Commonwealth
of Massachusetts

Center for Health
Information and Analysis

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Health Care Provider Price Variation in the Massachusetts Commercial Market

Results from 2011

February 2013

Center for Health
Information and Analysis

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Key Terms

Relative Price: Relative price is a calculated measure that compares different provider prices within a payer's network for a standard mix of insurance products (e.g. HMO, PPO, and Indemnity) to the average of all providers' prices in that network. The relative price method standardizes the calculation of provider prices and neutralizes the effect of differences in the services providers deliver to patients, and the different product types that payers offer to their members. (see page 4)

- **Network Average:** The average of all prices for a particular provider type in a particular payer's network. Each payer's network average relative price is represented by a "1.0" value. (see page 4)
- **Blended Relative Price:** A hospital's blended relative price is derived by weighting each hospital's inpatient and outpatient relative prices by the network distribution of all hospital's inpatient and outpatient payments within a given payer. (see page 5)
- **Composite Relative Price Percentile**: Derived by taking the simple average of each provider's relative price percentiles across all payers. The composite percentile gives a sense of the rank of a provider's relative price compared to its peers across all payers. (see page 4)

Market Share: For acute hospitals, market share is defined here as a hospital's number of discharges compared to the total number of discharges in the Commonwealth. For physician groups where a standard utilization measure is not reported in the data, market share is defined by the amount of commercial payments a physician group receives compared to the amount of total commercial physician group payments by payers included in this report. For commercial payers, market share is defined as the number of covered lives in a payer's network compared to the total commercially insured population of the Commonwealth. (see page 5)

1. Executive Summary

In 2011, there was significant variation in prices paid to providers within each commercial payer's network in the Commonwealth. Also, payers with a larger market share generally had less price variation within their networks than did payers with a smaller market share. These findings are consistent with the findings of the Center's previous study of relative prices, *Health Care Provider Price Variation in the Massachusetts Commercial Market: Baseline Report.*[1] This report updates that analysis of calendar year 2010 data by providing relative price analytics for calendar year 2011 (CY 2011). This report also analyzes the differences in relative prices among hospitals with various characteristics.

Key Findings for Acute Hospitals for CY2011

- In general, hospitals with a larger commercial market share tended to be associated with higher relative price levels. Conversely, hospitals with a smaller proportion of commercial market share tended to have lower relative price levels. Geographically isolated hospitals also tended to have higher relative prices due to their unique market advantages in their areas.
- Relative price levels tended to be associated with certain hospital characteristics.
    - Academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals tended to have higher commercial relative prices, while disproportionate share hospitals (DSH) and community hospitals tended to have lower commercial relative prices.
- Payments made to acute hospitals were concentrated in higher priced hospitals. Higher priced hospitals accounted for approximately four out of every five dollars paid by the commercial payers to all acute hospitals.
- While total commercial payments to hospitals were concentrated in higher priced hospitals, payment distribution varied by hospital characteristics.
    - Academic medical centers received the largest portion of total acute hospital commercial payments at 41%, followed by community hospitals at 21%, and teaching hospitals at 13%. Specialty hospitals and DSH hospitals received 12% and 8%, respectively, of total commercial hospital payments, while geographically isolated hospitals accounted for 5% of total payments.

1 Center for Health Information and Analysis (2012). Health Care Provider Price Variation in the Massachusetts Commercial Market: Baseline Report, November 2012. Available at http://www.mass.gov/chia/docs/cost-trend-docs/cost-trends-docs-2012/price-variation-report-11-2012.pdf (Last accessed: February 21th, 2013). This report was published pursuant to Chapter 288 of the Acts of 2010.

Key Findings for Physician Groups for CY2010[2]

- In CY 2010, there was significant variation in relative prices paid to physician groups by commercial payers.
    - Similar to acute hospitals, physician groups with larger market shares tended to have higher relative prices while physician groups with smaller market shares tended to have lower relative prices.
    - Higher priced physician groups accounted for approximately four out of every five dollars paid by commercial payers to all physician groups.

2 Calendar year 2010 data is used for physician groups to allow sufficient time for claims run out and for determination of non-claims payment amounts. Additional time is needed for non-claims payments, as these types of payments are reconciled at the end of the calendar year based on a provider's budget and other measures used to determine the final settlement amount. Alternative payment methodologies, especially those utilizing quality measures, usually require an additional amount of time to settle as well.

