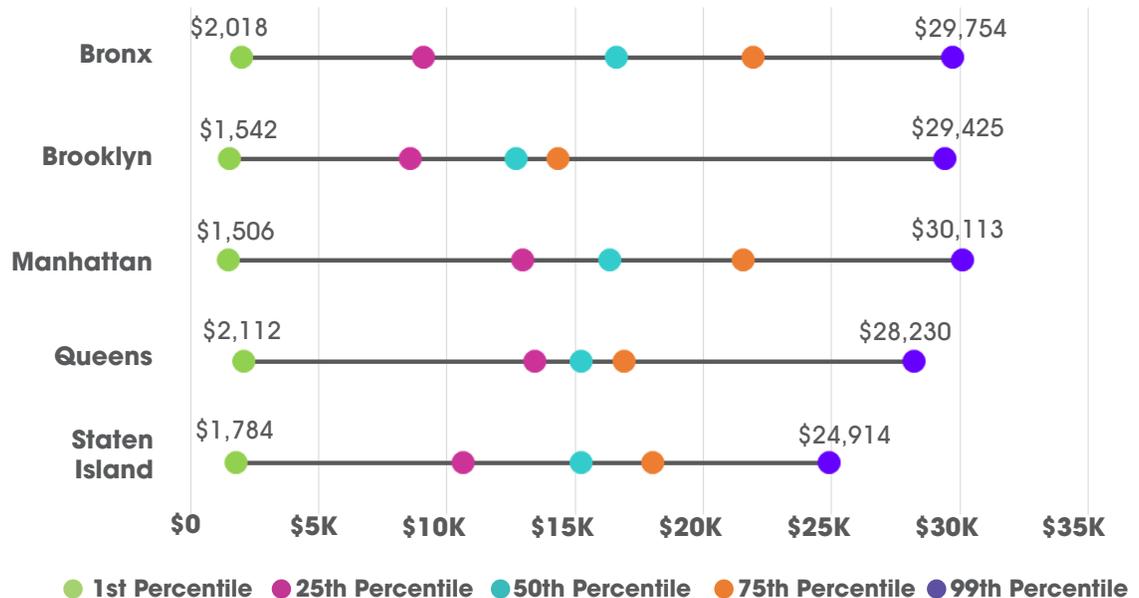
## Price Variation for Childbirth in New York City (continued)

### Wide Variation in Prices for Deliveries Within Each New York City Borough

Figures 2A and 2B provide detail on the variation in prices within each borough. Figure 2A displays the distribution of vaginal delivery prices for each borough, showing the 1st percentile, 25th percentile, median, 75th percentile, and 99th percentile of prices. For example, the 25th percentile price for a vaginal delivery in the Bronx is \$9,110, which means that 25% of deliveries that year cost \$9,110 or less, with 75% costing more.

There was at least a 13-fold difference between the 1st percentile and 99th percentile of vaginal delivery prices within each borough. Manhattan had the largest range, with a 20-fold difference ( $\$30,113/\$1,506 = 20$ ) between the 1st and 99th percentile.

FIGURE 2A. Distribution of Prices for Vaginal Deliveries Within New York City Boroughs, 2017



