

Relative Price and Provider Price Variation in the Massachusetts Commercial Market

August 2022

Technical Appendix



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TECHNICAL APPENDIX

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Introduction

This technical appendix provides an overview of the data source and analytic methods that were used in *Relative Price and Provider Price Variation in the Massachusetts Commercial Market (August 2022)*, by the Center for Health Information and Analysis (CHIA).

Relative price (RP) is a calculated, aggregate measure used to evaluate variation in health care provider prices in a given calendar year (CY). The Center for Health Information and Analysis (CHIA) is statutorily mandated under Massachusetts General Laws Chapter 12C to collect and report data on relative prices from private and public health care payers operating in the Massachusetts health care market. RP reporting supports the Commonwealth's goals of promoting transparency, cost containment, and efficiency.

RP compares prices paid to different providers within a payer's network, while accounting for differences in the intensity of services (for inpatient services), the quantity and types of services delivered by providers (for outpatient services and for physician groups and other providers), and for differences in the types of insurance products offered by payers.

In addition, RP data forms the basis for the calculation of statewide relative price (S-RP), a measure of the prices paid to a provider across multiple payers in a given calendar year.

S-RP blends relative price across payers using payer payment distributions. Since relative price is calculated within each payer, a blending of relative prices will not account for absolute price differences across payers. For this reason, it is not advisable to use S-RP to understand absolute price differences between one provider and another. S-RP should only be used for directional purposes.

Data and Methodology

Payers submit three data files for different provider types: Hospitals including Inpatient and Outpatient datasets separately, Physician Groups, and Other Providers. Relative price is calculated for each of the payer's networks. A network is defined as a provider type-insurance type combination, e.g., Acute Inpatient Hospital-Commercial or Physician Group-Medicare Advantage. Within each network, RPs are calculated separately for each product type, as well as for all products combined.

Relative Price and Provider Price Variation in the Massachusetts Commercial Market (August 2022) reflects Inpatient and Outpatient Hospital data for the calendar year 2020. Physician Group and Other Provider results are provided for calendar years 2019 and 2020. Payers report data for the following insurance categories:

- Commercial (self and fully insured)
- Medicare Advantage
- Medicaid Managed Care Organization (MCO)/Accountable Care Organization (ACO-A)
- Medicare and Medicaid Dual-eligibles, aged 65 and over
- Medicare and Medicaid Dual-eligibles, aged 21-64

- Other

Payers report data for the following product types:

- Health Maintenance Organization and Point of Service (HMO and POS)
- Preferred Provider Organization (PPO)
- Indemnity
- Other

Payers report hospital data for the following hospital types:

- Acute
- Chronic
- Rehabilitation
- Psychiatric or Substance Abuse Hospital or Acute Hospital Behavioral Health only

RP calculations are performed at the network level. A network is defined by the following attributes:

- Insurance Payer
- Provider Type (Hospital-Inpatient, Hospital-Outpatient, Blended Inpatient and Outpatient Hospital, Physician Group, Other Provider). Other Providers are further defined by Other Provider Type (Ambulatory Surgery Centers, Community Health Centers, Community Mental Health Centers, Freestanding Clinical Laboratories, Freestanding Diagnostic Imaging Centers, Home Health Agencies, Skilled Nursing Facilities).
- Hospital Type (For Hospital-Inpatient, Hospital-Outpatient)
- Insurance Category (Commercial (self and fully insured), Medicare Advantage, Medicaid Managed Care Organization (MCO)/Accountable Care Organization (ACO-A), Medicare and Medicaid Dual-eligibles aged 65 and over, Medicare and Medicaid Dual-eligibles, aged 21-64, Other)
- Product Type (HMO and POS, PPO, Indemnity, Other, All products combined)

The basic steps for computing RP are the same for each provider type:

1. Compute provider-specific aggregate price levels. (This calculation varies by provider type)
2. Take unweighted average of provider-specific price levels to obtain the network average price level.
3. For each provider, divide provider-specific price level by network average price level to obtain each provider's relative price (RP).

By construction, the network average RP equals 1.0 for each payer network. Providers with RP above 1.0 receive higher-than-average payments in a payer's network, and vice versa.

For detailed information about the data and methodology, see the accompanying [Methodology](#) document.

Limitations

RP is an aggregate measure for assessing providers' overall price levels across all services. It is not designed to compare provider prices for particular services. And, because the measure is specific to each payer's network, RP values are not directly comparable across payers. For example:

For two payers, Payer A and Payer B, relative price values are calculated for Provider X. The RP for Provider X in Payer A's network is 0.8 and the RP for Provider X in Payer B's network is 1.50. If the average payment across all providers by Payer A is \$200 and the average payment to all providers for Payer B is \$100, the payment to Provider X by Payer A is \$160 ($0.8 \times \200) and the payment by Payer B is \$150 ($\100×1.50). While the calculated relative price value for Provider X is lower in Payer A's network, the actual amount paid is higher than what was paid by Payer B. As the underlying average payments differ between the networks of the two payers, these two calculated RP values for Provider X are not directly comparable.