2. Data and Methodology

This report examined price relativities of various provider types and various insurance types from the ten largest payers in the Massachusetts commercial health insurance market and from the commercial payers who offered Medicare Advantage, Medicaid Managed Care Organization (MCO), and Commonwealth Care insurance products.[3]

Each payer's network average is represented by a "1.0" relative price value. Each provider within a payer's network is assigned a relative price that represents how much the provider's price deviates from that "1.0". Because each provider's relative price value is tied to the network average within a given network, it is not possible to directly compare a provider's relative price value across payer networks.[4]

In order to compare provider relative price levels across payers' networks, a relative price percentile was used in this report. Each provider's relative price in a given payer's network was first converted into a percentile. Then, a composite relative price percentile was derived by taking the simple average of each provider's relative price percentile across all payers. A higher percentile (e.g. the 80th percentile) indicates that a provider's relative price on average was higher than 80% of the providers across all payers; a lower average percentile (e.g. the 10th percentile) indicates that a provider's relative price was lower than 90% of the providers across all payers. The 50th percentile represents the network median relative price. As the percentile method used the same ordered scale for all payers, the relative position of the provider may be compared across all payers. The composite percentile gives a sense of what, on average, is the relative order of a provider's relative price compared to its peers in the commercial market. *The details of the methodologies are provided in the Technical Appendix*.

3 Only BMC HealthNet, CeltiCare, and Network Health exclusively offered Medicaid MCO and Commonwealth Care products.

4 As network average prices represent different dollar values across networks, it is important to note that a lower relative price in payer X's network (for example .90) could represent a higher actual price than a higher relative price in payer Y's network (for example 1.10).

3. Acute Hospital Relative Price Analysis[5]

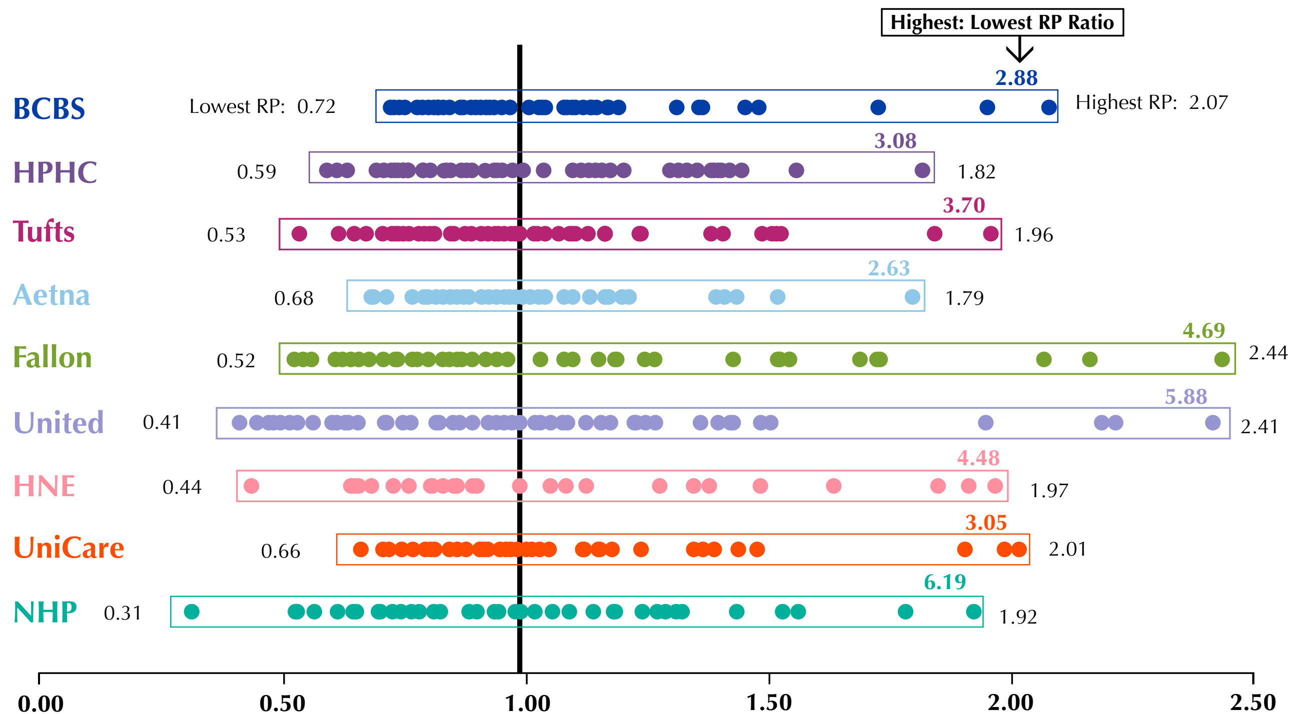
In 2011, there was substantial price variation among acute hospitals in the Commonwealth. Academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals[6] tended to have higher blended relative prices in the commercial market. Hospitals with larger market shares[7] also tended to have higher blended relative prices. Overall hospital payments were concentrated in higher priced hospitals.

