NEW YORK STATE HEALTH FOUNDATION

Why Are Hospital Prices Different? An Examination of New York Hospital Reimbursement

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Gorman Actuarial, Inc.

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Author's Note: Hospital names and system affiliations referenced in this report reflect hospitals' status at the time of the data reported (CY 2014). Some of these hospitals have since been acquired by other systems or have changed their name. This report footnotes some of these recent market changes but may not reflect all hospital name changes or acquisitions that have taken place since CY 2014.

Executive Summary

INTRODUCTION

In New York State, health care spending has steadily increased over the past 25 years,[1] and is expected to continue increasing through 2020;[2] this spending growth has translated directly to increases in health insurance premiums that can make health care unaffordable for consumers and adversely affect wages, employment, and economic growth.[3] As policymakers work to ensure that the health care market functions in a way that maintains access to health care for New Yorkers and supports a competitive market for the industry, they may benefit from a better understanding of the various factors that influence these health care costs. To help inform policymakers and other stakeholders in New York, this study offers an in-depth examination of hospital contracting practices, reimbursement methodologies, and hospital prices in New York. Using information collected from private commercial health insurers and other sources, the study sheds light on how prices vary across hospitals and highlights certain practices that can inhibit healthy market competition. The report also suggests approaches to addressing some of these market dysfunctions. As the first study of its kind in New York, it introduces a range of opportunities for assisting policymakers and other stakeholders in understanding health care costs and developing strategies to slow cost growth.

UNDERSTANDING HEALTH INSURANCE PREMIUMS AND HEALTH CARE EXPENDITURES

New Yorkers acquire health insurance in many different ways. Some individuals have health insurance through Medicare, and others obtain it through Medicaid or another State-sponsored program. The rest of New York's insured population receive insurance through their employers or purchase it on their own. These individuals are considered the private commercial market. Health insurance premiums for the private commercial market are set by insurance companies based on the companies' projected health care expenses. As health care spending increases, so do health insurance premiums. Nationally, health insurance premium increases for employer-sponsored insurance have outpaced employee wages and inflation.[4] In recent years, many consumers have begun turning to health insurance products that offer lower premiums

[1] Centers for Medicare and Medicaid Services. Health Expenditures by State of Residence (Data from 1991–2009). Centers for Medicare and Medicaid Services, 2011. Available at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/res-tables.pdf.

[2] Rodin D and Meyer J from Health Management Associates. Health Care Costs and Spending in New York State. New York State Health Foundation, February 2014. Available at: http://nyshealthfoundation.org/uploads/resources/health-care-costs-in-NYS-chart-book.pdf

[3] Ibid.

[4] Kaiser Family Foundation and Health Research and Educational Trust. Employer Health Benefits: 2015 Annual Survey, 2015. Available at: http://files.kff.org/attachment/report-2015-employer-health-benefits-survey.

but require consumers to pay a greater portion of medical costs out of pocket in the form of higher copays, coinsurance, and deductibles. As consumers' out-of-pocket expenses rise along with health insurance premiums, so does the need for information on provider prices and quality of health care services.

UNDERSTANDING HOSPITAL EXPENDITURES

Achieving an understanding of health care prices and developing successful cost containment strategies require a closer look at what contributes to health care spending. Although spending is a result of a combination of health care services that include physician, pharmacy, and lab services, inpatient and outpatient hospital services represent a significant portion—approximately 40%—of the health care expenditures.[5] Spending on inpatient and outpatient hospital services increases each year for a variety of reasons, but growth is primarily a result of two factors: increases in consumers' use of inpatient and outpatient hospital services and increases in the price of inpatient and outpatient hospital services. Over the past few years, the largest contributor to increasing hospital expenditures has been hospital prices.[6]

UNDERSTANDING HOSPITAL PRICES

In the private commercial insurance market, insurance companies and hospitals negotiate prices for hospital services, which are then documented in a contract between the insurer and the hospital. These prices are what the insurer reimburses, or pays, the hospital on behalf of the members it insures. As prices, contract terms, and reimbursement methodologies vary from one hospital to the next, insurers can administer hundreds of unique contracts with the hospitals with which they do business. At the same time, hospitals hold contracts with many different insurance companies. Each insurance company has its own method of contracting and reimbursement, which results in a hospital often dealing with dozens of different insurer contracts. Insurers are able to evaluate how much they pay each hospital and how the change in contract terms may impact future payments. However, because of the complexity of the contracting process, it can be more difficult to analyze how contract terms for one hospital compare with contract terms for another. Insurers with strong analytic resources are able to understand how the prices of one hospital compare with those of another, whereas for other insurers it is not as easy. With all of this complexity and lack of price transparency, it is easy to understand why consumers who purchase health insurance often have very little information on the prices of health care services.

[5] CY 2016 Federal Unified Rate Review Templates were analyzed for New York insurers. The study team reviewed rate filings that had greater than 50% credibility applied to their experience and where overall trend was greater than 0%. This is also consistent with data collected by the New York State Department of Financial Services, as well as data collected by the study team for this study.

[6] CY 2016 Federal Unified Rate Review Templates were analyzed for New York insurers. This is also consistent with data collected by the New York State Department of Financial Services, as well as data collected by the study team for this study.

PROJECT SCOPE

The overall purpose of the study was to contribute to policymakers' and the public's understanding of the various factors driving hospital prices and to inform future cost containment efforts in New York State. In particular, this study focused on the following goals:

- Study hospital contracting practices;
- Explore how New York's private commercial market sets hospital prices;
- Develop a methodology to compare hospital prices;
- Examine hospital price variation—that is, the extent to which prices differ across hospitals; and
- Analyze whether hospital prices are influenced by various factors such as hospital quality, market leverage, or the proportion of a hospital's revenue that comes from public payers such as Medicaid and Medicare.

To achieve these goals, this study collected information on contracting practices, hospital pricing, and reimbursement methods for 107 New York State hospitals, each with varying levels of market share. This information, which had not previously been publicly reported, was obtained from nine commercial insurers in New York State through a mandated Request for Information[7] issued by the New York State Department of Financial Services (NYSDFS), the State regulatory authority for the commercial health insurance market.[8] Hospital financial and quality information was also collected from the New York State Department of Health and other sources. In addition, the team analyzed 2013 and 2014 hospital utilization data from the New York Statewide Planning and Research Cooperative System (SPARCS).[9]

The study team first reviewed contracts between insurers and hospitals to understand provider reimbursement structures and contracting practices. Next, the study team analyzed the data provided by the insurers to examine hospital price variation—in other words, to examine whether, and to what extent, private commercial prices varied among the study hospitals. To compare prices across study hospitals, the study team developed a methodology to calculate an overall relative price for each study hospital.[10] This relative price was not calculated for each specific, individual

[7] New York State Department of Financial Services issued this Request for Information pursuant to Section 308 of the New York Insurance Law.

[8] This Request for Information from insurers collected data from CY 2014 for all data fields and collected CY 2013 data for some fields.

[9] More information on SPARCS, which is administered by the New York State Department of Health, is available at: **https://www.health.ny.gov/statistics/sparcs/**.

[10] Because hospital relative prices were calculated using price information provided by the study insurers, the methodology that the study team developed was reviewed and confirmed by each of the study insurers.

inpatient and outpatient service that a hospital provides; rather, it reflects a blended price of all inpatient and outpatient services available at each hospital. For example, the price of a knee surgery may be different for two hospitals, whereas the price of an appendectomy may be the same. The relative price is calculated by blending the prices of these different services together (e.g., knee surgery, appendectomy), enabling analysts to calculate a single relative price for comparison purposes that can assess the extent of price variation across different hospitals within a region. Each hospital's relative price is also adjusted for the sickness (morbidity) of the population it serves (case mix for inpatient services) and the types of services the hospital provides (service mix).

This methodology allowed the study team to establish an overall price for each study hospital and subsequently compare the price of that hospital with that of the other hospitals in the study.[11,12] For example, a relative price of 1.10 indicates that the hospital's overall price is 10% above the unweighted average price for all the study hospitals within the study region. Alternatively, a relative price of 0.90 indicates that the hospital's overall price is 10% less than the unweighted average price of the study hospitals within the study region.

Next, to identify characteristics that influence price, the study team assessed the relationship between relative price and various hospital attributes, including quality, peer group definitions, and various forms of market leverage. Because a goal of this study was to understand how hospital prices impact overall health insurance premiums in the private commercial market, this study analyzed private commercial hospital prices only. However, as private commercial prices may be influenced by prices paid by public payers, the study included an analysis of the sources of each hospital's revenue and its relationship to commercial prices. If the majority of a hospital's revenue came from a public payer, the study team analyzed whether this resulted in higher or lower commercial prices.[13]

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[11] The relative price methodology developed for this study is consistent with that used in other relative price analyses, such as those by the Massachusetts Center for Health Information and Analysis (CHIA). Source: Center for Health Information and Analysis. Data Specification Manual, 957 CMR 2.00: Payer Report of Relative Prices. Center for Health Information and Analysis, March 31, 2016, pp.7–8. Available at: **http://www.chiamass.gov/assets/docs/p/tme-rp/data-spec-manual-rp.pdf**. This relative price methodology is also consistent with the calculation of inpatient relative price used by UMASS Medical School for the state of New Hampshire. Source: K London, MG Grenier, TN Friedman and PT Swoboda. Analysis of Price Variations in New Hampshire Hospitals. University of Massachusetts Medical School, on behalf of the New Hampshire Insurance Division, April 2012. Available at: **https://www.nh.gov/insurance/lah/documents/umms.pdf**. Finally, this methodology is similar to that used by Xerox in the State of Rhode Island. Source: Xerox. Variation in Payment for Hospital Care in Rhode Island. Prepared for the Rhode Island Office of the Health Insurance Commissioner and the Rhode Island Executive Office of Health and Human Services, December 19, 2012, p.12. Available at: **http://www.ohic.ri.gov/documents/Hospital-Payment-Study-Final-General-Dec-2012.pdf**.

[12] The relative price methodology varied from one insurer to another as a result of the wide variation in hospital reimbursement across insurers, as well as the diverse way in which some information was reported by the insurers. As a result, the hospital inpatient and outpatient blended relative price for one insurer cannot be directly compared to that of another insurer.

[13] Throughout this report, references to higher or lower prices refer specifically to commercial prices, and do not include a hospital's reimbursement from public payers, such as Medicare or Medicaid, unless otherwise noted.

Because New York is a large state with very diverse regions and populations, the study focused on three geographic regions in particular. Across the State, there are more than 300 acute care hospitals and more than 20 insurers that participate in the New York health insurance market. To limit the scope of the project to a manageable size, this study analyzed data for 107 hospitals[14] and 9 insurers over 3 study regions of New York: Downstate, Buffalo, and Albany, which represent 3 very diverse markets. As the 75 hospitals selected for the Downstate region cover diverse areas and populations, the study team further defined this region into 7 subregions, a mixture of the following boroughs and counties: Bronx, Brooklyn, Manhattan, Nassau, Queens, Suffolk, and Westchester.

SUMMARY OF FINDINGS

There are six major findings from this study:

- Hospital reimbursement practices are complex and extremely varied, requiring considerable amounts of data, resources, and analysis to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. This complexity can increase administrative costs[15] and undermine transparency efforts.
- Certain contract provisions contribute to market dysfunction by hindering competition, product innovation, transparency, and cost containment strategies.
- There are significant differences in overall price levels (referred to as hospital price variation) among hospitals of similar size, services, and teaching designation, even after adjusting for the sickness (morbidity) of the population served and the complexity of the services provided. In other words, some hospitals are significantly higher-priced than other similar hospitals. This price variation is greater in some regions than others.
- Hospitals with higher prices do not necessarily have higher quality. Likewise, hospitals with lower prices do not necessarily have lower quality.
- Hospitals in the Downstate region that serve more Medicare and Medicaid patients garner lower prices in the private commercial market. Meanwhile, hospitals that serve fewer Medicare and Medicaid patients garner higher prices in the commercial market. This counters a widely held belief that a hospital negotiates for higher commercial prices to offset lower reimbursements received for their publicly insured patients.

[14] Hospital names and system affiliations referenced in this report reflect hospitals' status at the time of the data reported (CY 2014). Some of these hospitals have since been acquired by other systems or have changed their names. This report footnotes some of these recent market changes but may not reflect all hospital name changes or acquisitions that have taken place since CY 2014.

[15] The Commonwealth Fund. A Comparison of Hospital Administrative Costs in Eight Nations: U.S. Costs Exceed All Others by Far. Available at: http://www.commonwealthfund.org/publications/in-the-literature/2014/sep/hospital-administrative-costs.

- Higher-priced hospitals may be higher-priced as a result of various forms of market leverage, which gives them more bargaining power to command higher prices when negotiating with insurers.
    - Hospitals that have greater market share are generally higher-priced.
    - Hospitals that are part of a hospital system with a large regional market share are generally higher-priced, regardless of their own size or individual market share.
    - In the Albany study region, hospitals that are considered rural and have less competition are generally higher-priced.
    - In certain regions of New York, the lack of academic medical center competition can lead to higher prices.

Hospital reimbursement practices are complex and extremely varied, requiring considerable amounts of data, resources, and analysis to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. This complexity can increase administrative costs and undermine transparency efforts.

The study team found that reimbursement methods—that is, the ways in which hospitals and insurers establish reimbursement amounts for hospital services—vary widely for hospital inpatient and outpatient services, both within and across insurers. The complexity and lack of standardization in hospital reimbursement structures make it difficult for insurers to easily compare provider prices across the market. Insurers with strong analytic resources are able to understand how the prices of one hospital compare with those of another, whereas for other insurers it is not as easy. Absent a considerable amount of data, resources, and analysis, it can be challenging to directly compare one hospital's inpatient and outpatient overall price to that of another hospital.[16] Although not a focus of this study, this complexity and variation in reimbursement methods most likely have a significant impact on increasing administrative costs for some insurers and hospitals, which in turn increases premiums paid by consumers. The complexity and diversity of hospital reimbursement methods can also present a serious roadblock to making hospital prices transparent.

Certain contract provisions contribute to market dysfunction by hindering competition, product innovation, transparency, and cost containment strategies.

When examining contracts between hospitals and insurers, the study team observed several clauses that can hinder competition and can inhibit healthy market function through product transparency, innovation, and cost containment strategies. Confidentiality language limits

[16] The study team collected data, conducted interviews with insurers, and developed a methodology to compare overall hospital price from one hospital to another.

an insurer's ability to post certain providers' prices on their member websites. This limits a patient's ability to see the price of services at certain hospitals on an insurer's price estimator tool, and limits an insurer's ability to encourage patients to seek out cost-effective care. Tiered network and anti-steering language limits an insurer's ability to provide patients with information on high-quality, low-priced providers or to develop products that would promote the use of such high-value providers. Termination clauses act as a leveraging tool that hospitals and insurers can both use to prohibit changes to the contract that would negatively impact the other party. For example, if the insurer develops a utilization review program to reduce frequently over-used radiology procedures, or if the insurer expands its list of procedures requiring prior approval, the hospital can threaten to terminate the contract with the insurer. Finally, outside vendor contract provisions that require the insurer to include the hospital in the insurer's outside vendor's network at the hospital's price limits the insurer's ability to control costs for outsourced services. Although some of these contract provisions were initially implemented years ago, they appear outdated in today's environment where patients are responsible for larger portions of health care costs in the forms of deductibles, copays, and coinsurance. This is in addition to the increased focus on promoting consumer decision-making tools, creating incentives for high-value care and cost containment, and enabling greater competition.

There are significant differences in overall price levels (referred to as hospital price variation) among hospitals of similar size, services, and teaching designation, even after adjusting for the sickness of the population served and the complexity of the services provided. In other words, some hospitals are significantly higher-priced than other similar hospitals. This price variation is greater in some regions than others.

Study results show that hospital price variation does indeed exist in all three study regions examined, with the highest-priced hospitals 1.5 to 2.7 times more expensive than the lowest-priced hospitals within the same region. These price differences are even greater when comparing prices of hospitals of similar size, services, and teaching designation. In addition, the study team found that the higher-priced hospitals tend to be consistently higher-priced among all the study insurers. This price variation is greater in some regions than others.

Hospitals with higher prices do not necessarily have higher quality. Likewise, hospitals with lower prices do not necessarily have lower quality.

Twelve quality measures were examined and compared with overall hospital price in each of the three study regions among the nine study insurers. The study team found no consistency in the relationship between hospital quality measures and overall hospital price. In other words, a hospital's performance against any single quality measure did not consistently translate to a higher or lower overall price from any insurer—thereby indicating that higher price does not necessarily equal higher quality, and lower price does not necessarily equal lower quality.

Hospitals in the Downstate region that serve more Medicare and Medicaid patients garner lower prices in the private commercial market. Meanwhile, hospitals that serve fewer Medicare and Medicaid patients garner higher prices in the commercial market. This counters a widely held belief that a hospital negotiates for higher commercial prices to offset lower reimbursements received for their publicly insured patients.

In the Downstate region, the study team found that those hospitals that receive much of their revenue from Medicare and Medicaid tend to have lower prices in the private commercial market.[17] In fact, a statistical analysis resulted in a negative correlation—that is, the higher-priced hospitals serve fewer Medicare and Medicaid patients. This negative correlation did not exist in the Albany region, where it did appear that higher-priced hospitals also service a greater number of Medicaid patients. There was no evidence of any pattern between payer mix and price in the Buffalo region.

Higher-priced hospitals may be higher-priced as a result of various forms of market leverage, which gives them more bargaining power to command higher prices when negotiating with insurers.

The reasons for the observed differences in overall prices across the study hospitals are complex and may be influenced by a range of factors. Across all three study regions, price variation appeared to be influenced by market leverage; however, market leverage takes many forms—including market share, participation in a large hospital system, rural status, and competition as an academic medical center—that vary based on the characteristics of the region.

Hospitals that have greater market share are generally higher-priced.

The study team conducted a statistical analysis that focused on overall hospital price and commercial hospital discharge market share. While the results vary by insurer, there does appear to be some positive correlation between market share and hospital price. In other words, the correlation suggests that the higher a hospital's market share, the higher its relative price.

Hospitals that are part of a hospital system with large regional market share are generally higher-priced, regardless of their own size or individual market share.

The study team observed this finding in the Buffalo and Downstate regions. In Buffalo, there are two major hospital systems representing 70% of the market, a group of independent

[17] The Massachusetts Health Policy Commission had a similar finding in Massachusetts. Data Source: Commonwealth of Massachusetts, Health Policy Commission. 2015 Cost Trends Report: Provider Price Variation. Available at: http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-ctr-ppv.pdf.

hospitals, and a few specialty hospitals. In this market, the higher-priced hospitals were those that were part of one of the two hospital systems. In the Downstate region, there is considerable competition with 60 of the 75 study hospitals participating in one of several larger hospital systems. Since the region itself is so diverse, Downstate was analyzed by seven subregions. The results from this analysis show that participation in a hospital system with significant regional commercial market share may increase a hospital's overall price. This finding was generally true even among those hospitals with little market share that participated in a large hospital system; however, this finding was not consistent across all seven subregions as other market dynamics were not closely examined.

In the Albany study region, hospitals that are considered rural and have less competition are higher-priced.

There is little hospital competition in the Albany region, with only one academic medical center, one hospital system, three community hospitals, and several rural hospitals.[18] Here, the study team found that those hospitals that are considered rural command higher prices due to the lack of competition.

In certain regions of New York, the lack of competition among academic medical centers can lead to higher prices.

The team found that in certain regions where there was only one academic medical center available, such as Westchester County, that hospital commanded the highest prices in that region, regardless of market share.

RECOMMENDED POLICY CONSIDERATIONS

These findings shed light on hospital prices in New York State and the various factors that may influence price variation. A better understanding of these price drivers will help ensure that the health care market functions in a way that **(1) maintains access to health care for New Yorkers** and **(2) supports a competitive market for the industry**. Understanding hospital prices and their variation, as well as the nature of hospital reimbursement methodologies across the market, is a critical first step. As the State gains a more complete understanding of the factors driving health care prices in the commercial market, stakeholders such as health care providers, payers, and policymakers will be better positioned to identify strategies for addressing market dysfunctions.

[18] In fall 2016, the State approved an affiliation between Albany Medical Center and Saratoga Hospital. Available at http://www.dailygazette.com/news/2016/oct/06/AMC-saratoga-hospital-affiliation-approved/.

LESSONS FROM MASSACHUSETTS

The history of provider price analyses in Massachusetts offers insights for the New York market. The initial discovery of provider price variation in Massachusetts (as first reported by the Massachusetts Attorney General's Office in March 2010[19]) was the catalyst for a series of reforms, analyses, and publications focused on health care cost drivers and trends. A health care reform law, Chapter 288 of the Acts of 2010, required the annual collection, calculation, and publication of relative price and price variation information. This legislation also provided for increased transparency, enabled insurers to pursue tiered networks without negative recourse from hospitals, and barred certain contracting practices between insurers and providers.

A subsequent reform passed in Massachusetts in 2012 established two state agencies—the Health Policy Commission (HPC) and the Center for Health Information and Analysis (CHIA)—to develop policies and analyses aimed at understanding and reducing health care costs. HPC has since set an annual benchmark for health care cost growth in Massachusetts, against which CHIA annually measures and reports the state's progress. CHIA reports on provider prices and cost trends annually. Providers that exceed the set target can be subject to performance improvement plans and state monitoring. Much of HPC's activities are public and transparent, to better engage key stakeholders, including policymakers, state agencies, insurers, providers, and consumers. Overall, provider price information in Massachusetts has fueled an ongoing dialogue among health care stakeholders statewide, and continues to inform health care policies and decision-making.

Massachusetts has shown a way forward in addressing the market dysfunctions identified in this study. Upon releasing the findings from its 2010 study of provider price variation, Massachusetts implemented the following changes:

- New level-the-playing-field rules for the health care industry that bar certain contracting practices that hurt competition, inflate prices, and reinforce market power;
- New transparency for consumers and government reporting; and
- Active oversight mechanisms, such as HPC, that work to improve competition and monitor market power.

The following policy considerations are recommended for review.

Explore Ways to Simplify Reimbursement Methodologies

This study observed multiple different methods used among insurers, and even within insurers, to reimburse hospitals. Simplifying hospital reimbursement methodologies would make it easier for insurers, hospitals, and potentially patients to understand hospital prices. The State could explore ways to simplify reimbursement such as requiring all insurers to use the same DRG grouper[20] for inpatient reimbursement and/or the same outpatient hospital fee schedule. This would still allow the insurer and hospital to negotiate different base rates or multipliers,

[19] Office of Attorney General Martha Coakley. Examination of Health Care Cost Trends and Cost Drivers. Office of Attorney General Martha Coakley, March 16, 2010. Available at: http://www.mass.gov/ago/docs/healthcare/2010-hcctd-full.pdf.

[20] A Diagnosis Related Group (DRG) is a mechanism by which inpatient admissions are grouped into categories for purposes of payment. These categories are based on factors that include diagnoses, procedures, patient characteristics, and the presence of complications or comorbidities. There are several different types of DRG methodologies—known as groupers—including the Medicare Severity DRG (MS-DRG), All Patient DRG (AP-DRG) and the All Patient Refined DRG (APR-DRG), and each one categorizes inpatient services differently.

but would provide a level of standardization to hospital reimbursement that would make rates more easily comparable. A simplified reimbursement approach could provide insurers the ability to provide pricing information to patients in a timely and efficient manner. In addition, in the long term, insurers and hospitals would no longer have to administer different reimbursement methodologies for hospitals, which could result in lower insurer and hospital administrative expense and, in turn, could ultimately lower health insurance premiums.

Bar Certain Contractual Language from Hospital/Insurer Contracts

New York State policymakers and stakeholders could consider policies to protect consumer interests, prevent market dysfunction, and promote increased price transparency. Policies could include the barring of confidentiality language, anti-steering language, and language that hinders the ability of the tiered network product to work efficiently. Barring such language will increase transparency but could also increase overall costs in the short term as lower-priced providers may demand greater reimbursement. In addition, the State could adopt standards that prescribe how tiered networks should be defined, so that all must meet the same standard.

Continue to Monitor and Report Provider Price Information to Highlight Potential Market Dysfunctions

New York State policymakers and stakeholders could consider analyzing and publishing provider price information on an annual basis. In particular, the State could leverage its upcoming all-payer database (APD) for these efforts, using grouper software and an analytic framework to calculate and publish provider price information each year. This information can be used to monitor the market impact of provider consolidations and other market changes, such as hospital closures, and could highlight potential market dysfunctions. For example, the Massachusetts Health Policy Commission uses relative price information to analyze the impact of provider changes, including consolidations and alignments, on the state's health care market through its Notice of Material Change process and its Costs and Market Impact Reviews. This information could also be useful to large self-insured employer groups to develop networks to support their cost containment strategies.

Provider price information could also enhance the annual rate review process managed by the New York State Department of Financial Services (NYSDFS). For example, this information could be used to further examine insurer trend assumptions in premium rate development. NYSDFS could observe whether already higher-priced providers are receiving higher price increases than their lower-priced peers, and could question the insurers on the validity of these assumptions.

Provider price information could also be valuable to policymakers as they contemplate future provider reimbursement policies. For example, relative price information can be used to model the impact of various policies designed to reduce provider price variation.

Further Study Those Hospitals that Serve a Greater Proportion of Medicare and Medicaid Patients.

In the Downstate study region, those hospitals that service a greater proportion of Medicare and Medicaid patients generally have lower prices than their counterparts in the private commercial market. Further study and analyses could provide insights into opportunities to address the financial viability of these hospitals over the long term.

CONCLUSION

As health care costs continue to rise and lead to premiums and out-of-pocket expenses that are increasingly unaffordable for consumers, there is a growing need to understand the factors that drive health care costs. This study sheds light on hospital reimbursement and contracting practices in New York State, and identifies potential drivers of hospital prices and hospital price variation in the health care market. The drivers identified may threaten the ability of the health care market to maintain healthy industry competition, thus leading to unaffordable health care for New Yorkers. This report is intended to fuel an ongoing dialogue among key industry stakeholders and policymakers to stimulate increased policy efforts and inform future cost containment policies.

Introduction

From 1991 to 2009, health care spending in New York State increased nearly threefold, placing the State second in the country for total health care spending and sixth for per capita health care spending.[21] Health care expenditures in the State are expected to increase an additional 53% from 2013–2020.[22] This spending growth has translated directly to increases in health insurance premiums and consumer costs that adversely affect wages, employment, and economic growth.[23]

State agencies and policymakers are currently spearheading several initiatives to contain health care costs. The State is developing an all-payer database (APD) of health care claims and encounter data from public and private payers across the State, with an expected launch date in late 2017.[24] The APD will be invaluable in analyzing cost drivers and trends and will provide a platform for increased transparency in cost and quality information for consumers, researchers, providers, payers, and policymakers. In December 2014, New York State received a $99 million State Innovation Model (SIM) grant from the Center for Medicare & Medicaid Innovation (CMMI) to develop the State Health Innovation Plan (SHIP). SHIP focuses on achieving the Triple Aim of improved health, better care, and lowered costs through multi-pronged approaches, including value-based payment models.

New York's Delivery System Reform Incentive Payment (DSRIP) program, launched in 2014 through an $8 billion Medicaid waiver, is coordinating with key Medicaid stakeholders across the State to redesign the health care system with the goal of reducing avoidable hospital use by 25% over five years.[25] The DSRIP program will promote community-level collaborations and focus on system reform, specifically working to achieve a 25% reduction in avoidable hospital use over five years. Safety-net providers will be required to collaborate to implement innovative projects focusing on system transformation, clinical improvement, and population health improvement. These State-led initiatives are intended to help reduce health care costs and bring transparency to the system.

Cost containment first requires an understanding of the primary drivers of health care costs. Growth in health care costs can be attributed to many factors, including increases in physician

[21] Centers for Medicare and Medicaid Services. Health Expenditures by State of Residence (Data from 1991–2009). Centers for Medicare and Medicaid Services, 2011. Available at: **https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/res-tables.pdf**.

[22] Rodin D and Meyer J from Health Management Associates. Health Care Costs and Spending in New York State. New York State Health Foundation, February 2014. Available at: **http://nyshealthfoundation.org/uploads/resources/health-care-costs-in-NYS-chart-book.pdf**.

[23] Ibid.

[24] Information on the APD is available at: **http://www.health.ny.gov/technology/all_payer_database/**.

[25] Information on the DSRIP program is available at: **http://www.health.ny.gov/health_care/medicaid/redesign/dsrip/**.

and hospital prices; utilization (that is, the amount of health care services that individuals use); and the mix of services (that is, patients using costlier treatments), as well as shifts to more expensive providers. Of all of these factors, however, national evidence suggests that price is often the predominant driver of health care costs. A 2003 comparison of health spending in the United States and 30 other nations found that the United States spent more on health care than any other country, primarily because of the high health care prices observed in the Unites States.[26] A 2015 national study led by Yale University found that health care prices vary significantly in the commercial insurance market, are correlated to provider market power, and are the predominant contributor to spending variation in the commercial market.[27] These national findings are consistent with findings documented in Massachusetts, where state agencies such as the Attorney General's Office and the Health Policy Commission have published annual reviews of health care cost trends since 2010. Consistent with national evidence, the Massachusetts studies have found that provider reimbursement varies widely and is not necessarily tied to quality, population health status, case severity, or public payer mix, but rather is more strongly associated with market leverage.[28,29,30,31,32,33]

There has not been a thorough analysis of price variation and provider reimbursement in the New York State health care market to date. The overall purpose of this study, therefore, was to increase understanding of provider pricing and market dynamics in New York, as well as help inform New York State's other major health care initiatives. Since hospital expenditures

[26] Anderson GE, Reinhardt UE, Hussey PS and Petrosyan V. It's the Prices, Stupid: Why the United States is So Different from Other Countries. Health Affairs May 2003, 22(3): 89–105. Available at: http://content.healthaffairs.org/content/22/3/89.full.pdf+html.

[27] Cooper Z, Craig S, Gaynor M, and Van Reenen J. The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured. December 2015. Available at: http://www.healthcarepricingproject.org/sites/default/files/pricing_variation_manuscript_0.pdf.

[28] Office of Attorney General Martha Coakley. Examination of Health Care Cost Trends and Cost Drivers. Office of Attorney General Martha Coakley, March 16, 2010. Available at: http://www.mass.gov/ago/docs/healthcare/2010-hcctd-full.pdf.

[29] Commonwealth of Massachusetts Health Policy Commission. 2014 Cost Trends Report. Available at: http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/2014-cost-trends-report.pdf

[30] Commonwealth of Massachusetts Health Policy Commission. 2013 Cost Trends Report – July 2014 Supplement. Health Policy Commission, July 2014. Available at: http://www.mass.gov/anf/docs/hpc/07012014-cost-trends-report.pdf.

[31] Commonwealth of Massachusetts Health Policy Commission. 2015 Cost Trends Report: Provider Price Variation. Available at: http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-ctr-ppv.pdf.

[32] Commonwealth of Massachusetts Health Policy Commission. 2015 Cost Trends Report. Available at: http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-cost-trends-report.pdf.

[33] Market leverage is determined by many factors, including regional discharge market share, statewide discharge market share, geographic location (i.e. rural vs. urban), participation in a hospital system, and presence of competition in the market.

represent a significant share[34] of health care expenditures in the private commercial market, the study concentrated on hospital prices and reimbursement for health care services in this market. In particular, the study focused on the following goals:

- Study hospital contracting practices;
- Explore how New York State's private commercial market sets hospital prices;
- Develop a methodology to compare hospital prices;
- Examine hospital price variation—that is, the extent to which prices differ across hospitals; and
- Analyze whether hospital prices are influenced by various factors, including hospital quality, market leverage, and the proportion of a hospital's revenue that comes from public payers such as Medicaid and Medicare.

The study launched in September 2014, with Gorman Actuarial, Inc., leading a study team that included health insurance actuaries and analysts, quality and project management experts from Freedman HealthCare, and independent hospital contracting experts with insights into New York State's provider contracting landscape.[35] Many of the individuals on the study team had experience reviewing hospital contracts and developing relative price metrics, and had performed similar health care cost and quality analyses in other states.

To achieve the study goals, the team collected information from New York State commercial insurers on contracting practices, reimbursement methods, and hospital pricing information between commercial insurers and hospitals in three major regions of New York, and analyzed the information against hospital financial and quality data. This report presents the key findings from this study, including an assessment of hospital contracting practices across payers, price variation, and the relationship between negotiated prices and various hospital attributes. The report concludes with a discussion of the potential policy recommendations to explore for the New York State health care market.

[34] CY 2016 Federal Unified Rate Review Templates were analyzed for New York insurers. This is also consistent with data collected by the New York State Department of Financial Services, as well as data collected by the study team for this study.

[35] A description of the study team is included in the Acknowledgments section.

Study Description

Study Scope

The study scope was defined according to the following characteristics:

- It analyzed hospital prices, including how prices are established and how they are influenced by certain contracting practices. It also examined hospital price variation—the extent to which prices differ across hospitals.
- It focused on the private commercial insurance market.
- It examined three regions in New York—Albany, Buffalo, and Downstate.

The rationale for selecting these study characteristics is detailed below.

ANALYZING HOSPITAL PRICES

Health care expenditures are the single largest contributor to health insurance premiums, representing 80% to 85%[36] of premium dollars. To understand what drives increases in health care expenditures, the health care industry analyzes medical claims trends from one year to the next. Medical claims trends are generally segmented into two major categories, unit price trend and utilization trend.[37] Unit price trend reflects the change in prices for medical services, including the change in price that insurers negotiate with hospitals and physicians. Utilization trend reflects the change in the number of services provided, including the number of doctor visits or hospital visits changing each year. Over the years, there has been much analysis and discussion of the contribution that these two trend categories make toward increasing health care expenditures. An analysis of New York State insurer rate filings in the individual and small group markets for CY 2016 indicates that unit price increases represent approxi-

[36] The Affordable Care Act's medical loss ratio requirements allow insurers to have a federal medical loss ratio of 80% in the individual and small group markets and 85% federal medical loss ratio in the large group market.

[37] In addition to unit price changes and utilization changes, other trend components include service mix and provider mix. Service mix reflects the extent to which lower-costing services and higher-costing services are prevalent in the market. For example, if there is a shift to higher-costing services, such as patients shifting services from X-rays to more expensive imaging services like CAT scans and PET scans, prices will increase. Provider mix reflects the extent to which lower-costing providers and higher-costing providers are prevalent in the market. For example, if there is a shift to higher-costing providers, such as patients shifting their services from local community hospitals to academic medical centers, prices may increase.

mately 80% of overall medical trends—in other words, unit price increases are the primary driver of increased health care expenditures in the State.[38]

Medical trends are also analyzed by various categories of medical services, such as hospital services and physician services. As demonstrated in the figure below, data from the same New York State insurer rate filings show that hospital expenditures represent 43% of all health care expenditures in the State.[39]

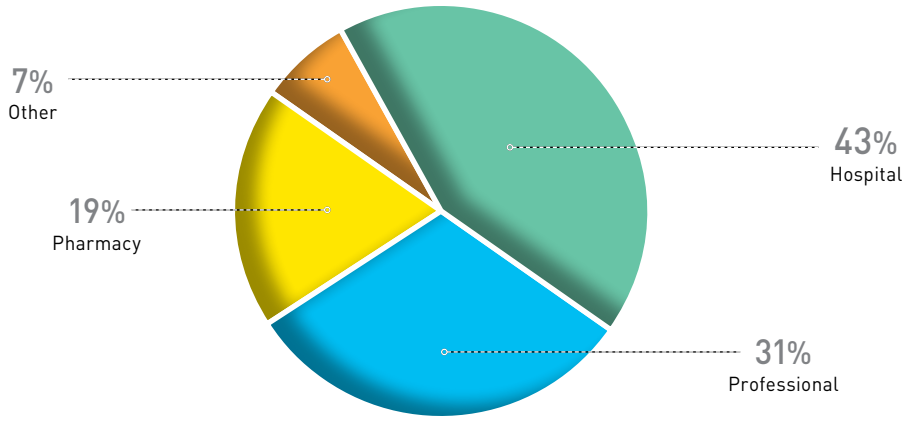
Because of the significant contribution of unit price increases and hospital expenditures to overall medical expenditures, this study focused on the variation in hospital prices in New York State. To understand this variation, the study also included a review of how prices are established and how certain contracting practices influence hospital price.

FOCUSING ON THE PRIVATE COMMERCIAL INSURANCE MARKET

Hospital prices may vary by the population that the hospital serves. The prices for publicly insured individuals (that is, those covered by Medicaid or Medicare) are different than the prices for individuals with private commercial insurance (that is, individuals who purchase their insurance on their own or receive it through their employer). Public payer prices are generally

FIGURE 1

Estimated Distribution of Medical Services



[38] CY 2016 Federal Unified Rate Review Templates were analyzed for New York State insurers. The study team reviewed rate filings that had greater than 50% credibility applied to their experience and where overall trend was greater than 0%.

[39] Derived from CY 2014 data from the 2016 Federal Unified Rate Review Templates for New York State insurers for the Individual and Small Group Markets. This is also consistent with data collected by the New York State Department of Financial Services, as well as data collected by the study team for this study.

lower than private payer prices. Because a goal of this study was to understand how hospital prices impact overall health insurance premiums in the private commercial insurance market, this study analyzed private commercial hospital prices only. However, since private commercial prices may be influenced by prices paid by public payers, the study includes an analysis of the sources of each hospital's revenue and its relationship to its commercial prices. If the majority of a hospital's revenue came from a public payer, the study team analyzed whether this resulted in higher or lower commercial prices.

EXAMINING THREE REGIONS

New York is a large state with very diverse regions and populations. Across the State, more than 300 acute care hospitals and more than 20 insurers participate in the New York health insurance market. To limit the scope of the project to a manageable size, this study analyzed data from 107 hospitals and 9 insurers over 3 regions of New York: Downstate, Buffalo, and Albany. These regions represent three very diverse markets. The Downstate region represents an urban setting with a competitive market that includes many hospital systems, academic medical centers, and community hospitals. The Buffalo region is less urban and includes geographically isolated hospitals and has a less competitive market with only two hospital systems. Finally, the Albany region is the least urban with a few more geographically isolated hospitals and less competition.

The Downstate region was derived from the New York City metropolitan area, Long Island, and Hudson Valley regions of the State as defined by the New York State Department of Health (NYSDOH) on its NYS Health Profiles website.[40] Seventy-five hospitals from this region were chosen for the study, representing more than two-thirds of the hospitals and 90% of hospital revenue in these NYS Health Profiles regions. As the 75 hospitals selected for the Downstate region cover diverse areas and populations, the study team further defined this region into seven subregions, including the following boroughs and counties: Bronx, Brooklyn, Manhattan, Nassau, Queens, Suffolk, and Westchester.[41] The Buffalo region for this study was derived from the Western New York region as defined on the NYS Health Profiles website. Twenty hospitals were chosen from this region, representing approximately 80% of hospitals and greater than 70% of hospital revenue in the Western New York region. Finally, the Albany region for this study was derived from the Capital District region as it is defined on the NYS Health Profiles website. Twelve Albany hospitals were chosen for the study, representing more than half of all hospitals and greater than 80% of hospital revenue in the Capital District region.[42] Because of resource constraints, not every hospital within each region was included in the study; however,

[40] New York State Department of Health. NYS Health Profiles. Available at: **https://profiles.health.ny.gov/hospital/**.

[41] Staten Island and Rockland County were excluded because of small hospital sample size.

[42] A full list of the study hospitals and assigned peer groups by region can be found in Appendix D.

as shown in **Table 1**, the 107 hospitals chosen for the study represent a robust proportion of hospital services within each of the three study regions.

TABLE 1: Study Sample—Hospitals[43]

REGION	# OF HOSPITALS	% OF REGIONAL HOSPITAL REVENUE
Albany	12	80% to 90%
Buffalo	20	70% to 80%
Downstate	75	90%

In addition to the diverse characteristics of New York State's hospital landscape, each region of the State may have different insurers participating in the private commercial market. This study focused on nine insurers with varying levels of market share in the Albany, Buffalo, and Downstate regions. **Table 2** lists these nine insurers and the corresponding regions in which data were requested.[44] These companies insured approximately 8 million[45] people who received their insurance in New York State in 2014.

TABLE 2: Study Sample — Insurers[46]

	ALBANY	BUFFALO	DOWNSTATE
CDPHP	X		
Cigna			X
Emblem			X
Empire BlueCross	X		X
Excellus-Univera		X	
HealthNow-BCBS		X	
Independent Health		X	
MVP	X		
United			X

[43] The study's sample size was estimated using 2014 hospital discharge data and 2014 Gross Patient Service Revenue (GPSR) from the Statewide Planning and Research Cooperative System (SPARCS). Hospital discharges and GPSR from 2014 were analyzed for all the hospitals in the Capital District, Western New York, New York City metropolitan area, Long Island, and Hudson Valley—the five regions, as defined by NYS Health Profiles, that match the three study regions.

[44] UnitedHealthcare submitted two datasets—one for its Oxford company and one for its United company. The study team analyzed each data set separately. Emblem Health also submitted data for two companies; however, the data for one dataset largely represent professional services only and were therefore excluded from certain analyses.

[45] This includes 3.5 million fully insured members and 4.4 million self-insured members.

[46] Legal names and other information on the insurers is provided in Appendix C. Given some additional data complexities with HealthNow Albany, only HealthNow Buffalo information was included in the study.

Data Sources

Several data sources informed the study's analyses of hospital price variation and hospital attributes. The most important source of information was the insurers themselves. The study team developed a data collection tool and questionnaire that requested allowed claims data, nonclaims data (e.g., quality payments and infrastructure payments), case mix index, and utilization data by hospital service categories for each hospital in the study for calendar year 2014. High-level summary data for calendar year 2013 were requested as well. This request was issued to the selected insurers by the New York State Department of Financial Services (NYSDFS) via a Request for Information pursuant to Section 308 of the New York Insurance Law. The request also collected information on reimbursement methodologies and prices or case rates for various services for each hospital. Finally, the information request collected the insurers' hospital contracts. The development of the data collection tool and questionnaire took approximately three months to complete, and was informed by phone interviews that the study team conducted with the insurers,[47] a review of other available data sources, and the team's existing knowledge of the New York State landscape. Recognizing the complexity of provider reimbursement and contracting information, requests were sometimes modified to address specific insurer contracting practices and/or data limitations. These modifications were developed through an iterative review process with the study team, as well as through feedback from the insurers. After issuing the data request, the data collection and analysis process—including the insurers' submission of the requested data, the study team's validation of the data, and subsequent communications to discuss and resolve any data issues—took six to nine months. During this time period, the study team worked closely with the insurers to provide technical assistance and discuss key findings from the data.

In addition to the information provided by the insurers, the study team also obtained access to 2013 and 2014 hospital utilization data from the New York Statewide Planning and Research Cooperative System (SPARCS).[48] Data from SPARCS allowed the study team to analyze hospital attributes such as market share, quality, case mix index, and public payer mix.

Furthermore, NYSDOH provided hospital financial statements so that the study team could review key financial metrics, such as operating margin, for each hospital in the study. The team also compiled hospital quality metrics from the NYSDOH website. Finally, hospital unit price increase data in the small group and individual market rate filings submitted to NYSDFS were reviewed to supplement the analyses.

[47] While developing the information request, the study team invited each insurer to participate in a phone-based discussion to introduce the study, establish a collaborative relationship, and gather background information on the insurers' hospital contracting practices. Seven of the nine insurers participated in these calls.

[48] More information on SPARCS, which is administered by NYSDOH, is available at: **https://www.health.ny.gov/statistics/sparcs/**.

Study Methodology

Using the information collected from insurers, the study team first examined hospital contracting and reimbursement practices in New York State to develop a methodology for comparing hospital price among the hospitals in each region. Key findings from the analysis of hospital reimbursement practices and hospital/insurer contracting practices are detailed in later sections of the report. The study team then calculated a price metric for each study hospital and analyzed the variation of these prices within each of the study regions. Finally, various hospital attributes, such as market leverage, quality, and public payer mix, were analyzed and tested against a hospital's price to determine what factors influence hospital price variation. A more detailed description of the study team's methodology is provided below.

This study relied on a multipronged approach to analyzing inpatient and outpatient hospital price that utilized claims and pricing data from the insurers, utilization data from SPARCS, hospital contracts, and knowledge of the markets. To develop this approach, the study team received input from the analytic and contracting departments of each insurer involved, and also received assistance from NYSDFS, NYSDOH and the New York State Health Foundation. In addition, the study team—comprising actuaries, analysts, contracting experts, and a physician—leveraged its own experience and expertise in developing the relative price methodology.