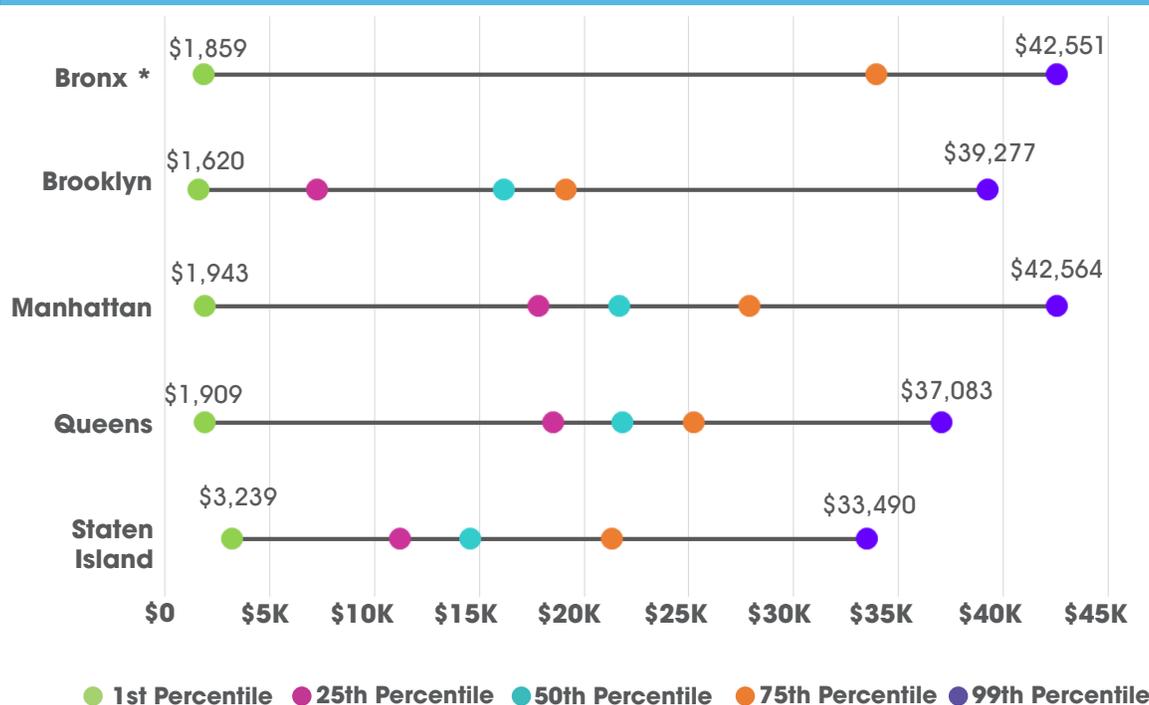
Source: New York State Health Foundation analysis of the Health Care Cost Institute commercial claims database.



## Price Variation for Childbirth in New York City (continued)

Figure 2B provides similar distributional statistics for cesarean deliveries within each borough. In general, cesarean deliveries were associated with higher prices than vaginal deliveries. There was also wider variation in prices for cesarean deliveries compared with vaginal deliveries within all boroughs, except for Staten Island (which had a 10-fold difference in cesarean delivery prices compared with 14-fold for vaginal deliveries).

FIGURE 2B. Distribution of Prices for Cesarean Deliveries Within New York City Boroughs, 2017



Source: New York State Health Foundation analysis of the Health Care Cost Institute commercial claims database.

\* The median and 25th percentile prices are not reported for the Bronx because of small sample sizes. See the [Methods](#) and [Data Appendix](#) for more details about the sample size.

### Wide Variation Presents Opportunities for Savings

Figure 3 displays the potential range of savings available if it were possible to lower the prices for deliveries at the top of the price distribution to either the median or 75th percentile amounts. The top bar (darker green) for each borough represents the difference in prices between the 99th percentile and the 75th percentile for deliveries within a borough. For example, the difference in prices between vaginal deliveries in Brooklyn at the 99th percentile and the 75th percentile is more than \$15,000. This suggests that if it were possible to cap