3.1 Relative Price Variation Across Payers' Networks

- **Variation in Hospital Blended Relative Prices across Payer**

There was significant price variation within each payer's network in the Commonwealth. Overall, payers with a larger market share, as measured by the number of covered lives, had less price variation within their networks. Figure 1 shows the overall variation within each payer's network. The top four payers that had the largest market shares had highest-to-lowest relative price ratios ranging from 2.63 to 3.70, while the four payers that had the smallest market shares had highest-to-lowest relative price ratios ranging from 3.05 to 6.19. This finding is consistent with the Center's previous report.

Figure 1: Distribution of CY 2011 Acute Hospital Blended Relative Prices by Payer



Note: Each dot represents a hospital's relative price in a given payer's network.

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5 The data presented here represents hospital blended relative prices for calendar year 2011 (CY 2011). This section focuses on nine reporting commercial payers for blended commercial products, including HMO, PPO, Indemnity, and Other. The relative price data for hospital inpatient and outpatient services reported by Connecticut General Life Insurance Company (CIGNA) was not included in this report due to data quality concerns.

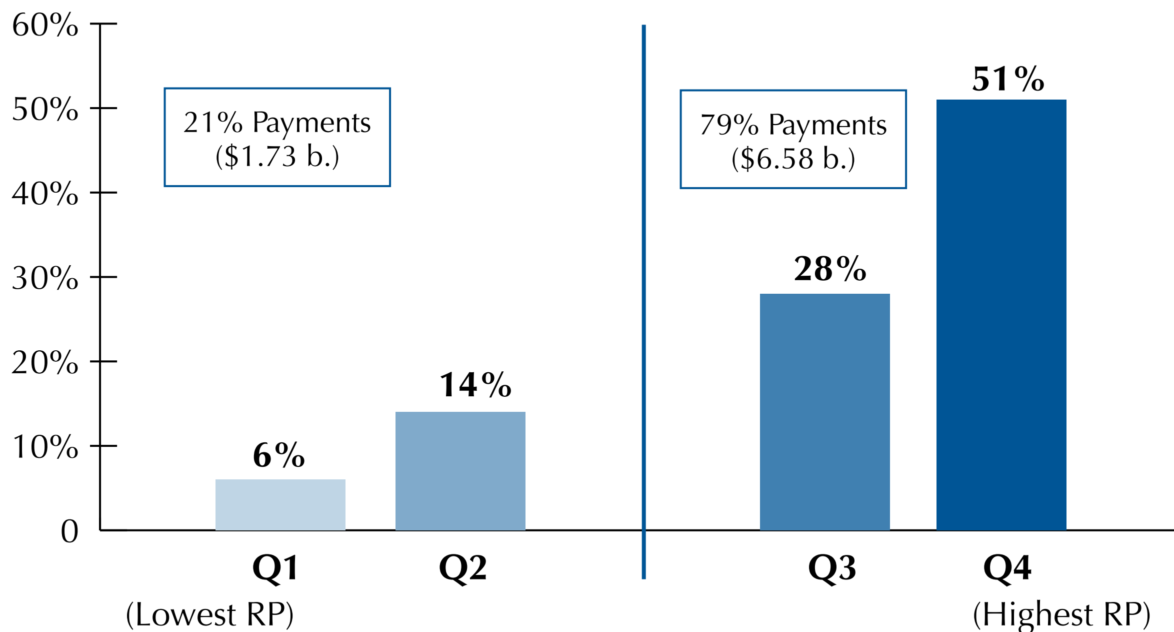
6 For this report, a geographically isolated hospital is defined as a sole acute hospital within a 20 mile radius.

7 For acute hospitals, market share is defined as a hospital's number of inpatient discharges compared to the total number of inpatient discharges in the Commonwealth.

- **Concentration of Payments by Relative Price Quartile**

In 2011, payers' total hospital payments were concentrated in the higher priced hospitals (Figure 2). Hospitals were grouped into quartiles according to their blended relative price values, and the payments to the hospitals were aggregated for each quartile. The highest priced quartile included hospitals that ranked in the top 25 percent of the relative price values in each payer's network. The hospitals in the higher two relative price quartiles that had relative prices above the network median (i.e. the 50th percentile) were paid 79% of total commercial hospital payments. Hospitals in the lower two relative price quartiles that had relative price values at or below the network median price were paid only 21% of total hospital payments. *For more detailed information about the hospitals, the distribution of payments, and inpatient discharges by relative price level within each payer's network, please refer to the Chartbook.*

Figure 2: Distribution of CY 2011 Total Hospital Payments by Relative Price Quartile



Notes: The payment percentages may not sum to 100 due to rounding.