HOSPITAL RELATIVE PRICE

Hospital relative price compares a hospital's blended inpatient and outpatient price to the average blended price of all the hospitals within each region for this study. For example, if a hospital's relative price is 1.10, this indicates that the hospital's price is 10% above the unweighted average price for the study hospitals within the study region. Alternatively, if the hospital's price is 0.90, this indicates that the hospital's price is 10% less than the unweighted average price of the study hospitals within the study region.

Hospital relative price is a blend of hospital inpatient relative price and hospital outpatient relative price. The relative price values are adjusted for types of services provided (i.e., service mix) and, to a certain extent, the sickness of the population (i.e., case mix index). These adjustments allow for a price comparison of one hospital to another. A more detailed description of the relative price methodology can be found in Appendix A.

CALCULATING RELATIVE PRICE

After analyzing the information from insurers along with hospital utilization data from SPARCS,[49] the study team developed a methodology to calculate a price and subsequently a relative price by insurer for each hospital in the study. This methodology is consistent with the methodologies used in studies in other states.[50] The relative

[49] More information on SPARCS, which is administered by the NYSDOH, is available at: **https://www.health.ny.gov/statistics/sparcs/**.

[50] Studies include the Massachusetts Center for Health Information and Analysis (CHIA). Source: Center for Health Information and Analysis. Data Specification Manual, 957 CMR 2.00: Payer Report of Relative Prices. Center for Health Information and Analysis, March 31, 2016, pp.7–8. Available at: **http://www.chiamass.gov/assets/docs/p/tme-rp/data-spec-manual-rp.pdf**. This relative price methodology is also consistent with the calculation of inpatient relative price used by UMASS Medical School for the state of New Hampshire. Source: K London, MG Grenier, TN Friedman and PT Swoboda. Analysis of Price Variations in New Hampshire Hospitals. University of Massachusetts Medical School, on behalf of the New Hampshire Insurance Division, April 2012. Available at: **https://www.nh.gov/insurance/lah/documents/umms.pdf**. Finally, this methodology is similar to that used by Xerox in the State of Rhode Island. Source: Xerox. Variation in Payment for Hospital Care in Rhode Island. Prepared for the Rhode Island Office of the Health Insurance Commissioner and the Rhode Island Executive Office of Health and Human Services, December 19, 2012, p.12. Available at: **http://www.ohic.ri.gov/documents/Hospital-Payment-Study-Final-General-Dec-2012.pdf**.

price methodology varied from one insurer to another because of the wide variation in hospital reimbursement across insurers, as well as the diverse way in which some information was reported by the insurers. As a result, the hospital inpatient and outpatient blended relative price for one insurer cannot be directly compared with that of another insurer. These methodologies were documented and shared with each insurer to ensure that the information the study team received was interpreted correctly and to verify that the relative price calculation methodology was sound.

The relative price was not calculated for each specific, individual inpatient and outpatient service that a hospital provides; rather, it reflects a blended price of all inpatient and outpatient services available at each hospital. For example, the price of a knee surgery may be different for two hospitals, whereas the price of an appendectomy may be the same. The relative price is calculated by blending the prices of these different services together (e.g., knee surgery, appendectomy), enabling analysts to calculate a single relative price for comparison purposes that can assess the extent of price variation across different hospitals within a region. Each hospital's relative price is also adjusted for the sickness (morbidity) of the population it serves (case mix for inpatient services) and the types of services the hospital provides (service mix).[51]

This methodology allowed the study team to establish an overall price for each study hospital and subsequently compare the price of that hospital with those of the other hospitals in the study. Although the methodologies differ from one insurer to the next, the general approach is consistent. Appendix A provides a detailed description of this approach.

Once relative price for each hospital was calculated, hospitals were identified as higher-priced or lower-priced using two different methodologies. The first methodology groups hospitals together for each insurer by sorting the hospitals from lowest relative price to highest relative price. In the Downstate region, the 75 hospitals were divided into 5 groups with approximately 15 hospitals to each group. According to this methodology, the first group represented the 15 hospitals with the lowest relative price, and the fifth group represented the 15 hospitals with the highest relative price. Then the average relative price for each group was calculated.[52] This grouping was performed for each insurer separately. In Buffalo, the

[51] As described in Appendix A, relative price reflects quality payments, outlier payments, and add-on payments. It does not include an adjustment for charity care. It does not make an explicit adjustment for teaching status; however, teaching status is used when comparing hospitals.

[52] The study team has chosen to display relative price for groupings of hospitals instead of for individual hospitals, as the study focus is to present observations of relative price variation across the overall market, along with patterns and correlations among hospitals and insurers in regards to relative price and other market dynamics.

20 study hospitals were divided into 4 groups with approximately 5 hospitals in each group. In Albany, the 12 hospitals were divided into 3 groups with approximately 4 hospitals in each group.

Whereas the first methodology groups hospitals for each insurer, the second methodology groups higher-priced and lower-priced hospitals across insurers. This second methodology was used for the seven subregions within the Downstate region, as well as for Buffalo and Albany. As described earlier, although relative price cannot be directly compared or combined across insurers, the rank of the relative price can be combined. Within each subregion in the Downstate region and for each insurer, hospitals were assigned a rank based on their relative price, and these ranks were then averaged across insurers. Hospitals with low ranks were grouped together and identified as higher-priced, whereas those with high ranks were grouped together and identified as lower-priced.[53]

EXAMINING OTHER HOSPITAL ATTRIBUTES

To understand what drives variation in hospital price, the study team also calculated and analyzed several hospital attributes to ascertain whether these attributes were associated with price. Hospital attributes included quality, peer groupings, market leverage, and public payer mix. When possible, a regression analysis was performed to understand whether there were any statistical correlations between hospital relative price and these attributes. Other times, the team was able to make observations by analyzing the data and key metrics.

- Quality: Twelve hospital quality metrics were analyzed using SPARCS data and other publicly available resources. Further information on quality and quality metrics can be found in Appendix B. Key findings from this analysis are included in a later section of this report.
- Peer Groupings: With the assistance of the study team's market experts, hospitals were grouped into peer groups—that is, like hospitals of similar size, teaching designation, and services.[54] Key findings are included in a later section of the report.
- Market Leverage: Market leverage may be defined in many different ways, from brand

[53] For example, the hospital with the highest relative price in the subregion would be assigned a rank of 1, the hospital with the second highest relative price would be assigned a rank of 2, and so on. This ranking was performed for each insurer and then averaged across insurers. Within each subregion, hospitals with the lowest average ranks were grouped together and identified as the higher-priced hospitals within the subregion. The lowest average ranks varied for each subregion as the number of hospitals and relative price spreads vary. The study team used analytic criteria that are different for each subregion to define higher-priced hospitals. The criteria vary as the number of hospitals within each subregion varies and as the distribution of relative price within each subregion varies.

[54] To classify hospitals into peer groups, the study team leveraged its knowledge of the markets and also reviewed each hospital's number of hospital beds, net patient service revenue, academic medical center status, and teaching status. The definitions vary by region. A detailed description of the process is found in Appendix E.

strength to market share; however, there is no single measure of market leverage, and some forms of market leverage are difficult to quantify. The study team focused on two approaches to analyzing market leverage—the first was a statistical analysis that studied two variables (relative price and market share)[55] and the second was a multivariable data analysis relying on market knowledge to analyze different markets and subregions. This second approach analyzed the following forms of market leverage: whether a hospital participated in a hospital system[56] with significant regional market share, whether a hospital was the only academic medical center in its region, and whether a hospital was a rural hospital. Key findings are included in a later section of this report.

- Public Payer Mix: Public payer mix—that is, the percentage of a hospital's revenue attributable to public payers (i.e., Medicare and Medicaid)—was calculated using SPARCS 2013 and 2014 data. Key findings are included in a later section of this report.

The next two sections of the report present the findings from the study team's review of hospital reimbursement and contracting practices.

[55] The study team considered and analyzed four market share variables—number of beds, commercial gross patient service revenue, net patient service revenue, and commercial hospital discharges. After performing initial analyses on all four variables, the team focused on commercial hospital discharge market share for a deeper level of analysis. Although the commercial hospital discharge market share variable does not include outpatient services, it is still considered representative of total market share and was the cleanest data available for this analysis. This variable was sourced from SPARCS 2014 data. Gross patient service revenue by payer (commercial versus public) is also available through SPARCS; however, this revenue is not discounted for insurer reimbursement and therefore represents actual hospital charges, which is not a true reflection of revenue. Net patient service revenue can be obtained from the New York State Institutional Cost Reports (ICR) and reflects true revenue adjusted for payer discounts; however, it is sometimes only reflected at the system level, and is only reported in total and not by payer.

[56] Hospital participation in a hospital system can vary from year to year and is difficult to determine at times. The study team relied on market knowledge, research of hospital websites, information from NYSDOH, and insurer input to determine hospital system designation for CY 2014. A full listing of hospitals, peer groups, and hospital system designation can be found in Appendix D.

Observations of New York Hospital Reimbursement Practices

KEY FINDING: Hospital reimbursement practices are complex and extremely varied, requiring considerable amounts of data, resources, and analysis to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. This complexity can increase administrative costs and undermine transparency efforts.

To understand the different methods through which hospital inpatient and outpatient services are reimbursed in New York State, the study team analyzed hospital contracts, rate sheets, and price data from insurers; interviewed insurers in the three study regions; and discussed key findings with contracting experts. The study team observed that, absent a considerable amount of data, resources, and analysis, it can be challenging to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. Not only do reimbursement methodologies vary significantly across insurers in a given region of New York State, but even within a single insurer's network it is rare to find two hospitals that are reimbursed under the exact same methodology and provisions across all service categories. Many components need to be considered when determining an overall price, including contract provisions and rate sheets, fee schedules, case rates, charge masters (or proxies for charge masters), and underlying utilization (which is used to develop distribution of services across hospitals). As indicated during the study team's conversations with the insurers included in the study, some insurers have the resources in place and have developed sophisticated, data-driven analytic tools to analyze hospital price, whereas other insurers do not embark on a complete review of hospital price analyses because of the large amount of resources involved.

The complexity and diversity of hospital reimbursement practices in New York are further highlighted in the following findings:

- The insurers in this study typically use up to three methodologies for inpatient reimbursement—Diagnosis Related Group (DRG), per diem, and percentage of charges—which adds complexity when trying to compare inpatient prices from one hospital to another.
- Reimbursement for outpatient hospital services is much more intricate than inpatient hospital reimbursement.
- The study team observed multiple reimbursement methodologies for the same services within the same insurer—adding another layer of complexity when comparing prices for the same service across hospitals within one insurer.
- Among the insurers in the study, reimbursement for ambulatory surgery services (a subset of outpatient hospital services) uses one of three methods: case rates, percentage of charges, or a fee schedule. Some insurers consistently use one method and others use a combination.

  - Some insurers do not consistently define ambulatory surgery categories of services from one hospital to the next.
  - Insurers have different payment policies for reimbursing multiple surgeries performed on the same day for the same person, making it difficult to compare prices of services from one hospital with another for the same insurer.
- In addition to differences in reimbursement for emergency department services, hospitals' methods for coding emergency services are not standardized.
- Other contracting practices, such as add-on payments and exclusions, make it difficult to compare prices of services from one hospital with another for the same insurer.
- Although hospital reimbursement is complex, there are data driven, analytic methods to compare hospital prices; however, these methods can be resource intensive.

The remainder of this section provides additional detail on the team's findings on the State's hospital reimbursement practices. These findings were used to develop the study's methodology for calculating hospital relative price.

Reimbursement of Inpatient Hospital Services

The insurers in this study typically use up to three methodologies for inpatient reimbursement—DRG, per diem, and percentage of charges—which adds complexity when trying to compare inpatient prices from one hospital to another.

shows all the insurers in the study and the methods of inpatient reimbursement employed by each.[57] The most prevalent reimbursement methodology, DRG, is a mechanism in which inpatient admissions are grouped into categories for purposes of payment. These categories are based on factors that include diagnoses, procedures, patient characteristics, and the presence of complications or comorbidities. There are many approaches to grouping inpatient admissions into broader categories, and depending on the type of DRG methodology used (known as a grouper), the number of inpatient categories can range from a few hundred to several hundred. Each category grouping is assigned a weight. A base DRG payment[58] is negotiated between the insurer and the hospital, and the appropriate weight is then multiplied by the base DRG payment to determine the final payment amount. There are several different types of DRG groupers, including the Medicare Severity DRG (MS-DRG), All Patient DRG (AP-DRG) and

[57] To ensure confidentiality, insurers' names are omitted from this report and replaced with random letters (e.g., Insurer A, Insurer B). To prevent the re-identification of any insurer, the naming scheme is not consistent across all figures and tables unless otherwise indicated—in other words, an insurer may be listed as Insurer C in one table and as Insurer E in another.

[58] The base rate is typically inclusive of the inpatient services provided during the stay, except for any add-on payments or exclusions.

the All Patient Refined DRG (APR-DRG), and each one categorizes inpatient services differently.[59] In addition, weights and categories are updated periodically within each grouper, which results in multiple versions of the grouper. If an insurer uses the same DRG grouper and version number, then the insurer can directly compare the base rate from one hospital to another. However, insurers do not always use the same DRG grouper and version number across all hospitals; therefore, base rates cannot be directly compared. shows the different DRG groupers used by the insurers in the study and demonstrates that several insurers, namely Insurers A, C, E, G, and H, use different DRG groupers for different hospitals.

TABLE 3: Observed Inpatient Hospital Reimbursement Methods

		INPATIENT REIMBURSEMENT	INPATIENT DRG GROUPER TYPE
Albany	Insurer **A**	DRG; Per Diem; Percentage of Charges	AP; APR
	Insurer **B**	DRG; Per Diem	NYS APR
	Insurer **C**	DRG; Per Diem	NY AP; Medicare
Buffalo	Insurer **D**	DRG; Per Diem	NY Medicaid APR
	Insurer **E**	DRG	AP; APR
	Insurer **F**	DRG	APR
Downstate	Insurer **G**	DRG; Per Diem	AP; APR
	Insurer **H**	DRG; Per Diem	AP; MS
	Insurer **I**	DRG; Per Diem	MS
	Insurer **J**	DRG; Per Diem; Percentage of Charges	MS

[59] A more detailed description of DRGs is provided at http://healthcare-economist.com/2012/06/19/what-is-the-difference-between-drgs-ap-drgs-and-apr-drgs/.

The second inpatient reimbursement methodology is per diem, where a certain amount is reimbursed for each day of a patient's hospital stay. Although many hospitals and insurers have since moved away from this method, historically it was the more common reimbursement mechanism for commercial hospital services, and some hospitals still use the per diem model for certain types of services. As shown in , all but two insurers (Insurers E and F) continue to use per diem reimbursement for at least one of their hospitals.

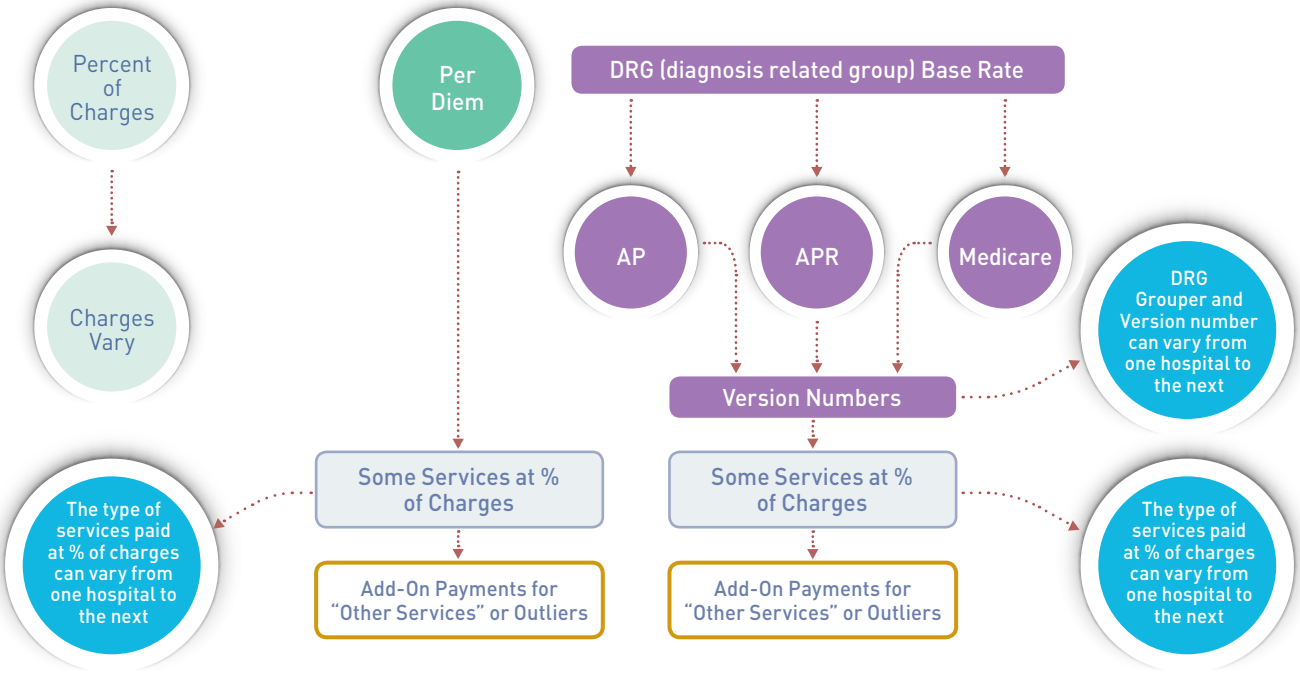
The last inpatient reimbursement methodology is percentage of charges, in which the hospital's reimbursement is based off of a negotiated percentage from the hospital's charge master. The charge master is a comprehensive list of items and prices billable to a patient or insurer prior to any negotiated discounts; it is generally known that prices in a charge master are highly inflated sticker prices compared with the discounted reimbursement rates negotiated between the insurer and its contracted providers. Each hospital usually sets its own charge master, which can vary significantly across hospitals and is not typically shared with patients or insurers. For insurers to compare prices of hospitals under a percentage of charges reimbursement methodology, they must compare actual paid dollars from each hospital for like services or they must have access to the hospital's charge master. shows that two of the insurers (Insurers A and J) have hospitals for which a proportion of their inpatient reimbursement is for percentage of charges.

An insurer may reimburse different hospitals in its network using each of these three methods. shows that all but two insurers use multiple inpatient reimbursement methodologies. Even within an insurer's contract with a single hospital, different inpatient services may be reimbursed under different methods. For example, for a given hospital, most inpatient services may be reimbursed by DRG, but other services, such as rehabilitation stays or stays for traumatic brain injuries, may be reimbursed by per diem. In addition, many contracts contain add-on payments or exclusions to the reimbursement methodology for items such as high-cost drugs, prosthetics, implants, and other supplies that are provided as part of an inpatient stay but are not part of the DRG payment. These services are reimbursed separately, typically based on a percentage of charges or some other negotiated fee. The add-on payments and exclusions can vary by hospital and insurer.

Because of the variation in reimbursement methodologies, there is added complexity when attempting to compare prices among hospitals. This complexity can make it challenging to analyze and compare negotiated prices across hospitals and hospital services. **Figure 2** demonstrates the complexities for reimbursement of hospital inpatient services.

FIGURE 2:

Hospital Contracting Complexity—Inpatient Services



Reimbursement of Outpatient Hospital Services

Reimbursement for outpatient hospital services is much more intricate than inpatient hospital reimbursement.

Even though inpatient hospital reimbursement is fairly complex, outpatient hospital reimbursement is considered significantly more intricate. This is driven in part by the wide array of services provided in an outpatient hospital setting—including, but not limited to, outpatient same-day surgery (also referred to as ambulatory surgery), emergency department services, lab and pathology services, radiology services, observation services, chemotherapy, pharmacy, and physical therapies. Each of these types of services may be reimbursed differently in a single hospital's contract with an insurer.

Like inpatient hospital services, the study team observed multiple reimbursement methodologies for the same services within the same insurer—adding another layer of complexity when comparing prices for the same service across hospitals within one insurer.

shows all the insurers in the study and the methods of outpatient reimbursement employed for three service categories: ambulatory surgery, emergency department, and outpatient drugs.

Similar to inpatient reimbursement, several insurers use multiple reimbursement methodologies for the same outpatient service type. For ambulatory surgery, 5 out of 10 insurers have more than one reimbursement methodology, whereas for emergency department services and drugs, 4 out of 10 hospitals have more than one reimbursement methodology. In addition, the reimbursement methods typically vary across types of services for the same insurer. The common reimbursement types for certain outpatient service categories are explained further below.

TABLE 4: Observed Outpatient Hospital Reimbursement Methods

		AMBULATORY SURGERY	EMERGENCY DEPARTMENT	DRUGS
Albany	Insurer A	Case Rates	Case Rates	Percentage of Charges
	Insurer B	Case Rates; Percentage of Charges	Case Rates; Percentage of Charges	Percentage of Charges; Fee Schedules
	Insurer C	Case Rates; Percentage of Charges	Case Rates; Percentage of Charges	Percentage of Charges; Fee Schedules
Buffalo	Insurer D	Case Rates	Case Rates	Percentage of Charges; Fee Schedules
	Insurer E	Case Rates	Case Rates	Fee Schedules
	Insurer F	Case Rates; Fee Schedules	Case Rates; Fee Schedules	Fee Schedules
Downstate	Insurer G	Case Rates	Case Rates	Percentage of Charges
	Insurer H	Case Rates; Fee Schedules	Case Rates	Percentage of Charges; Fee Schedules
	Insurer I	Case Rates	Case Rates	Percentage of Charges
	Insurer J	Case Rates; Percentage of Charges	Case Rates; Percentage of Charges	Percentage of Charges

Among the insurers in the study, reimbursement for ambulatory surgery services uses one of three methods: case rates, percentage of charges, or a fee schedule. Some insurers consistently use one method and others use a combination.

Ambulatory surgeries generally comprise one of the largest proportions of outpatient total payments for a hospital, representing 30% to 40% of hospital outpatient insurer claims.[60] One common method of reimbursement for ambulatory surgery is through a grouper case rate methodology. There are hundreds of different types of ambulatory surgeries as defined by the codes used to bill a given claim, and under this methodology the surgeries are grouped into categories according to the type and complexity of the procedure. Grouping occurs using one of several methodologies, or groupers. Many payers use the Medicare hospital outpatient grouper, but there are other groupers, including one in use by New York State Medicaid. Some insurers use their own proprietary or original grouping methodologies as well. In general, the number of grouper categories ranges from 5 to 12.[61] The price or case rate for each category is negotiated between the insurer and the hospital. The insurer can compare prices of each category of services from one hospital to another if the insurer defines these categories consistently across all hospitals.

Some insurers do not consistently define ambulatory surgery categories of services from one hospital to the next, making it difficult to compare prices among ambulatory surgery services.

When service categories are not consistently defined, price comparisons are nearly impossible. In these instances, insurers either do not attempt to compare prices from one hospital to the next, or must develop a data-driven methodology using claims data to compare price.

Other contracting practices, such as add-on payments, exclusions, and payment policies for multiple surgeries, also make it difficult to compare prices of services from one hospital with another for the same insurer.

Similar to the inpatient DRG methodology, the ambulatory surgery case rate methodology is typically inclusive of all services provided during the surgery, except for any add-on payments or exclusions for items such as high-cost drugs or implants. The add-on payments and exclusions can vary by hospital and insurer. In addition, most hospital contracts will include different provisions for reimbursing multiple surgeries performed at the same time. For example, some hospitals are reimbursed 100% for the first surgery, 50% for the second, and 0% for the third or more. Including add-ons, exclusions, and various payment policies (such as multiple surgeries within a contract) adds to the difficulty in comparing prices of ambulatory surgery services among hospitals.

In addition to the grouper case rate reimbursement methodology, ambulatory surgeries for some hospitals may be reimbursed according to a fee schedule (defined below) or based on

[60] The study team estimated this by analyzing data provided by the insurers in the information request.

[61] The study team observed more than 12 categories among certain insurers.

a negotiated percentage of charges (similar to the reimbursement model for inpatient hospital services described above).

In addition to differences in reimbursement for emergency department services, hospitals' methods for coding emergency services are not standardized.

Emergency department services are another large component of a hospital's outpatient payments, representing 10% to 20% of hospital outpatient insurer claims.[62] Similar to ambulatory surgeries, emergency department services can be reimbursed based on case rates. There are typically anywhere from one to seven categories of emergency department case rates based on the procedure code or revenue code. The categories typically vary in complexity, with more complex categories commanding higher negotiated prices. Insurers are usually able to compare prices of emergency services from one hospital to another, as the category definitions are generally consistent. However, based on discussions with insurers and contracting experts, the study team discovered that hospitals' methods for coding emergency services are not standardized. One hospital may code an emergency service as Category 1 (a less complex category), whereas another hospital may code the same service as Category 2 (a more complex category). In addition, emergency department services can be reimbursed based on a percentage of charges where the negotiated percentage of charges is applied to the hospital's charge master.

The remaining types of outpatient services can be reimbursed through a variety of mechanisms, but the most common methods are case rates, percentage of charges, and fee schedules. A fee schedule is a list of prices that the insurer agrees to pay the hospital for particular services. Some insurers use a standard fee schedule, such as the one that Medicare issues annually, whereas others may use their own fee schedule. For a particular type of service, such as lab and pathology, an insurer may have multiple sets of fee schedules for different hospitals in its network—and even if two hospitals use the same underlying fee schedule, the final price may be determined by a different factor, or multiplier, of that particular fee schedule. For example, one hospital may be reimbursed 120% of the Medicare 2014 fee schedule, whereas another hospital may be reimbursed 130% of the same fee schedule. In addition, even if a fee schedule is based on Medicare, it could be from different years or could contain variations from other Medicare-based fee schedules in use.

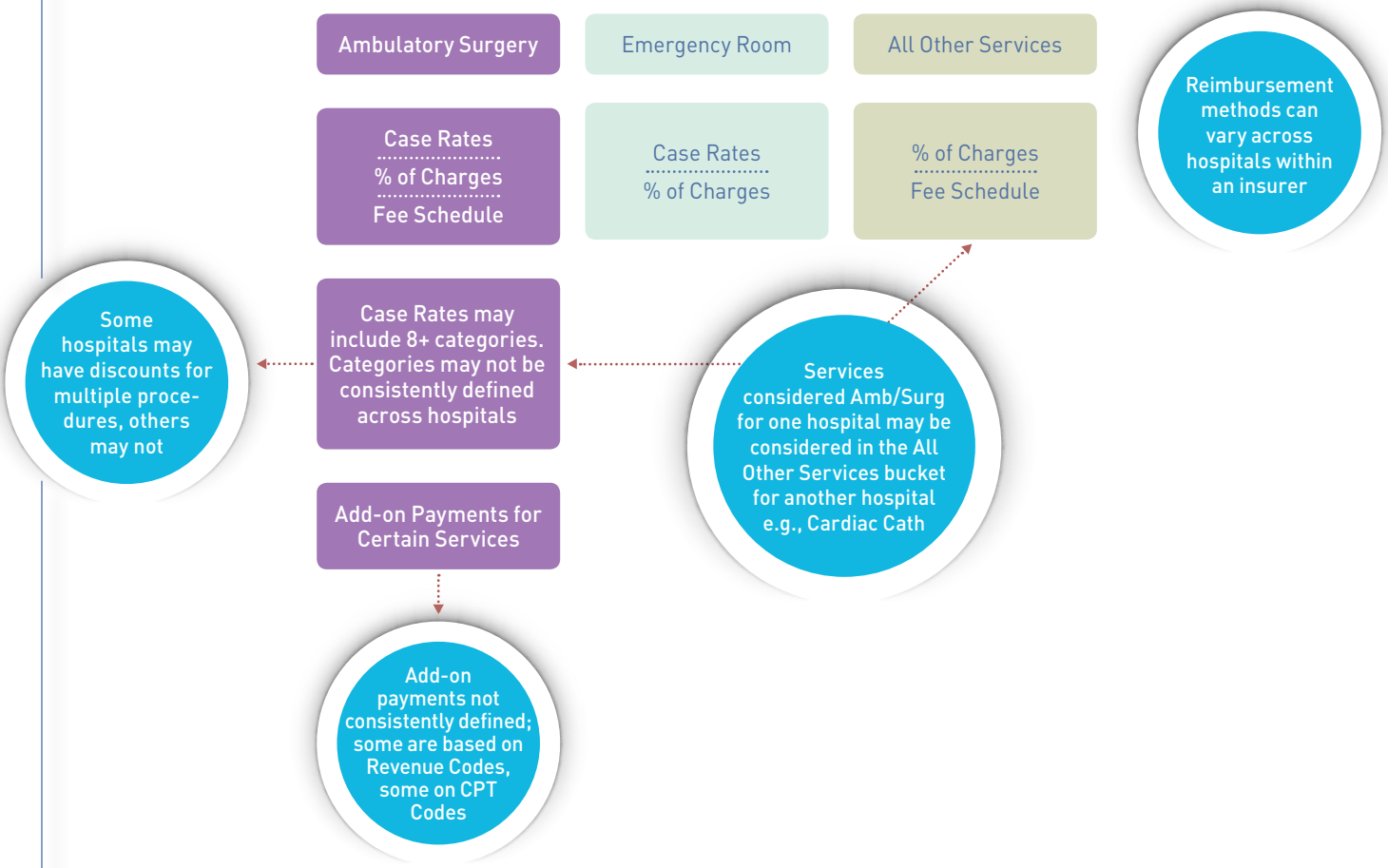
As described, although contracting for hospital inpatient services is complex, contracting practices for outpatient services are more varied as a result of the diversity in services offered. **Figure 3** illustrates the contracting complexity of outpatient services.

Because of the complexity and lack of standardization in hospital reimbursement structures, it can be challenging to directly compare one hospital's inpatient and outpatient overall price with that of another hospital absent a considerable amount of data, resources, and analysis. Although

[62] The study team estimated this by analyzing data provided by the insurers in the information request.

FIGURE 3:

Hospital Contracting Complexity—Outpatient Services



not explored as part of this study, this complexity in hospital payment, billing, and financing functions most likely has a significant impact on administrative costs for these entities,[63] which in turn impacts health insurance premiums paid by consumers. The complexity and diversity of hospital reimbursement can also present a serious roadblock to making hospital prices transparent. As discussed, some insurers in New York State have leveraged their resources to perform relative price analyses, whereas others have not. To compare prices across hospitals for this study, the study team developed a methodology for calculating relative price, which is detailed in Appendix A. The findings from this analysis are discussed in a later section of this report.

[63] The Commonwealth Fund. A Comparison of Hospital Administrative Costs in Eight Nations: U.S. Costs Exceed All Others by Far. Available at: http://www.commonwealthfund.org/publications/in-the-literature/2014/sep/hospital-administrative-costs.

Observations of Contracting Practices

KEY FINDING: Certain contract provisions contribute to market dysfunction by hindering competition, product innovation, transparency, and cost containment strategies.

As the study team analyzed actual prices between each insurer and the hospitals in its network, the study team also examined language from select contracts between insurers and hospitals in all three regions. These documents define the business relationship between the insurer and the hospital or hospital system.

Through its assessment of contract provisions, the study team sought to identify the following:

- Language that perpetuates pricing disparities among hospitals;
- Language that appears to set barriers to healthy competition among hospitals; and
- Language, or the lack thereof, that may negatively impact consumers.

The contracting practices highlighted below meet one or more of the criteria listed above. Some of these practices were observed in all three study regions and others were not; however, these practices were most prevalent in the Downstate region:

- Confidentiality clauses limit the ability for consumers to see prices of hospital services.
- Anti-steering language does not allow an insurer to direct consumers to other provider sites.
- Tiered network language either bars the establishment of tiered networks or requires the insurer to place the hospital in its most favorable tier, limiting a consumer's ability to choose a provider based on cost and quality.
- Termination without cause may create an incentive to comply with the demands of one party over the other party, limiting insurers' and hospitals' ability to control costs.
- Clauses that require the insurer to include the hospital in the insurer's outside vendor's network at the hospital's price limits the insurer's ability to control costs for outsourced services.

Many of these contracting practices were primarily put in place to protect either party from changes in payment practices or billing practices, as these types of changes could adversely impact either party's financial health. However, these contracting practices may perpetuate price disparity, set barriers to healthy competition, and/or negatively impact consumers.

The remainder of this section provides additional background on these observed practices and highlights how they may contribute to market dysfunction in New York State.

Confidentiality clauses limit the ability of consumers to see prices of hospital services.

The study team observed confidentiality clauses that prohibit insurers from showing hospital prices to their members. These clauses were found in all three study regions. Historically, both hospitals and payers have requested that their reimbursement rates be protected, as this has been a standard business practice for many years. However, the increasing enrollment in health plans with high cost-sharing in recent years has led consumers to demand more price information on health care services. These types of plans are typically characterized by lower premiums and higher deductibles, with consumers paying for much of their health care out of pocket up to a maximum amount (the deductible). Confidentiality clauses may have negative implications for consumers who would benefit from pricing information to make informed decisions on their out-of-pocket health care purchasing. For example, an insurer's online price estimator tool for patients will often have blank information for those providers with confidentiality clauses, limiting patients' ability to comparison shop for care that is affordable for them. These confidentiality clauses limit efforts to compare service prices for the benefit of consumers. As a result, creativity in product offering or hospital marketing is constrained. Also, as consumers are unable to shop on price, they have no incentive to move their business elsewhere—and therefore, providers have no incentive to reduce their prices to gain more patient volume. Higher-priced providers will continue to be higher-priced, lower-priced providers will continue to be lower-priced, and price variation will continue to exist. The economic laws of supply and demand are ineffective in a market where prices are not transparent.

Anti-steering language limits an insurer's ability to present alternative providers to consumers.

The study team observed that some Downstate contracts include anti-steering language that prohibits insurers from directing, or steering, consumers to other provider sites, and considers such actions to be a breach of contract. Absent these restrictions, there are a variety of mechanisms through which insurers might practice steering. For example, an insurer may provide its members, upon request, with the price of a radiology service (e.g., an MRI) at various provider locations in the member's geographic area. Also, insurers may designate providers as "Centers of Excellence" for certain procedures, and include financial incentives for members to seek care at those locations. Hospitals view steering practices as a mechanism to shift business or volume away from them, which threatens the hospital's profitability. However, contracts that prohibit steering limit the consumer's ability to access price and quality information to make site-of-care decisions. As with the confidentiality clauses, without price transparency, consumers do not have incentives to shift their business elsewhere, and providers who do not experience volume change do not have incentives to lower their prices.

Tiered network language either bars the establishment of tiered networks or requires the insurer to place the hospital in its most favorable tier.

In New York's Downstate market, the study team observed tiered network language in some contracts that prohibits the establishment of tiered networks or requires the insurer to list the hospital in the most favorable tier if a tiered network is established.

Tiered network products are a type of product in which the insurer groups its contracted providers into tiers based on the insurer's definitions, which are usually based on lower price and the insurer's choice of quality metrics. The goal of the tiered network product is to create incentives for consumers to receive their care at low-priced/high-quality hospitals, or at sites offering good value. Nationally, tiered network products are growing in popularity, and some large self-insured employers have also adopted them as a way to manage their health care costs. In this model, providers in the most favorable tier provide the best value (generally low-priced, high-quality care), whereas those in the least favorable tier provide the lowest value (generally high-priced, low-quality care). As an incentive, members are charged lower copays or deductibles when they choose the most favorable tier. More and more hospitals are joining hospital systems that are centered on large expensive teaching hospitals. Each hospital within a system expects to be treated similarly. Hospitals view tiered networks as a mechanism to split up the hospital system, as some hospitals may be classified in favorable tiers and others not. Language in the contracts that either bars the insurer from establishing tiered networks or requires the hospital to be included in the most favorable tier limits a consumer's ability to shop on price and quality.

Compounding this issue is the lack of standards for defining tiers in a tiered network product. Each insurer uses its own definitions and metrics for determining the tier in which a hospital should be placed. A number of contracts between insurers and large hospital systems contain language that gives the system the right to approve the insurer's standards for tiering and requires the insurer to include the system's hospitals in its most favorable tier, regardless of whether the hospital's actual ratings meet the insurer's standards for that tier. The lack of standardization creates opportunities for the hospital to influence the tiering structure to its advantage. For example, in cases where the hospital system is allowed to approve the insurer's tiering standards, a hospital might demand that the insurer accept very low scores as its threshold. Another example might include qualification standards for physicians. The hospital might demand that board eligibility—rather than full board certification—be acceptable for the tiering standard.

Termination without cause may create an incentive to comply with the demands of one party over the other party.

All contracts contain provisions for termination, a standard business practice. However, virtually all hospital/insurer contracts contain clauses that allow either party to terminate for no cause at any time, upon prior written notice of 90 days (or usually no more than 180 days) to

the other party. In practice, this means that if one party tries to implement something which the other party sees as not in its interest, the other party can threaten to terminate the contract. In contract relationships, the hospital and the insurer have different goals. The insurer wants to control costs and make the cost of insurance as reasonable as possible in the marketplace. The hospital, on the other hand, needs assurance of a steady, predictable cash flow with annual revenue increases. The termination-without-cause provision can therefore hinder the implementation of new strategies for containing costs or improving quality if a hospital perceives those strategies as a threat to its financial security. For example, if the insurer develops a utilization review program to reduce frequently over-used radiology procedures, or if the insurer expands its list of procedures requiring prior approval, the hospital can threaten the payer to terminate. The possibility of using the termination-without-cause provision reinforces the hospital's status quo, and can inhibit an insurer's ability to create tools to control costs or improve quality. Although actual termination without cause has been rare, this clause has been used in hospital/insurer price negotiations as leverage, especially by larger hospital systems.

Clauses that require the insurer to include the hospital in the insurer's outside vendor's network at the hospital's price limits the insurer's ability to control costs for outsourced services.

One approach insurers use to lower costs includes the use of outside vendors rather than hospitals for certain services such as outpatient labs, behavioral health, radiology management, transplants, and physical therapy. These specialty vendors may be able to contract and deliver certain services for a lower overall cost than the insurer itself can secure—for example, by using nonhospital providers for lab and radiology services. These specialty vendors may also have greater clinical and managerial expertise in administering certain types of services, such as transplants or behavioral health services, than the insurer does.

Many hospitals will argue that the use of outside vendors limits their ability to integrate and coordinate care. In a number of hospital/insurer contracts in Downstate New York, contract provisions were inserted, which allow insurers to outsource services to an outside vendor but require that the hospital be a participating provider in the vendor's network and that the hospital's prices take precedence over the vendor's terms and prices. This requirement limits the insurer's ability to control costs as the hospital continues to be in the network for outsourced services at its own price.

Most of the contract provisions discussed in this section were implemented many years ago, prior to the increased interest in consumer-directed and tiered network health plans. They have remained in current contracts, as clauses can be difficult to remove once they are in place. These contracting practices appear outdated in today's environment, where patients are responsible for larger proportions of the health care costs in the forms of deductibles, copays,

and coinsurance. This is in addition to the increased focus on promoting consumer decision-making tools, creating incentives for high-value care and cost containment, and enabling greater competition. In addition, during contract negotiations between insurers and hospitals, both parties are understandably seeking to protect their own interests; however, consumer interests are often not given equal consideration. This has contributed to the continuation of certain contracting practices that can hinder consumer price transparency and decision-making. This suggests an opportunity for State policymakers and other stakeholders to protect consumers' interests and to establish policies that promote price transparency. Policies could include the barring of confidentiality language, anti-steering language, and language that hinders the ability of the tiered network product to work efficiently. However, policymakers also need to consider the unintended consequences of barring such policies. For example, barring confidentiality language could result in price increases in the short term as lower-priced providers may demand higher prices. These potential consequences require further review. Finally, the State could adopt standards on how tiered networks should be defined so that all must meet the same standard.

Hospital Price Variation:

The Extent to Which Prices Differ Across Hospitals

KEY FINDING: There are significant differences in overall price levels (referred to as hospital price variation) among hospitals of similar size, services, and teaching designation, even after adjusting for the sickness of the population served and the complexity of the services provided. In other words, some hospitals are significantly higher-priced than other, similar hospitals. This price variation is greater in some regions than others.

After reviewing hospital contracting practices and reimbursement methodologies, and subsequently developing a methodology for calculating hospital relative price (a blended inpatient and outpatient relative price for each hospital),[64] the study team compared hospital prices within each study region to understand the magnitude of the price differences that exist from one hospital to the next. The study team made the following observations:

- Highest-priced hospitals are 1.5 to 2.7 times more expensive than lowest-priced hospitals in the same region.
- The price difference between higher-priced hospitals and lower-priced hospitals was greater in the Downstate region than in Buffalo and Albany.
- Those hospitals that were identified as higher-priced were generally considered higher-priced among all the study insurers.
- When comparing hospitals to their peers (i.e., hospitals of similar size, characteristics, and services), price variation continues to exist.
- Among all types of hospitals, academic medical centers appear to have the highest prices and medium-sized hospitals tend to have the lowest prices.

Additional descriptions of these observations are provided in the sections below. The study team performed identical analyses for each study insurer. Because the study findings were largely consistent across all insurers within each region, this report provides representative examples, or exemplars, from one or more insurers in each region to represent all the insurers in that region.[65]

[64] The methodology used to calculate hospital relative price is introduced in the Study Description section earlier in the report and is further detailed in Appendix A.

[65] To ensure confidentiality, insurers' names are omitted from this report and replaced with random letters (e.g., Insurer A, Insurer B, and so on). To prevent the re-identification of any insurer, the naming scheme is not consistent across all figures and tables unless otherwise indicated—in other words, an insurer may be listed as Insurer C in one table and as Insurer E in another.

Hospital Price Variation by Region

HOSPITAL PRICE VARIATION IN THE DOWNSTATE REGION

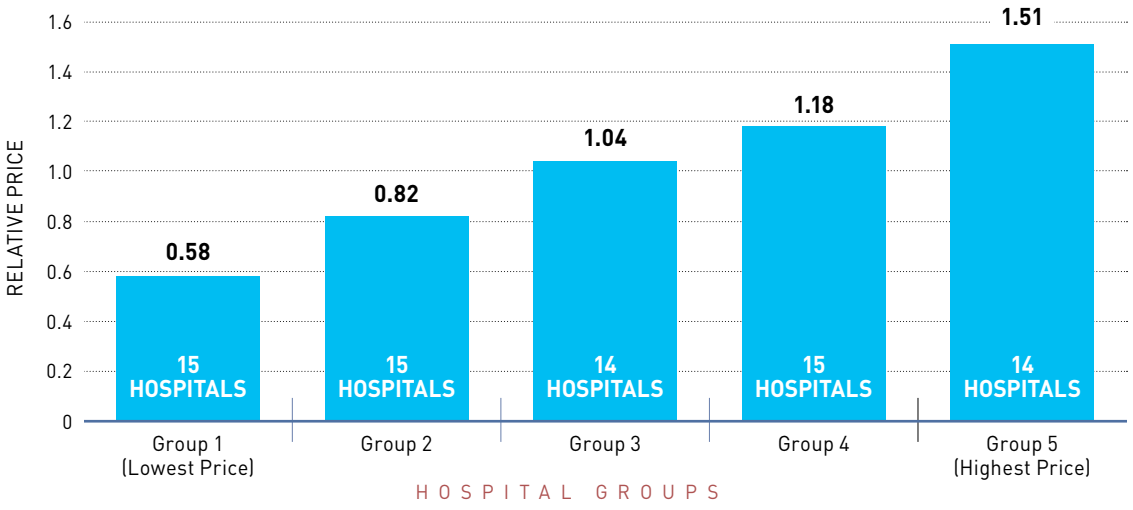
For this analysis, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 75 study hospitals in the Downstate region were then divided into five groups with approximately 15 hospitals to each group.[66] The first group (Group 1) represents the hospitals with the lowest relative price, whereas the fifth group (Group 5) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging the relative prices for each hospital in that group.

Hospital prices vary significantly within the Downstate region, where the highest-priced hospitals are 2.2 to 2.7 times more expensive than the lowest-priced hospitals.

Figure 4 illustrates this price variation for one insurer in the Downstate region, and shows that the highest-priced hospitals (Group 5) have an average relative price of 1.51 and are 2.5 times more expensive than the lowest-priced hospitals, which have an average relative price of 0.58 (Group 1). This pattern is consistent among the other insurers analyzed in the Downstate region and can be found in Appendix G.