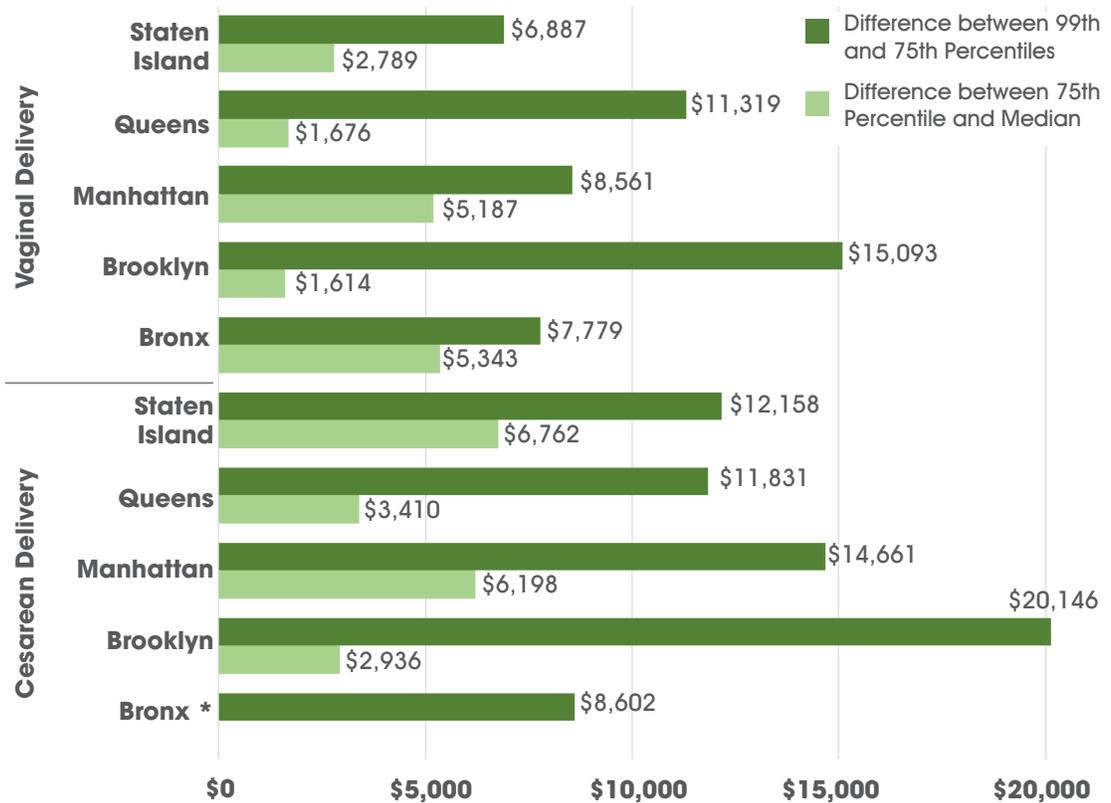


## Price Variation for Childbirth in New York City (continued)

prices for vaginal deliveries at the 75th percentile of 2017 prices in Brooklyn, the savings would fall between zero and \$15,000 for nearly one-quarter of deliveries.

The bottom bar (lighter green) for each borough represents the difference in prices between the 75th percentile and the median for each borough. Again using Brooklyn as an example, the difference between the 75th percentile and the median is more than \$1,600 for vaginal deliveries in 2017. This suggests that capping the prices for vaginal deliveries at the median in Brooklyn could save from \$1,600 to more than \$16,000 for the most expensive deliveries (those costing at or above the 75th percentile) and up to \$1,600 for those costing between the median and the 75th percentile.

**FIGURE 3. Potential Range of Savings for Vaginal and Cesarean Deliveries by Borough, 2017**



Source: New York State Health Foundation analysis of the Health Care Cost Institute commercial claims database.

\* The median price for cesarean deliveries is not reported for the Bronx because of a small sample size; hence, we do not report the difference between the 75th percentile and median. See the [Methods](#) and [Data Appendix](#) for more details about the sample size.



## What Can Be Done to Encourage Lower Prices and Higher Value?

### Improve Price Transparency

Reducing spending requires greater transparency about health care prices. Historically, the actual prices paid for health care services have been nearly impossible to identify. Both health plans and providers have treated these contractually agreed-upon prices as proprietary [trade secrets](#).

Transparency on prices, along with quality, can be a gateway to improving affordability, quality, and competition in the health care system. At the individual level, price transparency can be used to help consumers make more informed health care decisions. This is particularly the case for services that can be planned ahead and for individuals who are uninsured or enrolled in high-deductible health plans and face a larger share of the costs at the point of care. At the group level, health care purchasers, such as employers and health plans, can also use price data to negotiate more competitive prices and encourage members to use higher-value providers.

The federal government has recently supported efforts to increase price transparency. Initiatives include requiring [hospitals](#) and [private health insurers](#) to publicly report their negotiated prices for common services. New York State also has plans to create a [website](#) allowing residents to compare prices and quality of common health care procedures. NYSHealth has supported similar efforts, including an early model consumer-shopping tool created by [FAIR Health](#), as well as a [consumer-friendly interface](#) for upcoming State-developed tools.