3.2 Price Variation Among Acute Hospitals

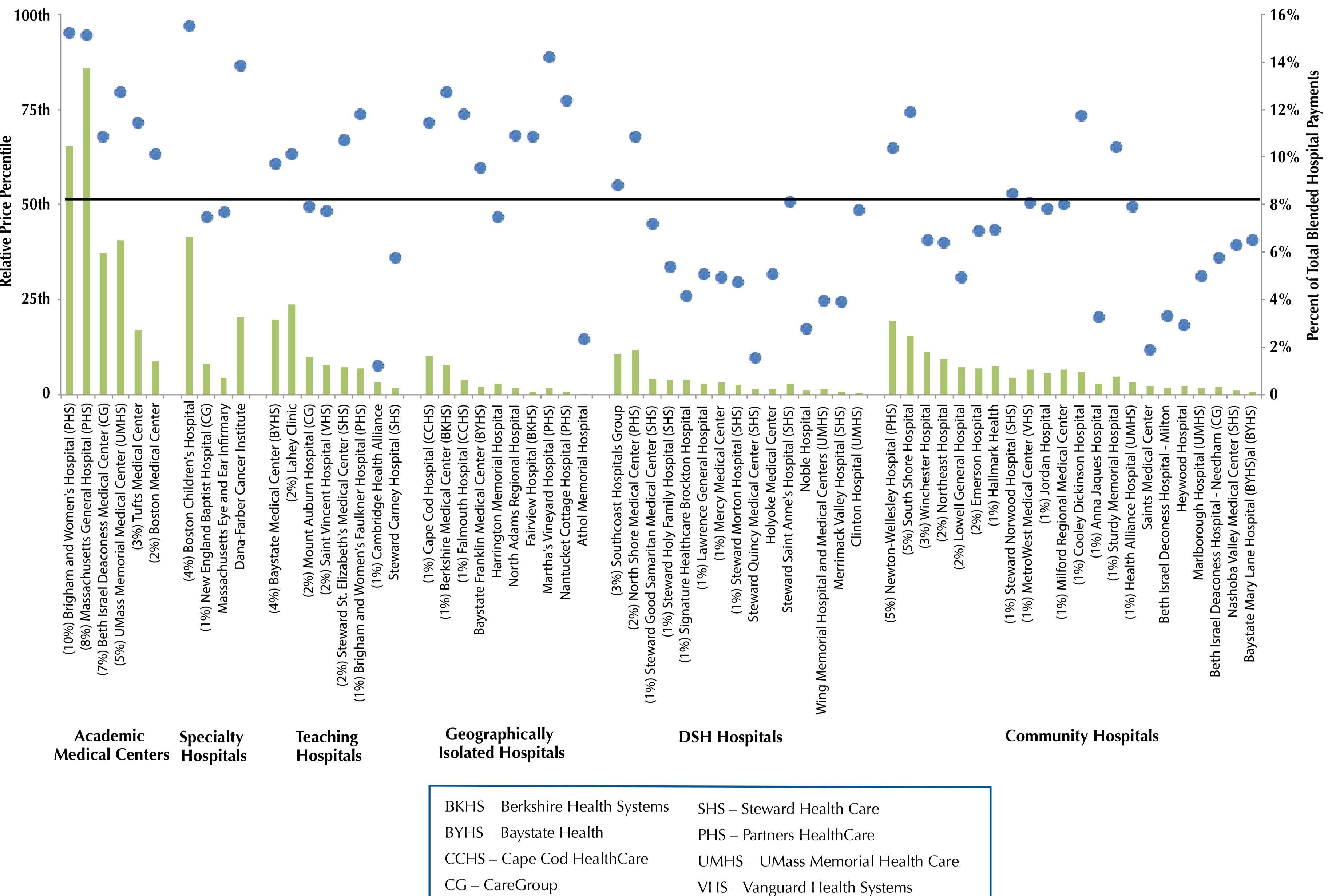
In order to compare acute hospital blended relative prices across payers, a composite percentile was developed by first converting a hospital's blended relative price into a percentile within each payer's network, and then taking the simple average of that hospital's relative price percentiles across all payers' networks. In general, hospitals that had greater market shares, measured by the number of inpatient discharges of commercially insured patients, tended to have higher composite relative price percentiles and also tended to receive a larger proportion of payments (Figure 3). Compared to other types of acute hospitals, geographically isolated hospitals and specialty hospitals had a much smaller proportion of total commercial inpatient discharges and received a smaller proportion of total acute hospital payments. However, geographically isolated hospitals, such as Martha's Vineyard Hospital and Berkshire Medical Center, tended to have higher composite relative price percentiles, which may reflect the unique market advantages these hospitals tend to have in their respective areas. Specialty hospitals, such as Boston Children's Hospital and Dana Farber Cancer Institute, also tended to have relative prices higher than the average which may reflect their unique areas of expertise. *For more detailed information about hospital blended relative prices and the payment distribution within each payer's network, please refer to the Chartbook*.