FIGURE 4

Insurer C: 2014 Relative Price by Group (Downstate)

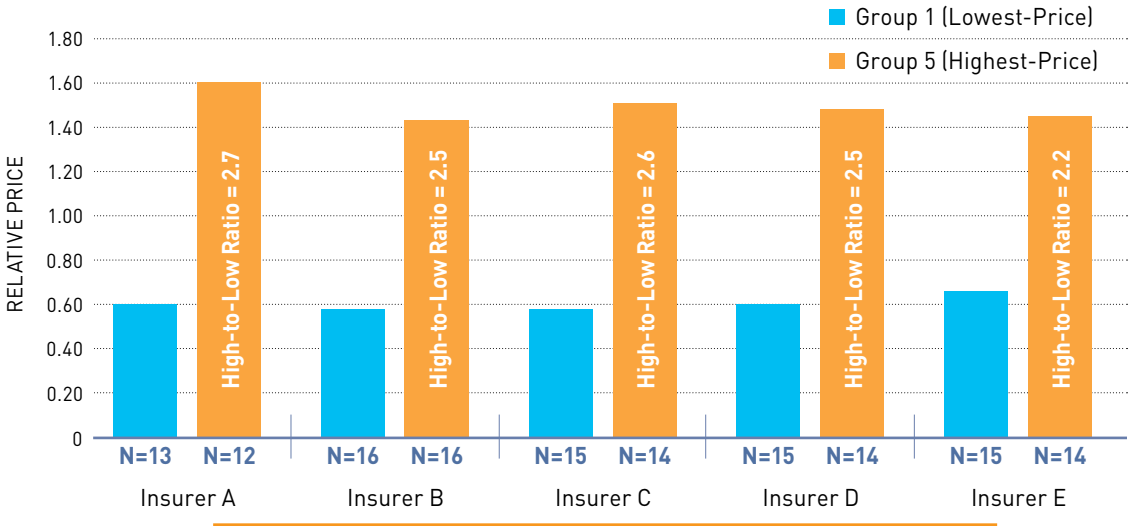


[66] Not every group in Downstate contains exactly 15 hospitals. This is because some insurers did not report data for all 75 hospitals in the study region. In addition, some hospitals had the same relative price, thus requiring them to shift groups and be grouped together. As such, some insurer analyses use groups that contain greater or fewer than 15 hospitals.

Figure 5 shows the consistently wide price variation between higher-priced and lower-priced hospitals for all of the Downstate insurers in the study. As shown, the highest-priced hospitals are 2.2 (Insurer E) to 2.7 (Insurer A) times more expensive than the lowest-priced hospitals. When removing outliers from the analysis, the study team still found the highest-priced hospitals to be 1.9 to 2.4 times more expensive than the lowest-priced hospitals.[67]

FIGURE 5

2014 Relative Price Variation Observed Among All Insurers (Downstate)



Note: Relative Prices across insurers are not comparable.

In addition to analyzing variation for each insurer, the team also analyzed the list of hospitals that were in each of the five groups across insurers and found some consistency.

The highest-priced hospitals for any given insurer in the Downstate region are consistently higher-priced for the other Downstate insurers in the study. Likewise, the lowest-priced hospitals for any given insurer are consistently lower-priced.

As **Figure 4** shows the relative price variation by group for Insurer C, **Table 5** shows the hospitals that belong to each of the five groups for the same insurer. Although the list of hospitals by group varies slightly from one insurer to the next, there is considerable consistency across all

[67] This was calculated by analyzing the ratio of the relative price of the 90th percentile to that of the 10th percentile.

insurers for the majority of hospitals in the Downstate region. This same analysis is provided for all the study insurers in Appendix G. The study team found that many of the same hospitals appeared in the lowest- and highest-priced groups across all insurers examined.

TABLE 5: Insurer C: Hospitals by Relative Price Group (Downstate)[68]

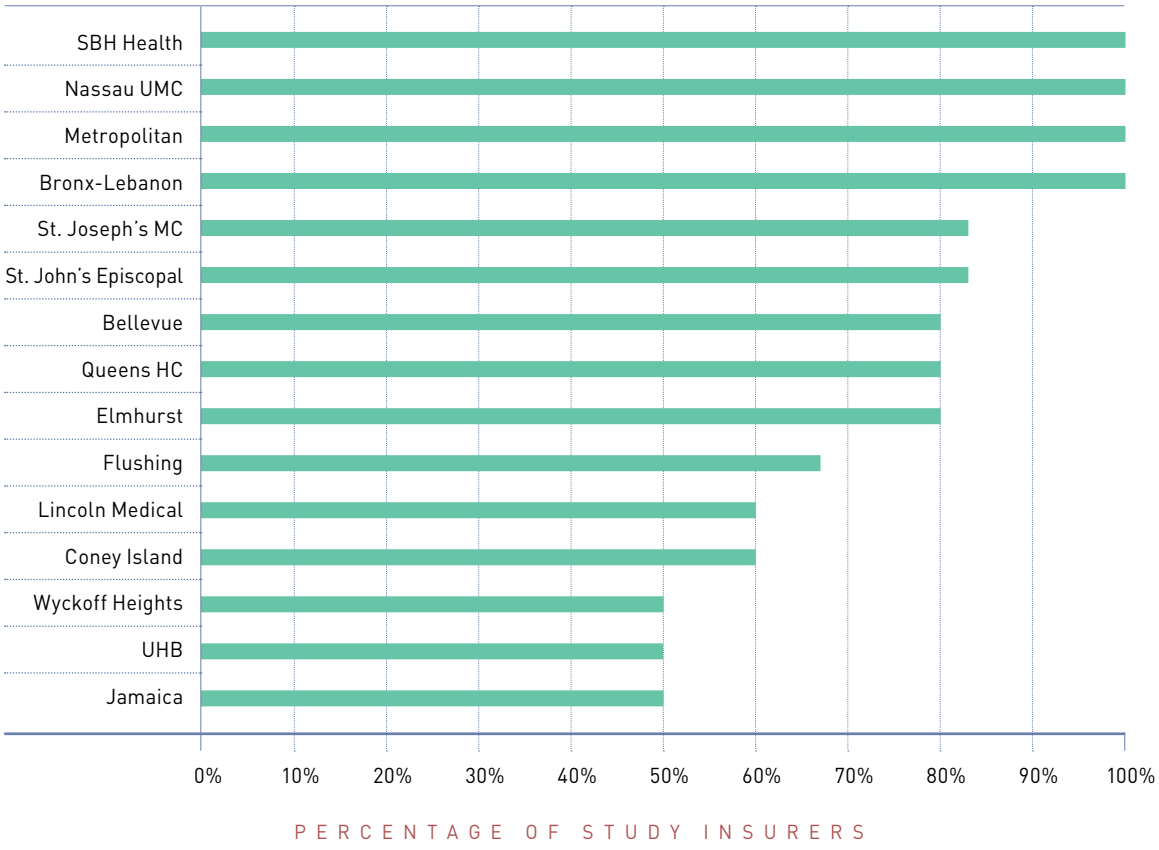
GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3	GROUP 4	GROUP 5 (HIGHEST PRICE)
Bellevue	Brookdale	Brookhaven	Forest Hills	Brooklyn HC
Bronx-Lebanon	Eastern LIH	Good Samaritan HMC	Glen Cove	Lenox Hill
Coney Island	Jamaica	Mather	Hospital for Special Surgery	Monte Moses
Elmhurst	Lincoln Medical	Memorial Sloan	Huntington	Monte Wakefield
Flushing	Mt. Sinai Brooklyn	Mercy MC	LIJMC	Monte Weiler
Harlem	Mt. Sinai Queens	Mt. Sinai Beth Israel	Maimonides	NYHMC of Queens
Jacobi	Richmond UMC	Mt. Sinai Roosevelt	Monte MV	NYPH-Columbia
Kings County	SBUH	Mt. Sinai St. Luke's	Monte NR	NYPH-LM
Lutheran	SJRH Dobbs	N. Westchester	Mt. Sinai	NYPH-NY Weill
Metropolitan	SJRH St. John's	NY Methodist	North Shore UH	NYPH-Lawrence
Nassau UMC	South Nassau	PBMC	NY Community	NYU HC
Queens HC	St. Catherine	Southampton	Phelps Memorial	NYU Hospital for Joint Diseases
SBH Health	St. Joseph	St. Francis	Plainview	Staten Island UHN
St. John's Episcopal	UHB	Westchester MC	White Plains	Staten Island UHS
St. Joseph's MC	Wyckoff Heights		Winthrop	

[68] Legal names and other information for all study hospitals is available in Appendix D. Note that for Insurer C, there were data available for 73 of the 75 hospitals.

Figure 6 demonstrates the frequency at which lower-priced hospitals are consistently placed in Group 1 across all Downstate insurers. As shown, four hospitals appear in Group 1 (the lowest price group) for all six insurers (that is, 100% of the time). Two hospitals are in Group 1 for five of the six insurers (83% of the time).

FIGURE 6

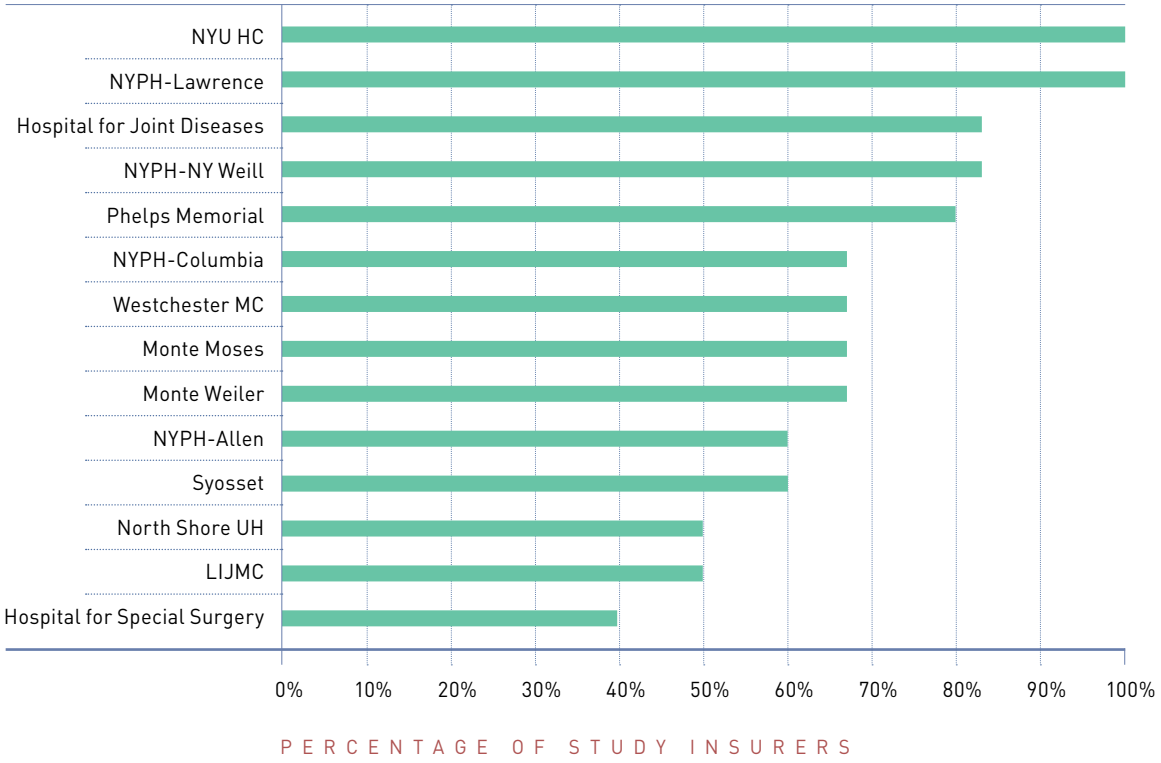
Hospitals in Lower-Priced Group by Downstate Insurers



Likewise, **Figure 7** shows the frequency at which the higher-priced hospitals appear in Group 5 (highest price). Two hospitals are placed in Group 5 for all six insurers (100% of the time), whereas two hospitals are placed there for five of the six insurers (83% of the time).[69]

FIGURE 7

Hospitals in Higher-Priced Group by Downstate Insurers



[69] An average group number for each hospital was calculated across all the insurers in the Downstate region. If the average group number was 1.0 for a given hospital, this indicates that the hospital was in Group 1 for every insurer in the study. The hospitals were then sorted from lowest average group number to highest average group number and then again grouped into five sections. The results show that the average group number for hospitals in Section 1 (lowest price) ranged from 1.0 to 1.5, suggesting that these hospitals were categorized into the lower group numbers among all the insurers. The results also show that the average group number for hospitals in Section 5 (highest price) ranged from 4.3 to 5.0, indicating that these hospitals were consistently grouped into the higher numbers among all the insurers. Generally, the number of observations for each hospital (that is, the number of insurers who reported data for that hospital) ranged from five to six.

HOSPITAL PRICE VARIATION IN THE BUFFALO REGION

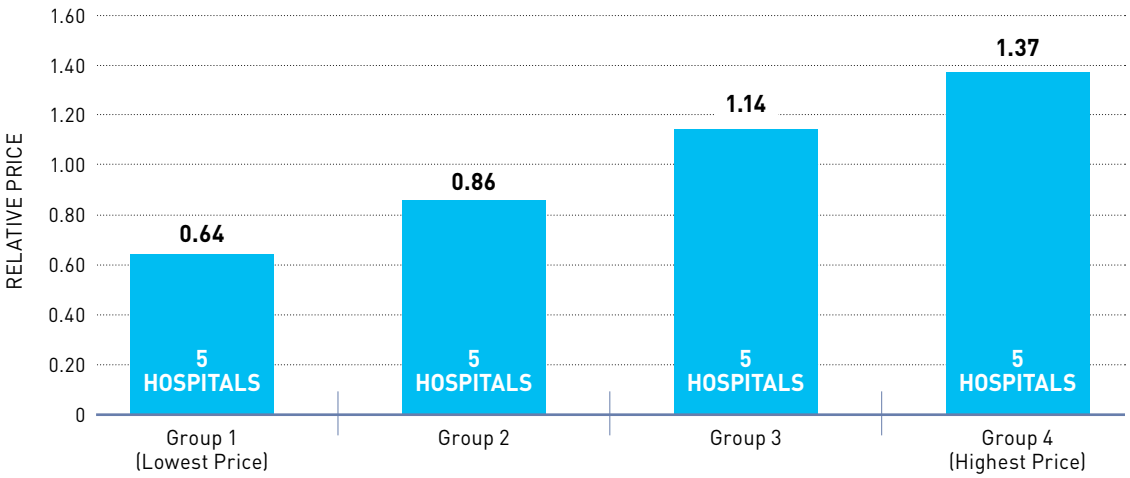
In Buffalo, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 20 study hospitals in the Buffalo region were then divided into 4 groups with approximately 5 hospitals in each group.[70] The first group (Group 1) represents the hospitals with the lowest relative price and the fourth group (Group 4) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging the relative prices for each hospital in that group.

The study team observed price variation in Buffalo; however, the price difference between the highest- and lowest-priced hospitals is not as large as in the Downstate region.

Figure 8 shows that for one insurer, the highest-priced hospitals have an average relative price of 1.37 and are 2.1 times more expensive than the lowest-priced hospitals, which have an average relative price of 0.64. This pattern is consistent among the other insurers analyzed in the Buffalo region. Analyses for the other insurers are provided in Appendix G. There are many possible reasons for this finding, such as the fact that there are fewer hospitals in the Buffalo region, which may cause hospital prices to be more homogenous.

FIGURE 8

Insurer J: 2014 Relative Price by Group (Buffalo)

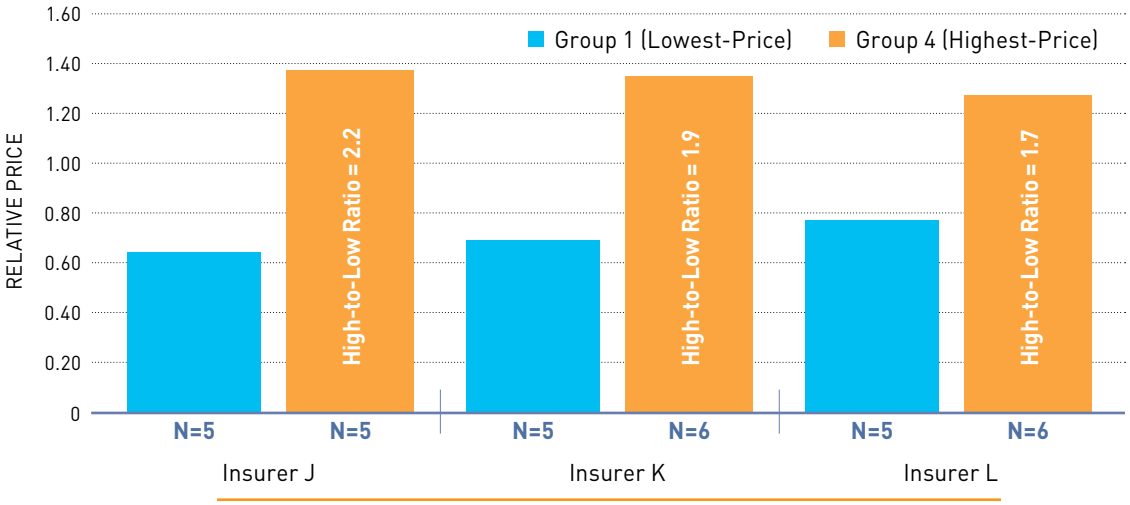


[70] For the Buffalo region, instances in which relative price was the same for multiple hospitals resulted in some groups with more than five hospitals and other groups with less than five hospitals.

Figure 9 shows the consistent price variation between higher-priced and lower-priced hospitals for all of the Buffalo insurers in the study. As shown, highest-priced hospitals are 1.7 to 2.2 times more expensive than lowest-priced hospitals. When removing all outliers from the analysis, the study team still found highest-priced hospitals to be between 1.6 and 1.9 times more expensive than lowest-priced hospitals.[71]

FIGURE 9

2014 Relative Price Variation Observed Among All Insurers (Buffalo)



Note: Relative Prices across insurers are not comparable.

As with Downstate, the highest-priced hospitals for any given insurer in the Buffalo region are consistently higher-priced for the other insurers in that study region. Likewise, the lowest-priced hospitals for a given insurer are consistently lower-priced. **Table 6** below shows the hospitals in each of Insurer J's relative price groups (as depicted in **Figure 8**). The study team observed that four of the lowest-priced hospitals are consistently in Group 1 for all three Buffalo study insurers, and three of the highest-priced hospitals are consistently in Group 4 for all three study insurers.

[71] This was calculated by analyzing the ratio of the relative price of the 90th percentile to that of the 10th percentile.

TABLE 6: Insurer J: Hospitals by Relative Price Group (Buffalo)			
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 2**	**GROUP 4 (HIGHEST PRICE)**
Bertrand Chaffee	Brooks	Buffalo General	Erie County MC
Eastern Niagara	Mount St. Mary's	Degraff	RPCI
Jones Memorial	Olean	Kenmore Mercy	Sisters of Charity
Medina	TLC Health	Mercy Hospital	Sisters of Charity — SJC
Niagara Falls	Wyoming County	Millard Filmore	Women And Children's

HOSPITAL PRICE VARIATION IN THE ALBANY REGION

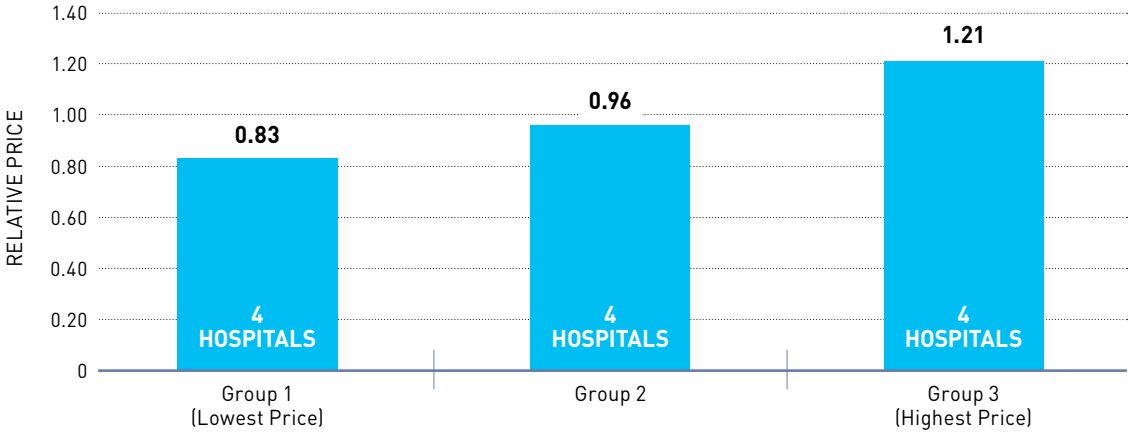
In Albany, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 12 study hospitals in the region were then divided into 3 groups with approximately 4 hospitals in each group.[72] The first group (Group 1) represents the hospitals with the lowest relative price and the third group (Group 3) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging each hospital's relative price.

The study team observed price variation in Albany; however, the price difference between the highest- and lowest-priced hospitals is not as large as in the Downstate and Buffalo regions.

Figure 10 shows that, for one insurer, the highest-priced hospitals have an average relative price of 1.21 and are 1.5 times more expensive than the lowest-priced hospitals, which have an

FIGURE 10

Insurer G: 2014 Relative Price by Group (Albany)



[72] Not all groups for each insurer in Albany will include four hospitals, as one insurer only reported information to calculate relative price for 11 hospitals.

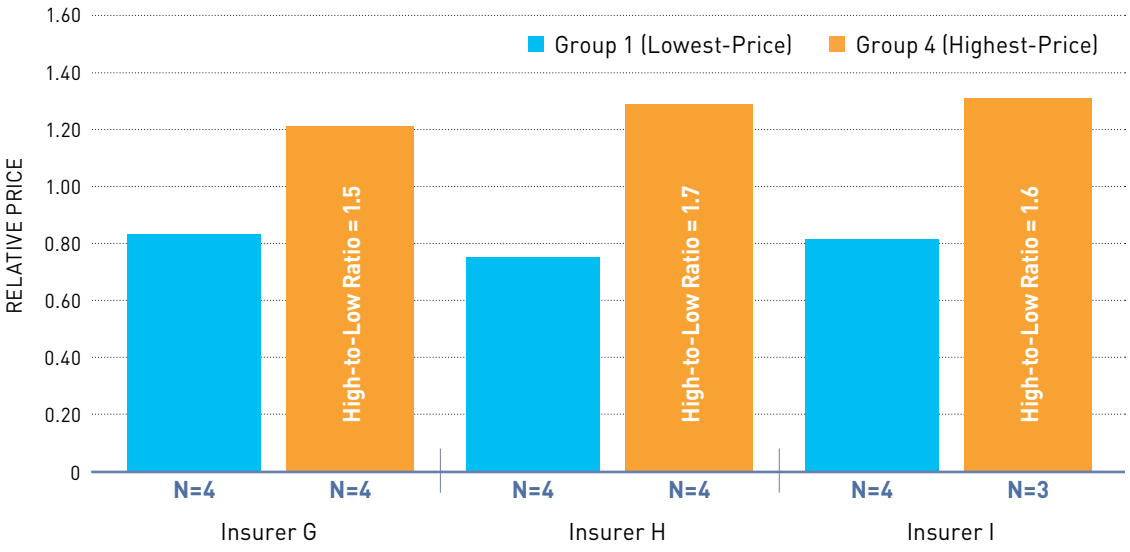
average relative price of 0.83. This pattern is consistent among the other insurers analyzed in the Albany region. Additional analyses for the other insurers are provided in Appendix G.

Figure 11 shows the consistent price variation between higher-priced and lower-priced hospitals for all of the Albany insurers in the study. As shown, highest-priced hospitals are 1.5 to 1.7 times more expensive than lowest-priced hospitals. After removing the outliers, the study team still found the relative price ratios between highest- and lowest-priced hospitals to be consistent with that range.[73]

As observed in the other two study regions, the highest-priced hospitals for any given insurer in the Albany region are consistently higher-priced for the other insurers in the study. Likewise,

FIGURE 11

2014 Relative Price Variation Observed Among All Insurers (Albany)



Note: Relative Prices across insurers are not comparable.

[73] This was calculated by analyzing the ratio of the relative price of the 90th percentile to that of the 10th percentile.

the lowest-priced hospitals for a given insurer are consistently lower-priced. **Table 7** below shows the hospitals in each of Insurer H's relative price groups (as depicted in **Figure 10**). In Albany, three of the lowest-priced hospitals were in Group 1 for all study insurers, and three of the highest-priced hospitals were in Group 3 for all three study insurers.

TABLE 7: Insurer H: Hospitals by Relative Price Group (Albany)

GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3 (HIGHEST PRICE)
Adirondac MC	Ellis	Albany MC
Albany Memorial	Saratoga	Champlain Valley
Samaritan	St. Mary's Healthcare	Glens Falls
St. Mary's	St. Peter's	Nathan Littauer

Hospital Price Variation by Regional Peer Group

While comparing hospital price across all the study hospitals is useful in understanding the wide price variation that exists, it is also important to analyze hospital price among like hospitals—that is, hospitals with similar size, services, and teaching designation. Therefore, in addition to grouping hospitals by geographic region, the study team categorized hospitals into peer groups within each geographic region to identify potential price variation among like hospitals.[74]

Price variation exists across hospital peer groups, where academic medical centers are on average the highest-priced hospitals and medium-sized hospitals are on average the lowest-priced hospitals.

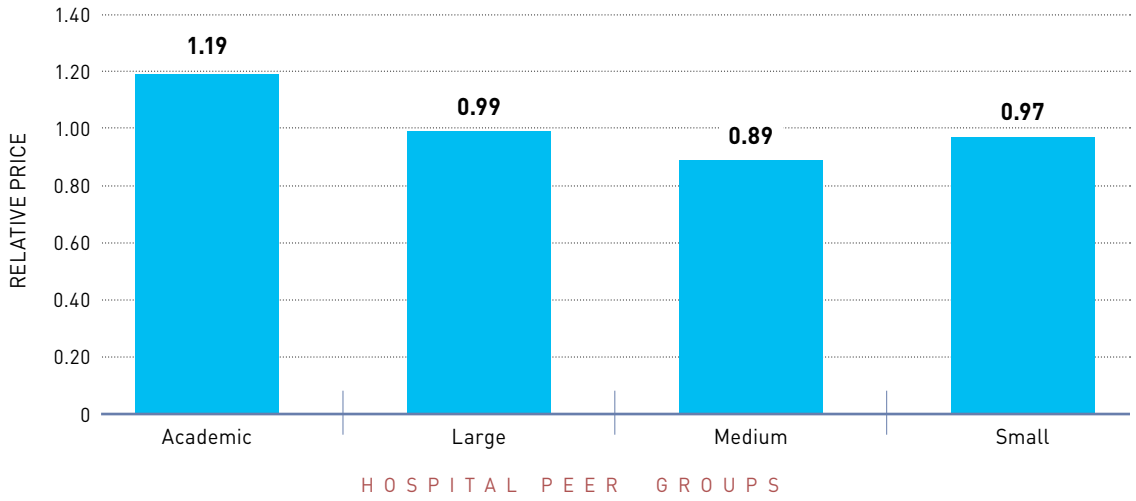
Figure 12 shows the average relative price by peer group for one insurer in the Downstate region, illustrating that price can be related to the unique characteristics of a hospital. This analysis was performed for the study insurers, and this finding was consistent for all but one of the six insurers examined in the Downstate region. The study team found that the average relative price is highest for academic medical centers at 1.19, and lowest for medium hospitals at 0.89. This represents a 34% difference in price across peer groups.

Hospital Peer Groups in Each Study Region
DOWNSTATE
Academic | Large | Medium
Small | Specialty
ALBANY
Academic | Large | Small-Mid
BUFFALO
Academic | Large | Medium
Small | Specialty

[74] To classify hospitals into peer groups, the study team leveraged its knowledge of the markets and also reviewed each hospital's number of hospital beds, net patient service revenue, academic medical center status, and teaching status. The definitions vary by region. A detailed description of the process is found in Appendix E.

FIGURE 12

Exemplar Insurer: Average Relative Price by Peer Group (Downstate)



In addition to price variation across peer groups, there was significant price variation observed within each peer group.

Figure 13 shows the relative prices of all the Downstate hospitals for one exemplar insurer, sorted from lowest price to highest price. The bars in the chart are colored according to the five different peer groups in the Downstate region: academic, large, medium, small, and specialty. If prices were homogenous within a peer group, one could expect to see blocks of the same color together on the chart. For example, since academic medical centers on average have the highest price, one might expect to see all the orange bars on the far right of the chart. Although there are many orange bars on the right of the chart, they are also found in the middle and on the left of the chart—suggesting that academic medical centers do not always command the highest prices. Likewise, small hospitals (represented by the purple bars) appear at the right, middle, and left of the chart—suggesting that small hospitals do not always command lower prices. This price variability within each peer group, as demonstrated by the mix of colored bars in the chart, suggests that peer group classification does not explain price variation.

Another analysis compared prices among the higher- and lower-priced hospitals within each of the four major peer groups[75] in the Downstate region (academic, large, medium, and small). As shown in **Figure 14** below, the higher-priced hospitals are 3.6 times more expensive than the lower-priced hospitals among academic medical centers. Among small hospitals, higher-priced hospitals are 4.3 times more expensive than lower-priced hospitals. This suggests that

[75] Specialty hospitals were excluded from this analysis because of the small sample size.

FIGURE 13

Exemplar Insurer: Hospital Relative Price, Peer Group Identified (Downstate)

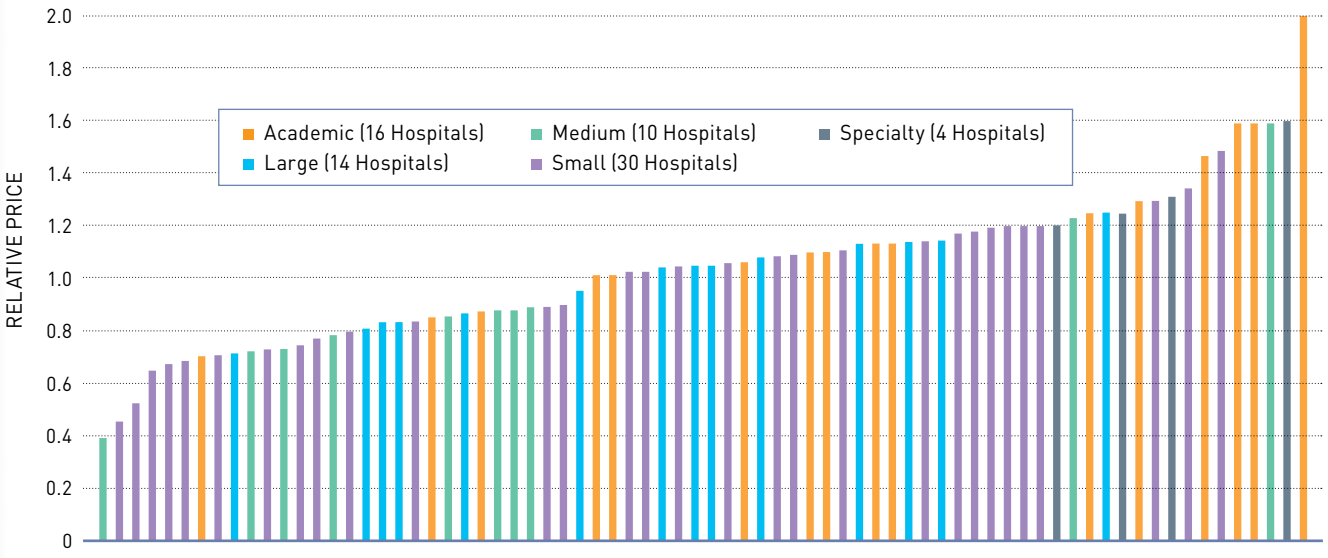
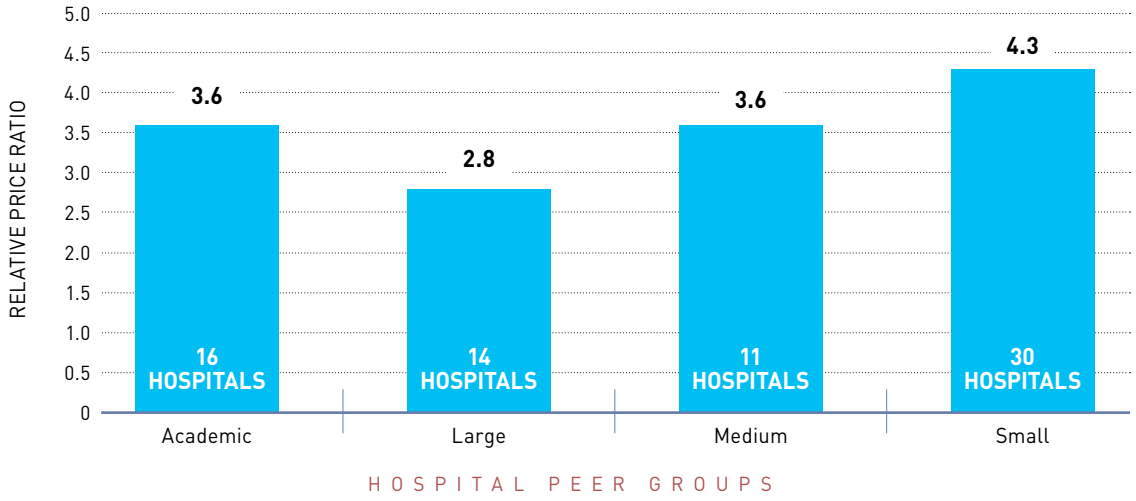


FIGURE 14

Average Ratio Max to Min Relative Price by Peer Group (Downstate)



not only is there price variability across peer groups, but that the price differences are even larger within each peer group, with some hospitals priced up to 3 to 4 times higher than other hospitals of similar size, services, and teaching designation. The study team observed price variability among peer groups in the other two regions examined, but to a lesser extent; the sample sizes by peer group for the Albany and Buffalo regions are much smaller, making it more difficult to draw significant conclusions.

Summary of Hospital Price Variation Findings

The findings from these analyses show that hospital price variation exists as a result of factors other than regional price differences, as the study team observed price variation within the Downstate, Albany, and Buffalo regions. However, price variation does appear to be greater in Downstate than in Buffalo and Albany. Furthermore, price variation exists outside of differences in hospital peer groups, as the study team observed wide price differences both across and within multiple peer groups. The following sections continue to explore the possible reasons for hospital price variation by studying hospital quality, market leverage factors, and types of patients serviced.

Hospital Quality

KEY FINDING: Hospitals with higher prices do not necessarily have higher quality. Likewise, hospitals with lower prices do not necessarily have lower quality.

The study team examined multiple hospital attributes for each of the study hospitals, and assessed their potential relationship to hospital relative price. One hospital attribute that the study team examined was hospital quality. Through its analysis, the team found that higher prices are not consistently associated with better hospital quality. More information on this finding, as well as on the methodology for the quality analysis, is provided below.

To assess whether the negotiated payment level between study hospitals and insurers was associated with hospital quality, the study team selected 12 quality measures and examined them against the hospital relative prices for insurers in the 3 study regions (3 insurers in Albany, 3 in Buffalo, and 6 in Downstate[76]). The quality measures comprised national and New York-specific metrics of inpatient quality, patient safety, patient satisfaction, timely and effective care, complications, readmissions, and mortality. Detailed descriptions of the quality measures and methodology for this analysis are included in Appendix B.

Analyzing the quality measures against relative price for each insurer's hospital network produced a total of 141 possible associations (or measure/insurer combinations) between hospital quality and relative price.[77] **Figure 15** lists the quality measures used for this analysis, with gray boxes representing the 141 possible associations that existed and red boxes representing the 3 possible associations that were excluded from the analysis because of insufficient data. The study team then assessed these possible associations to identify any actual associations—either positive or negative—between the quality measures and the hospital's relative price.

RELATIVE PRICE AND HOSPITAL QUALITY

The association between relative price and quality was determined primarily by calculating the R-squared (R^2) value, or the correlation coefficient squared. Association was defined on the following scale, with a value of 0.00 indicating the weakest level of association and a value of 1.00 representing the strongest level of association:

R^2 <0.10: No association

R^2 ≥0.10: Association

In cases when higher-paid hospitals tended to have better quality performance, the association between quality and relative price was considered **positive**. In cases when higher-paid hospitals tended to have poorer quality performance, the association was considered **negative**.

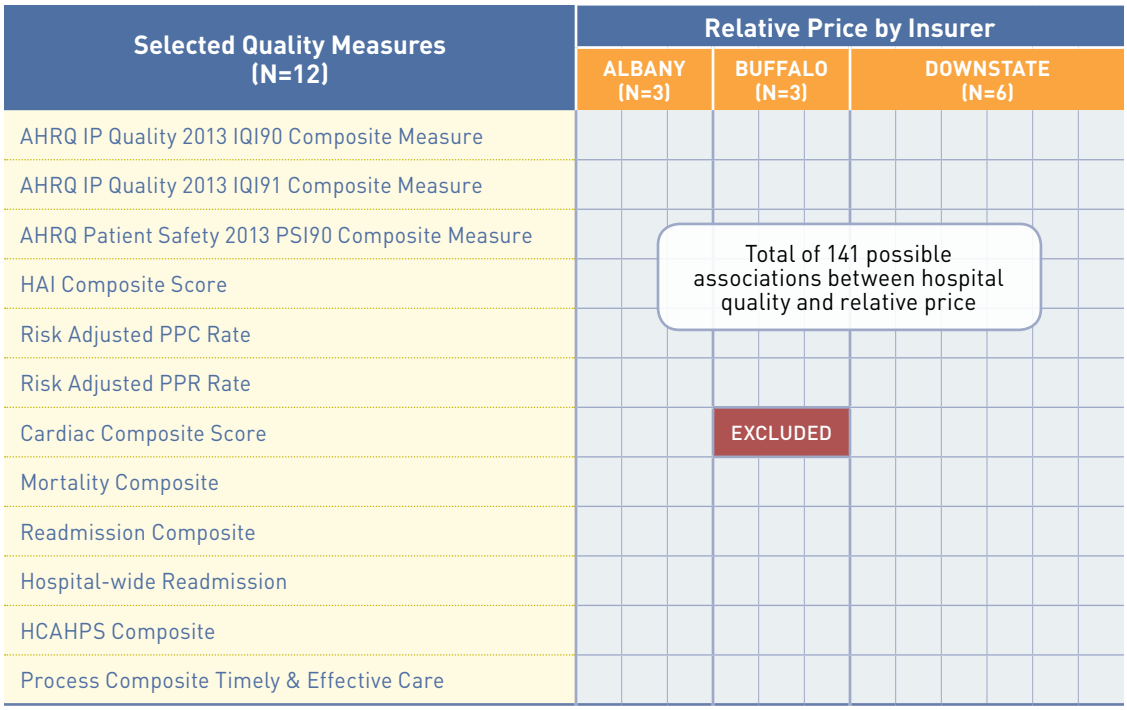
The study team also examined the statistical significance of the relative price/quality associations. Details on this analysis are included in Appendix B.

[76] The Albany region included relative price calculations for Empire, CDPHP, and MVP, whereas the Buffalo region included relative price calculations for Excellus, Independent, and HealthNow. The Downstate region included relative price calculations for United (separated by United and Oxford companies), Cigna, Empire, and Emblem (separated by HPI and GHI companies).

[77] One measure (cardiac composite score) was excluded from the analysis for the Buffalo region as a result of only having data for three eligible hospitals in that region. This reduced the total possible quality/relative price associations from 144 to 141 across all measures and payers.

FIGURE 15

Analyzing Relationship Between Hospital Quality and Hospital Relative Price



Notes: Each gray box represents one of the 141 possible associations (either positive or negative) between hospital quality and relative price. Red boxes represent the three possible associations that were excluded from the analysis because of insufficient data.

The study team found that higher prices were not consistently associated with higher quality.

In other words, a hospital's performance against any single quality measure did not consistently translate to a higher relative price from any insurer. **Figure 16** summarizes the key findings from this analysis and presents those possible associations that showed no association, positive association, or negative association between relative price and hospital quality.[78] As demonstrated by the white and pink boxes in the figure, the majority of measures showed either no association or a negative association between hospital quality performance and relative price across all the insurers and regions in the study. For example, the process

[78] Directionality was taken into account when structuring associations between quality and payment so that the desired quality outcome (e.g., high HCAHPS Composite, low Risk-Adjusted PPR Rate) was compared with higher relative price.

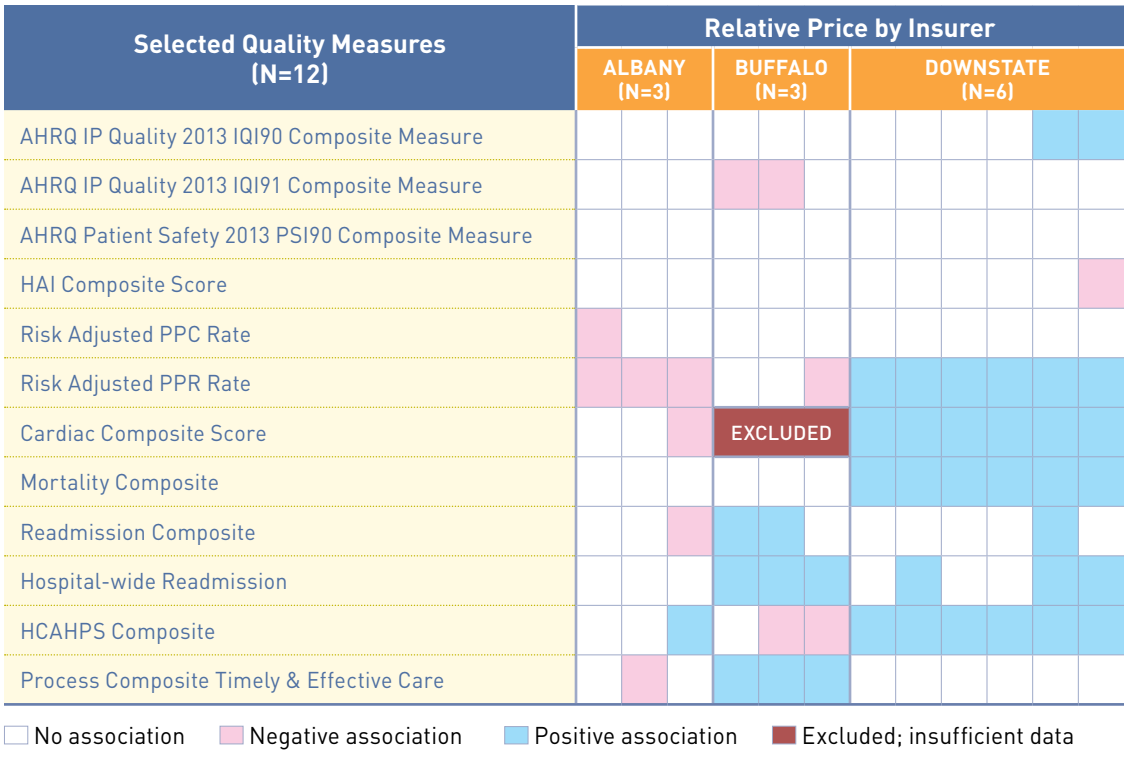
composite measure for timely and effective care showed either no association or negative association to relative price in the Albany and Downstate regions, but showed positive association to relative price in the Buffalo region.

Where an association was found, it was more likely to be positive (better quality associated with higher payment) than negative (worse quality associated with higher payment). Although some positive associations were observed, no insurer showed consistent associations between relative price and quality across all 12 quality measures. In other words, no insurers or regional groups of insurers consistently rewarded high-quality hospitals with higher levels of reimbursement than their lower-performing peers, nor did they penalize lower-quality hospitals with lower levels of reimbursement.

As demonstrated in **Figure 16**, the Downstate region had a greater tendency toward positive associations between hospital quality and relative price than the other two regions, with 30

FIGURE 16

Association Between Hospital Quality and Relative Price



positive associations (42%) and only 1 negative association (1%) found across all measures, whereas 57% showed no association.[79] Meanwhile, the Albany region showed mostly negative associations, with seven negative associations and only one positive association found between hospital quality and relative price (though 78% showed no association). Buffalo was more evenly split, with eight positive associations and five negative ones (and 61% showed no association). Despite these regional variations, none of the three regions showed any consistency in hospital quality/relative price associations across all measures and all insurers.