Opponents of price transparency raise the possibility that overall [health care costs will increase](#) once individuals see the prices for services. There is a belief that consumers will choose higher-priced care, believing it to be a proxy for better quality. However, [more than half](#) of Americans who have tried to compare prices say they chose a less expensive service.

Another objection is that greater transparency would actually inhibit competition and drive up prices for consumers. In theory, a health care provider could demand higher payments when it sees the higher prices its competitors receive. These are valid concerns, but on balance, the federal government and other proponents believe increased transparency will [facilitate](#) a more efficient market for health care services. The next section examines some efforts by employers and health plans that use information on price variation to help promote higher-value care.



## What Can Be Done to Encourage Lower Prices and Higher Value? (continued)

### Implement Innovative Purchasing and Payment Approaches

A growing body of evidence shows that increased price transparency can help health care purchasers—particularly large employers that self-insure—negotiate lower prices. Having comparative price information enables employers to create more favorable benchmarks for price negotiations. For example, a multistate analysis of the difference in hospital prices allowed self-insured employers in [Indiana](#) and [Colorado](#) to work with health plans and providers in their area to structure their insurance benefits to encourage employees to use lower-cost providers, such as through the use of [tiered provider networks](#) (see text box “[What Are Tiered Networks?](#)”). Tiered networks have been shown to reduce [total health care spending](#).

Another employer-driven model that targets excessive price variation is the [reference pricing](#) model (see text box “[What Is Reference Pricing?](#)” below), used by the [California Public Employees' Retirement System](#) for certain surgeries or the retail grocery store chain [Safeway](#) for radiology tests.

Both of these examples—tiered networks and reference pricing—involve financial incentives for consumers to choose a lower-cost provider. Access to a broader set of providers is not necessarily limited, but it will cost the consumer more money to use a provider that is not in the preferred tier or does not have a price below the reference price. As a result, in an effort to retain patients, providers may feel pressure to lower their prices.

The 32BJ Health Fund, which provides comprehensive health benefits to members of 32BJ SEIU, the largest union of property service workers in the United States, has developed a high-value maternity network program. Many of its members are located in the New York City area. The 32BJ Health Fund developed the program to direct its members to high-quality maternity providers that are dedicated to continuous quality improvement and are committed to lowering the cost of care. Childbirth is a major [cost driver](#) for the 32BJ Health Fund's health insurance benefits, accounting for a third of all its members' planned hospital admissions. Moreover, an [analysis](#) of 32BJ Health Fund's claims data pointed to worse maternity care outcomes for its members, relative to national and general New York State populations.

#### WHAT ARE TIERED NETWORKS?

Employers and health plans can structure their networks of hospitals and other providers, along with their cost-sharing provisions, to encourage enrollees to use providers that are lower cost and/or provide better care. A tiered network groups providers in the network into tiers based on the cost and/or quality of the care they deliver. Cost-sharing (e.g., co-pays) is lowest if members choose providers from the preferred tier and increases significantly if they use providers in middle or nonpreferred tiers.



## What Can Be Done to Encourage Lower Prices and Higher Value? (continued)

### WHAT IS REFERENCE PRICING?

Under reference pricing, the health plan or self-insured employer places a limit on what it is willing to pay for a health care service. The limit is typically based on the median or some other mid-point in the distribution of prices in the local market. Consumers who obtain care from a provider with a price at or below the reference price pay only the normally required cost sharing (e.g., deductibles, coinsurance). Consumers obtaining care from a higher-priced provider additionally pay the difference between the reference price and the higher price.

The 32BJ Health Fund initiative is based on similar principles as tiered networks and reference pricing in that it uses consumer-oriented incentives to pursue the goal of reducing costs. Such programs can also improve health outcomes by incorporating quality standards into the programs. The 32BJ Health Fund prioritized quality from the start by conducting a [Request for Information](#), inviting in-network hospitals from the greater New York City area to provide information and quality data for consideration to participate in the select network. The hospitals selected to participate in the high-value maternity network were identified as already having made a commitment to practices that lower the risk of harm to women during childbirth. For example, [partnering hospitals](#) have lower cesarean rates for low-risk first-birth women and lower episiotomy rates than the average for hospitals in the area.