Figure 3 illustrates the price variation across acute hospitals.[8] A blue dot located above the black line indicates a higher than average relative price percentile; a blue dot located below the black line indicates a lower than average relative price percentile. The green bar illustrates the proportion of total hospital payments received by each hospital among all reported payments.[9] The number inside the parenthesis indicates a hospital's proportion of total inpatient discharges reported by the payers.

8 Appendix Table A-1 lists the healthcare systems and its affiliated acute hospitals.

9 Payments to a hospital from a payer are determined by various factors, including, but not limited to negotiated prices, quantity of services, quality of services, service mix, and patient acuity. Price is not the only factor.

Figure 3: CY 2011 Acute Hospital Relative Price Composite Percentile and Payment Distribution



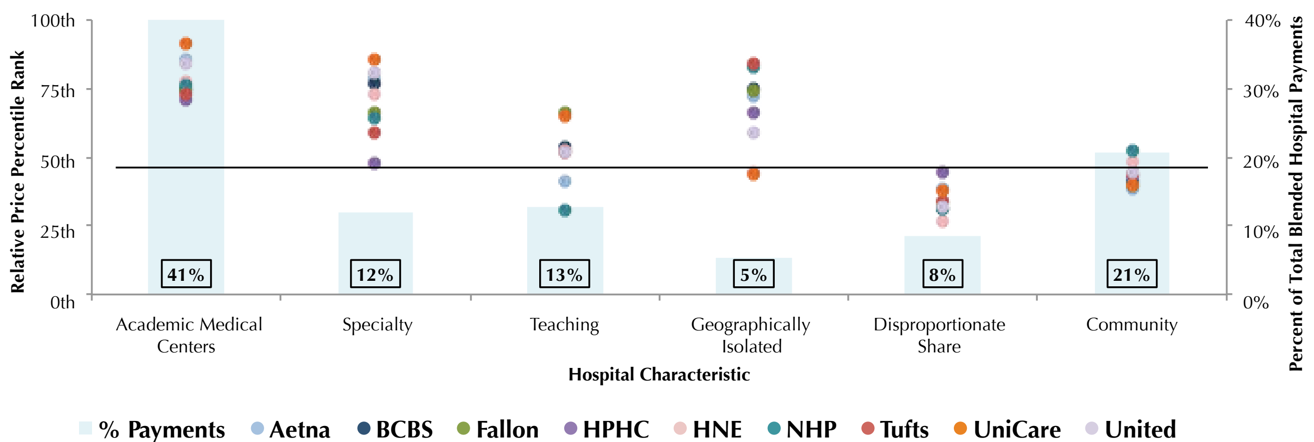
- **Relationship between Hospital Characteristics and Relative Prices**

In 2011, relative price levels were generally associated with certain hospital characteristics. Academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals generally had higher relative prices, while DSH hospitals and community hospitals generally had lower relative prices.

In order to examine relative price levels by hospital characteristics, each hospital was first assigned to a characteristic group.[10] Within a given payer's network, a "group average relative price percentile" was developed for each characteristic group by taking the simple average of the relative price percentile of each hospital within the characteristic group. Academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals generally had higher relative prices that ranked above the network median (i.e. the 50th percentile), while DSH and community hospitals tended to have lower relative prices that ranked below the network median (Figure 4).

Total payments to hospitals were heavily concentrated in academic medical centers. Of the nine reporting commercial payers' total payments to acute hospitals, 41% of the payments were to academic medical centers. In contrast, only 8% of commercial acute hospital payments were made to DSH hospitals.

Figure 4: CY 2011 Relative Price Average Percentile by Hospital Characteristic by Payer



Notes: (1) The payment percentages may not sum to 100 due to rounding. (2) Each dot represents the relative price average percentile of all hospitals within each hospital characteristic group by payer.

10 An assignment hierarchy was employed to ensure that no hospital was counted twice. Hospitals that were academic medical centers were first identified. Among the remaining hospitals, specialty hospitals were the second characteristic group to be designated. The remaining hospitals were then assigned to the appropriate characteristic groups in the order of teaching status, geographical isolation status, and DSH status. Lastly, the remaining unclassified hospitals were grouped as all other community hospitals.

4. Physician Group Relative Price Analysis

There was substantial variation in relative prices for physician groups in the Commonwealth. Payments to physician groups were concentrated in physician groups with higher relative prices.