These findings suggest that there is considerable opportunity for greater linkages between hospital quality and payment, especially in Albany and Buffalo. In Downstate, some positive and consistent association of payment with quality was found for 4 of the 12 measures; for these 4 measures, the positive associations were statistically significant. Although this is an encouraging baseline, the modest to moderate positive associations observed in these four measures are balanced by negative or absent associations with other quality measures. These negative or absent associations comprise the majority of possible associations in the Downstate study region. If insurers and providers extend their use of quality incentives to include more substantial payment differentials based on quality performance, New York State could benefit from both improved quality and a more value-based health care market.

[79] The R-squared (R^2) values for these positive associations in Downstate ranged from 0.10 to 0.41.

Market Leverage

KEY FINDING: Higher-priced hospitals may be higher-priced as a result of various forms of market leverage, which gives them more bargaining power to command higher prices when negotiating with insurers.

To further understand the potential reasons for the significant variation in hospital prices within each of the study regions, as well as within hospital peer groups, the study team next examined the possible impact of market leverage on negotiated payments between insurers and hospitals. In other words, the team sought to identify whether hospitals with greater market leverage (i.e., bargaining power) were able to command higher prices from commercial insurers.

Market leverage can be examined in many different ways, from brand strength to market share. The study team focused on two approaches to analyzing market leverage. In the first, the team performed a statistical analysis of the relationship between a hospital's relative price and its discharge market share—that is, the proportion of New York State's commercial hospital discharges conducted at that hospital.[80] In the second approach, the team relied on its knowledge of different markets and subregions within the study to conduct a multivariable data analysis using the following three indicators of market leverage: whether a hospital participated in a hospital system with significant market share, whether a hospital was the only academic medical center in its region, and whether a hospital was a rural hospital. The following common themes emerged from these analyses:

- Statistical analysis shows some correlation between a hospital's discharge market share and its relative price, but this correlation does not explain all the price variation that exists.
- A hospital's participation in a hospital system does not necessarily mean it is higher-priced. In general, however, hospitals within a hospital system are similarly priced.
- Higher hospital price may be influenced by participation in a hospital system with significant regional commercial market share.
- Higher hospital price may be a result of a lack of academic medical center competition.
- Higher hospital price may be a result of a hospital's rural hospital status and less competition in some markets.

[80] The study team considered and analyzed four market share variables: number of beds, commercial gross patient service revenue, net patient service revenue, and commercial hospital discharges. After performing initial analyses on all four variables, the team focused on commercial hospital discharge market share for a deeper level of analysis. Although the commercial hospital discharge market share variable does not include outpatient services, it is still considered representative of total market share and was the cleanest data available for this analysis. This variable was sourced from SPARCS 2014 data. Gross patient service revenue by payer (commercial versus public) is also available through SPARCS; however, this revenue is not discounted for insurer reimbursement and therefore represents actual hospital charges, which is not a true reflection of revenue. Net patient service revenue can be obtained from the New York State Institutional Cost Reports (ICR) and reflects true revenue adjusted for payer discounts; however, it is sometimes only reflected at the system level, and is only reported in total and not by payer.

A more detailed description of these themes is provided below using exemplar cases from the regions studied. Further analyses are also provided in Appendix H.

Market Share

Statistical analysis shows some correlation between a hospital's discharge market share and its relative price, but this does not explain all the price variation that exists.

The study team conducted a statistical analysis that focused on relative price and commercial hospital discharge market share. Although the results vary by insurer, there does appear to be some positive correlation between market share and hospital relative price. In other words, the correlation suggests that the higher a hospital's market share, the higher its relative price. Regression analyses were performed on relative price and discharge market share, and found the correlation to be strongest in Buffalo (with R^2 values ranging from 0.21 to 0.27) and weaker in Downstate (0.07 to 0.25). The correlations in Albany were not statistically significant.

Figure 17 graphs the relationship between hospital relative price and hospital commercial discharge market share for one exemplar insurer in the Downstate region. Note that this analysis was performed for all study insurers. As shown, there appears to be a positive relationship between relative price (indicated on the y-axis) and market share (shown on the x-axis); for example, several hospitals have a lower relative price (below 0.60) and have a small market share (less than 1%). However, the study team also observed several instances of a negative relationship between relative price and market share; five hospitals have a higher relative price (above 1.60) but have less than 2% of the market share. This indicates that market share cannot explain all instances of hospital price variation.

RELATIVE PRICE AND HOSPITAL MARKET SHARE

The correlation between relative price and market share was determined primarily by calculating the R-squared (R^2) value, or the correlation coefficient squared. The higher the R^2 value, the stronger the correlation, and an R^2 value of 1.00 suggests a perfect correlation.

In cases when higher-priced hospitals tended to have higher market share, the association between relative price and market share was considered positive. In cases when higher-priced hospitals tended to have lower market share, the association was considered negative.

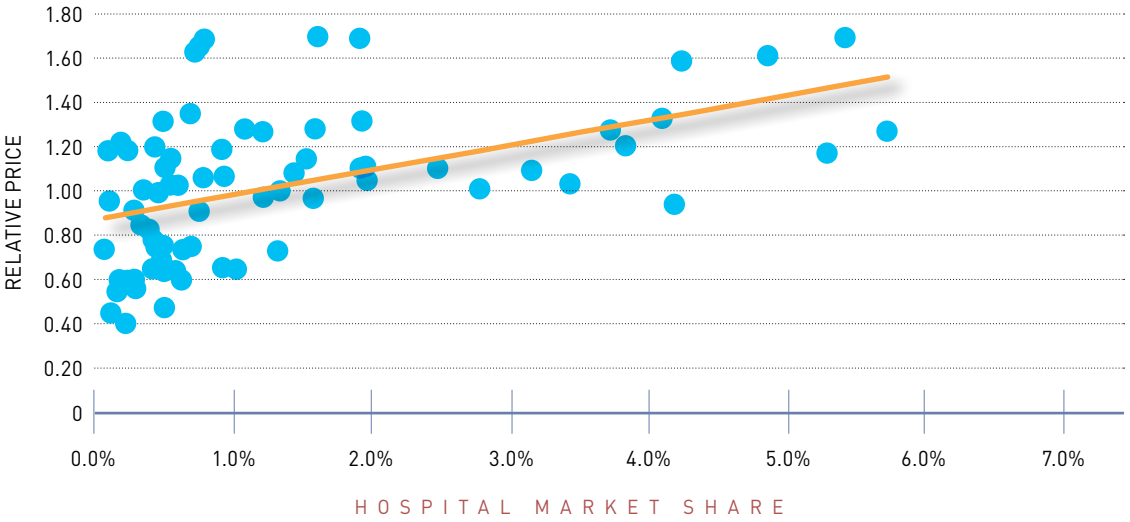
The study team also examined the statistical significance of the relative price/market share correlations. Results of these analyses are provided in Appendix H.

Hospital System

The study team also analyzed hospital systems to understand whether being part of a hospital system influences hospital price. The first analysis performed included a regression analysis for each study region, comparing hospital relative price with system discharge market share. Regression results were mixed; for some insurers, the correlation between relative price and system market share (as compared with hospital market share) became stronger, whereas for others the correlations became weaker—and no clear conclusions from this regression analysis could be drawn. Additional information on this analysis is included in Appendix H.

FIGURE 17

Relative Price vs. Hospital Discharge Market Share (Downstate, 2014)



A hospital's participation in a hospital system does not necessarily mean it is higher-priced. In general, however, hospitals within a hospital system are similarly priced.

Table 5 in an earlier section of this report categorizes hospitals into price groups for one exemplar insurer, with Group 1 including the hospitals with the lowest prices and Group 5 including the hospitals with the highest prices. **Table 8** below replicates this table for the same insurer, but color codes the hospitals into systems.[81] As shown, most hospitals within a system are consistently categorized in sequential groups, suggesting that certain systems command higher prices for all hospitals in their system, whereas other systems consistently do not. For example, North Shore-LIJ, NewYork-Presbyterian, and Montefiore Health System have all but one hospital in Groups 4 and 5, the highest-priced groups. In contrast, all of the hospitals in the Health and Hospitals Corporation system are placed in Groups 1 and 2, the lowest-priced groups.

Since the Downstate study region is so diverse with 75 hospitals, the study team set out to analyze subregions within Downstate to understand whether hospital system market share influences hospital price. In addition, the study team further examined the Buffalo region, as it is dominated by two hospital systems. The next two sections describe the study team's findings.

[81] Hospital names and system affiliations referenced in this report reflect hospitals' status at the time of the data reported (CY 2014). Some of these hospitals have since been acquired by other systems or have changed their name. This report footnotes some of these recent market changes but may not reflect all hospital name changes or acquisitions that have taken place since CY 2014

TABLE 8: Insurer C Hospital Systems Color-Coded by Relative Price Group (Downstate)

GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3	GROUP 4	GROUP 5 (HIGHEST PRICE)
Bellevue	Brookdale	Brookhaven	Forest Hills	Brooklyn HC
Bronx-Lebanon	Eastern LIH	Good Samaritan HMC	Glen Cove	Lenox Hill
Coney Island	Jamaica	Mather	Hospital for Special Surgery	Monte Moses
Elmhurst	Lincoln Medical	Memorial Sloan	Huntington	Monte Wakefield
Flushing	Mt. Sinai Brooklyn	Mercy MC	LIJMC	Monte Weiler
Harlem	Mt. Sinai Queens	Mt. Sinai Beth Israel	Maimonides	NYHMC of Queens
Jacobi	Richmond UMC	Mt. Sinai Roosevelt	Monte MV	NYPH-Columbia
Kings County	SBUH	Mt. Sinai St. Luke's	Monte NR	NYPH-LM
Lutheran	SJRH Dobbs	N. Westchester	Mt. Sinai	NYPH-NY Weill
Metropolitan	SJRH St. John's	NY Methodist	North Shore UH	NYPH-Lawrence
Nassau UMC	South Nassau	PBMC	NY Community	NYU HC
Queens HC	St. Catherine	Southampton	Phelps Memorial	NYU Hospital for Joint Diseases
SBH Health	St. Joseph	St. Francis	Plainview	Staten Island UHN
St. John's Episcopal	UHB	Westchester MC	White Plains	Staten Island UHS
St. Joseph's MC	Wyckoff Heights		Winthrop	

CY 14 Hospital Systems

- East End Alliance
- Health and Hospitals Corporation
- Long Island Health Network
- Medisys
- Montefiore Health System
- Mt. Sinai Health System
- NewYork-Presbyterian System
- NYU Health System
- North Shore LIJ
- SJRH
- SUNY

HOSPITAL SYSTEM MARKET SHARE: DOWNSTATE SUBREGIONS

Due to the large number of study hospitals in the Downstate region, and the diversity of the hospitals within the New York City boroughs and surrounding counties, the study team examined seven subregions within the Downstate region. The study team analyzed hospitals within four of the five boroughs of New York City as well as in Nassau, Suffolk, and Westchester counties to gain a better understanding of market leverage in the Downstate region.[82] For each of these subregions, hospital price leaders (that is, hospitals with the higher relative prices in the region) were identified using the second relative price methodology described in the study methodology section of this report's Study Description; with this methodology, hospitals within each subregion were assigned a rank based on their relative price and these ranks were averaged across insurers. Hospitals with low ranks were grouped together and identified as higher-priced, while those with high ranks were grouped together and identified as lower-priced.[83]

Higher hospital price may be influenced by participation in a hospital system with significant regional commercial market share.

Table 9 shows the hospital system/hospital market share leaders (that is, those entities with the highest market share) within each of the Downstate subregions. With the exception of Westchester County, each subregion's market share leader is a hospital system. Those market share leaders whose majority of hospitals are higher-priced were identified with a red bar and those systems that had all lower-priced hospitals were identified with a blue bar.[84] As shown, four of the seven subregions studied in the Downstate area have market share leaders that are part of a hospital system and have hospitals that command higher prices. A detailed analysis on all the subregions analyzed can be found in Appendix H.

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[82] Staten Island and Rockland County were excluded because of small hospital sample size.

[83] For example, the hospital with the highest relative price in the subregion would be assigned a rank of 1, the hospital with the second-highest relative price would be assigned a rank of 2, and so on. This ranking was performed for each insurer and then averaged across insurers. Within each subregion, hospitals with the lowest average ranks were grouped together and identified as the higher-priced hospitals within the subregion. The lowest average ranks varied for each subregion as the number of hospitals and relative price spreads vary. The study team used analytic criteria that are different for each subregion to define higher-priced hospitals. For example, for the Bronx, the hospitals with average ranks of 1 to 3 were identified as higher-priced hospitals. For Brooklyn, the hospitals with average ranks of 2 to 3.2 were identified as higher-priced hospitals. For Manhattan, the hospitals with average ranks of 1.8 to 5 were identified as higher-priced hospitals. For Nassau County, the hospitals with average ranks of 1 to 3.2 were identified as higher-priced hospitals. For Queens, the hospitals with average ranks of 1.2 to 2.7 were identified as higher-priced hospitals. For Suffolk County, no hospitals were identified as consistently higher-priced across insurers. For Westchester County, hospitals with average ranks of 1.8 to 3.2 were identified as higher-priced hospitals.

[84] The hospital with the highest relative price in the subregion would be assigned a rank of 1, the hospital with the second-highest relative price would be assigned a rank of 2, and so on. This ranking was performed for each insurer and then averaged across insurers. Within each subregion, hospitals with the lowest average ranks were grouped together and identified as the higher-priced hospitals within the subregion. The lowest average ranks varied for each subregion as the number of hospitals and relative price spreads vary. The study team used analytic criteria that are different for each subregion to define higher-priced hospitals. The criteria vary as the number of hospitals within each subregion varies and as the distribution of relative price within each subregion varies.

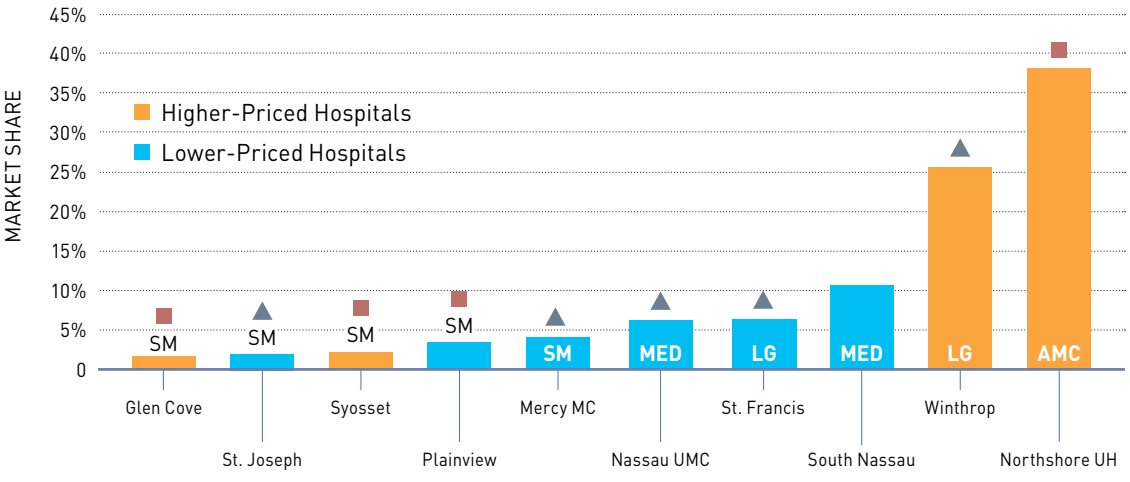
TABLE 9: Downstate Subregions Hospital System and Regional Market Share

DOWNSTATE SUBREGIONS	MARKET SHARE LEADER	SYSTEM Y/N	REGIONAL MARKET SHARE	HIGHER PRICE / LOWER PRICE
Bronx	Montefiore Health System	Y	72%	
Brooklyn	NewYork-Presbyterian	Y	41%	
Manhattan	Mt. Sinai Health System	Y	36%	
Nassau	North Shore LIJ	Y	45%	
Queens	North Shore LIJ	Y	54%	
Suffolk	Long Island Health Network	Y	43%	Not Available
Westchester	White Plains	N	21%	

Some of the hospital price leaders are small- or medium-sized hospitals that do not have significant market share on their own but are part of a hospital system with high market share. In **Figure 18**, for example, two of the four hospital price leaders in the Nassau County subregion (as identified by orange bars) are Glen Cove and Syosset—both of which are small hospitals that

FIGURE 18

2014 Nassau County Commercial Discharge Regional Market Share



Hospital Systems

▲ Long Island Health Network ■ North Shore LIJ

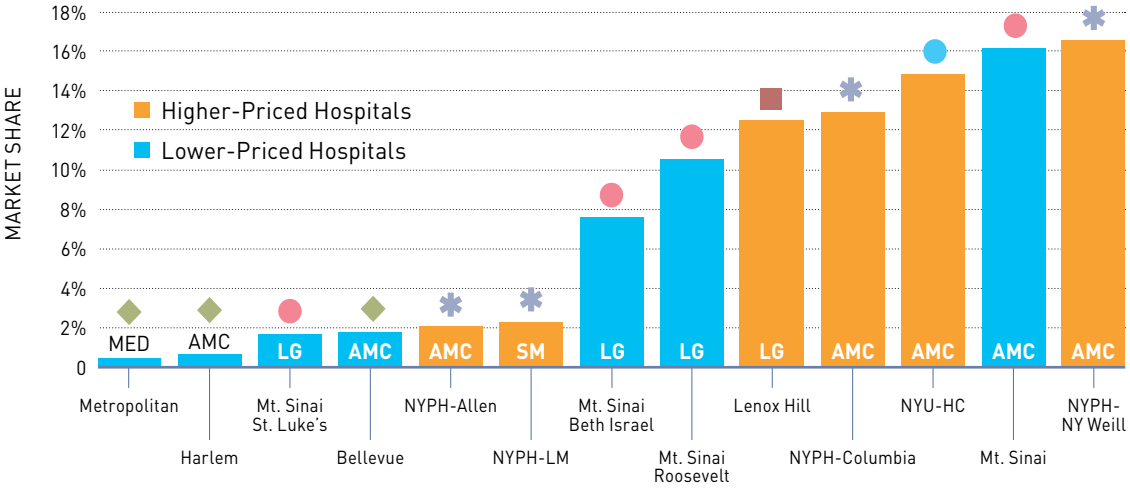
AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

have very little market share individually but are part of a hospital system, North Shore-LIJ, which commands a 45% share of the market in Nassau County.[85]

Although the team did observe patterns between hospital system market share and price, some regions did not exhibit this pattern. For example, **Figure 19** shows that every hospital in Manhattan is part of a hospital system, and that there are two systems with the largest market share—Mount Sinai Health System and NewYork-Presbyterian. However, Mount Sinai Health System was not considered higher-priced, whereas NewYork-Presbyterian was considered higher-priced.[86] Meanwhile, the other higher-priced hospitals (such as Lenox Hill Hospital[87]

FIGURE 19

2014 Manhattan Commercial Discharge Regional Market Share



Hospital Systems

- Health and Hospital Corp
- NewYork-Presbyterian
- NYU Health System
- Mt. Sinai Health System
- North Shore LIJ

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

[85] Higher-priced hospitals were defined by ranking the hospitals for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.5 to 3.2) were grouped as higher-priced, whereas all others were grouped as lower-priced.

[86] Higher-priced hospitals were defined by ranking the hospitals for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.8 to 5.0) were grouped as higher-priced, whereas all others were grouped as lower-priced.

[87] Lenox Hill Hospital has since been acquired by North Shore-LIJ, now called Northwell Health system.

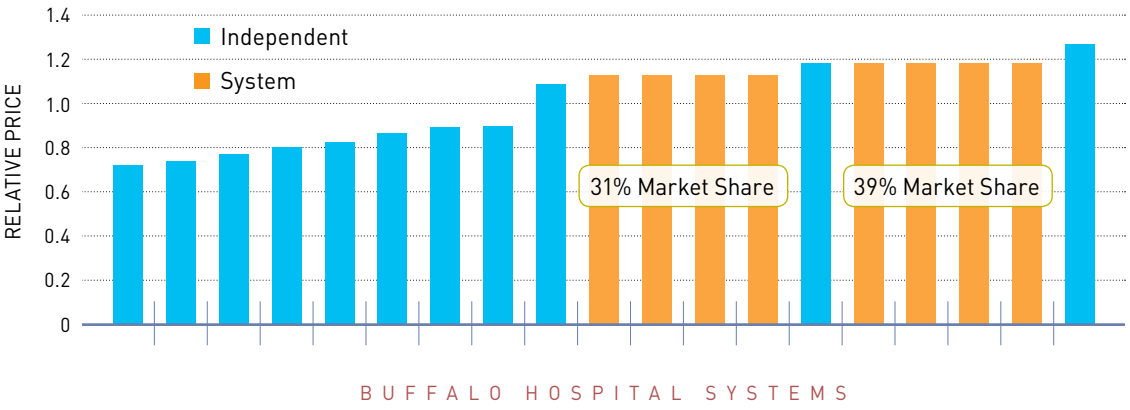
and NYU HC) are not part of a system with significant regional market share. These findings suggest that other factors are influencing price in these regions.

HOSPITAL SYSTEM MARKET SHARE: BUFFALO

The study team observed that hospital systems in Buffalo also command the highest prices and have significant market share (70% of the market). **Figure 20** below shows the relative prices for all the hospitals in the Buffalo region for one exemplar insurer, with orange bars representing those hospitals that are part of any system in Buffalo.[88] As shown, the orange bars fall to the right of the chart, suggesting that hospitals that are part of a hospital system with significant market share have higher prices than independent hospitals.

FIGURE 20

Exemplar Insurer Relative Price by Hospital Systems



Academic Medical Center Status

Although market share is one indicator of market leverage, the team also explored whether being considered an academic medical center could also influence a hospital's price. This was specifically examined in the seven subregions of Downstate. The study team first examined a subregion that included many academic medical centers. As shown in **Figure 19**, Manhattan includes seven academic medical centers, all at varying levels of price. Three of the seven were classified as lower-priced hospitals and four were classified as higher-priced. This suggests that having academic medical center status alone does not necessarily equate to higher price. The team then analyzed subregions where there is only one academic medical center present.

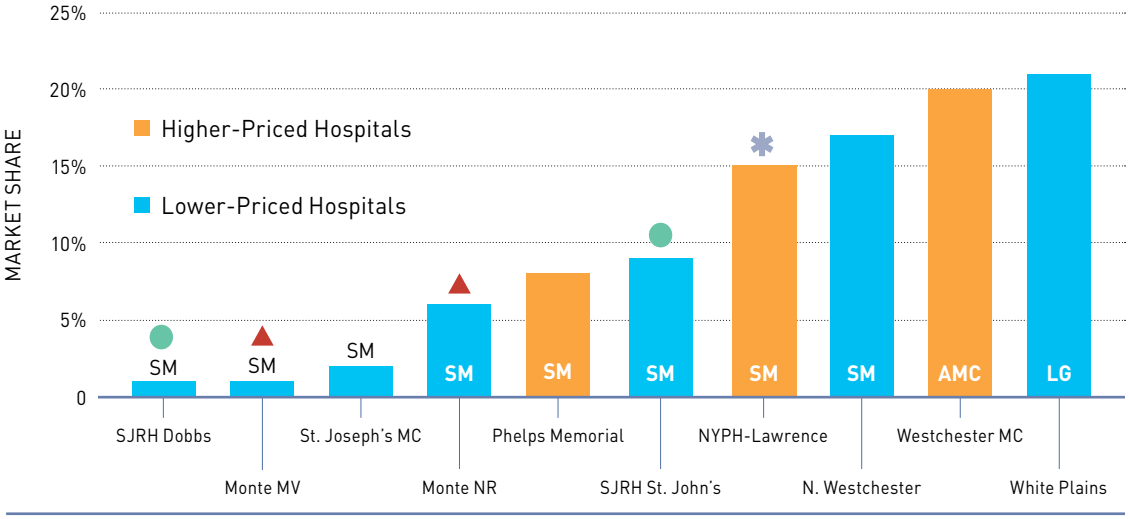
[88] Roswell Park Cancer Institute was excluded from this chart.

Higher hospital price may be influenced by a lack of academic medical center competition.

The study team identified 3 hospitals in the Westchester County subregion as higher-priced among the 10 analyzed.[89] As shown in **Figure 21** below, these hospitals (identified in orange) do not have the highest market share in the region; however, one of the three hospitals, Westchester Medical Center, is the only academic medical center in the area. The study team observed similar findings in the Bronx and Nassau County subregions, as further described in Appendix H. These findings suggest that hospitals may be able to command higher prices when they are the only academic medical center in the area.

FIGURE 21

2014 Westchester County Commercial Discharge Market Share



Hospital Systems

▲ Montefiore Health System ✱ NewYork-Presbyterian ● SJRH

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

[89] Higher-priced hospitals were defined by ranking the hospitals for each insurer (high to low) within Westchester County and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.8 to 3.2) were grouped as higher-priced and all others were grouped as lower-priced.

Rural Hospital Status

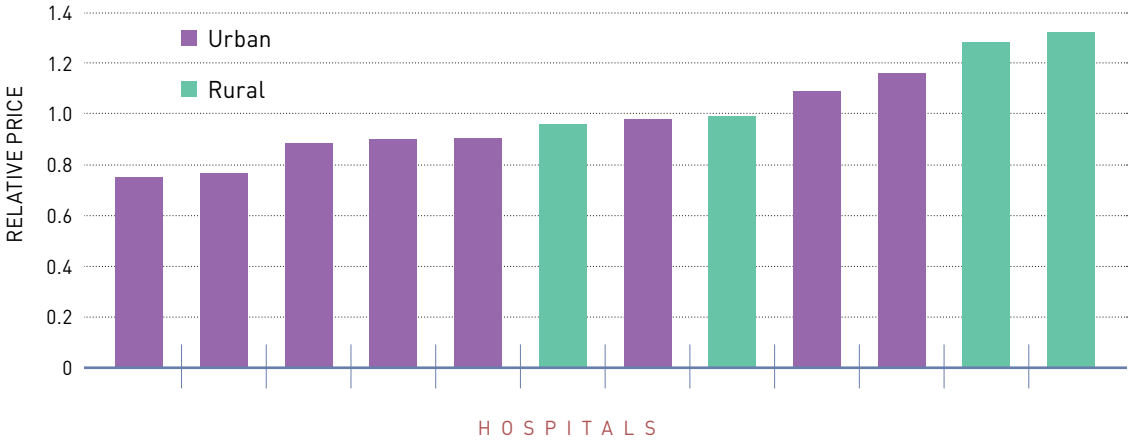
The final market leverage indicator analyzed was rural hospital status. The study team tested the hypothesis that hospitals that do not have competitors nearby, and that essentially have a monopoly in their area, will command higher prices.

Higher hospital price may be influenced by a hospital's rural hospital status and less competition in some markets.

The Albany study region includes hospitals in the greater Albany area, as well as those in more remote surrounding areas. The study hospitals in the Albany region include only one academic medical center, one hospital system, three community hospitals, and several rural hospitals. In addition to examining Albany hospitals by peer group, the study team analyzed hospitals that were classified by the Centers for Medicare & Medicaid Services (CMS) as rural and urban.[90] **Figure 22** below shows the relative prices for all the hospitals in the Albany region for one insurer, with rural hospitals in green and urban hospitals in purple. As shown, the green bars are to the right and the middle of the chart, suggesting that rural hospital prices are higher than those for urban hospitals. The team calculated an average relative price ratio of rural hospitals to urban hospitals, and found that rural hospitals' average prices in Albany are 1.3 times those of urban hospitals. This finding was not observed in the Buffalo region after performing a similar review.

FIGURE 22

2014 Albany Relative Price (Rural Hospitals)



[90] For the purposes of this study, hospitals were categorized as rural or urban based on CMS's Medicare definition for hospital payment, as of FY2014. Available at: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY-2014-IPPS-Proposed-Rule-Home-Page-Items/FY-2014-Proposed-Rule-Data-Files-CMS-1599-P.html

In fact, the prices of rural hospitals in Buffalo appear to be lower than those of urban hospitals in the region. However, Buffalo is also dominated by two large hospital systems, whereas Albany does not have a similar dynamic. The study team did not perform this analysis in the Downstate region, as none of the study hospitals in this region are classified as rural.

Summary of Market Leverage Indicators

As shown throughout this section and in Appendix H, market leverage can take many forms—from discharge market share to lack of competition in a region. These factors all put a hospital in a greater bargaining position when negotiating with insurers. Through this analysis, the study team observed some statistical correlation between hospital price and discharge market share. The correlation is stronger in Buffalo than in Downstate, and does not exist in Albany. The team also observed other reasons for higher hospital price, including being part of a hospital system with significant regional market share, being the only academic medical center, and being a rural hospital with less competition. The next section of the report will further explore the relationship between relative price and key hospital attributes by examining the influence of public payer mix.

Public Payer Mix

KEY FINDING: Hospitals in the Downstate region that serve more Medicare and Medicaid patients garner lower prices in the private commercial market. Meanwhile, hospitals that serve fewer Medicare and Medicaid patients garner higher prices in the commercial market. This counters a widely held belief that a hospital negotiates for higher commercial prices to offset lower reimbursements received for their publicly insured patients.[91]

In its final analysis, the study team examined whether the sources of a hospital's revenue influence hospital price variation in the private commercial market. A hospital's revenue stream comes from different sources, the largest of which are Medicaid, Medicare, and private commercial insurers. Reimbursement from public payers (Medicaid and Medicare) for a certain set of services is generally much lower than that from private commercial insurers for the same set of services.[92] Many industry stakeholders have suggested that this is because of cost-shifting, in which hospitals increase their prices for private commercial insurers to account for the shortfall on their reimbursement from public payers. To explore whether this cost-shifting theory contributes to hospital price variation in the commercial market, the study team set out to answer the following question: Do higher-priced hospitals serve a greater proportion of Medicaid and Medicare patients, and do lower-priced hospitals serve a lower proportion of Medicaid and Medicare patients? To do this, the study team examined each hospital's public payer mix[93] and subsequently compared it with hospital relative price through regression analysis to determine whether price and public payer mix were correlated within each of the study regions. Since Medicaid and Medicare have very different payment rates, and since some hospitals serve many more Medicaid patients than Medicare patients and vice versa,

HOSPITAL PUBLIC PAYER MIX

A hospital's revenue stream comes from different sources, the largest of which are Medicaid, Medicare, and private commercial insurers. A hospital's public payer mix is determined by calculating the ratio of hospital payments from public payers (i.e., Medicaid & Medicare) to total hospital payments. A higher public payer ratio (e.g., 0.70, or 70% of total payments) suggests that the hospital serves a greater proportion of Medicaid and Medicare patients as compared with private commercial patients. Likewise, a lower ratio (e.g., 0.40, or 40% of total payments) suggests that the hospital serves a smaller proportion of Medicaid and Medicare patients.

HOSPITAL MEDICAID PAYER MIX

A hospital's Medicaid payer mix is calculated by taking the ratio of hospital payments from Medicaid to total hospital payments. A high ratio suggests a greater proportion of Medicaid patients as compared with other types of patients, and a low ratio suggests a smaller proportion of Medicaid patients.

[91] The Massachusetts Health Policy Commission had a similar finding in Massachusetts. Data Source: Commonwealth of Massachusetts, Health Policy Commission. 2015 Cost Trends Report: Provider Price Variation. Available at: **http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-ctr-ppv.pdf**.

[92] Reinhardt, UE. Equalizing payments for medical care. [Web blog post], November 11, 2011. Available at: **http://economix.blogs.nytimes.com/2011/11/11/equalizing-payments-for-medical-care/**.

[93] Public payer mix was calculated for each hospital using 2014 Gross Patient Service Revenue by Payer from the 2014 SPARCS dataset.

the team also performed a similar regression analysis between Medicaid payer mix and hospital price. The team made the following observations:

- A statistical analysis for all of the Downstate region indicates some correlation between price and public payer mix in the Downstate region; however, where correlation did exist, it was negative—indicating an inverse relationship between a hospital's price and its public payer mix. This suggests that higher-priced hospitals serve more private commercial patients than Medicaid and Medicare patients, while lower-priced hospitals serve more Medicaid and Medicare patients.
- The results of the statistical analysis are reinforced by a Downstate subregional analysis showing that hospitals with higher prices tend to receive more of their revenue from commercial payers than from public payers.
- In the Albany region, higher-priced hospitals appear to have higher Medicaid payer mix, suggesting that some higher-priced hospitals serve a greater proportion of Medicaid patients.
- There was no evidence of any pattern between payer mix and price in the Buffalo region.

The rest of this section describes these findings in more detail.

Public Payer Mix and Price

There was some statistical correlation between price and public payer mix in the Downstate region. Where correlation did exist, it was negative—indicating an inverse relationship between a hospital's price and its public payer mix. The same finding was observed when analyzing Medicaid payer mix.

The study team did not observe any statistical correlation between hospital price and public payer mix in the Albany or Buffalo regions. In Downstate, some correlation was found, but it was negative—in other words, the higher a hospital's public payer mix, the lower its commercial prices. **Figure 23** shows this negative correlation among 75 hospitals for one exemplar insurer Downstate.[94] The chart shows that as a hospital's revenue becomes more and more dependent on public payer reimbursement, its private commercial prices decrease. Meanwhile, two of the hospitals that have the highest commercial prices have among the lowest public payer mix (40% and 45% of their revenue, respectively). This suggests that hospitals that serve more Medicare and Medicaid patients garner lower prices in the private commercial market.

This finding persisted when the study team examined the relationship between hospital price and Medicaid payer mix in the Downstate study region. **Figure 24** also shows a negative correlation

[94] This negative correlation was found among all the study insurers in the Downstate region, with the R^2 values ranging from 0.15 to 0.40. Correlations in Albany and Buffalo were not statistically significant.

FIGURE 23

2014 Public Payer Mix vs. Hospital Relative Price (Downstate)

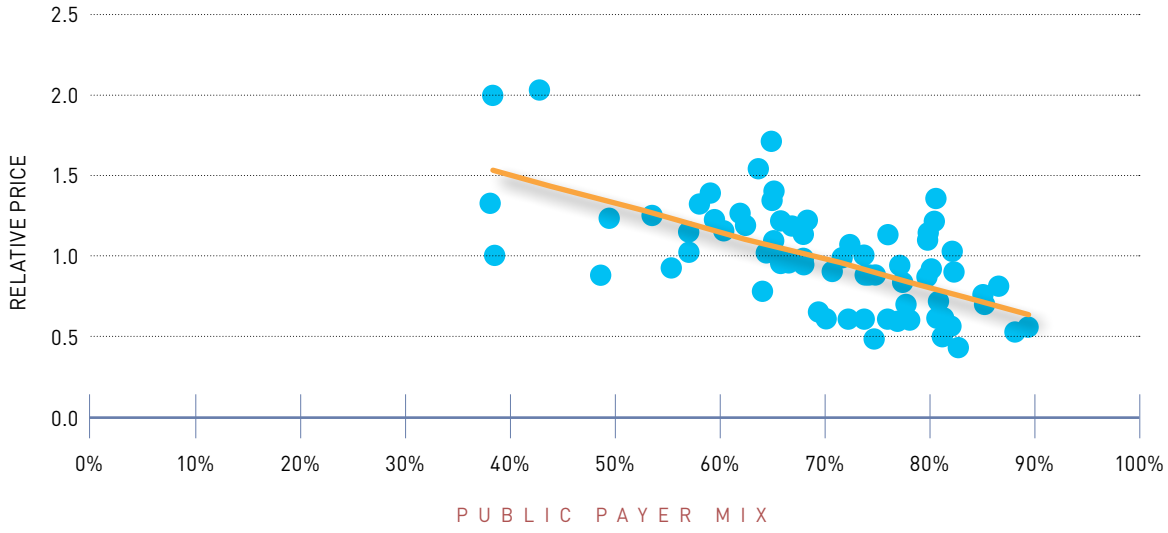
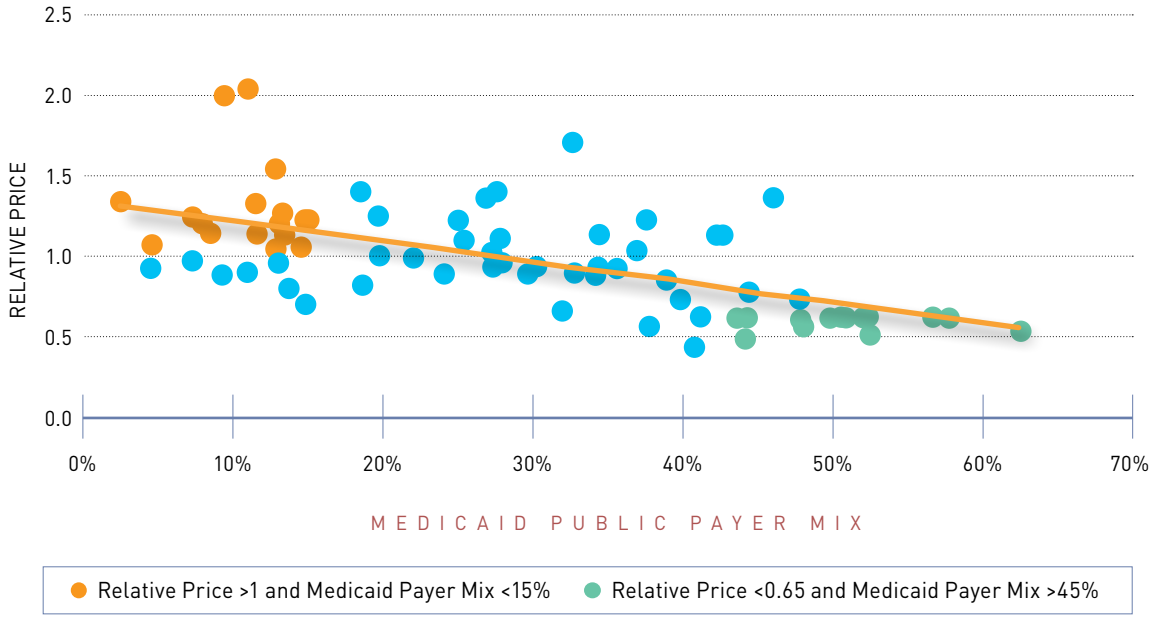


FIGURE 24

2014 Medicaid Payer Mix vs. Hospital Relative Price (Downstate)



between Medicaid payer mix and hospital price. As shown, there is a group of hospitals highlighted by orange circles that have less than 15% of their revenue from Medicaid, yet their relative price is above 1.00. Two hospitals with approximately 10% of their revenue from Medicaid command a relative price at 2.0. Likewise, there is a group of hospitals highlighted by green circles that have greater than 45% of their revenue from Medicaid and have less than a 0.65 relative price.

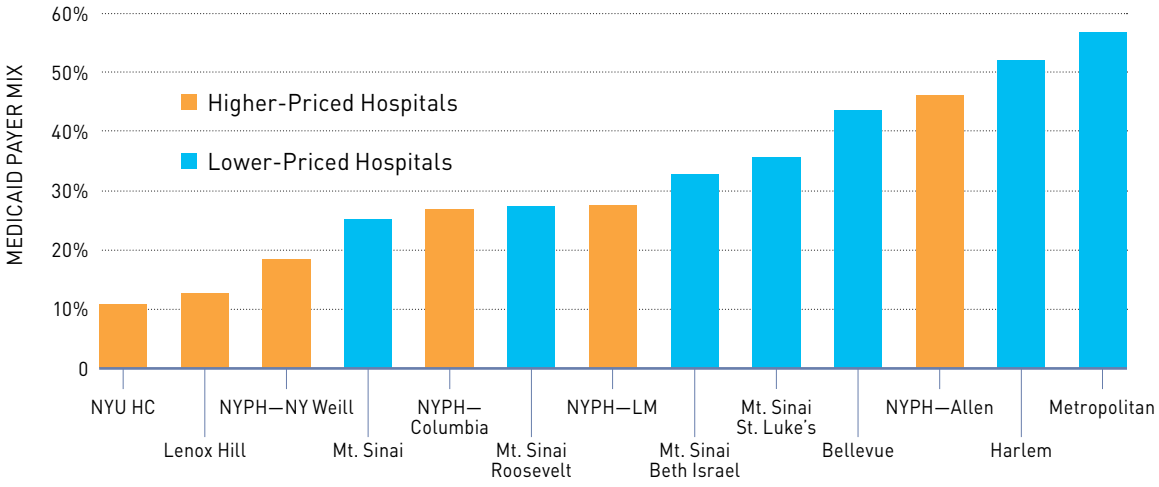
The study team then analyzed public and Medicaid payer mix for higher-priced hospitals and lower-priced hospitals within each Downstate subregion as well as Buffalo and Albany. Findings from all the regions are found in Appendix H.

In many Downstate subregions, hospitals with higher prices have lower Medicaid payer mix as compared with hospitals with lower prices.

For example, the study team analyzed 13 hospitals in Manhattan, comprising a mixture of academic medical centers and small, medium, and large hospitals. Among all the insurers analyzed, the study team observed that six hospitals are consistently priced the highest in Manhattan.[95] As shown in **Figure 25**, a review of Medicaid payer mix in Manhattan shows that three of the six higher-priced hospitals have the lowest Medicaid payer mix. With the exception of one higher-priced hospital that serves a large Medicaid population, this indicates that the hospitals that predominantly serve the Medicaid populations are generally the lower-priced in Manhattan. This finding was observed in the Bronx, Brooklyn, and Queens subregions. Further analysis and descriptions of these findings can be found in Appendix H.

FIGURE 25

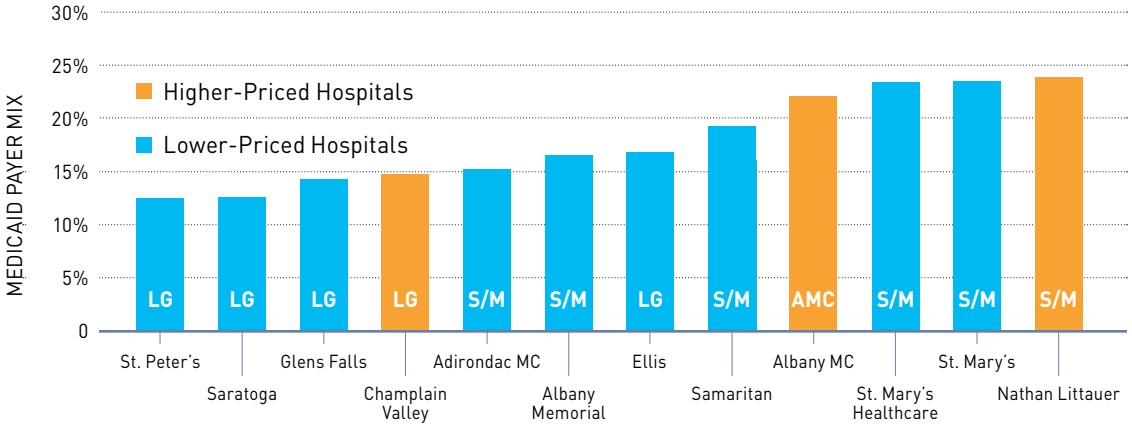
2014 Manhattan Medicaid Payer Mix



[95] Higher-priced hospitals were defined by ranking the hospitals for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.8 to 5.0) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 26

2014 Albany Medicaid Payer Mix



In the Albany region, higher-priced hospitals appear to have higher Medicaid payer mix than other hospitals in the region, suggesting that some higher-priced hospitals serve a greater proportion of Medicaid patients.

There was no statistical correlation observed between public payer mix and relative price in Albany. However, a review of Medicaid payer mix in the Albany region, as shown in **Figure 26**, highlights that two of the higher-priced hospitals have higher Medicaid payer mix.[96] These hospitals get more than 20% of their revenue from Medicaid. An analysis of public payer mix did not show this pattern.

Public Payer Mix Summary

There was no statistical correlation between public payer mix and relative price found in Buffalo and Albany. There appear to be some patterns between public payer mix and relative price Downstate; however, the correlation is negative. This suggests that those hospitals that service a greater proportion of Medicaid and Medicare patients are in fact not higher-priced. Hospital price variation does not appear to be influenced by the types of patients a hospital serves—that is, higher-priced hospitals are not higher-priced because they serve a greater proportion of publicly covered patients (Medicaid and Medicare), and lower-priced hospitals are not lower-priced because they serve a smaller proportion of publicly covered patients. In Albany, the team did observe that the hospitals that serve a greater proportion of Medicaid patients are higher-priced.