The 32BJ Health Fund is committed to sharing information that equips its members to make informed decisions about their care and that directs them to high-quality maternity providers for prenatal, delivery, and postnatal care. Although the out-of-pocket cost for prenatal care and delivery has already been low for 32BJ Health Fund members, the new program makes it even more affordable. Participants who enroll in the 32BJ high-value maternity care network program and deliver at one of the partner hospitals will get a rebate on their typical hospital admission co-pay. For members who enroll in the program, total out-of-pocket costs for prenatal, delivery, and postnatal care can be as little as \$40.

Although not fully implemented yet, another important component of the 32BJ Health Fund's program will be the use of bundled payments to reimburse providers for childbirth services. Under bundled payment, one payment is used to pay for a set or "bundle" of services that can occur over time and across settings. For example, a comprehensive childbirth [bundled payment](#) model could include related health care services provided during the prenatal period, labor, and delivery, as well as the postpartum time period for both mother and newborn. Such an approach can encourage more holistic and coordinated care, as providers



## What Can Be Done to Encourage Lower Prices and Higher Value? (continued)

have an incentive to work together and use higher-value and evidence-based delivery models—including, but not limited to, those that incorporate birth centers, midwives, and doulas—to manage costs below the lump-sum payment. [Early initiatives](#) with maternity care bundled payment models have already [proven successful](#) in avoiding more expensive cesarean deliveries for low-risk pregnancies that are better suited for vaginal deliveries. Preventing unnecessary cesarean deliveries also helps reduce the risk of adverse outcomes.

Bundled payment models can also accommodate patient choice, as the health system would be better positioned to receive reimbursement for a wider variety of care models that can meet the unique preferences, beliefs, and needs of their patients. These models may use low-cost but potentially high-value care, such as the inclusion of doulas and community health workers, [group prenatal care](#), or birth centers. Often these alternative providers or care practices are not covered by insurance plans with conventional provider payment fee schedules, so they are less likely to be used.

Several commercial payers and state Medicaid programs across the country are beginning to [test bundled payment models](#) for maternity care. Such models have also been widely tested for other types of services (e.g., [orthopedic and surgical procedures](#)), resulting in lower, more predictable costs, as well as higher-quality care.



## Conclusion

This analysis of prices for childbirth in the five boroughs of New York City adds to the growing literature documenting wide variation in prices for similar health care services within the same geographic areas. Such variation is problematic because the higher prices often do not translate to higher-quality care and can result in higher patient cost-sharing.

Studying this variation opens opportunities to reduce costs while maintaining or improving the quality of care provided to patients. These opportunities are well suited to be tested in maternity care, given that childbirth is a common and costly event for the privately insured population. Research also shows that, as with other domains in health care, the quality of care during deliveries [is not always correlated](#) with costs.

Purchasers of health care, like self-insured employers or health plans, are increasingly using price variation data to promote higher-value health care. Early models, such as the 32BJ program, are being tested in New York State and throughout the country. Lessons from these initiatives can be used to expand more successful models throughout the State.



## Methods

**Data:** HCCI's [commercial claims database](#) was used for the analysis. The database includes claims contributed from four large national commercial health insurers: Aetna, Humana, Kaiser Permanente, and UnitedHealthcare. For 2017, these data include health care utilization and cost information for [more than 20%](#) of the population (2 million people) covered by employer-sponsored insurance in New York State. Although this analysis focused on 2017 for the brief, data from 2015 through 2017 are available in the accompanying online [Data Appendix](#). Similar patterns of variation were found in all years of data. Prices for all years were adjusted for inflation to reflect prices in 2017 using the consumer price index.

Only aggregated statistics at various geographic areas are reported in this brief and the [Data Appendix](#). Aside from the 1st, 25th, 50th (median), 75th, and 99th percentiles of vaginal and cesarean delivery price distributions, the interquartile range (IQR), IQR ratio, and coefficient of variation are also reported for each geography. The IQR is the difference between the 75th percentile and 25th percentile. The IQR ratio is the ratio of the 75th percentile to the 25th percentile. The coefficient of variation is calculated as the standard deviation of prices in a geographic area divided by the mean price.