The data presented here represents physician group relative prices for calendar year 2010 (CY 2010).[11] In this section, "total payments" refers only to payments made to the physician groups that were included in the relative price calculation after thresholds were applied, which accounted for 86% of all payments to physicians and physician groups by the nine commercial payers reporting in CY 2010 (Appendix Table A-2).[12]

4.1 Price Variation Across Payers' Networks

- **Variation in Physician Group Relative Prices across Payers**

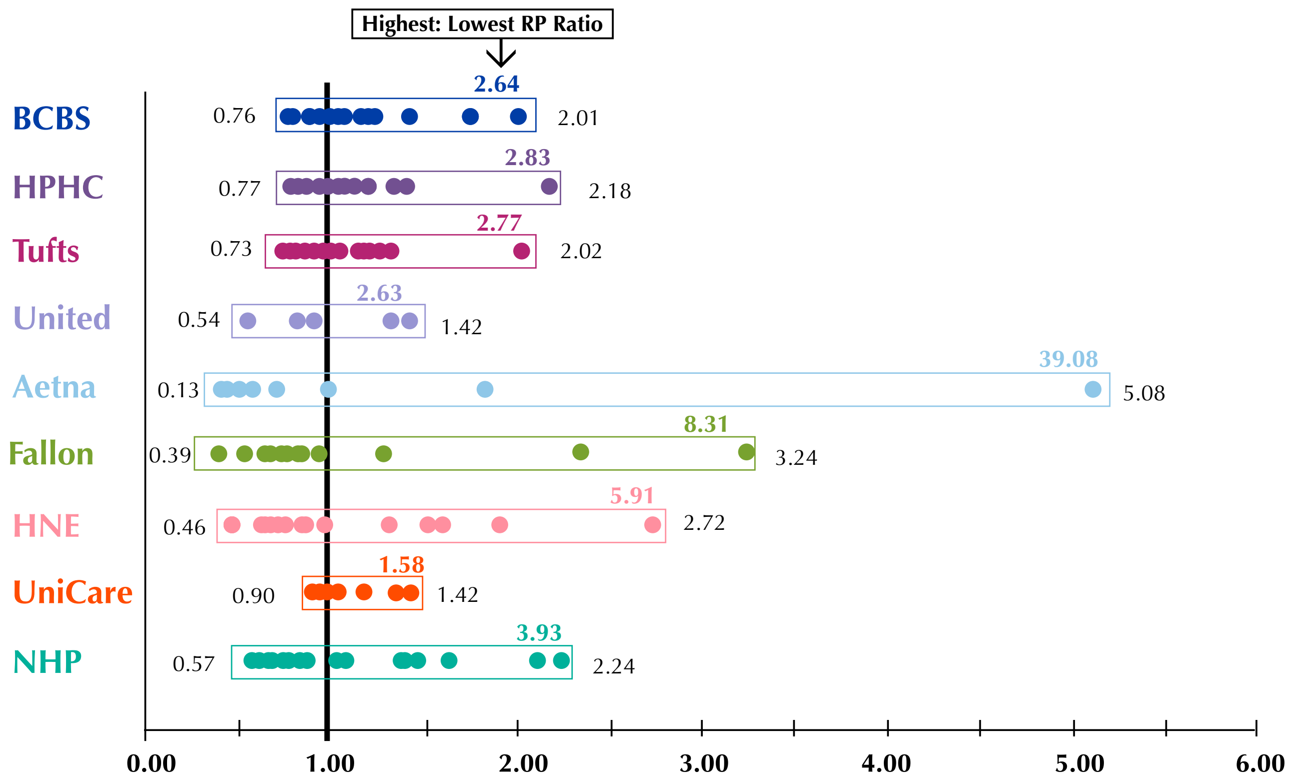
There was significant price variation within each payer's network in the Commonwealth. Generally, payers with larger market shares, measured by the number of covered lives, tended to have less variation in physician group relative prices within their networks than payers with smaller market shares. The four payers that had the largest market shares had highest-to-lowest relative price ratios ranging from 2.63 to 2.83, while the four payers that had the smallest market shares had highest-to-lowest relative price ratios ranging from 1.58 to 8.31.

Figure 5 below illustrates price variation across payers' networks. A longer bar represents a wider range of price variation, with the left border indicating the lowest relative price, and the right border indicating the highest relative price. On top of each bar is in the ratio of the highest relative price to the lowest relative price within that payer's network.

11 Calendar year 2010 data is used for physician groups to allow sufficient time for claims run out and for determination of non-claims payment amounts. Additional time is needed for non-claims payments, as these types of payments are reconciled at the end of the calendar year based on a provider's budget and other measures used to determine the final settlement amount. Alternative payment methodologies, especially those utilizing quality measures, usually require an additional amount of time to settle as well.

12 This section focuses on nine reporting commercial payers for blended commercial products, including HMO, PPO, Indemnity, and Other. The relative price data for physician groups reported by Connecticut General Life Insurance Company (CIGNA) was not included in this report due to data quality concerns.