[96] Higher-priced hospitals were defined by ranking the hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.7 to 3.3) were grouped as higher-priced, whereas all others were grouped as lower-priced.

Conclusion

Summary of Findings

There were six major findings from this study:

- Hospital reimbursement practices are complex and extremely varied, requiring considerable amounts of data, resources, and analysis to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. This complexity can increase administrative costs[97] and undermine transparency efforts.
- Certain contract provisions contribute to market dysfunction by hindering competition, product innovation, transparency, and cost containment strategies.
- There are significant differences in overall price levels (referred to as hospital price variation) among hospitals of similar size, services, and teaching designation, even after adjusting for the sickness (morbidity) of the population served and the complexity of the services provided. In other words, some hospitals are significantly higher-priced than other, similar hospitals. This price variation is greater in some regions than others.
- Hospitals with higher prices do not necessarily have higher quality. Likewise, hospitals with lower prices do not necessarily have lower quality.
- Hospitals in the Downstate region that serve more Medicare and Medicaid patients garner lower prices in the private commercial market. Meanwhile, hospitals that serve fewer Medicare and Medicaid patients garner higher prices in the commercial market. This counters a widely held belief that a hospital negotiates for higher commercial prices to offset lower reimbursements received for their publicly insured patients.
- Higher-priced hospitals may be higher-priced due to various forms of market leverage, which gives them more bargaining power when negotiating with insurers.
    - Hospitals that have greater market share are generally higher-priced.
    - Hospitals that are part of a hospital system that has large regional market share are generally higher-priced, regardless of their own size or individual market share.

[97] The Commonwealth Fund. A Comparison of Hospital Administrative Costs in Eight Nations: U.S. Costs Exceed All Others by Far. Available at: http://www.commonwealthfund.org/publications/in-the-literature/2014/sep/hospital-administrative-costs.

- In the Albany study region, hospitals that are considered rural and have less competition are generally higher-priced.
- In certain regions of New York State, the lack of academic medical center competition can lead to higher prices.

Hospital reimbursement practices are complex and extremely varied, requiring considerable amounts of data, resources, and analysis to directly compare one hospital's inpatient and outpatient overall price with that of another hospital. This complexity can increase administrative costs and undermine transparency efforts.

The study team found that reimbursement methods—that is, the ways in which hospitals and insurers establish reimbursement amounts for hospital services—vary widely for hospital inpatient and outpatient services, both within and across insurers. The complexity and lack of standardization in hospital reimbursement structures make it difficult for insurers to easily compare provider prices across the market. Insurers with strong analytic resources are able to understand how the prices of one hospital compare to those of another, whereas for other insurers it is not as easy. Absent a considerable amount of data, resources, and analysis it can be challenging to directly compare one hospital's inpatient and outpatient overall price with that of another hospital.[98] Although not a focus of this study, this complexity and variation in reimbursement methods most likely has a significant impact on increasing administrative costs for some insurers and hospitals, which in turn increases premiums paid by consumers. The complexity and diversity of hospital reimbursement can also present a serious roadblock to making hospital prices transparent.

Certain contract provisions contribute to market dysfunction by hindering competition, product innovation, transparency, and cost containment strategies.

When examining contracts between hospitals and insurers, the study team observed several clauses that can hinder competition and can inhibit healthy market function through product transparency, innovation, and cost containment strategies. Confidentiality language limits an insurer's ability to post certain providers' prices on their member websites. This limits a patient's ability to see the price of services at certain hospitals on an insurer's price estimator tool, and limits an insurer's ability to encourage patients to seek out cost-effective care. Tiered network and anti-steering language limits an insurer's ability to provide patients with information on high-quality, low-priced providers or to develop products that would promote the use of such high-value providers. Termination clauses act as a leveraging tool that hospitals and insurers both can use to prohibit changes to the contract that would negatively impact the other party. For example,

[98] The study team collected data, conducted interviews with insurers, and developed a methodology to compare overall hospital price from one hospital to another.

if the insurer develops a utilization review program to reduce frequently over-used radiology procedures, or if the insurer expands its list of procedures requiring prior approval, the hospital can threaten to terminate the contract with the insurer. Finally, outside vendor contract provisions that require the insurer to include the hospital in the insurer's outside vendor's network at the hospital's price limits the insurer's ability to control costs for outsourced services. Although some of these contract provisions were initially implemented years ago, they appear outdated in today's environment where patients are responsible for larger portions of the health care costs in the forms of deductibles, copays, and coinsurance. This is in addition to the increased focus on promoting consumer decision-making tools, creating incentives for high-value care and cost containment, and enabling greater competition.

There are significant differences in overall price levels (referred to as hospital price variation) among hospitals of similar size, services, and teaching designation, even after adjusting for the sickness of the population served and the complexity of the services provided. In other words, some hospitals are significantly higher-priced than other similar hospitals. This price variation is greater in some regions than others.

Study results show that hospital price variation does indeed exist in all three study regions examined, with the highest-priced hospitals 1.5 to 2.7 times more expensive than the lowest-priced hospitals within the same region. These price differences are even greater when comparing prices of hospitals of similar size, services, and teaching designation. In addition, the study team found that the higher-priced hospitals tended to be consistently higher-priced among all the study insurers. This price variation is greater in some regions than others.

Hospitals with higher prices do not necessarily have higher quality. Likewise, hospitals with lower prices do not necessarily have lower quality.

Twelve quality measures were examined and compared with overall hospital price in each of the three study regions among the nine study insurers. The study team found no consistency in the relationship between hospital quality measures and overall hospital price. In other words, a hospital's performance against any single quality measure did not consistently translate to a higher or lower overall price from any insurer—thereby indicating that higher price does not necessarily equal higher quality, and lower price does not necessarily equal lower quality.

Hospitals in the Downstate region that serve more Medicare and Medicaid patients garner lower prices in the private commercial market. Meanwhile, hospitals that serve fewer Medicare and Medicaid patients garner higher prices in the commercial market. This counters a widely held belief that a hospital negotiates for higher commercial prices to offset lower reimbursements received for their publicly insured patients.

In the Downstate region, the study team found that those hospitals that receive much of their revenue from Medicare and Medicaid tend to have lower prices in the private commercial

market.[99] In fact, a statistical analysis resulted in a negative correlation—that is, the higher-priced hospitals serve fewer Medicare and Medicaid patients. This negative correlation did not exist in the Albany region, where it did appear that higher-priced hospitals also service a greater number of Medicaid patients. There was no evidence of any pattern between payer mix and price in the Buffalo region.

Higher-priced hospitals may be higher-priced as a result of various forms of market leverage, which gives them more bargaining power to command higher prices when negotiating with insurers.

The reasons for the observed differences in overall prices across the study hospitals are complex and may be influenced by a range of factors. Across all three study regions, price variation appeared to be influenced by market leverage; however, market leverage takes many forms—including market share, participation in a large hospital system, rural status, and competition as an academic medical center—that vary based on the characteristics of the region.

Hospitals that have greater market share are generally higher-priced.

The study team conducted a statistical analysis that focused on overall hospital price and commercial hospital discharge market share. While the results vary by insurer, there does appear to be some positive correlation between market share and hospital price. In other words, the correlation suggests that the higher a hospital's market share, the higher its relative price.

Hospitals that are part of a hospital system with large regional market share are generally higher-priced, regardless of their own size or individual market share.

The study team observed this finding in the Buffalo and Downstate regions. In Buffalo, there are two major hospital systems representing 70% of the market, a group of independent hospitals, and a few specialty hospitals. In this market, the higher-priced hospitals were those that were part of one of the two hospital systems. In the Downstate region, there is considerable competition with 60 of the 75 study hospitals participating in one of several larger hospital systems. Since the region itself is so diverse, Downstate was analyzed by seven subregions. The results from this analysis show that participation in a hospital system with significant regional commercial market share may increase a hospital's overall price. This finding was generally true even among those hospitals with little market share that participated in a large hospital system; however, this finding was not consistent across all seven subregions as a result of other market dynamics not closely examined.

[99] The Massachusetts Health Policy Commission had a similar finding in Massachusetts. Data Source: Commonwealth of Massachusetts, Health Policy Commission. 2015 Cost Trends Report: Provider Price Variation. Available at: http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-ctr-ppv.pdf.

In the Albany study region, hospitals that are considered rural and have less competition are higher-priced.

There is little hospital competition in the Albany region, with only one academic medical center, one hospital system, three community hospitals, and several rural hospitals.[100] Here, the study team found that those hospitals that are considered rural command higher prices because of the lack of competition.

In certain regions of New York State, the lack of competition among academic medical centers can lead to higher prices.

The team found that in certain regions where there was only one academic medical center available, such as Westchester County, that hospital commanded the highest prices in that region, regardless of market share.

Recommended Policy Considerations

These findings shed light on hospital prices in New York and the various factors that may influence price variation. A better understanding of these price drivers will help ensure that the health care market functions in a way that **(1) maintains access to health care for New Yorkers** and **(2) supports a competitive market for the industry.** Understanding hospital prices and their variation, as well as the nature of hospital reimbursement methodologies across the market, is a critical first step. As New York State gains a more complete understanding of the factors driving health care prices in the commercial market, stakeholders such as health care providers, payers, and policymakers will be better positioned to identify strategies for addressing market dysfunctions.

The following policy considerations are recommended for review.

EXPLORE WAYS TO SIMPLIFY REIMBURSEMENT METHODOLOGIES

This study observed multiple different methods used among insurers, and even within insurers, to reimburse hospitals. Simplifying hospital reimbursement methodologies would make it easier for insurers, hospitals, and potentially patients to understand hospital prices. The State could explore ways to simplify reimbursement such as requiring all insurers to use the same DRG grouper[101] for inpatient reimbursement and/or the same outpatient hospital fee schedule.

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[100] In fall of 2016, the State approved an affiliation between Albany Medical Center and Saratoga Hospital. http://www.dailygazette.com/news/2016/oct/06/AMC-saratoga-hospital-affiliation-approved/.

[101] A Diagnosis Related Group (DRG) is a mechanism by which inpatient admissions are grouped into categories for purposes of payment. These categories are based on factors that include diagnoses, procedures, patient characteristics, and the presence of complications or comorbidities. There are several different types of DRG methodologies (known as groupers), including the Medicare Severity DRG (MS-DRG), All Patient DRG (AP-DRG) and the All Patient Refined DRG (APR-DRG), and each one categorizes inpatient services differently.

LESSONS FROM MASSACHUSETTS

The history of provider price analyses in Massachusetts offers insights for the New York State market. The initial discovery of provider price variation in Massachusetts (as first reported by the Massachusetts Attorney General's Office in March 2010[102]) was the catalyst for a series of reforms, analyses, and publications focused on health care cost drivers and trends. A health care reform law, Chapter 288 of the Acts of 2010, required the annual collection, calculation, and publication of relative price and price variation information. This legislation also provided for increased transparency, enabled insurers to pursue tiered networks without negative recourse from hospitals, and barred certain contracting practices between insurers and providers.

A subsequent reform passed in Massachusetts in 2012 established two state agencies—the Health Policy Commission (HPC) and the Center for Health Information and Analysis (CHIA)—to develop policies and analyses aimed at understanding and reducing health care costs. HPC has since set an annual benchmark for health care cost growth in Massachusetts, against which CHIA annually measures and reports the state's progress. CHIA reports on provider prices and cost trends annually. Providers that exceed the set target can be subject to performance improvement plans and state monitoring. Much of HPC's activities are public and transparent, to better engage key stakeholders, including policymakers, state agencies, insurers, providers, and consumers. Overall, provider price information in Massachusetts has fueled an ongoing dialogue among health care stakeholders statewide, and continues to inform health care policies and decision-making.

Massachusetts has shown a way forward in addressing the market dysfunctions identified in this study. Upon releasing the findings from its 2010 study of provider price variation, Massachusetts implemented the following changes:

- New level-the-playing-field rules for the health care industry that bar certain contracting practices that hurt competition, inflate prices, and reinforce market power;
- New transparency for consumers and government reporting; and
- Active oversight mechanisms, like HPC, that work to improve competition and monitor market power.

This would still allow the insurer and hospital to negotiate different base rates or multipliers, but would provide a level of standardization to hospital reimbursement that would make rates more easily comparable. A simplified reimbursement approach could provide insurers the ability to provide pricing information to patients in a timely and efficient manner. In addition, in the long term, insurers and hospitals would no longer have to administer different reimbursement methodologies for hospitals, which could result in lower insurer and hospital administrative expense and, in turn, could ultimately lower health insurance premiums.

BAR CERTAIN CONTRACTUAL LANGUAGE FROM HOSPITAL/ INSURER CONTRACTS

New York State policymakers and stakeholders could consider policies to protect consumer interests, prevent market dysfunction, and promote increased price transparency. Policies could include the barring of confidentiality language, anti-steering language, and language that

[102] Office of Attorney General Martha Coakley. Examination of Health Care Cost Trends and Cost Drivers. Office of Attorney General Martha Coakley, March 16, 2010. Available at: http://www.mass.gov/ago/docs/healthcare/2010-hcctd-full.pdf.

hinders the ability of the tiered network product to work efficiently. Barring such language will increase transparency but could also increase overall costs in the short term as lower-priced providers may demand greater reimbursement. In addition, the State could adopt standards that prescribe how tiered networks should be defined, so that all must meet the same standard.

CONTINUE TO MONITOR AND REPORT PROVIDER PRICE INFORMATION TO HIGHLIGHT POTENTIAL MARKET DYSFUNCTIONS

New York State policymakers and stakeholders could consider analyzing and publishing provider price information on an annual basis. In particular, the State could leverage its upcoming all-payer database (APD) for these efforts, using grouper software and an analytic framework to calculate and publish provider price information each year. This information can be used to monitor the market impact of provider consolidations and other market changes, such as hospital closures, and could highlight potential market dysfunctions. For example, the Massachusetts Health Policy Commission uses relative price information to analyze the impact of provider changes, including consolidations and alignments, on the state's health care market through its Notice of Material Change process and its Costs and Market Impact Reviews. This information could also be useful to large self-insured employer groups to develop networks to support their cost containment strategies.

Provider price information could also enhance the annual rate review process managed by the New York State Department of Financial Services (NYSDFS). For example, this information could be used to further examine insurer trend assumptions in premium rate development. NYSDFS could observe whether already higher-priced providers are receiving higher price increases than their lower-priced peers, and could question the insurers on the validity of these assumptions.

Provider price information could also be valuable to policymakers as they contemplate future provider reimbursement policies. For example, relative price information can be used to model the impact of various policies designed to reduce provider price variation.

FURTHER STUDY THOSE HOSPITALS THAT SERVE A GREATER PROPORTION OF MEDICARE AND MEDICAID PATIENTS

In the Downstate study region, those hospitals that service a greater proportion of Medicare and Medicaid patients generally have lower prices than their counterparts in the private commercial market. Further study and analyses could provide insights into opportunities to address the financial viability of these hospitals over the long term.

Conclusion

As health care costs continue to rise and lead to premiums and out-of-pocket expenses that are increasingly unaffordable for consumers, there is a growing need to understand the factors that drive health care costs. This study sheds light on hospital reimbursement and contracting practices in New York State, and identifies potential drivers of hospital prices and hospital price variation in the health care market. The drivers identified may threaten the ability of the health care market to maintain healthy industry competition, thus leading to unaffordable health care for New Yorkers. This report is intended to fuel an ongoing dialogue among key industry stakeholders and policymakers to stimulate increased policy efforts and inform future cost containment policies.

Appendix A: Relative Price Methodology

Information was obtained from nine commercial insurers in New York State through a mandated Request for Information[103] issued by the New York State Department of Financial Services (NYSDFS), the State regulatory authority for the commercial health insurance market.[104] The information request was separated into several sections including an inpatient hospital section, an outpatient hospital section, an ambulatory surgery section (a subsection of outpatient hospital), an emergency room section (a subsection of outpatient hospital), and a written response section. Each section, with the exception of the written response section, requested data elements such as allowed claims and utilization by hospital and service category, non-claim payments by hospital, inpatient case mix index (CMI), reimbursement methodology, case rates when applicable, and other information specific to contracting and reimbursement. In the written response section, insurers provided responses to questions related to reimbursement methodologies, and also provided hospital rate sheets and hospital fee schedules where applicable. Additionally, the study team collected hospital contracts from each of the insurers for each of the hospitals. Given the differences in reimbursement structures and the methods by which data are collected and stored by insurers, the study team worked closely with each insurer to modify the data request as needed. The study team also worked closely with each insurer throughout the process to discuss technical issues and to better understand each insurer's reimbursement structure and methodology. Upon completing each insurer's relative price calculation, the study team shared a methodology document with each insurer and allowed opportunities for questions and feedback. As a result of the differences in reimbursement methodology and data provided, the relative price methodology varied by insurer, but the summary below provides an overview of the general methodology employed.[105]

The general approach used to calculate relative price for a hospital was to first calculate a relative price for hospital inpatient services. Next, the study team calculated a relative price for hospital outpatient services. Finally, the study team blended the two relative prices to calculate an overall hospital relative price. Each insurer's hospital reimbursement structures and data varied significantly from one another; therefore, in all cases, relative price was calculated specifically for each insurer and cannot be directly compared across insurers.

[103] NYSDFS issued this Request for Information pursuant to Section 308 of the New York Insurance Law.

[104] This Request for Information from insurers collected data from CY 2014 for all data fields and collected CY 2013 data for some fields.

[105] Note that one insurer provided inpatient and outpatient data relative to the Medicare physician fee schedule from which a price comparison can be made.

INPATIENT HOSPITAL RELATIVE PRICE

Inpatient hospital relative price was primarily estimated using data provided directly by insurers. This information included inpatient allowed claim dollars, non-claim payments, CMI, and total discharges for the hospitals requested. Non-claim payments are payments that are not based on a specific service and are not paid out because of a specific claim. These amounts include items such as quality payments, bonuses, and infrastructure payments. The study team first calculated a cost per discharge by taking total allowed claims plus the non-claim payments divided by total discharges for each hospital. The team then calculated a case mix adjusted cost per discharge (cost per CMAD) by dividing the cost per discharge by the case mix index for each hospital. Adjusting for case mix normalizes for service and intensity mix for a hospital so that hospitals that service more intense cases can be compared with hospitals that service less intense cases.[106] This cost per CMAD is referred to as the price of hospital inpatient services. (The cost per CMAD is a price measure that is widely used in several studies.[107,108,109,110]). The study team then calculated an unweighted average of these prices to determine an overall average price. As the study's focus is on price, using an unweighted average rather than a weighted average (by volume of hospital) removes any bias that can occur from hospitals that have dominant market share. The ratio of each hospital's price to the overall average price was the hospital inpatient relative price. These results were checked for reasonability and compared with what was in the actual rate sheets of the contracts.

There were some instances in which a case mix index was not available for a particular hospital and insurer. There were also instances in which an insurer provided CMI using different DRG groupers which did not allow for certain hospitals to be compared with others. In these cases, the study team imputed CMI using the following methodology. The study team first calculated

[106] The study team relied on case mix index reported by the insurers. As described in this report, insurers use a variety of DRG groupers and version numbers. Some DRG groupers are more refined than others; for example, the case mix index reported by an insurer using AP-DRG will not be as refined as that for an insurer using APR-DRG. For these reasons, the resulting calculated price of a hospital may not fully be adjusted for the service and intensity mix of the services it delivers.

[107] Center for Health Information and Analysis. Data Specification Manual, 957 CMR 2.00: Payer Report of Relative Prices. Center for Health Information and Analysis, March 31, 2016, p.6. Available at: **http://www.chiamass.gov/assets/docs/p/tme-rp/data-spec-manual-rp.pdf**.

[108] Xerox. Variation in Payment for Hospital Care in Rhode Island. Prepared for the Rhode Island Office of the Health Insurance Commissioner and the Rhode Island Executive Office of Health and Human Services, December 19, 2012, p.12. Available at: **http://www.ohic.ri.gov/documents/Hospital-Payment-Study-Final-General-Dec-2012.pdf**.

[109] London K, Grenier MG, Friedman TN, Swoboda PT. Analysis of Price Variations in New Hampshire Hospitals. University of Massachusetts Medical School, prepared for the New Hampshire Insurance Division, April 2012, p.2. Available at: **https://www.nh.gov/insurance/lah/documents/umms.pdf**.

[110] Commonwealth of Massachusetts Center for Health Information and Analysis. Health Care Provider Price Variation in the Massachusetts Commercial Market: Technical Appendix. Center for Health Information and Analysis, February 2013, p.4. Available at: **http://www.chiamass.gov/assets/docs/r/pubs/13/relative-price-variation-technical-appendix-2013-02-28.pdf**.

a CMI for all hospitals in that particular region using NY APR-DRG weights and all commercial discharges from the 2014 SPARCS dataset. Then, a regression analysis was performed using the available CMIs provided by the insurer with the CMIs calculated from SPARCS. Lastly, the study team imputed the missing CMIs using the results from the regression analysis.

OUTPATIENT HOSPITAL RELATIVE PRICE

Services within hospital outpatient are reimbursed in different ways and, as such, it was typically necessary to segment the data depending on the reimbursement methodology and service category. The three primary types of outpatient hospital reimbursement methodologies are case rates, fee schedules, and percentage of changes, but there are many other contract provisions as described earlier in the report that further complicate outpatient hospital reimbursement. Given the complexities of outpatient reimbursement and the variety of services provided in the hospital outpatient setting, the study team chose to focus on outpatient service categories with the highest amount of total claims. This varied by insurer, but generally the categories included ambulatory surgery, emergency department, and laboratory/pathology services. Additional categories in some cases were radiology, drugs, and observation services. Given the manner in which some insurers provided data, in a limited number of instances it was possible to include all outpatient service categories in the outpatient hospital relative price calculation. The percentage of total outpatient hospital claims that were represented in the outpatient hospital relative price calculation varied by insurer, ranging from approximately 33% to 92%.

OUTPATIENT AMBULATORY SURGERY[111]

In the case of ambulatory surgery, many insurers reimburse based on case rates, and the surgeries are grouped into categories with each category having its own case rate. The grouper methodology and definition of the categories varied by insurer and, in some cases, by hospitals within an insurer. In instances where the definition by category differed within an insurer, the study team worked with the insurer to ensure consistent reporting of data by category or to develop appropriate assumptions to translate the data to achieve consistent category definitions. For each hospital within an insurer, a case rate or imputed case rate along with the number of cases was used to develop a relative price. The general methodology is as follows:

1. **Expected Price by Category:** This is the expected price for an ambulatory surgery category calculated by taking a weighted average across hospitals using the average case rates or imputed case rates by category and the hospital-specific number of cases.

[111] Outpatient ambulatory surgery represents approximately 32% of all outpatient claims dollars.

2. **Actual Average Price by Hospital:** This is the weighted average actual price by hospital across all ambulatory surgery categories. The study team used the average imputed case rates for each hospital and calculated a weighted average price using each hospital's own case distribution by category.

3. **Expected Average Price by Hospital:** This is the weighted average expected price. The study team used the expected price by category calculated above and the same distribution by category used in the actual average price by hospital calculation.

4. **Ambulatory Surgery Price:** This is the ratio of actual average price by hospital to expected average price by hospital.

5. **Ambulatory Surgery Relative Price (RP):** The study team calculated an unweighted average of the ambulatory surgery prices across all hospitals. The study team then compared a hospital's ambulatory surgery price with the unweighted average price to calculate relative price.

Some insurers and hospitals have add-on payments for ambulatory surgery. In cases where these data were provided separately, the study team calculated an add-on case rate by taking the total add-on dollars and dividing by the total number of ambulatory surgery cases. This was then considered an additional category within the ambulatory surgery calculation above.

This is an indirect standardization methodology[112] which compares what the hospital receives in payments with what the hospital would have received if it was paid the average price across all the hospitals. This method normalizes for service mix and therefore makes the prices for each hospital comparable.

OUTPATIENT EMERGENCY DEPARTMENT[113]

For emergency department services, most insurers reimburse based on case rate or fee schedules. In many cases, the categories or levels of emergency department services are defined based on CPT codes. A similar methodology used for ambulatory surgery was also generally applied to emergency department services. In cases where the insurers provided consistent data for both ambulatory surgery and emergency department services (whether fee schedules or case rates), the methodology described above was used across

[112] This is consistent with the spending decomposition approach used by Neprash et al. Source: Nephrash HT, Wallace J, Chernew ME, and McWilliams JM. Measuring Prices in Health Care Markets Using Commercial Claims Data. Health Serv Res, 2015 Dec, 50(6):2037-47. Available at: http://www.ncbi.nlm.nih.gov/pubmed/25772745.

It is also consistent with the approach to relative price calculation used by the Massachusetts Center for Health Information and Analysis (CHIA). Source: Center for Health Information and Analysis. Data Specification Manual, 957 CMR 2.00: Payer Report of Relative Prices. Center for Health Information and Analysis, March 31, 2016, pp.7–8. Available at: http://www.chiamass.gov/assets/docs/p/tme-rp/data-spec-manual-rp.pdf.

[113] Outpatient emergency department represents approximately 15% of all outpatient claims dollars.

all ambulatory surgery and emergency room services to calculate a combined ambulatory surgery and emergency department relative price.

OUTPATIENT LABORATORY/PATHOLOGY SERVICES[114]

Laboratory/pathology services are generally reimbursed based on fee schedules or percentage of charges. For those hospitals that are reimbursed based on a fee schedule, insurers generally provided the contracted fees by CPT code by hospital. In cases where hospitals are reimbursed based on percentage of charges, average allowed charges by CPT code were determined from SPARCS and then the percentage as negotiated from the contracts was applied to these allowed charges to determine an average fee per CPT code by hospital.[115] Utilization data by CPT code and hospital were also collected from SPARCS to determine distribution of utilization by CPT code.[116] This information was then used to determine relative price in a manner similar to what is described in the ambulatory surgery section:

- **Expected Price by CPT Code:** This is the expected price for a CPT code calculated by taking a weighted average across hospitals using the fees and the hospital-specific claim line distribution from SPARCS.
- **Actual Average Price by Hospital:** This is the weighted average actual price by hospital across all CPT codes. The study team used the fees for each hospital and calculated a weighted average price using a distribution by CPT code. This distribution by CPT code was determined by analyzing SPARCS commercial data for each hospital and calculating a hospital specific distribution using claims lines.
- **Expected Average Price by Hospital:** This is the weighted average expected price. The study team used the expected price by CPT code calculated above and the same claims line distribution by CPT code used in the actual average price by hospital calculation.
- **Laboratory/Pathology Price:** This is the ratio of actual average price by hospital to expected average price by hospital.
- **Laboratory/Pathology Relative Price (RP):** The study team calculated an unweighted average of the category 3 prices across all hospitals. The team then compared a hospital's laboratory/pathology price to the unweighted average price to calculate relative price.

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[114] Outpatient laboratory/pathology services represents approximately 8% of all outpatient claims dollars.

[115] Utilization by CPT code was not generally collected from the insurer, and a hospital's charge master was not available as part of this study.

[116] Utilization information from SPARCS for outpatient services was not consistently reported across hospitals. The study team performed analysis on reported utilization and claims lines and decided to use claims lines as a proxy for distribution of utilization services.

OTHER OUTPATIENT SERVICE CATEGORIES AND CONSIDERATIONS

As noted above, for some insurers the study team was able to include additional service categories beyond ambulatory surgery, emergency department, and laboratory/pathology. In these cases, similar methodologies as those described above were employed depending on whether the service category was reimbursed by case rates, fee schedules, or percentage of charges.

BLENDING THE OUTPATIENT SERVICE CATEGORIES RELATIVE PRICE

If different relative prices were calculated for different services categories, a blended outpatient relative price was determined across all service categories using the following methodology. For each of the service categories where a separate relative price was calculated, the study team obtained each hospital's outpatient allowed claims by service category provided within the data request. The study team then adjusted the claims for each service category by the relative price for that service category (allowed claims divided by relative price) to obtain a proxy for volume. For example, for a given hospital the adjusted allowed claims for ambulatory surgery is calculated by taking the ambulatory surgery allowed claims divided by the calculated ambulatory surgery relative price to obtain ambulatory surgery volume. The study team then summed the volume for each service category across all hospitals to calculate a study-wide outpatient distribution by service category. The study team used this study-wide distribution to calculate a weighted average outpatient hospital price (claims only) for each hospital.

OUTPATIENT NON-CLAIM PAYMENTS

Like inpatient, the study team felt it was important to include non-claim payments in the outpatient price calculation. Some insurers were only able to provide non-claim payments in total by hospital or by hospital system where applicable. Using the distribution of inpatient and outpatient claims, the study team allocated the non-claim payments by hospital and for inpatient versus outpatient. The study team then adjusted the outpatient hospital price (claims only) calculated above for each hospital by the ratio of total hospital outpatient claims plus nonclaims to total hospital outpatient claims.[117] This resulted in the outpatient hospital price (claims and nonclaims). Next, the study team calculated an unweighted average of the outpatient hospital prices and then compared each of the outpatient hospital prices to the unweighted average price to calculate a final outpatient hospital relative price.

[117] This is consistent with CHIA's methodology. Source: Center for Health Information and Analysis. Data Specification Manual, 957 CMR 2.00: Payer Report of Relative Prices. Center for Health Information and Analysis, March 31, 2016, p.10. Available at: **http://www.chiamass.gov/assets/docs/p/tme-rp/data-spec-manual-rp.pdf**.

BLENDING THE INPATIENT AND OUTPATIENT RELATIVE PRICE

For inpatient and outpatient, the study team obtained each hospital's total claims and nonclaims provided within the insurer data request. The study team then adjusted the total claims and nonclaims by relative price to obtain a proxy for volume as described above. The study team then summed the volume across all hospitals and calculated an inpatient and outpatient distribution. This distribution was then used to calculate a blended hospital inpatient and outpatient relative price for each hospital for each insurer.

EXAMPLE OF RELATIVE PRICE CALCULATION

Table 10 provides an illustrative example of the relative price calculation described above using an outpatient service reimbursed via case rates as an example. The steps are as follows:

1. **Expected Price by Category:** This is the expected price for the outpatient service calculated by taking a weighted average across hospitals using the case rates by category and the hospital-specific number of cases. Category 1 is $3,083; category 2 is $468; and category 3 is $12,800. For example, the category 1 expected price of $3,083 is calculated as follows: [($1,000 * 100) + ($2,000 * 150) + ($3,000 * 100) + ($4,000 * 100) + ($5,000 * 150)] / (100 + 150 + 100 + 100 + 150).

2. **Actual Average Price by Hospital:** This is the weighted average actual price by hospital across all categories. The study team used the case rates for each hospital and calculated a weighted average price using each hospital's own case distribution by category. Hospital 1 is $813; Hospital 2 is $987; Hospital 3 is $1,098; Hospital 4 is $1,115; and Hospital 5 is $2,337. For example, Hospital 1 actual average price of $813 is calculated as follows: [($1,000 * 100) + ($500 * 500) + ($10,000 * 15)] / (100 + 500 + 15).

3. **Expected Average Price by Hospital:** This is the weighted average expected price. The study team used the expected price by category calculated above and the same distribution by category used in the actual average price by hospital calculation. Hospital 1 is $1,194; Hospital 2 is $1,298; Hospital 3 is $1,099; Hospital 4 is $1,099; and Hospital 5 is $1,833. For example, Hospital 1 expected average price of $1,194 is calculated as follows: [($3,083 * 100) + ($468 * 500) + ($12,800 * 15)] / (100 + 500 + 15).

4. **Outpatient Service Price:** This is the ratio of actual average price by hospital to expected average price by hospital. Hospital 1 is 0.68; Hospital 2 is 0.76; Hospital 3 is 1.00; Hospital 4 is 1.01; and Hospital 5 is 1.28. For example, Hospital 1 outpatient service price of 0.68 is calculated as follows: $813 / $1,194.

5 **Outpatient Service Relative Price (RP):** The study team calculated an unweighted average of the ambulatory surgery prices across all hospitals. The study team then compared a hospital's ambulatory surgery price with the unweighted average price to calculate relative price. Hospital 1 is 0.72; Hospital 2 is 0.80; Hospital 3 is 1.06; Hospital 4 is 1.07; and Hospital 5 is 1.35. For example, Hospital 1 outpatient service relative price of 0.72 is calculated as follows: 0.68 / [(0.68 + 0.76 + 1.00 + 1.01 + 1.28) / 5].

TABLE 10: Example of Relative Price Calculation

HOSPITAL	CASE RATE			UNITS			(2)	(3)	(4)	(5)
	Category 1	Category 2	Category 3	Category 1	Category 2	Category 3	Actual Average Price by Hospital	Expected Average Price by Hospital	Price = Actual / Expected	Relative Price
Hospital 1	$1,000	$500	$10,000	100	500	15	$813	$1,194	0.68	0.72
Hospital 2	$2,000	$400	$11,000	150	600	20	$987	$1,298	0.76	0.80
Hospital 3	$3,000	$500	$12,000	100	500	10	$1,098	$1,099	1.00	1.06
Hospital 4	$4,000	$300	$13,000	100	500	10	$1,115	$1,099	1.01	1.07
Hospital 5	$5,000	$600	$14,000	150	700	70	$2,337	$1,833	1.28	1.35
(1) Expected Price by Category	$3,083	$468	$12,800							
							Average:		0.95	1.00

Appendix B: Quality Metrics Methodology

The quality measures used for this report are drawn from nationally recognized metrics on process, outcomes, and patient experience. These metrics were selected because they provide insight into quality performance across multiple domains of health care delivery, and therefore allow researchers to pinpoint areas of strengths and weaknesses, examine general trends, and make inferences on whether payment is associated with important quality measures. The strength of association between hospital relative price and hospital quality was determined by calculating the R-squared (R^2) value, which ranged from 0.00 to 1.00, where a value of 0.00 indicates no association and a value of 1.00 indicates that payment is completely associated with quality. If higher relative price was associated with better quality, the association was determined to be positive, and conversely, if higher relative price was associated with poorer quality, the association was said to be negative.

Out of the 12 quality measures analyzed for this report, the study team identified 5 key measures based upon widespread national use and attention. Although all 12 measures were analyzed for this study, the 5 key measures were given particular attention. The selected measures were sourced from the Centers for Medicare & Medicaid Services (CMS) Hospital Compare database, as well as the State's Health Data NY website (**health.data.ny.gov**). The study team also ran certain measures against 2013 hospital discharge data from the New York Statewide Planning and Research Cooperative System (SPARCS).

Table 11 below describes the measures used for this analysis, including their data sources and corresponding payer type. Acronyms are defined in **Table 12**.

TABLE 11: Hospital Quality Measures

	MEASURE	DESCRIPTION	DATA SOURCE	PAYER TYPE
KEY MEASURES	Patient Survey Scores	The HCAHPS survey is the first national, standardized, publicly reported survey of patients' perspectives of hospital care. For each survey question, the 'top box' score is reported, which is the percentage of patients who gave the most positive response. The composite score is the simple average of 'top-box' scores across all survey domains, as calculated by the study team.	CMS Hospital Compare	All payer
	Timely and Effective Care	This measure captures the percentage of patients receiving the appropriate treatments for certain conditions or procedures, how quickly hospitals treat patients with certain emergencies, and how well hospitals provide preventive care. The dataset includes provider-level data for measures of heart attack care, heart failure care, pneumonia care, and surgical care, among other measures. The study team calculated the composite score as the weighted average of the standardized rates of AMI, HF, PN, SCIP. Standardized rates were calculated using indirect standardization.	CMS Hospital Compare	All payer
	Hospital-wide 30-day Readmission Rates	This is a measure of the 30-day unplanned readmission standardized rate for all conditions and procedures. The study team calculated the standardized rates through indirect standardization, using the rates downloaded from CMS.	CMS Hospital Compare	Medicare
	CMS Mortality Rates Composite	The 30-day death (mortality) measures are estimates of deaths from any cause within 30 days of a hospital admission, for patients hospitalized with one of several medical conditions or surgical procedures: AMI, CABG, COPD, HF, PN, and stroke. The study team calculated the composite score as the weighted average of the standardized rates of each mortality measure. Standardized rates were calculated using indirect standardization.	CMS Hospital Compare	Medicare
	AHRQ PSI 90	These measures are calculated by software modules provided by AHRQ. The calculated values were retrieved from health.data.ny.gov. This is a composite score of selected PSI measures: Pressure Ulcer Rate, Iatrogenic Pneumothorax Rate, Central Venous Catheter-Related Blood Stream Infection Rate, Postoperative Hip Fracture Rate, Perioperative Hemorrhage/ Hematoma Rate, Postoperative Physiologic and Metabolic Derangement Rate, Postoperative Respiratory Failure Rate, Perioperative Pulmonary Embolism/ Deep Vein Thrombosis Rate, Postoperative Sepsis Rate, Postoperative Wound Dehiscence Rate, and Accidental Puncture/Laceration Rate.	Downloaded from health.data.ny.gov, derived from SPARCS 2013 data	All payer

continued ➜

TABLE 11: Hospital Quality Measures

	MEASURE	DESCRIPTION	DATA SOURCE	PAYER TYPE
OTHER QUALITY MEASURES	AHRQ IQI 90	These measures are calculated by software modules provided by AHRQ. The calculated values were retrieved from health.data.ny.gov. This is a composite score of selected IQI procedures: Esophageal Resection Mortality Rate, Pancreatic Resection Mortality Rate, AAA Mortality Rate, CABG Mortality Rate, Craniotomy Mortality Rate, Hip Replacement Mortality Rate, PCI Mortality Rate, and Carotid Endarterectomy Mortality Rate.	Downloaded from health.data.ny.gov, derived from SPARCS 2013 data	All payer
	AHRQ IQI 91	These measures are calculated by software modules provided by AHRQ. The calculated values were retrieved from health.data.ny.gov. This is a composite score of selected IQI conditions: AMI Mortality Rate, HF Mortality Rate, Acute Stroke Mortality Rate, Gastrointestinal Hemorrhage Mortality Rate, Hip Fracture Mortality Rate, and PN Mortality Rate.	Downloaded from health.data.ny.gov, derived from SPARCS 2013 data	All payer
	Hospital-Acquired Infections	Includes CLABSI in ICUs; SSI from colon surgery, hip replacement/revision, and CABG; and CDI. The study team combined all CDI measures (Community Onset Not-my-hospital, Hospital Onset, Possibly-My-Hospital Associated) by calculating the weighted average of the standardized rates for each CDI measure, the latter obtained through indirect standardization. Standardized rates for CLABSI and SSI were retrieved from health.data.ny.gov. The composite score, as calculated by the study team, was the weighted average of standardized rates of CDI, CLABSI, and SSI.	Downloaded from health.data.ny.gov, derived from SPARCS 2013 data	All payer
	Potentially Preventable Complications	Risk-adjusted Potentially Preventable Complications rates, calculated by the State using SPARCS 2013 data.	health.data.ny.gov	All payer
	Potentially Preventable Readmissions	Risk-adjusted Potentially Preventable Readmissions rates, calculated by the State using SPARCS 2013 data.	health.data.ny.gov	All payer
	Cardiac Surgery Mortality Composite	Risk-adjusted mortality rates for CABG and PCI. The study team calculated the composite score as the weighted average of the standardized rates of risk-adjusted CABG and all PCI mortality rates. Standardized rates were calculated using indirect standardization.	health.data.ny.gov	All payer
	30-day Readmission Rates	30-day unplanned readmission rates for the selected conditions and procedures: AMI, CABG, COPD, HF, Hip/Knee Surgery, PN, and Stroke. The study team calculated the composite score as the weighted average of the standardized rates of each constituent measure. Standardized rates were calculated using indirect standardization.	CMS Hospital Compare	Medicare

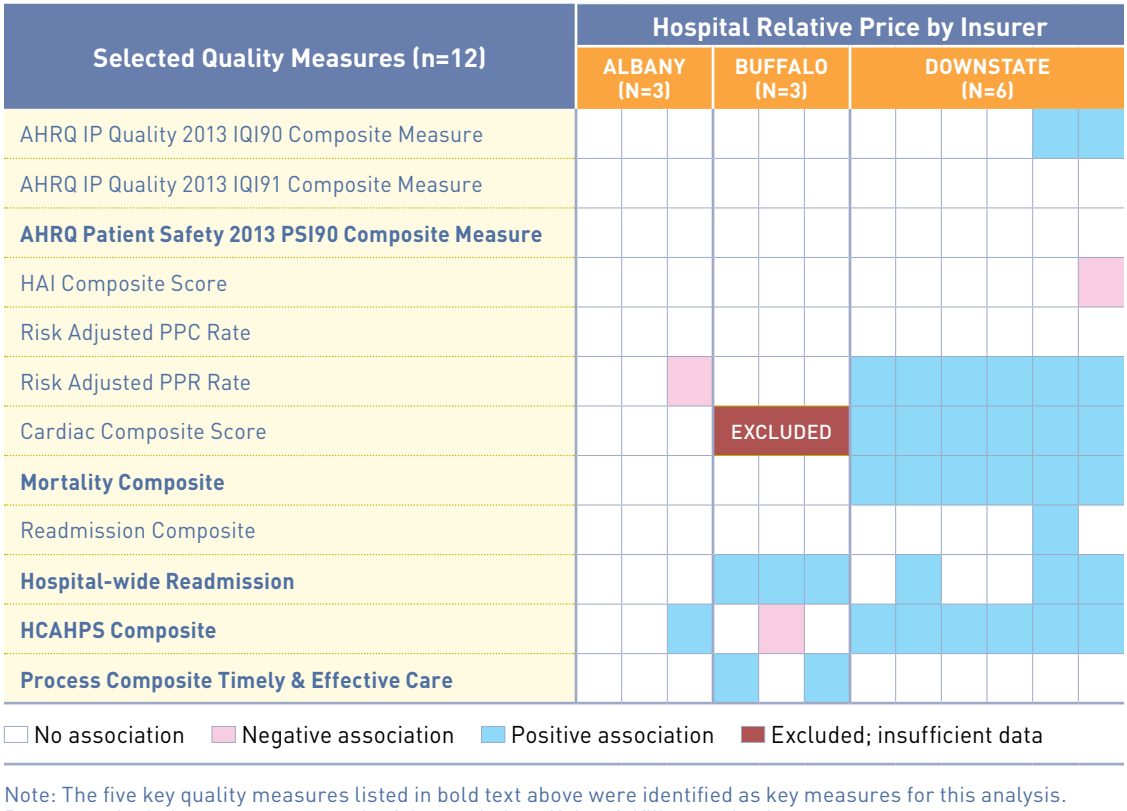
TABLE 12: Acronyms	
AAA	Abdominal Aortic Aneurysm
AHRQ	Agency for Healthcare Research and Quality
AMI	Acute Myocardial Infarction
CABG	Coronary Artery Bypass Graft
CDI	Clostridium Difficile Infection
CLABSI	Central Line-associated Blood Stream Infection
CMS	Centers for Medicare & Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
HF	Heart Failure
HCAHPS	Hospital Consumer Assessment of Providers and Systems
IQI	Inpatient Quality Indicators
ICU	Intensive Care Unit
PCI	Percutaneous Coronary Intervention
PSI	Patient Safety Indicators
PN	Pneumonia
SCIP	Surgical Care Improvement Project
SPARCS	Statewide Planning and Research Cooperative System
SSI	Surgical Site Infection

The study team supplemented the R-squared analysis by examining the statistical significance (or p-value) of the correlations. Where the R^2 value is a measure of the degree of an association, the p-value can indicate how likely any association is to be true and not the result of random chance. Any associations were considered to be significant if the p-value was <0.05. In this more rigorous analysis, the study team defined an association to be "meaningful" if it fulfilled two criteria: (1) had a R^2 value ≥0.1 and (2) had a p-value ≤0.05.[118]

[118] In deference to the hypothesis that markets are rewarding quality through higher payments, the study team used a p-value of ≤0.05 rather than a smaller number as might be suggested based upon the large number of associations that were tested. For example, a stricter criterion would be to use a Bonferroni adjustment to the p-value, reducing it from 0.05 to 0.0004 to adjust for the multiple comparisons. By using the more forgiving standard of 0.05, the study team gave greater opportunity to credit the market as containing the correct incentives.