There was a sample size requirement of at least 10 deliveries per percentile distribution statistic reported. Hence, this analysis does not report all percentiles for all geographic areas. Sample sizes were generally smaller in the Bronx and Staten Island, making those estimates less reliable and variable over time.

**Sample:** This analysis is limited to deliveries that were covered by employer-sponsored health insurance plans. Data from 9,641 deliveries identified in the HCCI database were used for the analysis of 2017 prices. This amount accounts for approximately one-quarter of all live births delivered at hospitals located in the New York City area that were covered by private insurance (i.e., not part of the Medicaid or Medicare programs).<sup>1</sup>

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<sup>1</sup> Based on an NYHealth analysis of the Statewide Planning and Research Cooperative System (SPARCS) inpatient claims data for 2017.



## Methods (continued)

Deliveries were identified using [Medicare Severity-Diagnosis Related Group \(MS-DRGs\)](#). DRGs are a system for categorizing inpatient admissions based on diagnoses associated with the admission. Vaginal deliveries were identified using the following DRGs:

- 767 Vaginal delivery with sterilization and/or dilation and curettage (D&C)
- 768 Vaginal delivery with operating room procedure except sterilization and/or D&C
- 774 Vaginal delivery with complicating diagnoses
- 775 Vaginal delivery without complicating diagnoses

Cesarean deliveries were identified with the following DRGs:

- 765 Cesarean section with a complication or comorbidity or a major complication or comorbidity (CC/MCC)
- 766 Cesarean section without CC/MCC

These are similar to DRGs used in [prior](#) studies [analyzing costs](#) associated with vaginal and cesarean deliveries.

**Calculating Delivery Costs:** Each hospital facility claim for a delivery had an admission date and a discharge date. This analysis used these dates to associate each facility claim for a delivery with professional claims. In this way, the costs of physician and other professional services could be added to that of the facility costs to measure a total price for the delivery. The price per delivery admission was calculated as the sum of allowed amounts associated with each admission (from both facility and professional claims). The allowed amounts reported on the claims include all payments to providers required from insurers, as well as patient out-of-pocket spending.

**Geographic Areas Used in the Analysis:** This analysis focused on deliveries in each of the five boroughs of New York City: Bronx, Brooklyn, Manhattan, Queens, and Staten Island. Deliveries were assigned to geographic areas based on the ZIP code of the delivery hospitals.



## Limitations

It is to be expected that some deliveries cost more than others because of complications and/or pre-existing comorbidities, which require more medical resources. The data reported in this analysis are unadjusted; hence, they do not take into account differences in patient health status or other risks for complications. However, [prior research](#) that attempted to exclude births more likely to be associated with complications [also found](#) substantial variation, with multifold range in costs for vaginal and cesarean deliveries. One [study](#) that controlled for pre-existing conditions and other risk factors found that the majority of variation was still left unexplained.

The DRGs used to identify hospital admissions for vaginal and cesarean deliveries are also often used for determining payment levels, based on a weight associated with each DRG. The weight reflects the estimated resource use needed to appropriately treat a patient associated with a DRG. Below are [common weights](#) associated with the vaginal delivery and cesarean DRGs:

- 767: 0.8905
- 768: 1.2712
- 774: 0.7962
- 775: 0.6094
- 765: 1.1358
- 766: 0.8100

A weight greater than 1.0 implies that the hospital admission requires more than the average resource use for a hospital admission, and vice versa for a weight less than 1.0. According to the weights above, admissions for DRG 768 are associated with the most resource use and DRG 775 is associated with the lowest resource use. There is a two-fold difference between the weights for those DRGs (1.27 versus 0.6094). For health systems using these DRGs and weights for payment, the price for DRG 768 would be twice as much as DRG 768. This range is substantially less than exhibited by the prices in this analysis for deliveries in New York City in 2017. This also implies that other factors aside from health status or complications have a heavy influence on the variation in delivery prices. It should also be noted that, according to an NYSHHealth analysis of the Statewide Planning and Research Cooperative System (SPARCS) inpatient claims data for 2017, more than 80% of vaginal deliveries in New York City were categorized as MS-DRG 775 (Vaginal delivery without complicating diagnoses). Many of these would likely be considered lower-risk deliveries.



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