Figure 5: Distribution of CY 2010 Physician Group Relative Prices by Payer

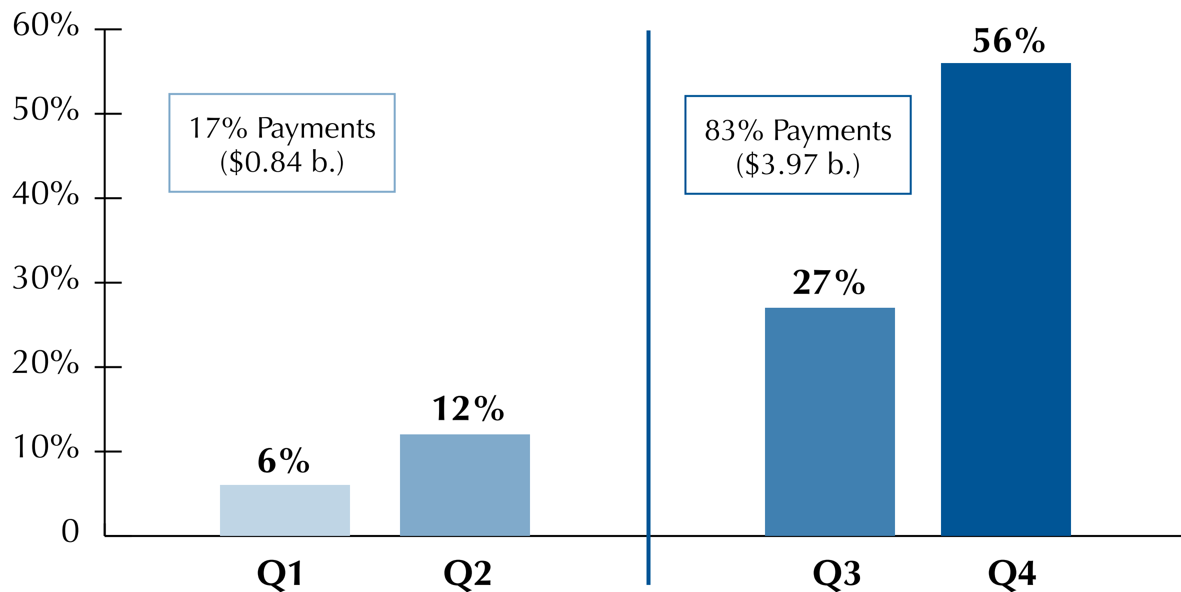


Note: Each dot represents a physician group's relative price in a given payer's network.

- **Concentration of Physician Group Payments by Relative Price Quartile**

In 2010, payers' total physician group payments were concentrated in the higher priced physician groups (Figure 6). Physician groups were grouped into quartiles according to their relative price values, and the payments to the physician groups were aggregated for each quartile. The highest priced quartile included physician groups that ranked in the top 25 percent of the relative price values in a payer's network. The physician groups in the higher two relative price quartiles that had relative price values above the network median received 83% of total physician group payments. Physician groups in the lower two relative price quartiles that had relative price values at or below the network median price received only 17% of total physician group payments. *For more detailed information about the distribution of physician group payments by relative price level within each payer's network, please refer to the Chartbook.*

Figure 6: Distribution of CY 2010 Total Reported Payments by Relative Price Quartile



Notes: The payment percentages may not sum to 100 due to rounding.

4.2 Price Variation Across Physician Groups

In order to compare physician group relative prices across payers, a composite percentile was developed by first converting a physician group's relative price into a percentile within each payer's network, and then taking the simple average of that physician group's relative price percentiles across all payers' networks. In general, physician groups that had greater market shares,[13] measured by the proportion of physician group payments, tended to have higher composite relative price percentiles. As an example, Partners Community HealthCare had a composite percentile of 83, indicating that on average, Partner Community HealthCare's relative price was higher than 83% of all other physician groups across all payers. Partners Community HealthCare also received the largest proportion of physician group payments at 29% of total reported physician group payments from the commercial payers in CY 2010.[14]