FIGURE 27

Associations with Statistical Significance Between Hospital Quality and Relative Price



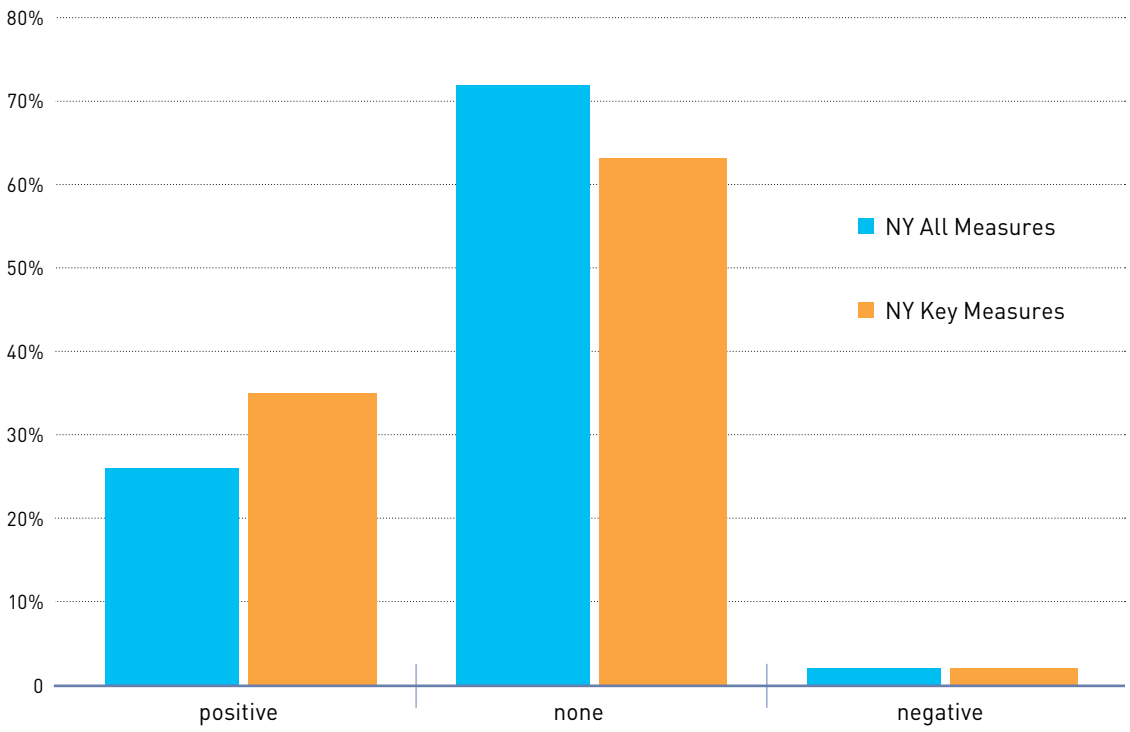
Note: The five key quality measures listed in bold text above were identified as key measures for this analysis. Boxes are shaded to represent meaningful associations if they fulfill two criteria:
1) $R^2 \geq 0.10$
2) p-value ≤ 0.05

Meaningful associations between hospital quality and relative price are presented above in **Figure 27**, which now has fewer colored cells as compared to **Figure 16** of this report, indicating that several associations with R^2 value ≥0.1 were not statistically significant. This observation is especially true in Albany, and to a lesser degree in Buffalo, driven in part by smaller number of hospitals in the study as compared with Downstate. As the likelihood of statistical significance decreases with smaller sample size, the reduced number of meaningful associations in Albany and Buffalo is not surprising.

Roughly one-fourth of all measures and one-third of key measures in total showed a positive meaningful association between relative price and hospital quality, as shown below in **Figure 28**. However, meaningful associations were absent from a majority of the measures (72% of all measures and 63% of key measures, respectively).

FIGURE 28

Meaningful Correlations Between Provider Quality and Provider Prices ($R^2 \geq 0.1$, p-value≤ 0.05)



The findings from this statistical significance analysis corroborate the R-squared analysis detailed earlier in this report, confirming that relative price is not consistently meaningfully associated with hospital quality across the study insurers and study regions.

Appendix C: Study Insurers

This appendix lists the insurers that contributed data for this study. The table below provides the full name of each insurer, along with the abbreviated names used throughout this report.

INSURER	ABBREVIATED NAME
Capital District Physicians' Health Plan, Inc.	CDPHP
Connecticut General Life Insurance Company (CGLIC)	Cigna
Cigna Health and Life Insurance Company (CHLIC)	Cigna
EmblemHealth-Group Health Incorporated (GHI)	Emblem-GHI
EmblemHealth-Health Insurance Plan of Greater New York (HIP)	Emblem-HIP
Empire BlueCross and BlueShield	Empire BlueCross
Excellus Health Plan Inc. d/b/a Univera Healthcare	Excellus-Univera
HealthNow Systems, Inc.	HealthNow-BCBS
Independent Health Corporation	Independent Health
MVP Health Care, Inc.	MVP
Oxford Health Plans, a UnitedHealthcare company	Oxford
UnitedHealthcare	United

Appendix D: Study Hospitals

This appendix contains a listing of the hospitals included in the study, with a table for each of the three regions. The table provides a listing of each hospital's full name, abbreviated name, Permanent Facility Identifier (PFI), system, and peer group.

ALBANY

HOSPITAL	HOSPITAL SHORT NAME	PFI	SYSTEM	PEER GROUP
Adirondack Medical Center-Saranac Lake Site	Adirondac MC	324		Small-Mid Size
Albany Medical Center Hospital	Albany MC	1		Academic
Albany Memorial Hospital	Albany Memorial	4	St. Peter's Health Partners	Small-Mid Size
Champlain Valley Physicians Hospital Medical Center	Champlain Valley	135		Large
Ellis Hospital	Ellis	829		Large
Glens Falls Hospital	Glens Falls	1005		Large
Nathan Littauer Hospital	Nathan Littauer	330		Small-Mid Size
Samaritan Hospital	Samaritan	756	St. Peter's Health Partners	Small-Mid Size
Saratoga Hospital	Saratoga	818		Large
St. Peter's Hospital	St. Peter's	5	St. Peter's Health Partners	Large
St. Mary's Healthcare	St. Mary's Healthcare	484		Small-Mid Size
St. Mary's Hospital	St. Mary's	755	St. Peter's Health Partners	Small-Mid Size

Appendix D: Study Hospitals *(continued)*

BUFFALO				
HOSPITAL	**HOSPITAL SHORT NAME**	**PFI**	**SYSTEM**	**PEER GROUP**
Bertrand Chaffee Hospital	Bertrand Chaffee	280		Small
Brooks Memorial Hospital	Brooks	98		Small
Buffalo General Medical Center	Buffalo General	207	Kaleida Health	Academic
Degraff Memorial Hospital	Degraff	581	Kaleida Health	Small
Eastern Niagara Hospital—Lockport Division	Eastern Niagara	565		Medium
Erie County Medical Center	Erie County MC	210		Academic
Kenmore Mercy Hospital	Kenmore Mercy	267	Catholic Health System	Medium
Medina Memorial Hospital	Medina	718		Small
Memorial Hosp of Wm F & Gertrude F Jones A/K/A Jones Memorial Hosp	Jones Memorial	39		Small
Mercy Hospital	Mercy Hospital	213	Catholic Health System	Large
Millard Fillmore Suburban Hospital	Millard Filmore	3067	Kaleida Health	Large
Mount St Mary's Hospital and Health Center	Mount St. Mary's	583		Medium
Niagara Falls Memorial Medical Center	Niagara Falls	574		Medium
Olean General Hospital	Olean	66		Medium
Roswell Park Cancer Institute	RPCI	216		Specialty Hospital
Sisters of Charity Hospital	Sisters of Charity	218	Catholic Health System	Large
Sisters of Charity Hospital—St Joseph Campus	Sisters of Charity —SJC	292	Catholic Health System	Medium
TLC Health Network Lake Shore Hospital	TLC Health	114		Small
Women and Children's Hospital of Buffalo	Women and Children's	208	Kaleida Health	Specialty Hospital
Wyoming County Community Hospital	Wyoming County	1153		Small

Appendix D: Study Hospitals *(continued)*

DOWNSTATE				
HOSPITAL	**HOSPITAL SHORT NAME**	**PFI**	**SYSTEM**	**PEER GROUP**
Bellevue Hospital Center	Bellevue	1438	Health and Hospitals Corporation	Academic
Bronx-Lebanon Hospital Center—Concourse Division	Bronx-Lebanon	1178		Large
Brookdale Hospital Medical Center	Brookdale	1286		Medium
Brookhaven Memorial Hospital Medical Center Inc	Brookhaven	885	Long Island Health Network	Small
Brooklyn Hospital Center — Downtown Campus	Brooklyn HC	1288	NewYork-Presbyterian System	Medium
Coney Island Hospital	Coney Island	1294	Health and Hospitals Corporation	Medium
Eastern Long Island Hospital	Eastern LIH	891	East End Health Alliance	Small
Elmhurst Hospital Center	Elmhurst	1626	Health and Hospitals Corporation	Academic
Flushing Hospital Medical Center	Flushing	1628	Medisys	Small
Forest Hills Hospital	Forest Hills	1638	North Shore LIJ	Small
Glen Cove Hospital	Glen Cove	490	North Shore LIJ	Small
Good Samaritan Hospital Medical Center	Good Samaritan HMC	925	Long Island Health Network	Medium
Harlem Hospital Center	Harlem	1445	Health and Hospitals Corporation	Academic
Hospital for Special Surgery	Hospital for Special Surgery	1447		Specialty Hospital
Huntington Hospital	Huntington	913	North Shore LIJ	Small
Jacobi Medical Center	Jacobi	1165	Health and Hospitals Corporation	Large
Jamaica Hospital Medical Center	Jamaica	1629	Medisys	Medium
John T Mather Memorial Hospital of Port Jefferson New York Inc	Mather	895	Long Island Health Network	Small
Kings County Hospital Center	Kings County	1301	Health and Hospitals Corporation	Academic
Lenox Hill Hospital	Lenox Hill	1450	North Shore LIJ	Large

continued ➜

Appendix D: Study Hospitals *(continued)*

DOWNSTATE				
HOSPITAL	**HOSPITAL SHORT NAME**	**PFI**	**SYSTEM**	**PEER GROUP**
Lincoln Medical & Mental Health Center	Lincoln Medical	1172	Health and Hospitals Corporation	Large
Long Island Jewish Medical Center	LIJMC	1630	North Shore LIJ	Academic
Lutheran Medical Center	Lutheran	1304	NYU Health System	Large
Maimonides Medical Center	Maimonides	1305		Large
Memorial Hospital for Cancer and Allied Diseases	Memorial Sloan	1453		Specialty Hospital
Mercy Medical Center	Mercy MC	513	Long Island Health Network	Small
Metropolitan Hospital Center	Metropolitan	1454	Health and Hospitals Corporation	Medium
Montefiore Med Center-Jack D Weiler Hosp of A Einstein College Div	Monte Weiler	3058	Montefiore Health System	Academic
Montefiore Medical Center-Henry & Lucy Moses Div	Monte Moses	1169	Montefiore Health System	Academic
Montefiore Medical Center-Wakefield Hospital	Monte Wakefield	1168	Montefiore Health System	Medium
Montefiore Mount Vernon Hospital	Monte MV	1061	Montefiore Health System	Small
Montefiore New Rochelle Hospital	Monte NR	1072	Montefiore Health System	Small
Mount Sinai Beth Israel	Mt. Sinai Beth Israel	1439	Mt. Sinai Health System	Large
Mount Sinai Beth Israel Brooklyn	Mt. Sinai Brooklyn	1324	Mt. Sinai Health System	Small
Mount Sinai Hospital	Mt. Sinai	1456	Mt. Sinai Health System	Academic
Mount Sinai Hospital-Mount Sinai Hospital of Queens	Mt. Sinai Queens	1639	Mt. Sinai Health System	Small
Mount Sinai Roosevelt	Mt. Sinai Roosevelt	1466	Mt. Sinai Health System	Large
Mount Sinai St. Luke's	Mt. Sinai St. Luke's	1469	Mt. Sinai Health System	Large
Nassau University Medical Center	Nassau UMC	528		Medium
New York Community Hospital of Brooklyn, Inc	NY Community	1293	NewYork-Presbyterian System	Small
New York Hospital Medical Center of Queens	NYHMC of Queens	1637	NewYork-Presbyterian System	Large

continued ➜

Appendix D: Study Hospitals *(continued)*

DOWNSTATE				
HOSPITAL	**HOSPITAL SHORT NAME**	**PFI**	**SYSTEM**	**PEER GROUP**
New York Methodist Hospital	NY Methodist	1306	NewYork-Presbyterian System	Large
New York Presbyterian Hospital-Allen Hospital	NYPH-Allen	3975	NewYork-Presbyterian System	Academic
New York Presbyterian Hospital-Columbia Presbyterian Center	NYPH-Columbia	1464	NewYork-Presbyterian System	Academic
New York Presbyterian Hospital-New York Weill Cornell Center	NYPH-NY Weill	1458	NewYork-Presbyterian System	Academic
New York-Presbyterian/Lawrence Hospital	NYPH-Lawrence	1122	NewYork-Presbyterian System	Small
New York-Presbyterian/Lower Manhattan Hospital	NYPH-LM	1437	NewYork-Presbyterian System	Small
North Shore University Hospital	North Shore UH	541	North Shore LIJ	Academic
Northern Westchester Hospital	N. Westchester	1117		Small
NYU Hospital for Joint Diseases	NYU Hospital for Joint Diseases	1446	NYU Health System	Specialty Hospital
NYU Hospitals Center	NYU HC	1463	NYU Health System	Academic
Peconic Bay Medical Center	PBMC	938	East End Health Alliance	Small
Phelps Memorial Hospital Assn	Phelps Memorial	1129		Small
Plainview Hospital	Plainview	552	North Shore LIJ	Small
Queens Hospital Center	Queens HC	1633	Health and Hospitals Corporation	Small
Richmond University Medical Center	Richmond UMC	1738		Small
SBH Health System	SBH Health	1176		Medium
SJRH-Dobbs Ferry Pavillion	SJRH Dobbs	1124	SJRH	Small
SJRH-St Johns Division	SJRH St. John's	1097	SJRH	Small
South Nassau Communities Hospital	South Nassau	527	Long Island Health Network	Medium
Southampton Hospital	Southampton	889	East End Health Alliance	Small
St. Catherine of Siena Hospital	St. Catherine	943	Long Island Health Network	Small

continued ➜

Appendix D: Study Hospitals *(continued)*

DOWNSTATE				
HOSPITAL	**HOSPITAL SHORT NAME**	**PFI**	**SYSTEM**	**PEER GROUP**
St. Francis Hospital	St. Francis	563	Long Island Health Network	Large
St. John's Episcopal Hospital South Shore	St. John's Episcopal	1635		Small
St. Joseph's Medical Center	St. Joseph's MC	1098		Small
St. Joseph Hospital	St. Joseph	551	Long Island Health Network	Small
Staten Island University Hosp-North	Staten Island UHN	1740	North Shore LIJ	Large
Staten Island University Hosp-South	Staten Island UHS	1737	North Shore LIJ	Specialty Hospital
Syosset Hospital	Syosset	550	North Shore LIJ	Small
University Hospital	SBUH	245	SUNY	Academic
University Hospital of Brooklyn	UHB	1320	SUNY	Academic
Westchester Medical Center	Westchester MC	1139		Academic
White Plains Hospital Center	White Plains	1045		Medium
Winthrop-University Hospital	Winthrop	511	Long Island Health Network	Large
Wyckoff Heights Medical Center	Wyckoff Heights	1318		Small

Appendix E: Hospital Peer Group Classification

Each hospital has been classified as either academic, specialty, or based on its size (large, medium, small). The designation of academic and specialty hospitals was performed by the study's contracting expert for each region. The classification by size was done by taking into account the total number of beds and the net patient service revenue,[119] where available.[120] Different criteria were used for each of the three regions. **Table 13** shows the criteria used to initially categorize the hospital using the total number of beds.

TABLE 13: Classification Using Total Number of Beds

	ALBANY REGION	BUFFALO REGION	DOWNSTATE REGION
	Number of Total Beds		
Small	<150	<100	<250
Medium	150 – 299	100 – 274	250 – 499
Large	>= 300	>= 275	>= 500

A second classification was performed using the net patient service revenue, as shown in **Table 14.**

TABLE 14: Classification Using Net Patient Service Revenue

	ALBANY REGION	BUFFALO REGION	DOWNSTATE REGION
	2013 Net Patient Revenue		
Small	< $200M is Small-Mid Size	< $50M	< $300M
Medium		$50M – $200M	$300M – $450M
Large	>= $200M	> $200M	> $450M

[119] Net patient service revenue from the 2013 New York State Institutional Cost Report, Exhibit 26A, line 5.

[120] Some Hospital ICR Reports do not have revenue specific for the hospital; rather, the revenue reported is for multiple hospitals in the system.

Appendix F: Hospital-to-System Mapping

This appendix contains the **SYSTEM DEFINITION** used in the study, for each region.[121]

Albany Hospitals

ST. PETER'S HEALTH PARTNERS

- Albany Memorial Hospital
- Samaritan Hospital
- St. Peter's Hospital
- St. Mary's Hospital

Buffalo Hospitals

CATHOLIC HEALTH SYSTEM

- Kenmore Mercy Hospital
- Mercy Hospital
- Sisters of Charity Hospital
- Sisters of Charity Hospital – St Joseph Campus

KALEIDA HEALTH

- Buffalo General Medical Center
- Degraff Memorial Hospital
- Millard Fillmore Suburban Hospital
- Women And Children's Hospital of Buffalo

Downstate Hospitals

EAST END HEALTH ALLIANCE

- Eastern Long Island Hospital
- Peconic Bay Medical Center
- Southampton Hospital

Downstate Hospitals *(continued)*

HEALTH AND HOSPITALS CORPORATION

- Bellevue Hospital Center
- Coney Island Hospital
- Elmhurst Hospital Center
- Harlem Hospital Center
- Jacobi Medical Center
- Kings County Hospital Center
- Lincoln Medical & Mental Health Center
- Metropolitan Hospital Center
- Queens Hospital Center

LONG ISLAND HEALTH NETWORK

- Brookhaven Memorial Hospital Medical Center Inc
- Good Samaritan Hospital Medical Center
- John T Mather Memorial Hospital of Port Jefferson New York Inc
- Mercy Medical Center
- South Nassau Communities Hospital
- St. Catherine of Siena Hospital
- St. Francis Hospital
- St. Joseph Hospital
- Winthrop-University Hospital

MEDISYS

- Flushing Hospital Medical Center
- Jamaica Hospital Medical Center

[121] Hospital participation in a hospital system can vary from year to year and is difficult to determine at times. The study team relied on market knowledge, research of hospital websites, information from NYSDOH, and insurer input to determine hospital system designation for CY 2014. Hospital names and system affiliations referenced in this report reflect hospitals' status at the time of the data reported (CY 2014). Some of these hospitals have since been acquired by other systems or have changed their names. This report footnotes some of these recent market changes but may not reflect all hospital name changes or acquisitions that have taken place since CY 2014.

Downstate Hospitals *(continued)*

MONTEFIORE HEALTH SYSTEM

- Montefiore Med Center – Jack D Weiler Hosp of A Einstein College Div
- Montefiore Medical Center – Henry & Lucy Moses Div
- Montefiore Medical Center – Wakefield Hospital
- Montefiore Mount Vernon Hospital
- Montefiore New Rochelle Hospital

MT. SINAI HEALTH SYSTEM

- Mount Sinai Beth Israel
- Mount Sinai Beth Israel Brooklyn
- Mount Sinai Hospital
- Mount Sinai Hospital – Mount Sinai Hospital of Queens
- Mount Sinai Roosevelt
- Mount Sinai St. Luke's

NEWYORK-PRESBYTERIAN SYSTEM

- Brooklyn Hospital Center – Downtown Campus
- New York Community Hospital of Brooklyn, Inc
- New York Hospital Medical Center of Queens
- New York Methodist Hospital
- NewYork-Presbyterian Hospital – Allen Hospital
- NewYork-Presbyterian Hospital – Columbia Presbyterian Center
- NewYork-Presbyterian Hospital – New York Weill Cornell Center
- NewYork-Presbyterian/Lawrence Hospital
- NewYork-Presbyterian/Lower Manhattan Hospital

Downstate Hospitals *(continued)*

NORTH SHORE LIJ

- Forest Hills Hospital
- Glen Cove Hospital
- Huntington Hospital
- Lenox Hill Hospital
- Long Island Jewish Medical Center
- North Shore University Hospital
- Plainview Hospital
- Staten Island University Hosp-North
- Staten Island University Hosp-South
- Syosset Hospital

NYU HEALTH SYSTEM

- Lutheran Medical Center
- NYU Hospital for Joint Diseases
- NYU Hospitals Center

SJRH

- SJRH – Dobbs Ferry Pavillion
- SJRH – St Johns Division

SUNY

- University Hospital
- University Hospital of Brooklyn

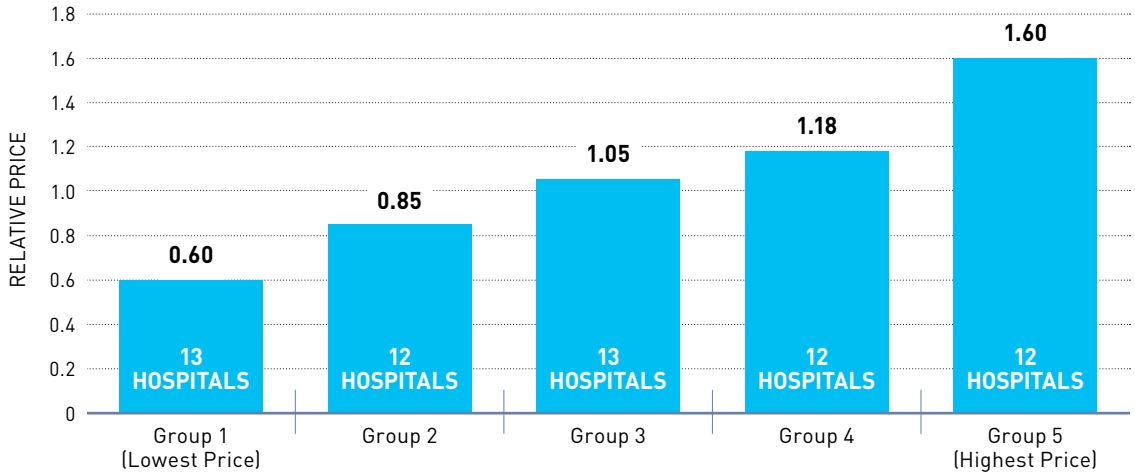
Appendix G: Relative Price and Hospitals by Grouping

This appendix provides the results of the grouping of hospitals based on relative price for each region. This analysis was performed for five insurers in the Downstate region, three insurers in the Albany region, and three insurers in the Buffalo region. Insurer names have been obscured. For each insurer, the average relative price per grouping (analogous to **Figure 4** in this report) and the alphabetical listing of each hospital in the group (analogous to **Table 5**) is provided.

DOWNSTATE REGION

For this analysis, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 75 study hospitals in the Downstate region were then divided into 5 groups with approximately 15 hospitals to each group.[122] The first group (Group 1) represents the hospitals with the lowest relative price, whereas the fifth group (Group 5) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging the relative prices for each hospital in that group.

Insurer A
2014 Relative Price by Group (Downstate)

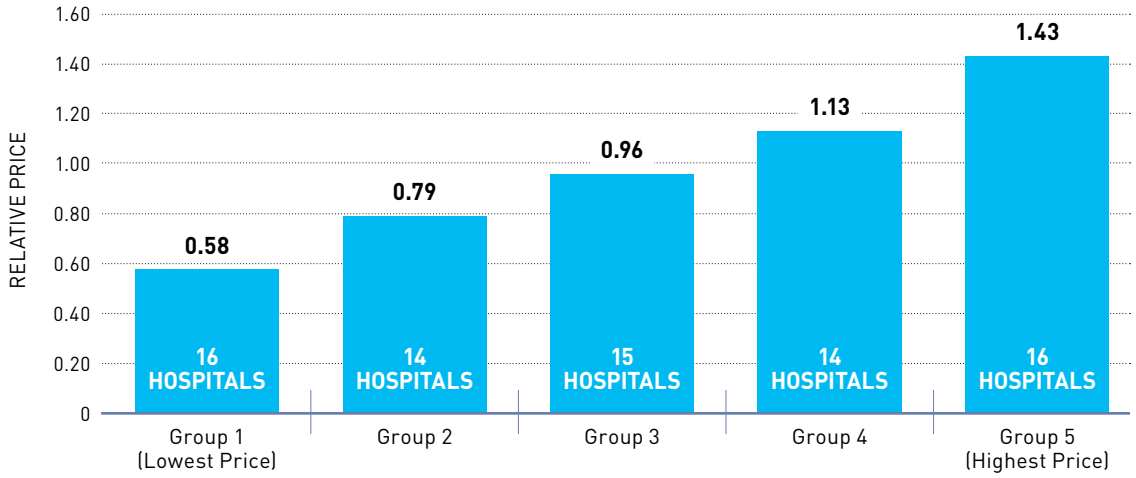


[122] Not every group in the Downstate region contains exactly 15 hospitals. This is because some insurers did not report data for all 75 hospitals in the study region. In addition, some hospitals had the same relative price, thus requiring them to shift groups and be grouped together. As such, some insurer analyses use groups that contain greater or fewer than 15 hospitals.

Appendix G: Relative Price and Hospitals by Grouping *(continued)*

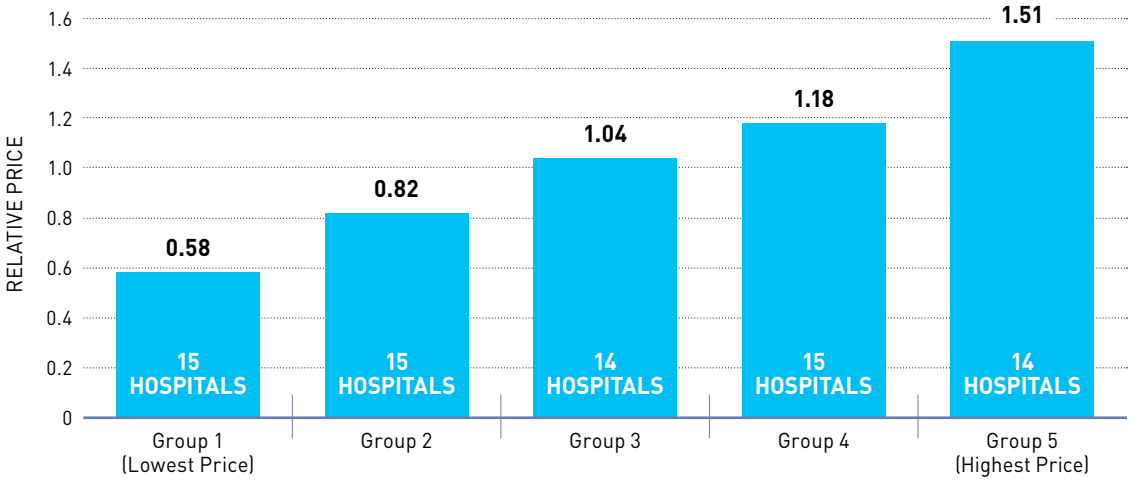
INSURER A				
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3**	**GROUP 4**	**GROUP 5 (HIGHEST PRICE)**
Bronx-Lebanon	Brooklyn HC	Maimonides	Brookhaven	Glen Cove
Brookdale	Flushing	Mather	Forest Hills	Hospital for Special Surgery
Eastern LIH	Jamaica	Mt. Sinai	Good Samaritan HMC	Huntington
Lutheran	Mercy MC	Mt. Sinai Beth Israel	Lenox Hill	Monte Moses
Nassau UMC	Monte MV	Mt. Sinai Brooklyn	LIJMC	Monte Wakefield
PBMC	Monte NR	Mt. Sinai Queens	Memorial Sloan	Monte Weiler
SBH Health	NYPH-LM	N. Westchester	Mt. Sinai Roosevelt	NYPH-Allen
Southampton	SJRH Dobbs	NY Methodist	Mt. Sinai St. Luke's	NYPH-Columbia
St. Francis	SJRH St. John's	Plainview	North Shore UH	NYPH-NY Weill
St. John's Episcopal	St. Catherine	South Nassau	NYHMC of Queens	NYU HC
St. Joseph's MC	St. Joseph	Staten Island UHN	SBUH	NYU Hospital for Joint Diseases
UHB	White Plains	Staten Island UHS	Westchester MC	Winthrop
Wyckoff Heights		Syosset		

Insurer B
2014 Relative Price by Group (Downstate)



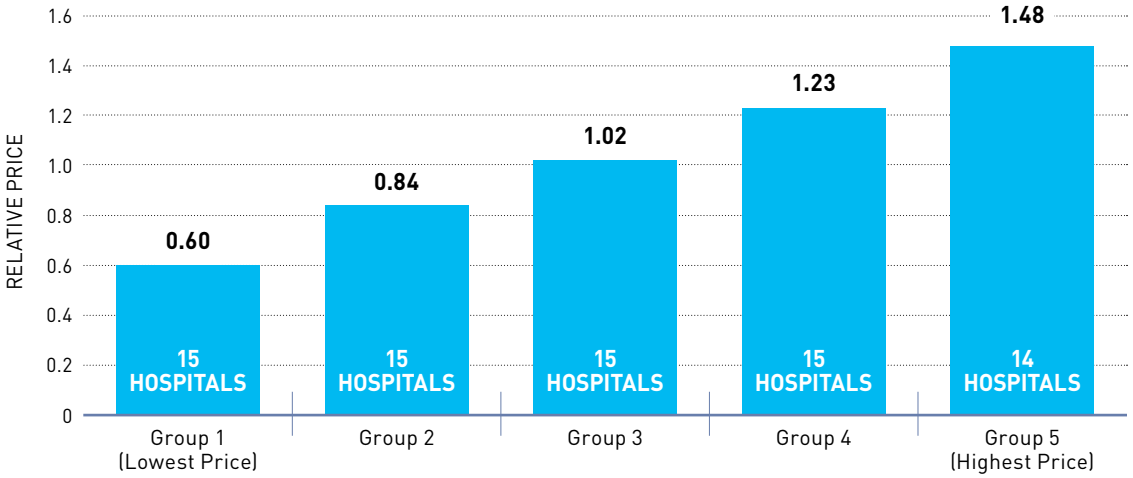
INSURER B				
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3**	**GROUP 4**	**GROUP 5 (HIGHEST PRICE)**
Bellevue	Brookdale	Brookhaven	Glen Cove	Eastern LIH
Bronx-Lebanon	Brooklyn HC	Forest Hills	LIJMC	Hospital for Special Surgery
Coney Island	Huntington	Good Samaritan HMC	Maimonides	N. Westchester
Elmhurst	Lutheran	Lenox Hill	Mather	NYPH-Allen
Flushing	Mt. Sinai Beth Israel	Memorial Sloan	Monte Moses	NYPH-Columbia
Harlem	Mt. Sinai Brooklyn	Mercy MC	Monte Wakefield	NYPH-LM
Jacobi	NY Community	Monte MV	Monte Weiler	NYPH-NY Weill
Jamaica	Richmond UMC	Monte NR	Mt. Sinai	NYPH-Lawrence
Kings County	SJRH Dobbs	Mt. Sinai Roosevelt	Mt. Sinai Queens	NYU HC
Lincoln Medical	SJRH St. John's	Mt. Sinai St. Luke's	North Shore UH	NYU Hospital for Joint Diseases
Metropolitan	Staten Island UHN	NY Methodist	South Nassau	PBMC
Nassau UMC	Staten Island UHS	NYHMC of Queens	St. Francis	Phelps Memorial
Queens HC	UHB	Plainview	Syosset	SBUH
SBH Health	Wyckoff Heights	St. Catherine	Winthrop	Southampton
St. John's Episcopal		St. Joseph		Westchester MC
St. Joseph's MC				White Plains

Insurer C
2014 Relative Price by Group (Downstate)



INSURER C				
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3**	**GROUP 4**	**GROUP 5 (HIGHEST PRICE)**
Bellevue	Brookdale	Brookhaven	Forest Hills	Brooklyn HC
Bronx-Lebanon	Eastern LIH	Good Samaritan HMC	Glen Cove	Lenox Hill
Coney Island	Jamaica	Mather	Hospital for Special Surgery	Monte Moses
Elmhurst	Lincoln Medical	Memorial Sloan	Huntington	Monte Wakefield
Flushing	Mt. Sinai Brooklyn	Mercy MC	LIJMC	Monte Weiler
Harlem	Mt. Sinai Queens	Mt. Sinai Beth Israel	Maimonides	NYHMC of Queens
Jacobi	Richmond UMC	Mt. Sinai Roosevelt	Monte MV	NYPH-Columbia
Kings County	SBUH	Mt. Sinai St. Luke's	Monte NR	NYPH-LM
Lutheran	SJRH Dobbs	N. Westchester	Mt. Sinai	NYPH-NY Weill
Metropolitan	SJRH St. John's	NY Methodist	North Shore UH	NYPH-Lawrence
Nassau UMC	South Nassau	PBMC	NY Community	NYU HC
Queens HC	St. Catherine	Southampton	Phelps Memorial	NYU Hospital for Joint Diseases
SBH Health	St. Joseph	St. Francis	Plainview	Staten Island UHN
St. John's Episcopal	UHB	Westchester MC	White Plains	Staten Island UHS
St. Joseph's MC	Wyckoff Heights		Winthrop	

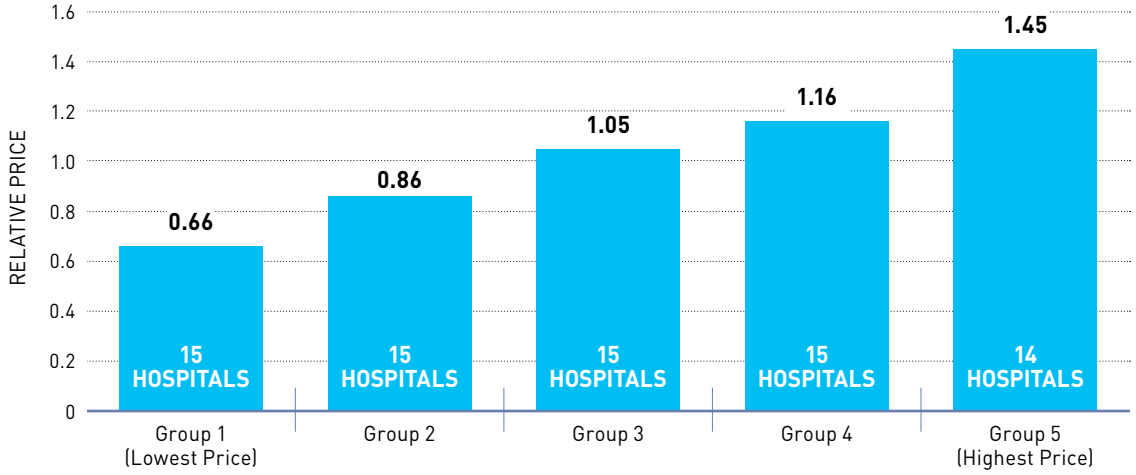
Insurer D
2014 Relative Price by Group (Downstate)



INSURER D				
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3**	**GROUP 4**	**GROUP 5 (HIGHEST PRICE)**
Bellevue	Brookdale	Harlem	Eastern LIH	LIJMC
Bronx-Lebanon	Brookhaven	Huntington	Forest Hills	Mather
Elmhurst	Brooklyn HC	Maimonides	Glen Cove	Monte Moses
Flushing	Coney Island	Monte MV	Hospital for Special Surgery	Monte Wakefield
Lincoln Medical	Good Samaritan HMC	Monte NR	Lenox Hill	Monte Weiler
Mt. Sinai Brooklyn	Jacobi	Mt. Sinai Beth Israel	Memorial Sloan	North Shore UH
Mt. Sinai Queens	Jamaica	Mt. Sinai Roosevelt	NYPH-Allen	NYPH-LM
Nassau UMC	Kings County	Mt. Sinai St. Luke's	NYPH-Columbia	NYPH-NY Weill
Queens HC	Lutheran	NY Methodist	PBMC	NYPH-Lawrence
Richmond UMC	Mercy MC	N. Westchester	Southampton	NYU HC
SBH Health	Mt. Sinai	Plainview	St. Francis	NYU Hospital for Joint Diseases
St. John's Episcopal	NY Community	SJRH Dobbs	Staten Island UHN	Phelps Memorial
St. Joseph's MC	NYHMC of Queens	SJRH St. John's	Staten Island UHS	Syosset
UHB	St. Catherine	South Nassau	White Plains	Westchester MC
Wyckoff Heights	St. Joseph	SBUH	Winthrop	

Insurer E

2014 Relative Price by Group (Downstate)

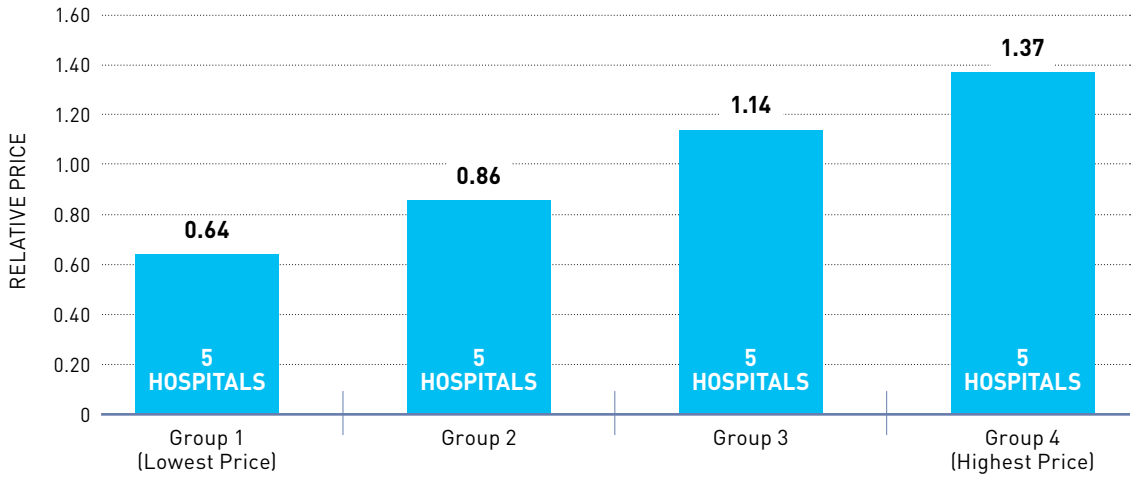


INSURER E				
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3**	**GROUP 4**	**GROUP 5 (HIGHEST PRICE)**
Bronx-Lebanon	Brookhaven	Bellevue	Eastern LIH	LIJMC
Brookdale	Brooklyn HC	Harlem	Forest Hills	Memorial Sloan
Flushing	Coney Island	Jacobi	Glen Cove	Monte Weiler
Jamaica	Elmhurst	Kings County	Hospital for Special Surgery	Monte Moses
Mt. Sinai Brooklyn	Good Samaritan HMC	Monte MV	Huntington	Monte Wakefield
Mt. Sinai Queens	Lincoln Medical	Monte NR	Mather	NYPH-Lawrence
Nassau UMC	Lutheran	Mt. Sinai Beth Israel	Lenox Hill	North Shore UH
NY Community	Maimonides	Mt. Sinai Roosevelt	NYPH-Allen	NYU Hospital for Joint Diseases
Richmond UMC	Mercy MC	Mt. Sinai St. Luke's	NYPH-Columbia	NYU HC
SBH Health	Mt. Sinai	NYPH-NY Weill	PBMC	Phelps Memorial
St. John's Episcopal	NYHMC of Queens	NYPH-LM	Plainview	Staten Island UHN
St. Joseph's MC	NY Methodist	N. Westchester	Southampton	Staten Island UHS
St. Joseph	Queens HC	SJRH Dobbs	St. Francis	Syosset
UHB	South Nassau	SJRH St. John's	White Plains	Westchester MC
Wyckoff Heights	St. Catherine	SBUH	Winthrop	

BUFFALO REGION

In Buffalo, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 20 study hospitals in the Buffalo region were then divided into 4 groups with approximately 5 hospitals in each group.[123] The first group (Group 1) represents the hospitals with the lowest relative price and the fourth group (Group 4) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging the relative prices for each hospital in that group.

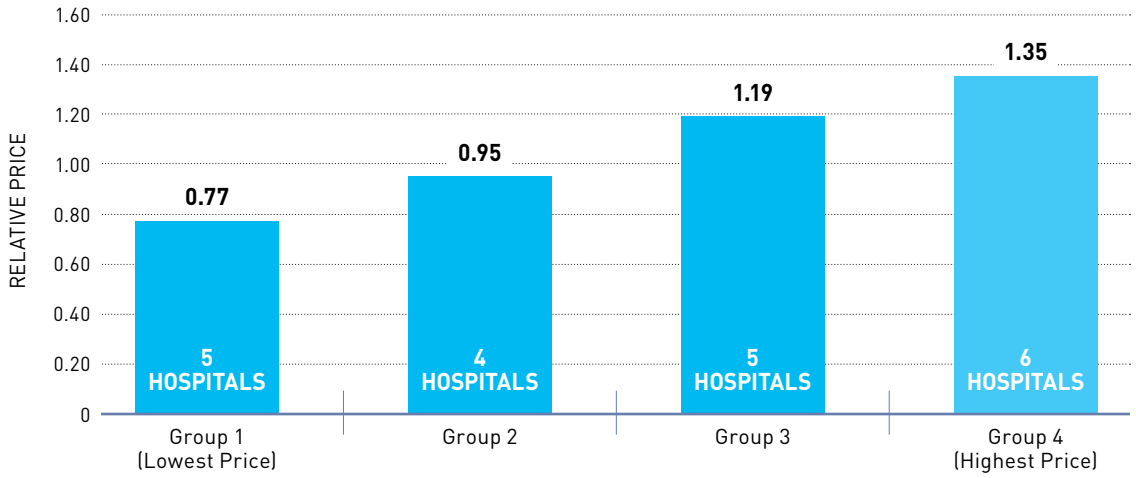
Insurer J
2014 Relative Price by Group (Buffalo)



INSURER J			
GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3	GROUP 4 (HIGHEST PRICE)
Bertrand Chaffee	Brooks	Buffalo General	Erie County MC
Eastern Niagara	Mount St. Mary's	Degraff	RPCI
Jones Memorial	Olean	Kenmore Mercy	Sisters of Charity
Medina	TLC Health	Mercy Hospital	Sisters of Charity-SJC
Niagara Falls	Wyoming County	Millard Filmore	Women And Children's

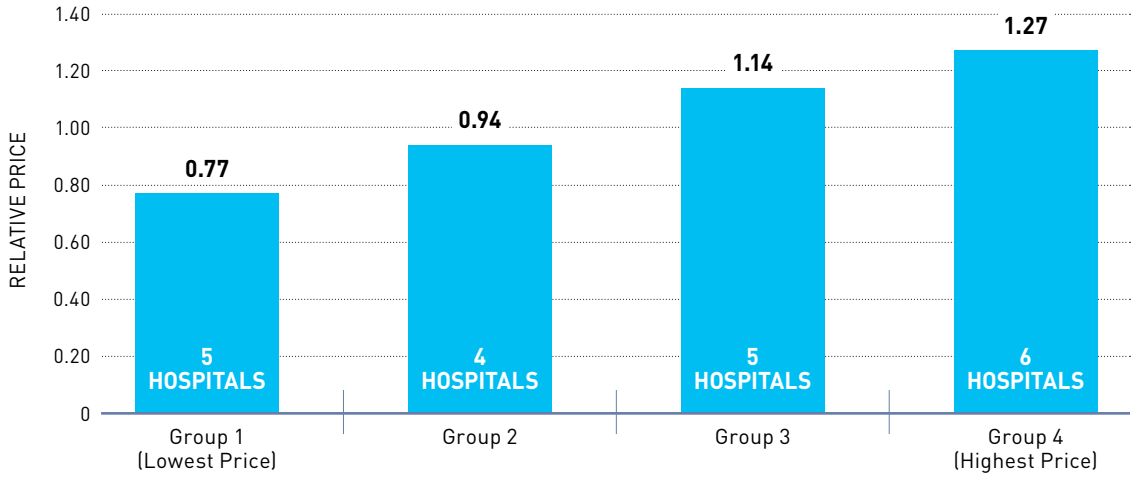
[123] For the Buffalo region, instances in which relative price was the same for multiple hospitals resulted in some groups with more than 5 hospitals and other groups with less than 5 hospitals.