For hospital inpatient services, payers report case mix adjustment scores to enable the calculation to control for differences in patient acuity. For hospital outpatient and physician services, payers report the service field used in their contracts with these provider types, as well as the associated claims payments within these service fields. These service fields enable the calculation to control for differences in the types of services provided at different hospitals. Because both the case mix index and service fields are payer-specific, relative prices cannot be compared across payers or insurance categories. In addition, because relative price results are reported relative to payer-specific, and data year-specific network averages, relative prices cannot be compared across data years.

Blue Cross Blue Shield and Tufts Health Plan are unable to report inpatient and outpatient psych hospital services separately due to the nature of their capitated contract arrangements. Therefore, the Outpatient Hospital RP value for these two payers includes payments for Inpatient Psych services as well.

RP Percentiles

Within each payer's network, hospitals are ordered by blended Inpatient and Outpatient relative price, and the Blended RP Percentile is calculated. Blended RP Percentile reports the position (from 0 to 100%) of a hospital's blended RP as compared to all the hospitals in the payer's network¹. Blended RP Percentile is calculated using data for all hospitals that have a calculated Blended RP. A Blended RP is calculated only when a hospital has both Inpatient and Outpatient RP. Using this methodology, the hospital (or hospitals) with the lowest Blended RP will have a percentile of 0%, and the hospital with the highest RP in the network will have a Blended RP percentile of 100%². The calculation is performed on the Hospital Blended RP after being rounded to two decimal places. If all the

¹ The percentile for a hospital is defined as the number of hospitals with an RP less than the hospital divided by the number of hospitals with an RP less than the hospital plus the number of hospitals with an RP greater than or equal to the hospital, excluding the hospital for which the percentile is being calculated.

² If there are multiple hospital with the same, highest RP the percentile will be the same for all of these "highest" hospitals, but it will not be 100%. Footnote 1 describes the calculation.

hospitals in the network have the same Blended RP, they are listed with a percentile of 0%. If there is a single hospital in the network, the hospital will have a percentile of 100%.

This calculation is also performed within each payer’s network for physician groups and other providers. The methodology for calculating the percentile for Physician Group RP and Other Provider Group RP is consistent with the methodology described for Hospital Blended RP percentile, using the same methodology.

Acute Hospital RP Quartiles

Within each payer’s network, hospitals are ordered by blended relative price, and grouped into quartiles such that each quartile contains an equal (or as close to equal as possible) number of providers. For each payer, the first quartile (Q1) contains hospitals with the lowest RP values while Q4 contains those with the highest RP values in the network. Note that a specific hospital may be assigned to different quartiles in different payer networks. Additionally, not all hospitals are included in each payer’s network.

Physician Group RP Quartiles

Within each payer’s network, physician groups are ordered by relative price and grouped into quartiles such that each quartile contains an equal (or as close to equal as possible) number of providers. For each payer, the first quartile (Q1) contains physician groups with the lowest RP values while Q4 contains those with the highest RP values in the network. Note that a specific provider may be assigned to different quartiles in different payer networks.

Payers Included in the Report and Included Insurance Categories

PAYER	SHORT NAME	2020 HOSPITAL RP	2020 PHYSICIAN GROUP RP
Aetna Health Inc. (PA) - Aetna Life Ins. Co. (ALIC)	Aetna	Commercial; Medicare Advantage	Commercial; Medicare Advantage
AllWays Health Partners, Inc.	AllWays	Commercial; Medicaid	Commercial; Medicaid
Blue Cross Blue Shield of Massachusetts	BCBS	Commercial; Medicare Advantage	Commercial; Medicare Advantage
BMC HealthNet Plan, Inc. (Medicaid MCO)	BMCHP	Commercial; Medicaid; Dual-Eligibles, 65+	Commercial; Medicaid; Dual- Eligibles, 65+
Commonwealth Care Alliance	CCA	Dual-Eligibles,21-64; Dual- Eligibles, 65+; Other	Dual-Eligibles, 21-64; Dual Eligibles, 65+; Other

PAYER	SHORT NAME	2020 HOSPITAL RP	2020 PHYSICIAN GROUP RP
CIGNA Health and Life Insurance Company (CHLIC)	Cigna	Commercial	Commercial
Fallon Community Health Plan	Fallon	Commercial; Medicare Advantage; Medicaid; Dual-Eligibles, 65+; Other	Commercial; Medicare Advantage; Medicaid; Dual-Eligibles, 65+; Other
Harvard Pilgrim Health Care	HPHC	Commercial	Commercial
Health New England, Inc.	HNE	Commercial; Medicare Advantage; Medicaid	Commercial; Medicare Advantage; Medicaid
Tufts Associated Health Maintenance Organization, Inc.	Tufts Commercial	Commercial	Commercial
Tufts Health Public Plans, Inc.	THPP	Commercial; Medicaid; Dual-Eligibles, 21-64	Commercial; Medicaid; Dual-Eligibles, 21-64
Tufts Medicare Advantage	Tufts Medicare	Medicare Advantage	Medicare Advantage
UniCare Life and Health Insurance Company	UniCare	Commercial	Commercial
United Healthcare Insurance - Medicare & Retirement (SCO)	United SCO	Medicare Advantage; Dual-Eligibles, 65+	Medicare Advantage; Dual-Eligibles, 65+