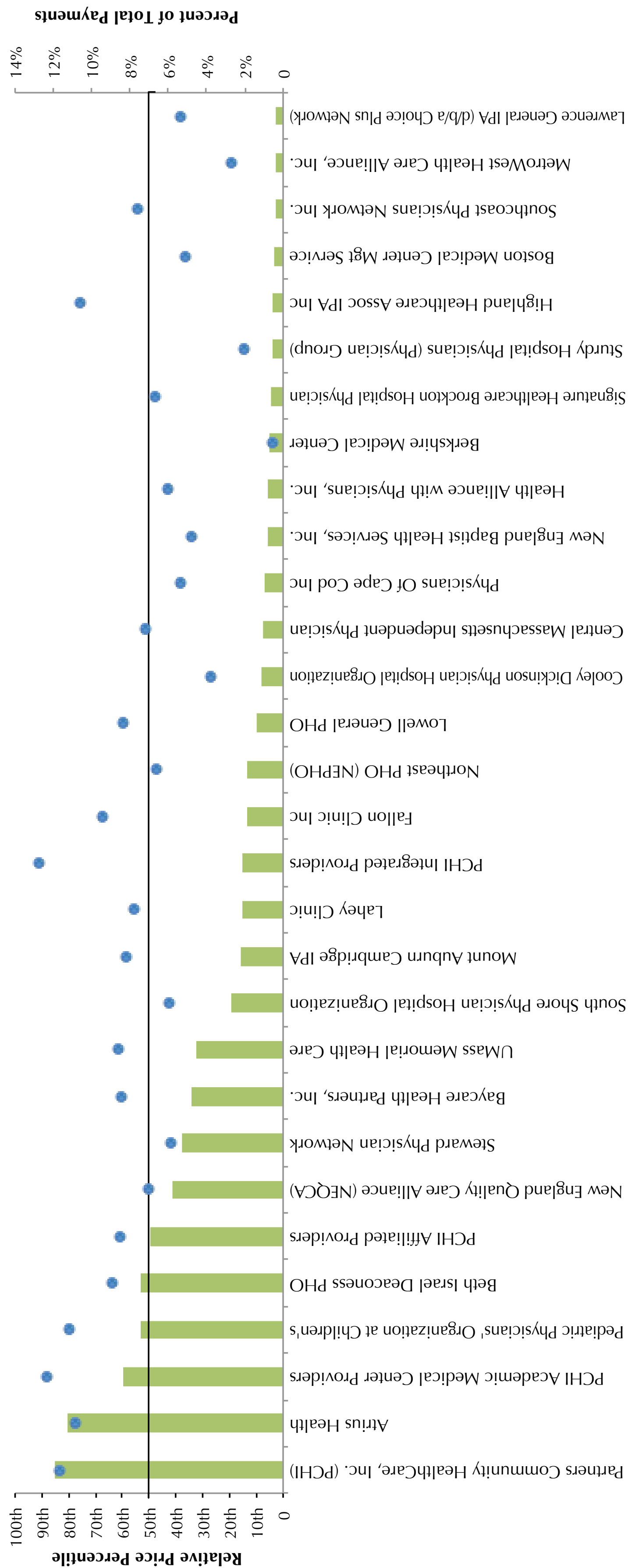
Figure 7 illustrates the price variation across physician groups. A blue dot located above the black line indicates a higher than average relative price percentile; a blue dot located below the black line indicates a lower than average relative price percentile. The green bar illustrates the proportion of total payments received by each physician group among all reported payments. The number inside the parenthesis indicates a physician group's proportion of total reported payments by the payers. Only the top 30 physician groups, based on the share of total reported payments across these payers, are shown in the figure.[15]

13 Market share is defined here as the proportion of total physician payments paid to a particular physician group. Payment amounts to a physician group from a payer are determined by various factors, including, but not limited to, negotiated prices, quantity of services, quality of services, service mix, and patient acuity. Price is not the only factor.

14 Blue Cross Blue Shield of Massachusetts (BCBS) directly contracted with three physician groups of the Partners Community HealthCare (PCHI): PCHI Academic Medical Center Providers, PCHI Affiliated Providers, and PCHI Integrated Providers. These three physician groups combined received about 17% of total reported physician group payments. The other commercial payers contracted with PCHI as a whole, and the payment amounts from these payers to PCHI accounted for 12% of total physician group payments. In sum, PCHI received 29% of total payments.

15 The commercial payers were required to report relative price data for the top 30 physician groups in their own networks. Across all payers, a total of 95 different physician groups were reported.

Figure 7: CY 2010 Physician Group Relative Price Composite Percentile and Distribution of Total Payments



5. Conclusion

Relative prices examined in this report continued to vary significantly among hospitals and physician groups across all payers' networks in the commercial market. Certain hospital characteristics seemed to contribute to price variation in any given payer's network. Among acute hospitals, academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals tended to have higher than average relative prices across all payer networks. In contrast, most disproportionate share hospitals (DSH) and community hospitals tended to have lower than average relative prices across all payer networks.

Payments for acute hospital and physician group services were concentrated in certain higher priced providers. For acute hospitals, payment distribution also varied by hospital characteristics. The majority of total acute hospital payments were concentrated in academic medical centers, while a much smaller proportion of total payments were paid to DSH hospitals.

While this report was able to identify some provider characteristics that can be generally associated with higher or lower prices, provider prices are ultimately determined by private negotiations between providers and commercial payers that reflect market conditions.

Center for Health Information and Analysis

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