Insurer K
2014 Relative Price by Group (Buffalo)



INSURER K			
GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3	GROUP 4 (HIGHEST PRICE)
Bertrand Chaffee	Brooks	Kenmore Mercy	Buffalo General
Eastern Niagara	Mount St. Mary's	Mercy Hospital	Degraff
Jones Memorial	Niagara Falls	Olean	Erie County MC
Medina	TLC Health	Sisters of Charity	Millard Filmore
Wyoming County		Sisters of Charity-SJC	RPCI
			Women And Children's

Insurer L
2014 Relative Price by Group (Buffalo)

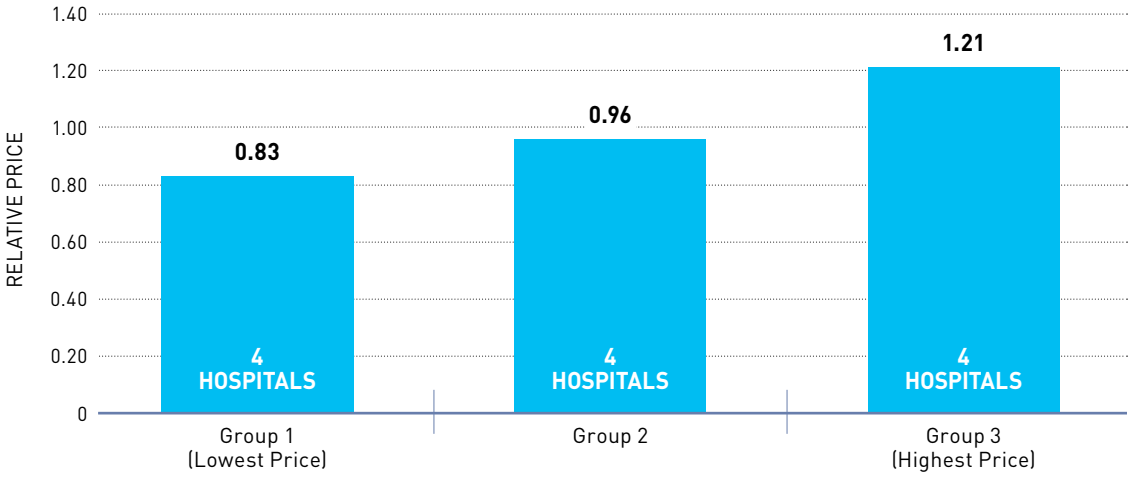


INSURER L			
GROUP 1 (LOWEST PRICE)	GROUP 2	GROUP 3	GROUP 4 (HIGHEST PRICE)
Bertrand Chaffee	Brooks	Kenmore Mercy	Buffalo General
Eastern Niagara	Mount St. Mary's	Mercy Hospital	Degraff
Jones Memorial	Olean	Niagara Falls	Erie County MC
Medina	TLC Health	Sisters of Charity	Millard Filmore
Wyoming County		Sisters of Charity – SJC	RPCI
			Women And Children's

ALBANY REGION

In Albany, higher-priced hospitals were identified by sorting the hospitals from lowest relative price to highest relative price for each insurer. The 12 study hospitals in the region were then divided into 3 groups with approximately 4 hospitals in each group.[124] The first group (Group 1) represents the hospitals with the lowest relative price and the third group (Group 3) represents the hospitals with the highest relative price. Each group's relative price was calculated by averaging each hospital's relative price.

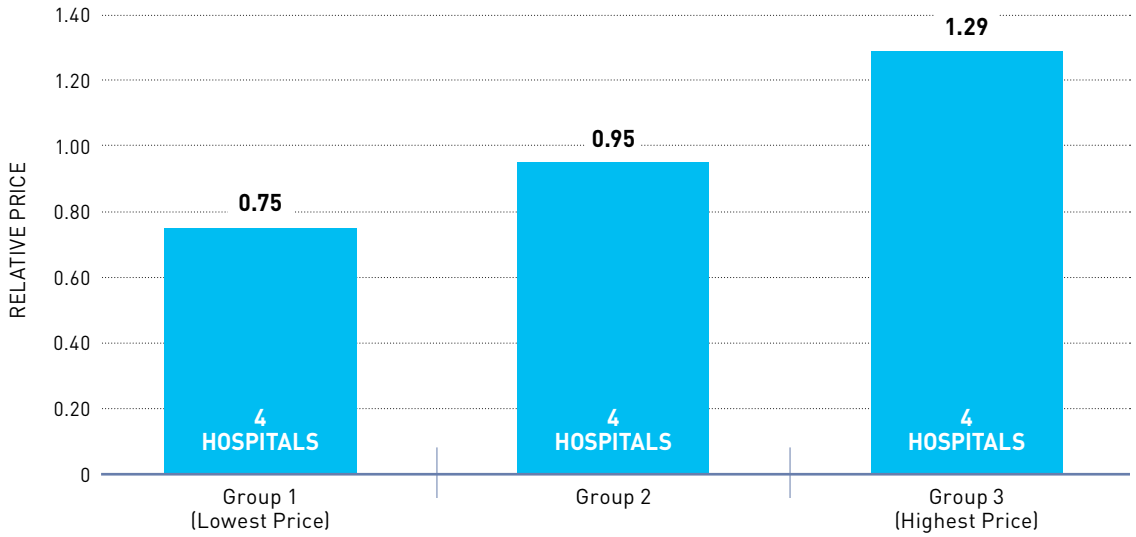
Insurer G
2014 Relative Price by Group (Albany)



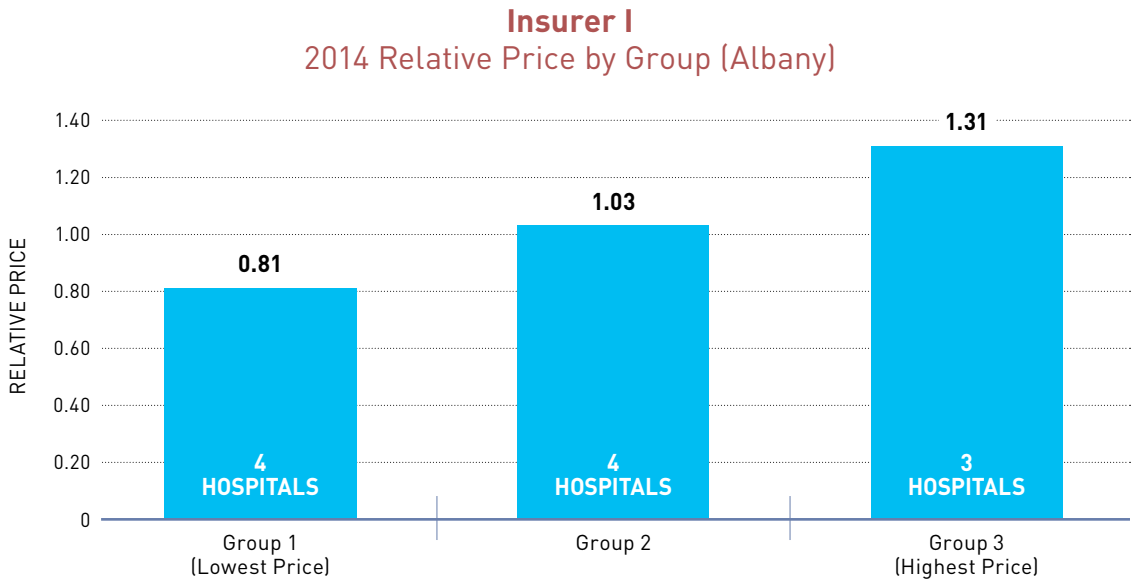
INSURER G		
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3 (HIGHEST PRICE)**
Albany Memorial	Adirondac MC	Albany MC
Samaritan	Ellis	Champlain Valley
Saratoga	St. Mary's Healthcare	Glens Falls
St. Mary's	St. Peter's	Nathan Littauer

[124] Not all groups for each insurer in Albany will include 4 hospitals, as 1 insurer only reported information to calculate relative price for 11 hospitals.

Insurer H
2014 Relative Price by Group (Albany)



INSURER H		
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3 (HIGHEST PRICE)**
Adirondac MC	Ellis	Albany MC
Albany Memorial	Saratoga	Champlain Valley
Samaritan	St. Mary's Healthcare	Glens Falls
St. Mary's	St. Peter's	Nathan Littauer



INSURER I		
GROUP 1 (LOWEST PRICE)	**GROUP 2**	**GROUP 3 (HIGHEST PRICE)**
Albany Memorial	Albany MC	Nathan Littauer
Ellis	Champlain Valley	Saratoga
Samaritan	Glens Falls	St. Mary's Healthcare
St. Mary's	St. Peter's	

Appendix H:

Market Leverage and Public Payer Mix Study Results by Region

The study team focused on two approaches to analyzing market leverage—the first a statistical analysis consisting of a regression analysis that focused on two variables (relative price and market share),[125] and the second a multi-variable data analysis using market knowledge to observe patterns within the different markets and subregions. This second analysis focuses on various forms of market leverage, such as market share, peer group definition, rural status, and system participation, and also includes analyses on payer mix. This appendix describes the analyses and results under these two different approaches.

APPROACH 1: STATISTICAL ANALYSIS OF RELATIVE PRICE AND MARKET SHARE

The study team analyzed correlations between relative price and hospital discharge market share within each of the three study regions: Downstate, Albany, and Buffalo. Correlations between relative price and hospital system discharge market share were also analyzed, as many hospitals in New York State are part of a larger hospital system. A mapping of hospitals to hospital system is included in Appendix D.

When analyzing all the hospitals within each region, there appears to be some correlation between a hospital's discharge market share and hospital relative price.

Although the results vary by insurer, there does appear to be some positive correlation between hospital discharge market share and hospital relative price. In other words, the higher the market share, the higher the relative price of the hospital. Regression analyses were performed on relative price and discharge market share for each study insurer, and found the correlation to be strongest in Buffalo (with R^2s ranging from 0.21 to 0.27) and weaker in Downstate (0.07 to 0.25). The correlations in these two regions were statistically significant.

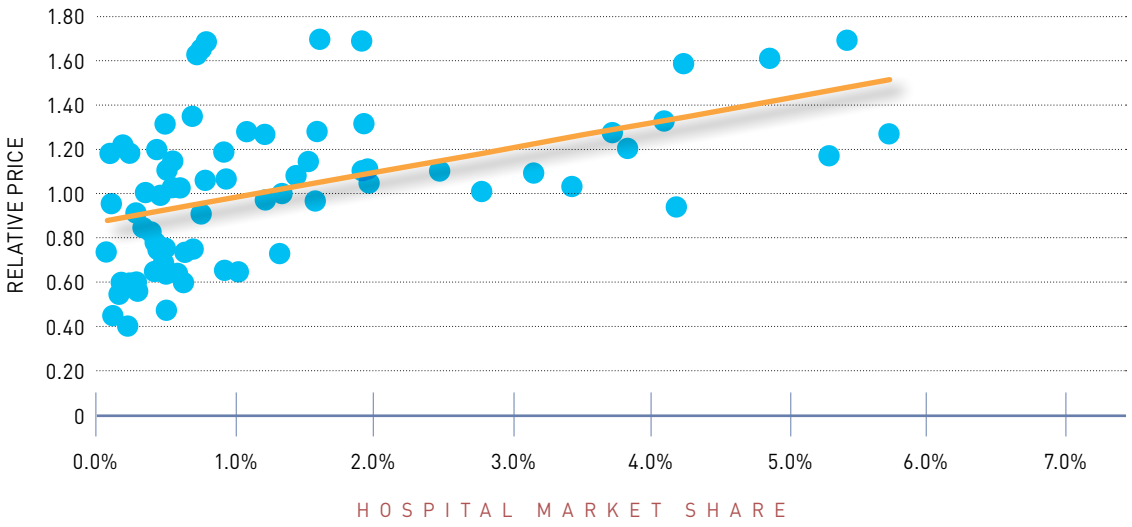
> The correlation between relative price and market share was determined primarily by calculating the R-squared (R^2) value, or the correlation coefficient squared. The higher the R^2 value, the stronger the correlation, and an R^2 value of 1.00 suggests a perfect correlation.

[125] For the purposes of this study, the study team considered and analyzed four market leverage variables—namely, number of beds, commercial gross patient service revenue, net patient service revenue, and commercial hospital discharge market share. After performing initial analyses on all four variables, the team focused on commercial hospital discharge market share for a deeper level of analysis. Although the commercial hospital discharge market share variable does not include outpatient services, it is still considered representative of total market share and was the cleanest data available for this analysis. This variable was sourced from SPARCS 2014 data. Gross patient service revenue by payer (commercial versus public) is available through SPARCS; however, this revenue is not discounted for insurer reimbursement and therefore represents actual hospital charges, which is not a true reflection of revenue. Net patient service revenue can be obtained from the New York State Institutional Cost Reports (ICR) and reflects true revenue adjusted for payer discounts; however, it is sometimes only reflected at the system level, and is only reported in total and not by payer.

The correlations in Albany were not statistically significant. **Figure 29** graphs the relationship between one exemplar insurer's hospital relative price and a hospital's commercial discharge market share in the Downstate region. Relative price is provided on the y-axis and market share on the x-axis. As shown, there appears to be a positive relationship between relative price and market share; for example, several hospitals have a lower relative price (below 0.60) and have a small market share (less than 1%). However, the study team also observed several instances of a negative relationship between relative price and market share; five hospitals have a higher relative price (above 1.60) but have less than 2% of the market share. This indicates that a hospital's market share alone cannot explain all instances of hospital price variation.

FIGURE 29

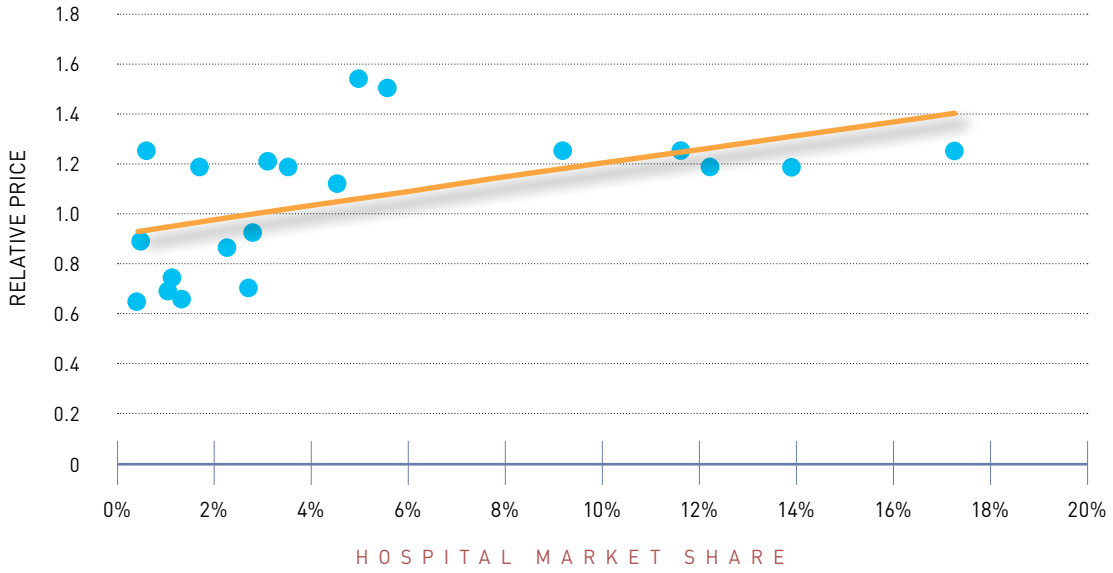
Relative Price vs. Hospital Discharge Market Share (Downstate, 2014)



The correlation between market share and relative price appears stronger and more consistent among the insurers for the Buffalo region, although there are also fewer hospitals and insurers in the region. **Figure 30** on the following page shows the relationship between discharge market share and relative price for one exemplar insurer in the Buffalo region. Relative price is provided on the y-axis and market share on the x-axis. All the hospitals that have a relative price below 1.00 have less than 4% market share. All the hospitals that have more than 8% market share have a relative price of 1.20 or greater.

FIGURE 30

Relative Price vs. Hospital Discharge Market Share (Buffalo, 2014)



The study team also explored whether market share for hospital systems strengthens the correlation between price and market share. Results were mixed; for some insurers in the Downstate and Buffalo regions, the correlation between price and market share was stronger when using hospital system market share as the market leverage indicator, whereas the correlation weakened among other insurers.

For all insurers studied in the Downstate region, there appears to be a stronger correlation between a hospital's market share and relative price for large hospitals as compared with other peer groups.

The R^2 values for relative price and commercial discharges for large hospitals in the Downstate region range from 0.19 to 0.50, with an average of 0.41 among all the insurers. Some correlations between relative price and commercial discharges were found among the other peer groups, but were neither consistent nor strong, and did not produce any real conclusions.

Although there appears to be a correlation between relative price and market share in the Downstate region, not all of the observed price variation can be explained by this correlation. Furthermore, within some peer groups there is no correlation at all.

APPROACH 2: MULTIVARIABLE DATA ANALYSIS OF MARKET LEVERAGE

There are many ways in which a hospital can have strong market leverage—including having high market share, being part of a large hospital system that has high market share, and lacking competition from other hospitals as a result of being geographically isolated or being the only academic medical center in a region. As market leverage is so diverse, the study team developed an analytic framework for various markets within the study. Because of the large number of study hospitals in the Downstate region, and the diversity of the hospitals within the New York City boroughs and surrounding counties, the study team examined seven subregions within the Downstate region. In particular, the study team analyzed hospitals within four of the five boroughs of New York City, as well as in Nassau, Suffolk, and Westchester counties to gain a better understanding of market leverage in the Downstate region.[126] For each of these Downstate subregions, higher-priced hospitals were identified and reviewed in the context of regional market share, hospital system participation, peer groups, and public payer mix. For the Albany and Buffalo regions, higher-priced hospitals were identified and reviewed in the context of market share, hospital system participation, rural status, and public payer mix. Although analysis by peer group was performed for these regions, the study team concluded that these analyses were not appropriate because of the small sample size by peer group.

This data analysis produced the following observations:

- Higher-priced hospitals generally have strong regional market share.
- Higher-priced hospitals generally are part of a large hospital system with significant regional commercial market share.
- Higher-priced hospitals may be the only academic medical center in the area.
- Some higher-priced hospitals are rural hospitals with less competition.
- In the Downstate region, most higher-priced hospitals have lower public payer mix and lower Medicaid payer mix.

The sections below describe the study team's findings in each of the study's regions and subregions, and highlight the hospital characteristics that appear to influence whether a hospital is higher-priced.

DOWNSTATE REGION: THE BRONX

There are seven study hospitals in the Bronx, with only one major hospital system, Montefiore Health System (Montefiore). This system has two hospitals that are considered academic medical

[126] Staten Island and Rockland County were excluded because of small hospital sample size.

centers according to the study's peer group definitions. The other hospitals in the Bronx belong to the medium and large groups. Among all the insurers analyzed, the study team observed that three hospitals were higher-priced as compared with the average prices of the other hospitals in the Bronx.[127] These three hospitals are identified by the orange bars in **Figure 31**.

The study team reviewed each hospital's public payer mix and Medicaid payer mix. The higher the percentage, the greater reliance the hospital has on public reimbursement or Medicaid reimbursement, which tends to be lower than commercial prices. If a hospital has a higher public or Medicaid payer mix, one may expect to see higher private commercial prices to account for the expected shortfall on the public reimbursement. Many call this theory cost shifting.

HOSPITAL PUBLIC PAYER MIX

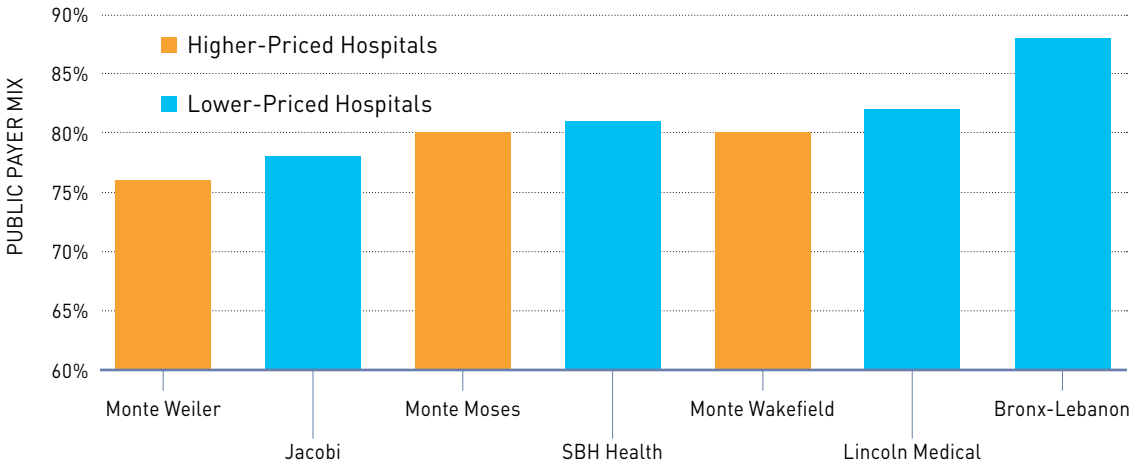
A hospital's revenue stream comes from different sources, the largest of which are Medicaid, Medicare, and private commercial insurers. A hospital's public payer mix is determined by calculating the ratio of hospital payments from public payers (i.e., Medicaid and Medicare) to total hospital payments. A higher ratio (e.g., 0.70, or 70% of total payments) suggests that the hospital serves a greater proportion of Medicaid and Medicare patients as compared with private commercial patients. Likewise, a lower ratio (e.g., 0.40, or 40% of total payments) suggests that the hospital serves a smaller proportion of Medicaid and Medicare patients.

HOSPITAL MEDICAID PAYER MIX

A hospital's Medicaid payer mix is calculated by taking the ratio of hospital payments from Medicaid to total hospital payments. A high ratio suggests a greater proportion of Medicaid patients as compared with other types of patients, and a low ratio suggests a smaller proportion of Medicaid patients.

FIGURE 31

2014 Bronx Public Payer Mix

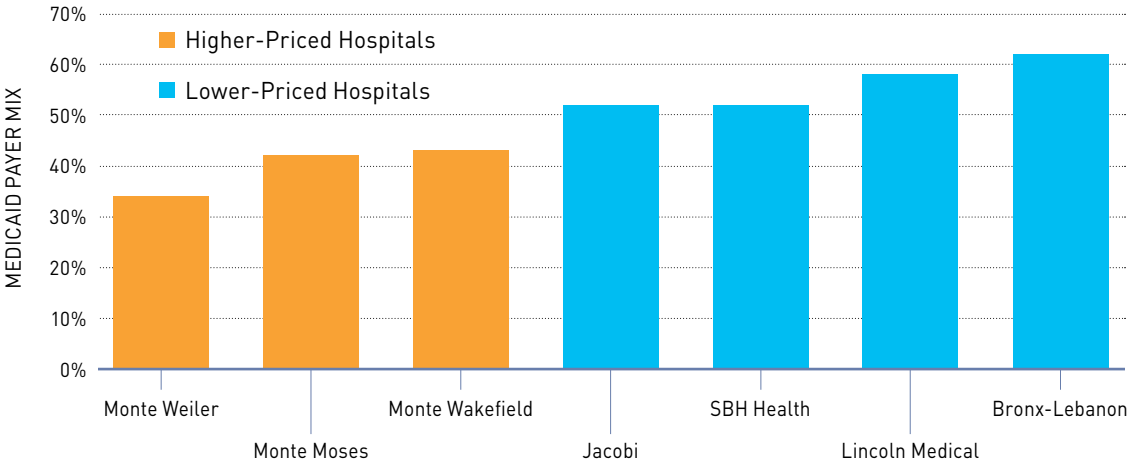


[127] For the Bronx, hospitals that had the lowest average ranks (1 to 3) were grouped as higher-priced, whereas all others were grouped as lower-priced.

However, as shown in **Figure 31**, the higher-priced hospitals in the Bronx (represented by the orange bars) do not have the higher public payer mix. In fact, one of the higher-priced hospitals, Monte Weiler,[128] has the lowest public payer mix (76%) of all hospitals in the Bronx subregion. **Figure 32** shows that the higher-priced hospitals have the lowest Medicaid payer mix. Here the higher-priced hospitals have between a 30% and 40% Medicaid payer mix, whereas the lower-priced hospitals have between a 50% and 60% Medicaid payer mix.

FIGURE 32

2014 Bronx Medicaid Payer Mix



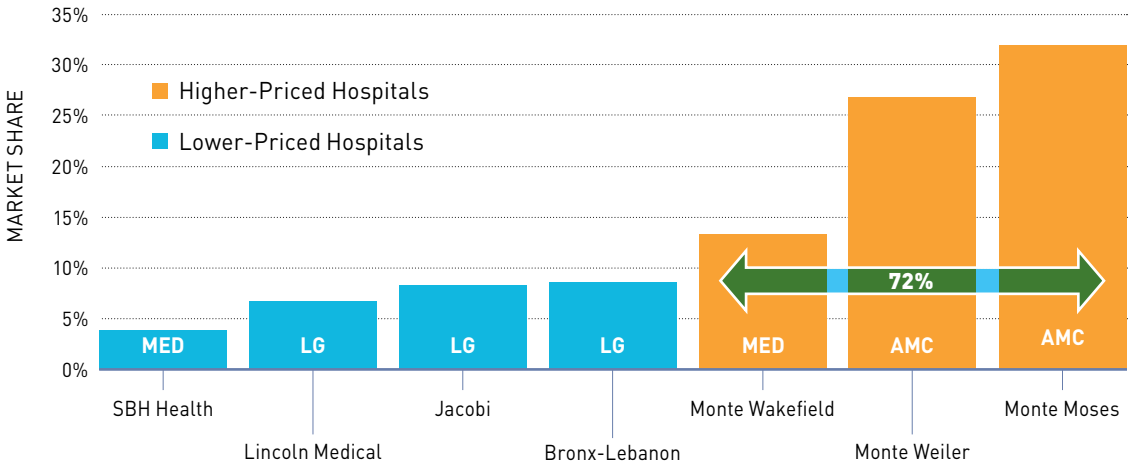
The study team observed that there is no competition for academic medical centers in the Bronx: the higher-priced hospitals in the Bronx all belong to the Montefiore Health System, and two of the three Montefiore hospitals are the only academic medical centers in the Bronx. As shown in **Figure 33**, the three Montefiore hospitals represent 72% of the Bronx commercial discharges analyzed for this study—a significant market share. The third hospital in the Montefiore system, Monte Wakefield, is considered a medium-sized hospital but is higher-priced than other larger hospitals in this subregion—further suggesting that participation in a system with significant regional market share contributes to a hospital's higher prices.

In summary, the Bronx region's higher-priced hospitals have lower public payer mix and much lower Medicaid payer mix. In addition, the higher-priced hospitals are part of a system that has 72% of the Bronx market and includes the only two academic medical centers in the subregion.

[128] All hospitals were given a short name for charting and graphing purposes. A full listing of each hospital's long and short names can be found in Appendix D.

FIGURE 33

2014 Bronx Commercial Discharge Regional Market Share



AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

DOWNSTATE REGION: BROOKLYN

The study team analyzed relative price among the 11 hospitals in Brooklyn, which include a mixture of academic medical centers and large, medium, and small hospitals. The team observed a clear pattern among the insurers analyzed. Three hospitals in this region generally had higher prices than all others.[129] These three hospitals are identified by the orange bars in **Figure 34**.

The study team analyzed public payer mix and Medicaid payer mix to understand whether these three hospitals had higher public payer revenue and higher Medicaid revenue. As shown in **Figure 34** and **Figure 35**, all three hospitals colored in orange do not have the highest public payer mix and are at or below the median Medicaid payer mix.

Brooklyn has a diverse offering of hospitals, including academic medical centers and large, medium, and small hospitals. **Figure 36** illustrates that two of the three higher-priced hospitals also have significant commercial discharge market share in Brooklyn, with New York Methodist at 32% of total commercial discharges and Maimonides Medical Center at 20%. This would indicate that a hospital's higher price may be a result of its regional market share.

[129] Higher-priced hospitals were defined by ranking the relative price of hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (2.2 to 3.5) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 34

2014 Brooklyn Public Payer Mix

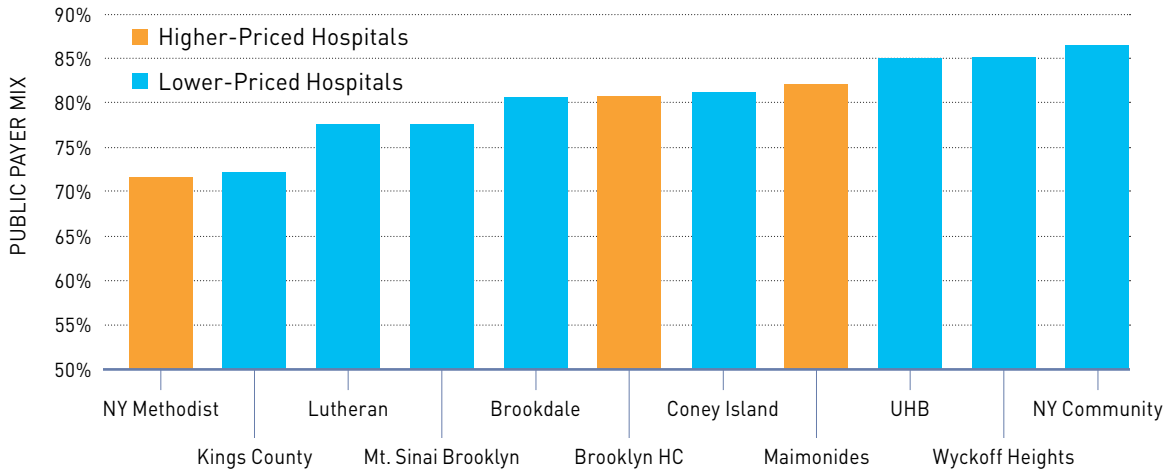


FIGURE 35

2014 Brooklyn Medicaid Payer Mix

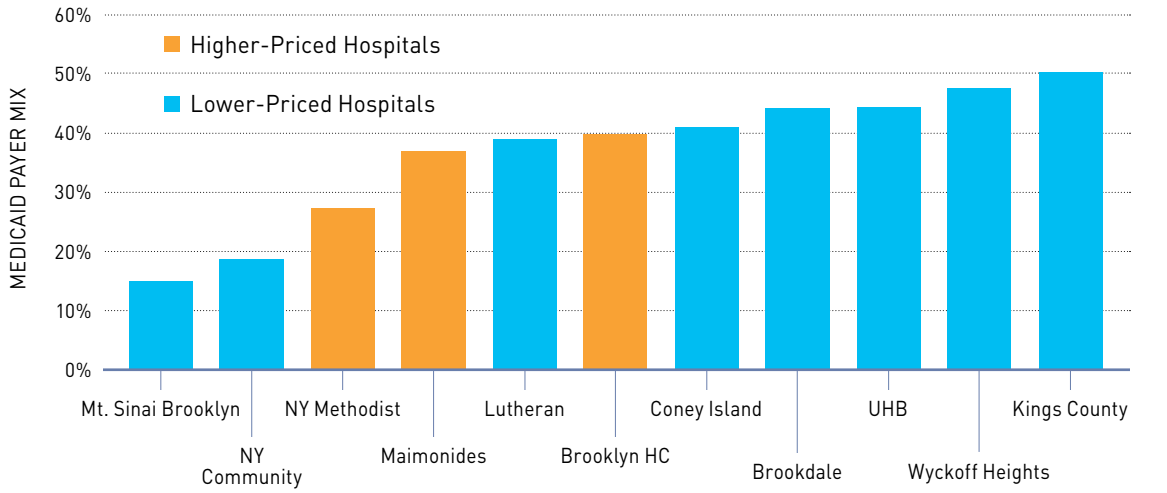
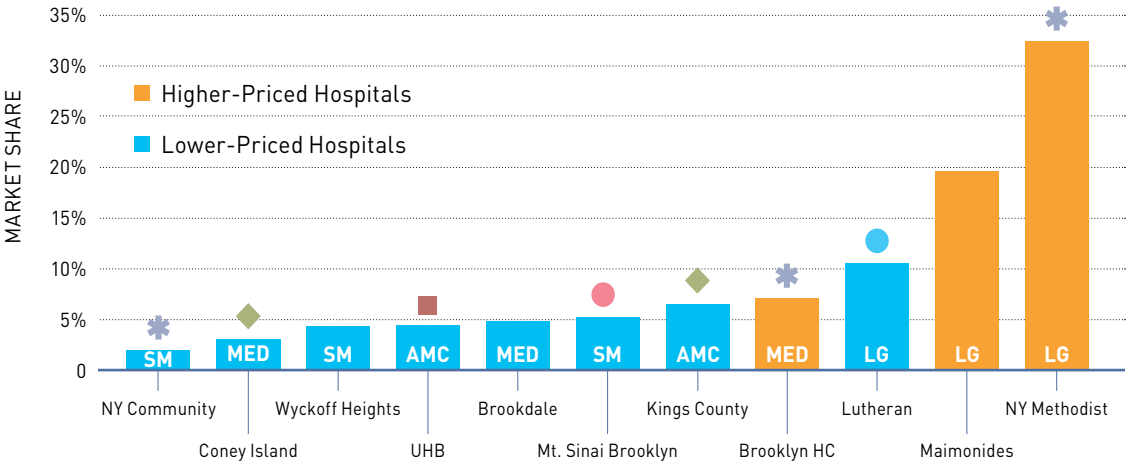


FIGURE 36

2014 Brooklyn Commercial Discharge Regional Market Share



Hospital Systems

- Health and Hospital Corp
- NewYork-Presbyterian
- SUNY
- Mt. Sinai Health System
- NYU Health System

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

One of the top three higher-priced hospitals in Brooklyn does not have significant commercial discharge market share: Brooklyn Hospital Center, a medium-sized hospital, only has 7% of hospital discharges, yet its price is among the three highest in Brooklyn. In 2014 (the year for which study data were collected), Brooklyn Hospital Center was part of the NewYork-Presbyterian System (as marked with a purple asterisk), which is the same system that includes New York Methodist, the regional market share leader. Brooklyn Hospital Center's higher price may be a result of its relationship with the NewYork-Presbyterian System. The figure also shows that the two academic medical centers in Brooklyn are among the lower-priced hospitals—thus suggesting that lack of competition as an academic medical center is not a contributing factor to higher hospital prices in Brooklyn.

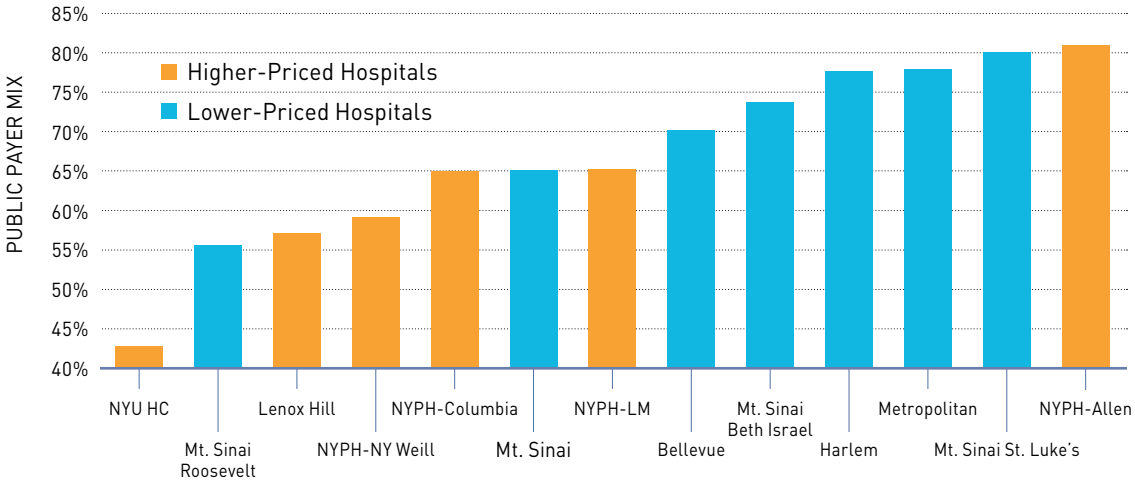
In summary, the Brooklyn region's higher-priced hospitals have lower public payer mix and lower Medicaid payer mix than many of the lower-priced hospitals. In addition, two of the higher-priced hospitals have the highest regional market share and also two of the higher-priced hospitals are part of a hospital system. In this region, the academic medical centers are not higher-priced.

DOWNSTATE REGION: MANHATTAN

The study team analyzed relative prices of 13 hospitals in Manhattan, which are predominantly academic medical centers and large hospitals. Among all insurers analyzed, six hospitals were categorized as higher-priced as compared with other hospitals in Manhattan.[130] These six hospitals are identified by the orange bars in **Figure 37**.

FIGURE 37

2014 Manhattan Public Payer Mix



A review of public payer mix and Medicaid payer mix shows that five of the six higher-priced hospitals in Manhattan are at the median or below the median in public payer mix. A review of Medicaid payer mix in Manhattan shows that three of the six higher-priced hospitals have the lowest Medicaid payer mix. **Figure 37** and **Figure 38** both depict these findings, with the bars in orange representing the higher-priced hospitals. This indicates that the hospitals that predominantly serve public populations are generally the lower-priced in Manhattan. This is explored earlier in the report.

When reviewing regional market share, the study team observed that five of the six higher-priced hospitals also had the highest regional market share. Also interesting to note is that all the study hospitals in Manhattan belong to a hospital system. Some hospitals have high regional market share and some do not, yet not all the hospital systems with high market share are represented by higher-priced hospitals. As shown in **Figure 39**, two of the six higher-priced

[130] Higher-priced hospitals were defined by ranking the hospitals for each insurer (from high to low) and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.8 to 5) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 38

2014 Manhattan Medicaid Payer Mix

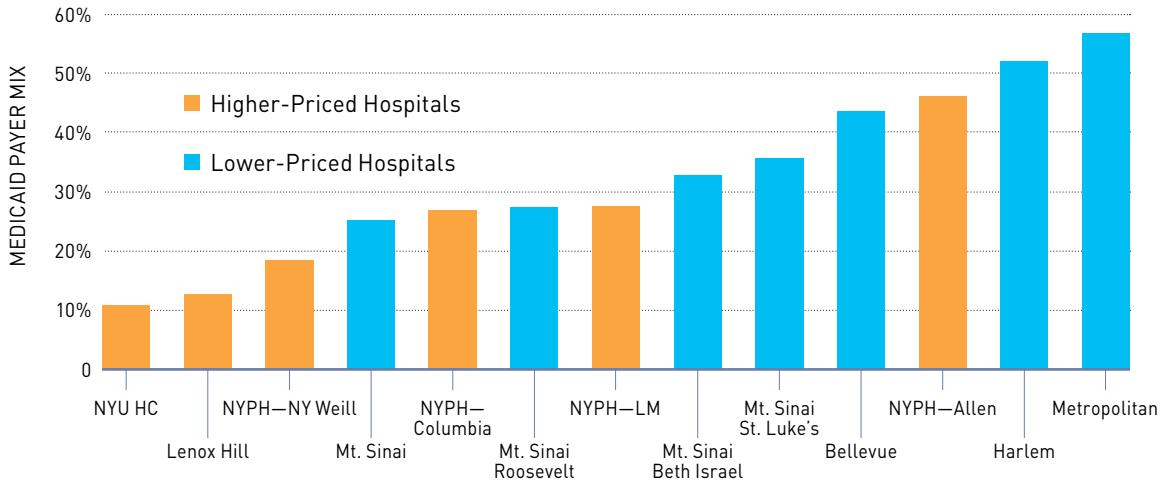
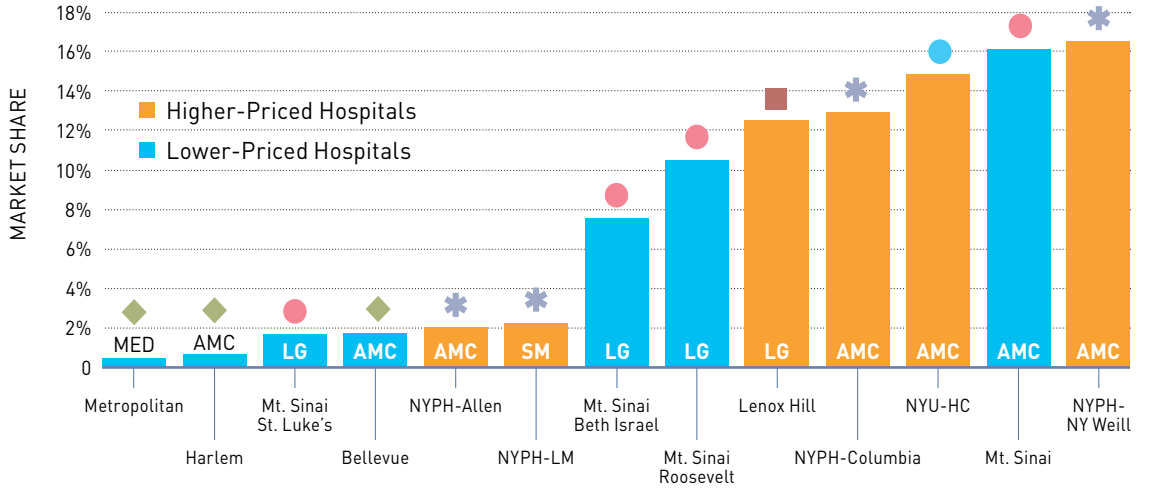


FIGURE 39

2014 Manhattan Commercial Discharge Regional Market Share



Hospital Systems

- Health and Hospital Corp
- NewYork-Presbyterian
- NYU Health System
- Mt. Sinai Health System
- North Shore LIJ

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

hospitals, NYPY-LM and NYPH-Allen, have very little market share but are part of the NewYork-Presbyterian System (indicated by the purple asterisks). Mt. Sinai, which has the second-highest market share, is not considered a higher-priced hospital in Manhattan. There are three academic medical centers that are not considered higher-priced hospitals.

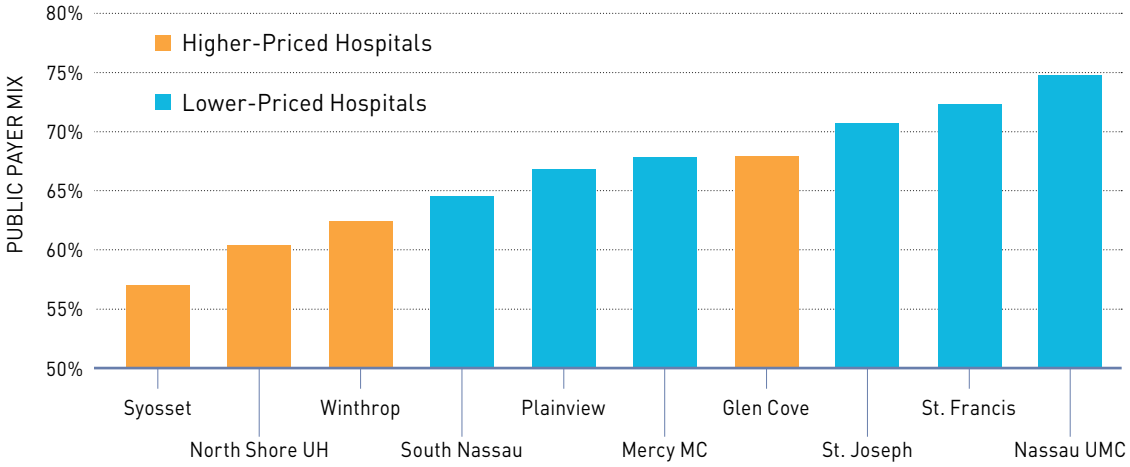
In summary, the Manhattan region's higher-priced hospitals have lower public payer mix and lower Medicaid payer mix, with the exception of one hospital. Every hospital in Manhattan is part of a larger hospital system. However, not all hospitals with greater regional market share are higher-priced, nor are all academic medical centers higher-priced. This suggests that there are factors other than market share, system participation, and peer group type that are influencing hospital price in this region.

DOWNSTATE REGION: NASSAU COUNTY

The study team analyzed 11 hospitals in Nassau County, comprising one academic medical center and a mixture of small, medium, and large hospitals. Among all the insurers analyzed, the study team observed that four hospitals were categorized as higher-priced as compared with other hospitals in Nassau County.[131] These four hospitals are identified by the orange bars in **Figure 40**. One of these higher-priced hospitals is North Shore University, the region's only academic medical center, which is part of the larger North Shore-LIJ hospital system.

FIGURE 40

2014 Nassau County Public Payer Mix



[131] Higher-priced hospitals were defined by ranking the hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.5 to 3.2) were grouped as higher-priced, whereas all others were grouped as lower-priced.

A review of public payer mix, as presented in **Figure 40**, shows that three out of the four higher-priced hospitals have the lowest public payer mix. This indicates that the hospitals that predominantly serve Medicaid and Medicare populations are generally the lower-priced ones in Nassau County. A review of Medicaid payer mix shown in **Figure 41** shows that most hospitals in Nassau County have a Medicaid payer mix that is less than 15%.

FIGURE 41

2014 Nassau County Medicaid Payer Mix

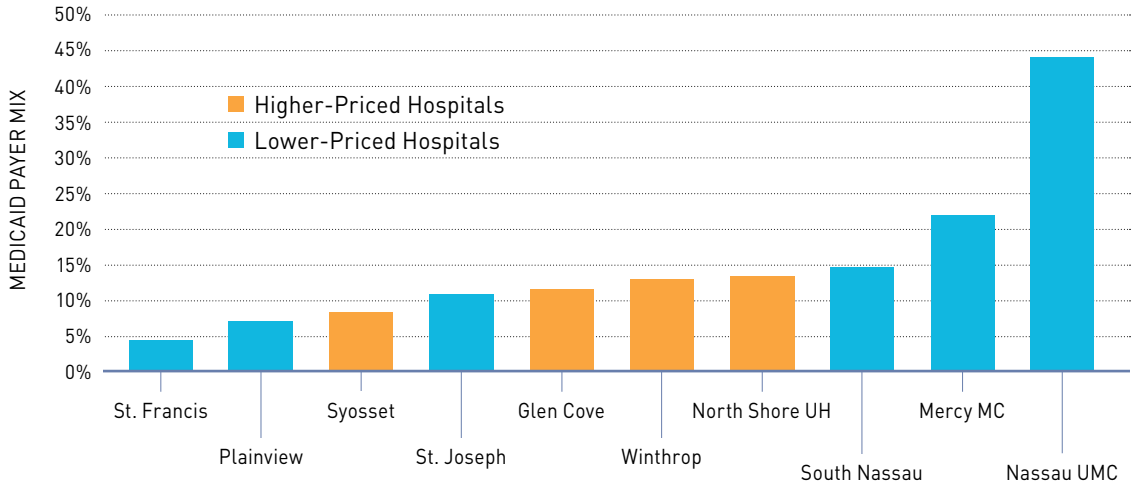
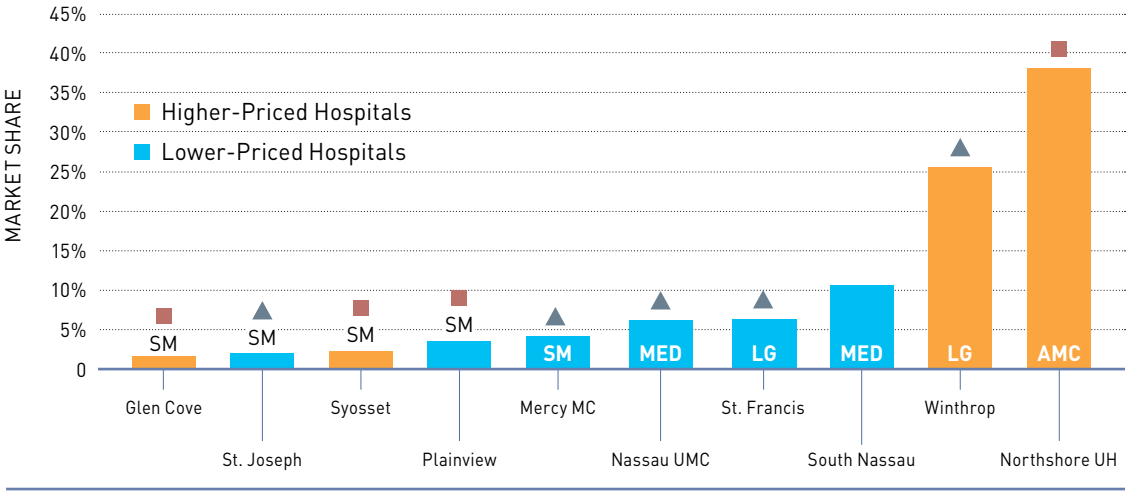


Figure 42 presents the study team's findings from its market share analysis in the Nassau region. First, two of the four higher-priced hospitals (depicted by the orange bars) have the highest market share in Nassau County with 64% of the commercial discharges, suggesting that regional market share does influence the price of a hospital. One of these hospitals is North Shore University, the only academic medical center in Nassau County.

The region is also represented by two systems, North Shore-LIJ and Long Island Health Network. As shown, hospitals that are part of the North Shore-LIJ system are mostly considered higher-priced, as two of these hospitals, Glen Cove and Syosset, have very little market share but are still among the higher-priced hospitals in the region. The study team estimates that the North Shore-LIJ system has 19.2% of all of Downstate commercial discharges. The other hospital system represented in Nassau County is Long Island Health Network, which includes Winthrop Hospital—the second regional market share leader and a higher-priced hospital—although none of the other hospitals in this system are considered higher-priced.

FIGURE 42

2014 Nassau County Commercial Discharge Regional Market Share



Hospital Systems

▲ Long Island Health Network ■ North Shore LIJ

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

In summary, three out of the four higher-priced hospitals have the lowest public payer mix. All but two hospitals in Nassau County have a Medicaid payer mix less than 15%. With the exception of one hospital, all hospitals are part of a hospital system. The hospitals with the highest regional market share are higher-priced. There is one academic medical center that is a higher-priced hospital. Finally, there are two small hospitals with very little regional market share but are part of a larger hospital system that is higher-priced.

DOWNSTATE REGION: QUEENS

The study team analyzed nine hospitals in Queens, of which two are academic medical centers, one is a medium hospital, one is a large hospital, and the remaining are small hospitals. Three hospitals were found to be generally higher-priced than all other hospitals in that region.[132] These three hospitals are identified by the orange bars in **Figure 43**.

Like the results in some of the other subregions, two of the three higher-priced hospitals in Queens have the lowest public payer mix—indicating that the hospitals that service a greater

[132] Higher-priced hospitals were defined by ranking the hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.2 to 2.7) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 43

2014 Queens Public Payer Mix

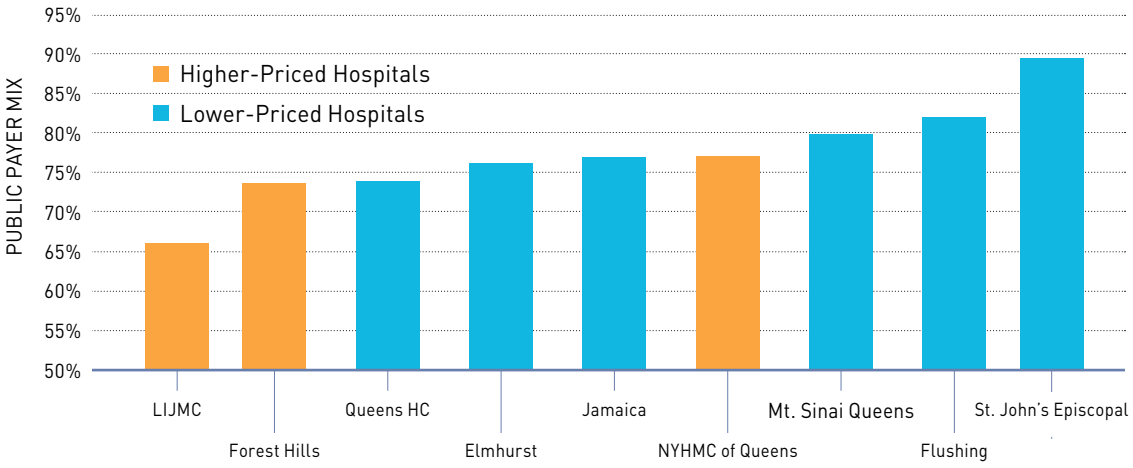
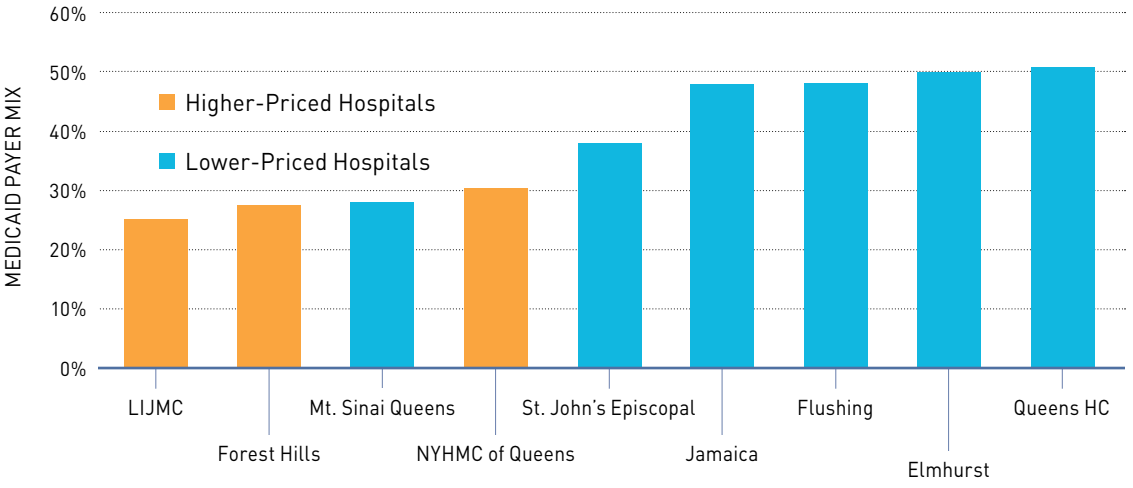


FIGURE 44

2014 Queens Medicaid Payer Mix



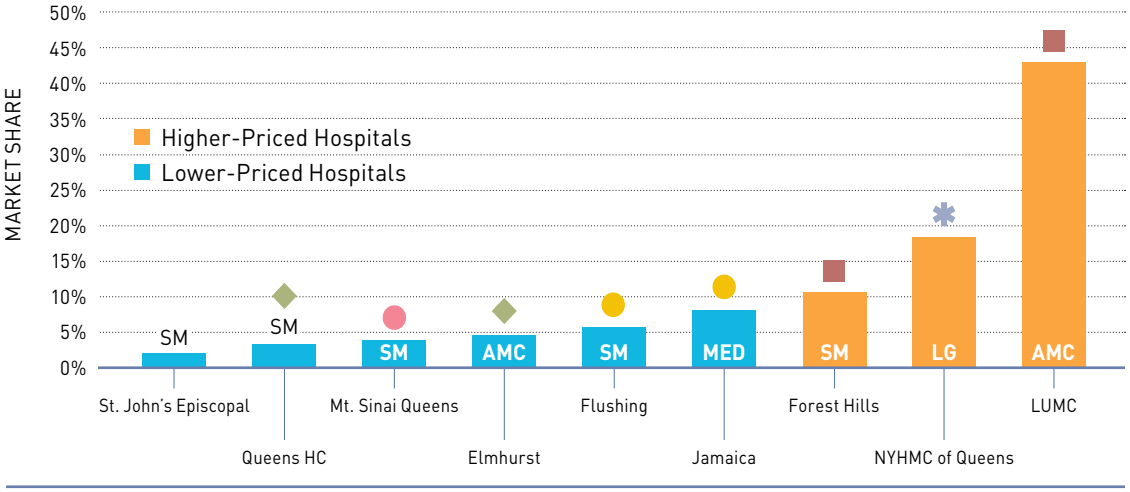
proportion of Medicaid and Medicare populations generally have the lowest commercial prices in the region. These results are shown in **Figure 43**. This finding was consistent with Medicaid payer mix, as shown in **Figure 44**.

As shown in **Figure 45**, the three higher-priced hospitals also command the highest regional market share, representing 72% of commercial discharges combined. In addition, two of the three higher-priced hospitals are part of the North Shore-LIJ system. North Shore-LIJ has a strong presence in Queens and other regions, and has significant discharge market share in the Downstate region overall. Also interesting to note is that there is only one independent study hospital in Queens (St. John's Episcopal).

In summary, in the Queens region two out of the three higher-priced hospitals have the lowest public payer mix and Medicaid payer mix. With the exception of one hospital, all hospitals are part of a hospital system. The hospitals with the highest regional market share are higher-priced.

FIGURE 45

2014 Queens Commercial Discharge Regional Market Share



Hospital Systems

- Health and Hospital Corp
- Mt. Sinai Health System
- North Shore LIJ
- Medisys
- NewYork-Presbyterian

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

DOWNSTATE REGION: SUFFOLK COUNTY

In Suffolk County, the study team analyzed nine hospitals comprising one academic medical center, one medium hospital, and seven small hospitals. There was no clear pattern of higher-priced hospitals versus lower-priced hospitals among all the insurers analyzed. In fact, the rankings for the hospitals within each insurer were varied. However, the study team did observe hospital price variation within each insurer. **Table 15** shows that the price of the highest-priced hospital is 1.4 to 2.0 times higher than the lowest-priced hospital.

TABLE 15: Suffolk County Ratio of Highest to Lowest RP by Insurer

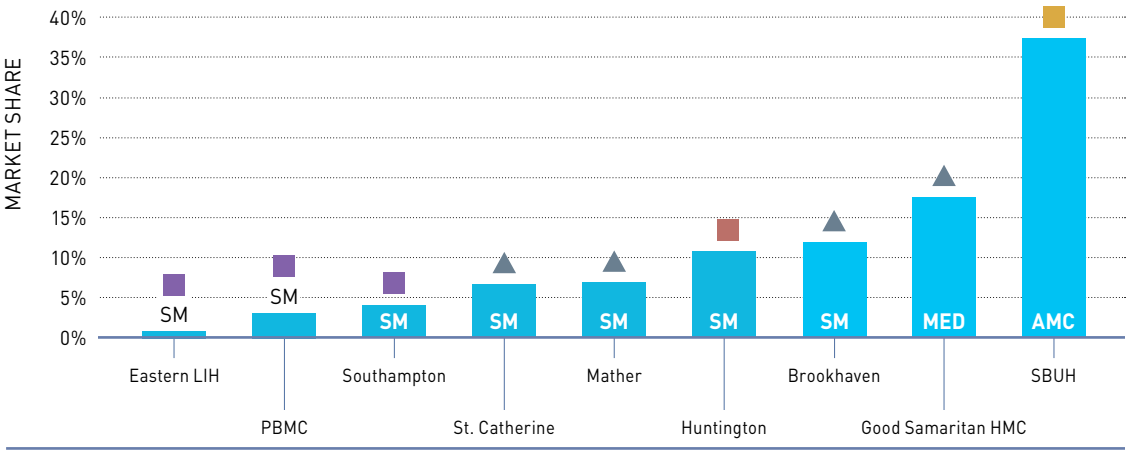
INSURER	RATIO OF HIGHER-PRICED TO LOWER-PRICED HOSPITAL
Insurer A	1.4
Insurer B	1.5
Insurer C	1.6
Insurer D	1.6
Insurer E	1.8
Insurer F	2.0

A review of market share among the hospitals within the region shows clear market share leaders; however, prices were not consistently higher for these hospitals across insurers. Furthermore, there is one academic medical center in the region, which is not always the highest-priced among the insurers. What is interesting to note is that every hospital within the region is part of a hospital system, as shown in **Figure 46**.

In summary, hospitals in Suffolk County are not consistently higher-priced across insurers. Also, there is only one academic medical center in Suffolk County, and it is not necessarily higher-priced among the insurers studied. There appears to be other factors influencing price in this region and no conclusions can be drawn.

FIGURE 46

2014 Suffolk County Commercial Discharge Regional Market Share



Hospital Systems

East End Alliance ▲ Long Island Health Network ■ North Shore LIJ ■ SUNY

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

DOWNSTATE REGION: WESTCHESTER COUNTY

The study team analyzed 10 hospitals in Westchester County: 1 academic medical center, 1 medium hospital, and 8 small hospitals. Of these, three hospitals were identified as consistently higher-priced than the others.[133] These three hospitals are identified by the orange bars as shown in **Figure 47**.

An analysis of public payer mix and Medicaid payer mix shows that these three hospitals have neither the highest nor the lowest public payer mix, thus leading to no clear conclusion. These findings are illustrated in **Figure 47** and **Figure 48**.

As shown in **Figure 49**, one of the price leaders is the only academic medical center in the region and is second in regional market share. The first market share leader, White Plains, is not one of the higher-priced hospitals. Finally, prices in Westchester County may look very different in future years, as the Montefiore Health System entered this market by acquiring Mount Vernon and New Rochelle Hospitals sometime in 2014.

[133] Higher-priced hospitals were defined by ranking the hospitals for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.8 to 3.2) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 47

2014 Westchester County Public Payer Mix

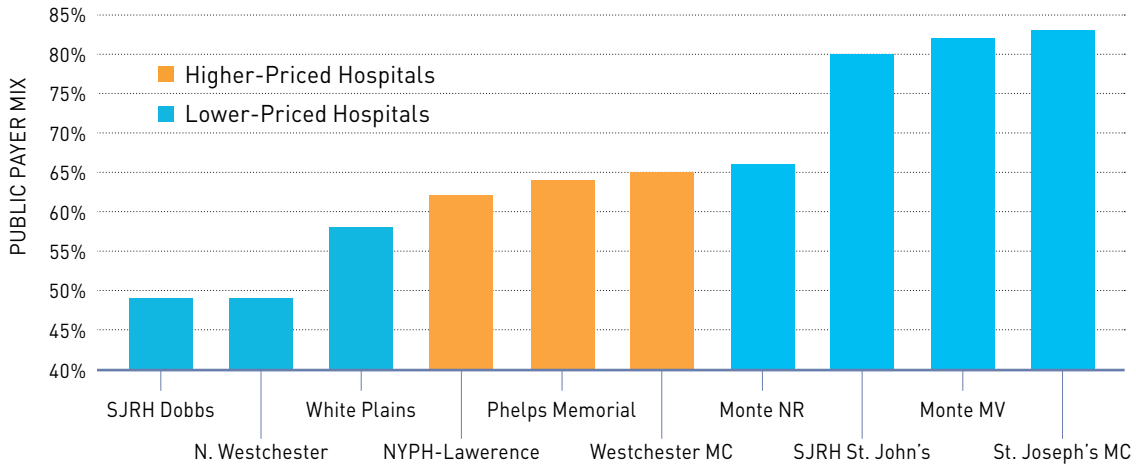


FIGURE 48

2014 Westchester County Medicaid Payer Mix

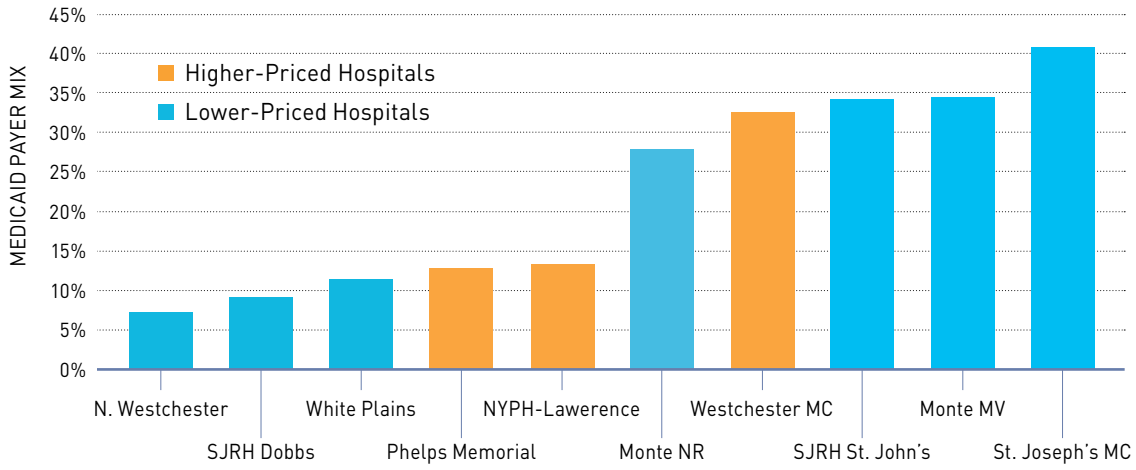
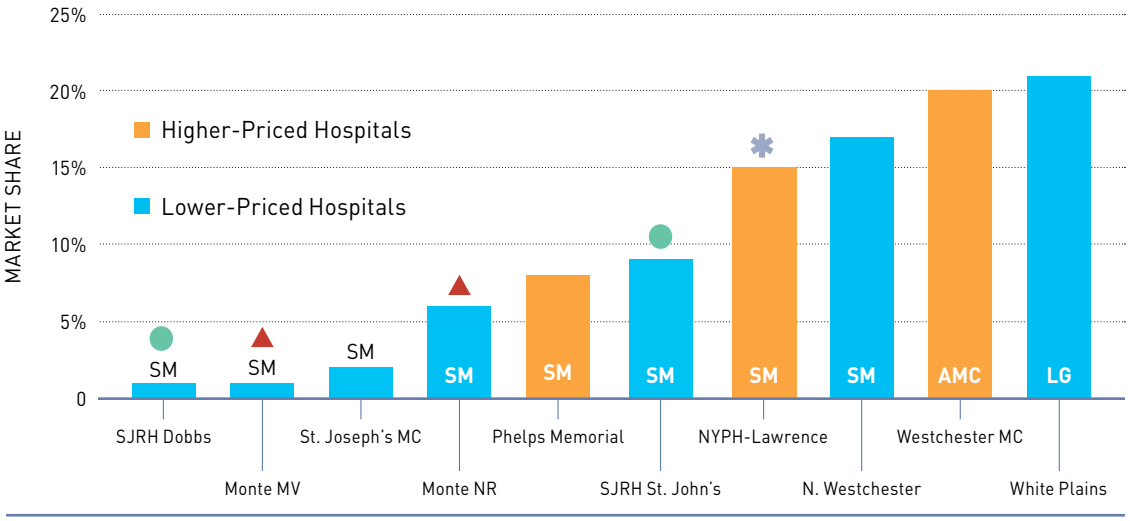


FIGURE 49

2014 Westchester County Commercial Discharge Market Share



Hospital Systems

▲ Montefiore Health System ✱ NewYork-Presbyterian ● SJRH

AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital) **SM** (Small Hospital)

In summary, in the Westchester County region there are no clear conclusions from the public and Medicaid payer mix analysis. The only academic medical center in the region is considered a higher-priced hospital.

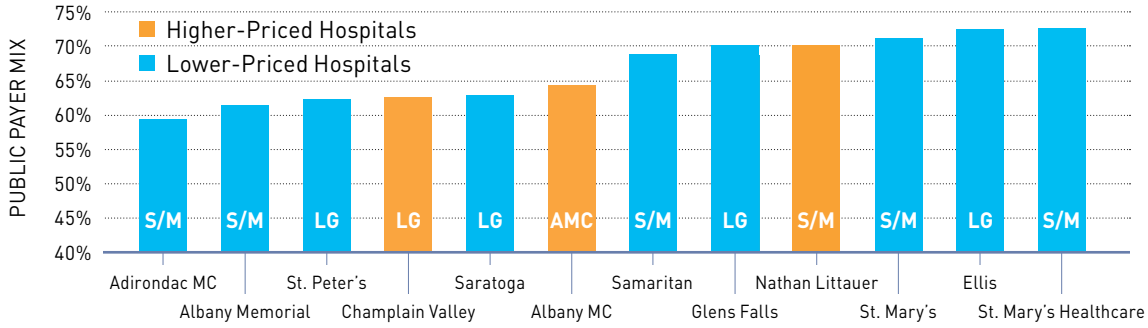
ALBANY REGION

The study hospitals in the Albany region include one academic medical center; one hospital system comprising three small-mid hospitals and one large hospital; and a mixture of small-mid and large independent hospitals. As defined for this study, the Albany region includes hospitals in the greater Albany area, as well as those in more remote surrounding areas. The study team identified three Albany hospitals that are consistently higher-priced than the others among all the study insurers.[134] These three hospitals are identified by the orange bars in **Figure 50**.

[134] Higher-priced hospitals were defined by ranking the hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1.7 to 3.3) were grouped as higher-priced, whereas all others were grouped as lower-priced.

FIGURE 50

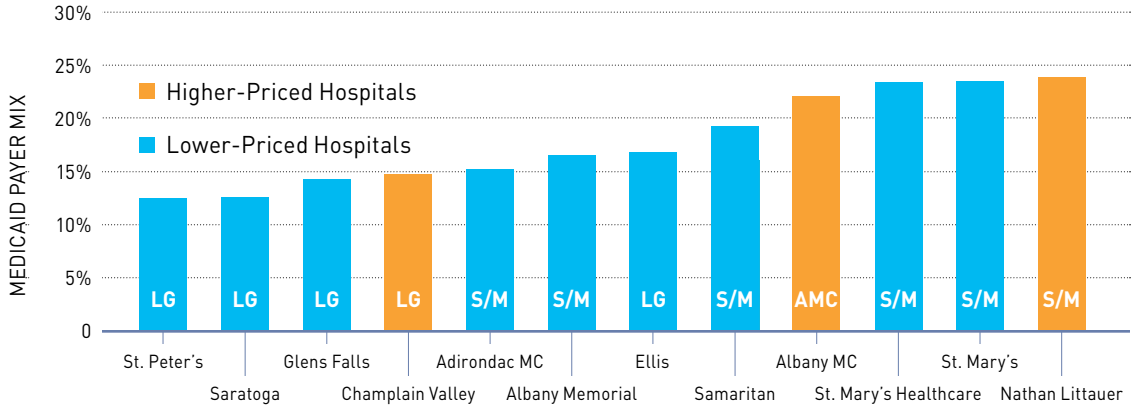
2014 Albany Public Payer Mix



AMC (Academic Medical Center) **LG** (Large Hospital) **S/M** (Small-Mid Hospital)

FIGURE 51

2014 Albany Medicaid Payer Mix



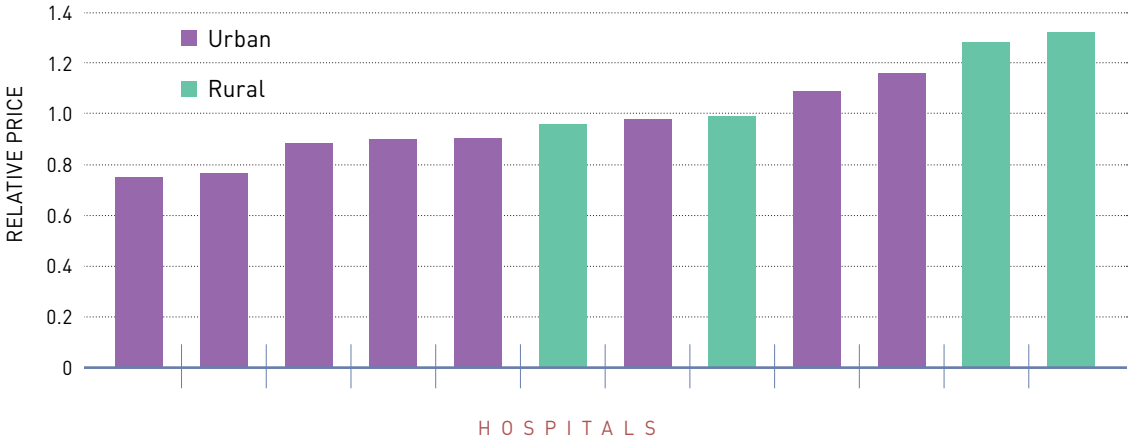
AMC (Academic Medical Center) **LG** (Large Hospital) **S/M** (Small-Mid Hospital)

A review of public payer mix for these hospitals shows that the higher-priced hospitals have neither the highest nor the lowest public payer mix. However, a review of Medicaid public payer mix shows that two of the higher-priced hospitals have higher Medicaid payer mix. These findings are illustrated in **Figure 50** and **Figure 51**. It should be noted that one of the higher-priced hospitals, Albany Medical Center, is the only academic medical center in the study region.

The team then analyzed hospitals that were considered rural, as classified by CMS.[135] **Figure 52** shows the relative prices for all the hospitals in the Albany region for one insurer, with rural hospitals in green and urban hospitals in purple. As shown, the green bars are to the right of the chart, suggesting that rural hospital prices are higher-priced as compared with urban hospitals.

FIGURE 52

2014 Albany Relative Price (Rural vs. Urban Hospitals)



In summary, in the Albany region there are no clear conclusions from the public payer mix analysis. However, two out of three higher-priced hospitals have higher Medicaid payer mix, suggesting that the higher-priced hospitals serve a greater proportion of Medicaid patients. In addition, rural hospitals generally have higher relative prices in the Albany region. Finally, the only academic medical center in the region is considered a higher-priced hospital.

BUFFALO REGION

Buffalo and its surrounding areas include two major hospital systems, Kaleida Health System and Catholic Health System. There are two specialty hospitals, Roswell Park and Women & Children's (part of Kaleida Health), as well as two academic medical centers and several small, medium, and large hospitals. The study team found that there are 10 hospitals that are generally higher-priced than the other 10 across all insurers.[136] These 10 hospitals are identified by the orange bars in **Figure 53**.

[135] For the purposes of this study, hospitals were categorized as rural or urban based on Medicare's definition for hospital payment, as of FY 2014. Available at: **https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY-2014-IPPS-Proposed-Rule-Home-Page-Items/FY-2014-Proposed-Rule-Data-Files-CMS-1599-P.html**.

[136] Higher-priced hospitals were defined by ranking the hospitals (from high to low) for each insurer and then averaging the rank across insurers. Hospitals that had the lowest average ranks (1 to 5.7) were grouped as higher-priced, whereas all others were grouped as lower-priced.

A review of public payer and Medicaid payer mix for these hospitals shows that the higher-priced hospitals have varying levels of public payer mix and Medicaid payer mix (as shown in **Figure 53** and **Figure 54**), thus leading to no clear conclusion. It is interesting to note that the two specialty hospitals are also considered higher-priced.

FIGURE 53

2014 Buffalo Public Payer Mix

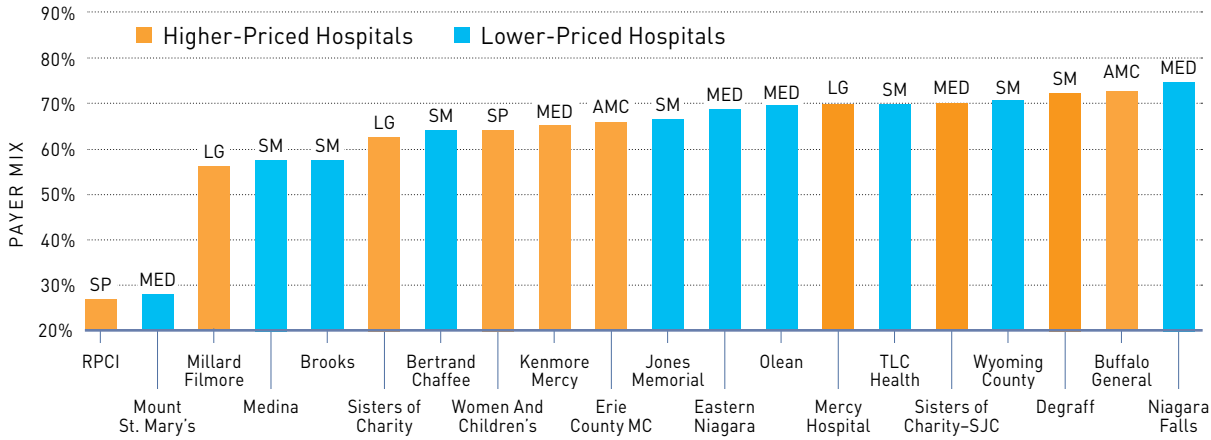
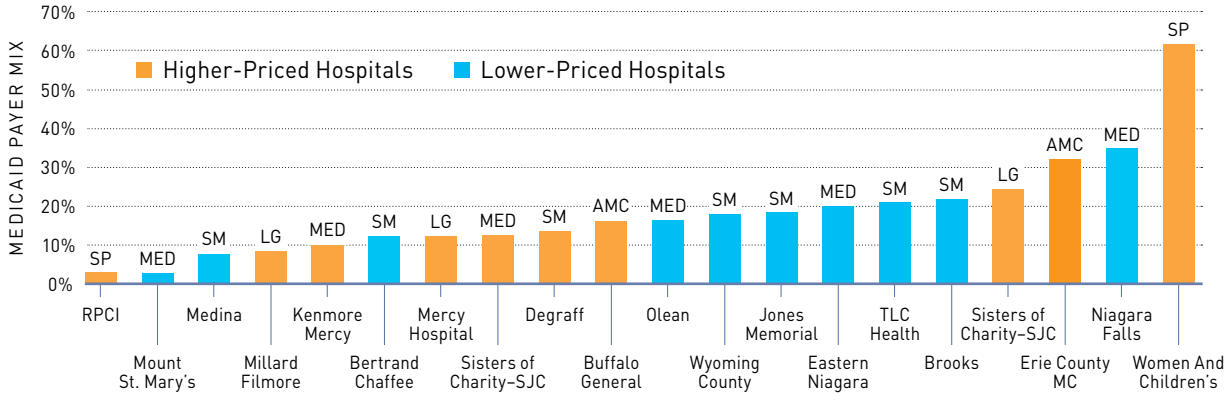


FIGURE 54

2014 Buffalo Medicaid Payer Mix



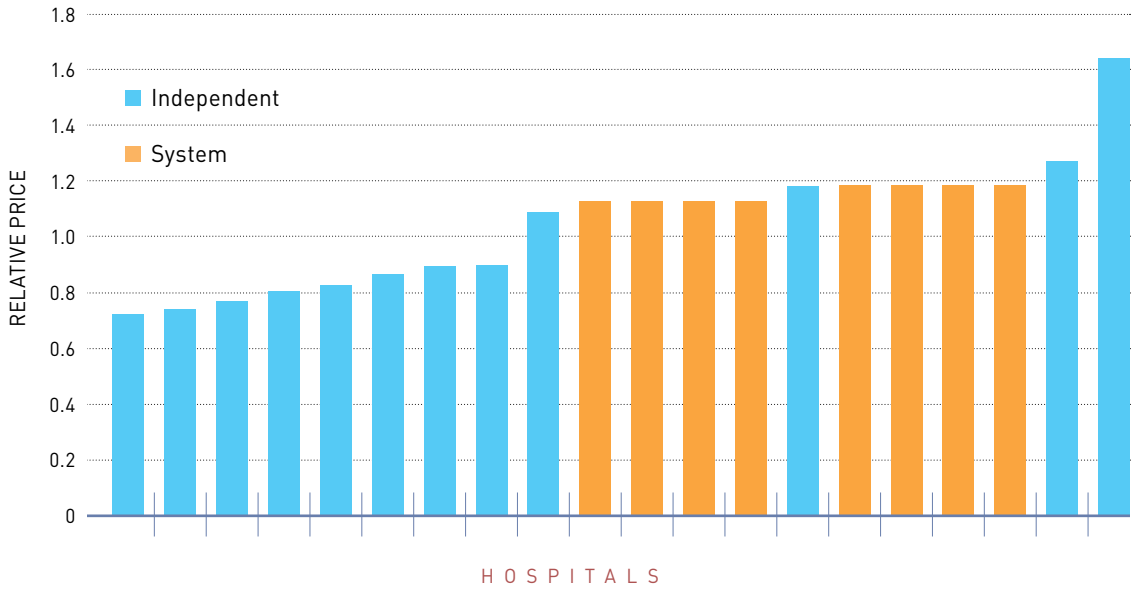
AMC (Academic Medical Center) **LG** (Large Hospital) **MED** (Medium Hospital)
SM (Small Hospital) **SP** (Specialty Hospital)

The team then analyzed hospitals that were considered to be part of a hospital system.

Figure 55 shows the relative prices for all the hospitals in the Buffalo region for one exemplar insurer, and identifies the hospitals that are considered part of a system in orange. As shown, the orange bars fall to the right of the chart, suggesting that hospitals that are part of a large hospital system have higher prices than independent hospitals. This finding is consistent with analyses performed in the Downstate region.

FIGURE 55

2014 Exemplar Insurer Buffalo Hospital Systems



The team also analyzed prices of rural hospitals to those of urban hospitals and found that the prices of rural hospitals in Buffalo appear to be lower than those of urban hospitals in the region, which is not consistent with the team's finding in Albany. This may be a result of the very different market dynamics in these two regions, with Buffalo being dominated by two large hospital systems.

In summary, in the Buffalo region there are no clear conclusions from the public payer and Medicaid payer mix. It appears that hospital systems and specialty hospitals are higher-priced.

Appendix I

Limitations, Data Reliance, and Qualifications

LIMITATIONS AND DATA RELIANCE

Gorman Actuarial, Inc., and its subcontractors prepared this report on behalf of the New York State Health Foundation. Although we understand that this report may be distributed to third parties, Gorman Actuarial assumes no duty or liability to any third parties who receive the information herein. This report should only be distributed in its entirety.

Users of this report must possess a reasonable level of expertise and understanding of health care and health insurance markets so as not to misinterpret the information presented.

Analysis in this report was based on data provided by the New York State Department of Financial Services, New York State Department of Health, insurers in the New York health insurance markets, and other public sources. Gorman Actuarial has not audited this information for accuracy. We have performed a limited review of the data for reasonableness and consistency. If the underlying data are inaccurate or incomplete, the results of this analysis may likewise be inaccurate or incomplete.

QUALIFICATIONS

This report includes results based on actuarial analyses conducted by Bela Gorman and Jennifer Smagula, both of whom are members of the American Academy of Actuaries and Fellows of the Society of Actuaries. They both meet the qualification standards for performing the actuarial analyses presented in this report.

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Glossary of Terms and Definitions

Because of the complex topics and industry-specific terms used in this report, a list of terms and definitions is included below.

Allowed Claims: These costs include both the amount paid by the insurer and the amount paid by the member through cost sharing such as deductibles, copayments, and coinsurance.

Case Mix Index: A relative value assigned to a group of patients in an inpatient hospital setting that measures the severity of the inpatient admissions for that group of patients.

Coinsurance: A health insurance plan design feature that requires the patient to pay a percentage or a share of the cost of a health care service.

Copays: A health insurance plan design feature that requires the patient to pay a fixed dollar amount for a health care service.

Cost Share: A health insurance plan design feature that requires the patient to pay for some of his or her health care. This will include deductibles, copays, and coinsurance.

Deductible: A health insurance plan design feature that requires the patient to pay a specified amount of money before an insurance company will pay a claim.

Hospital Expenditures: In this report, hospital expenditures are defined as payments made to hospitals by an insurer and a patient (in the form of cost share) for health care services.

Hospital Prices: In this report, hospital prices refer to the reimbursement rates that hospitals receive from payers, including commercial health insurers as well as government payers such as Medicaid and Medicare. Hospital prices do not refer to hospital charges or the costs of providing services.

Hospital Relative Price: In this report, hospital relative price is a metric to compare overall hospital prices from one hospital to another, using a methodology developed for this study.

Hospital Price Variation: The extent to which hospital prices differ across hospitals.

Hospital System: A group of hospitals owned, sponsored, or contract managed by a central organization.

Infrastructure Payments: Payments made by the insurer to the hospital for specific initiatives within the hospital such as health information technology or training of case managers.

Inpatient Hospital Services: Includes noncapitated facility services for medical, surgical, maternity, mental health and substance use disorders, skilled nursing, and other services provided in an inpatient facility setting and billed by the facility.

Medicaid: A health care program generally for low-income families or individuals paying for long-term medical and custodial care costs.

Medicaid Payer Mix: The percentage of a hospital's total revenue that is provided by Medicaid.

Medicare: The federal health insurance program generally for people who are 65 and older or who have certain disabilities.

Non-Claim Payments: Payments made pursuant to the insurer's contract with the hospital that were not made on the basis of a claim for medical services. These may include management fees, infrastructure payments, quality or efficiency bonuses, and supplemental payments.

Outpatient Hospital Services: Includes noncapitated facility services for surgery, emergency services, lab, radiology, therapy, observation, and other services provided in an outpatient facility setting and billed by the facility.

Private Insured Commercial Market: This market includes individuals who purchase insurance directly from the insurer or individuals who receive insurance through their employer.

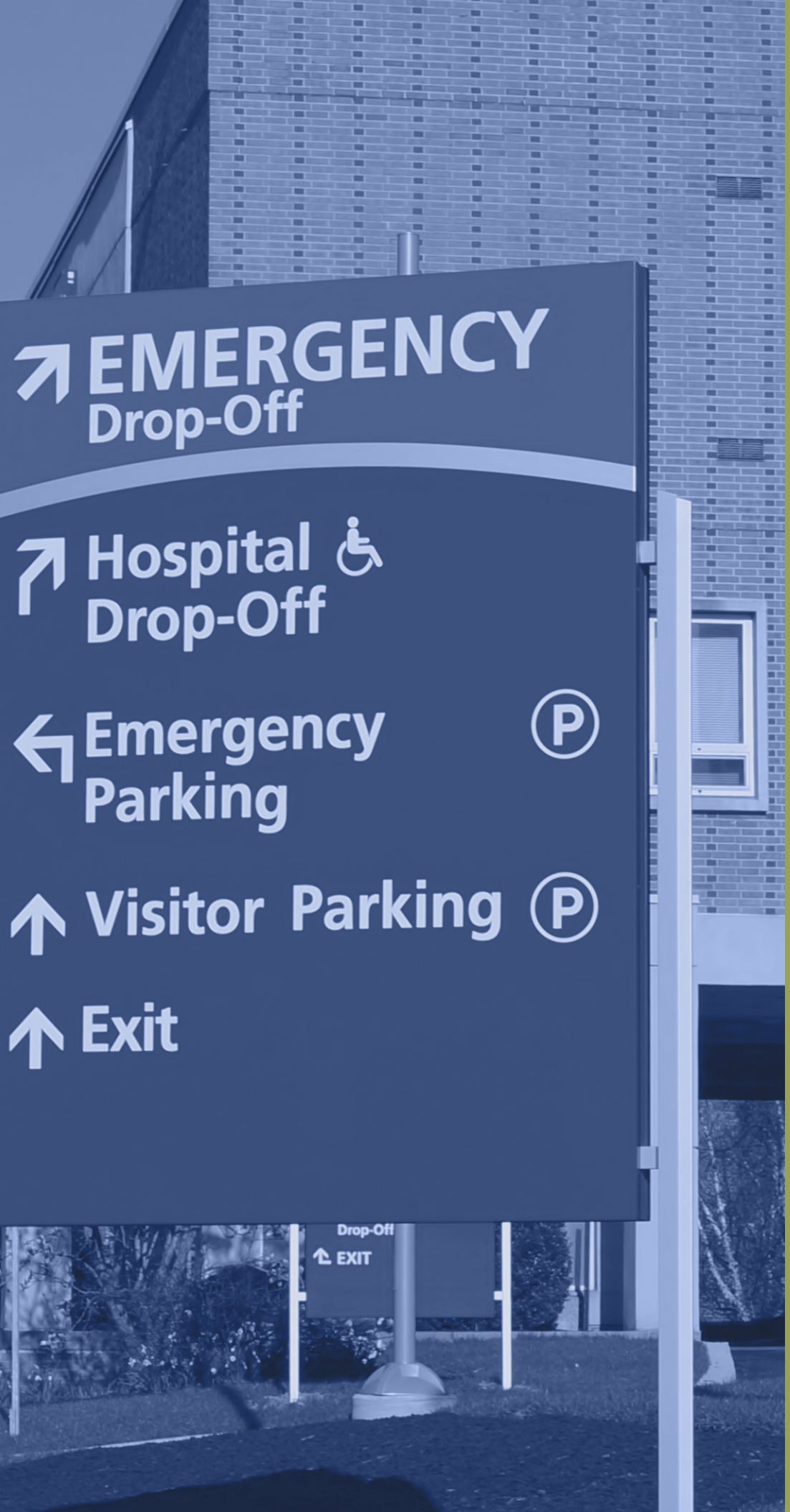
Public Payer Mix: The percentage of a hospital's total revenue that is provided by public payers such as Medicare and Medicaid.

Quality Payments: Payments made by the insurer to the hospital for meeting specific quality metrics as defined in the contract between the insurer and the hospital.

Unit Price Trend: This reflects the increase in provider reimbursement for a fixed health care service.

Utilization: A measure of the number of services provided. Examples of the types of metrics used to calculate utilization include the number of admissions to a hospital, the number of visits to a physical therapist, or the number of X-rays performed.

Utilization Trend: This reflects the increase in the number of services provided.



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