COMMONWEALTH OF MASSACHUSETTS
HEALTH POLICY COMMISSION

TECHNICAL APPENDIX B3

MASSACHUSETTS PROVIDER MARKET: STATUS AND TRENDS

ADDENDUM TO 2016 COST TRENDS REPORT

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1 Summary

This appendix describes the Health Policy Commission's (HPC's) approach to the analyses contained in **Chapter 3: "The Massachusetts Provider Market: Status and Trends"**.

2 Primary care physician primary sites of practice reported to the Registry of Provider Organization program

2.1 Data

The HPC used the Registration of Provider Organizations (RPO) data for 2015. The RPO dataset includes data from Massachusetts provider organizations that either receive $25 million in Net Patient Service Revenue from commercial payers or that participate in payer contracts with downside risk. The dataset captures each provider organization's internal corporate structure, including information on its corporate affiliates, licensed facilities, and physicians, as well as information on its external contracting and clinical relationships with other providers. For more on this data set, see **Technical Appendix C: "Data Sources**".

2.2 Analysis

In this analysis, the HPC mapped the primary site of practice *only* for physicians that reported provider organizations identified as either a "PCP" or "Both [PCP and specialist]" in a "PCP status" field. The HPC excluded physicians with a primary site of practice outside of Massachusetts. Some physicians are reported more than once in the dataset (e.g., if two provider organizations establish payer contracts on behalf of the physician, both provider organizations would list that physician its physician roster); physicians reported in the dataset more than once with the same primary site of practice listed each time were included only once in the analysis. However, if a physician was reported more than once by separate provider organizations and such organizations listed different primary sites of practice, each primary site of practice was included.

3 Summary data on the largest Massachusetts provider organizations

3.1 Data

The HPC used the Registration of Provider Organizations (RPO) data. For additional information on the RPO dataset, see section 2.1 of this appendix and **Technical Appendix C: "Data Sources"**.

3.2 Definitions

- Corporate Affiliation
  Any relationship between two entities that reflects, directly or indirectly, a partial or complete controlling interest or partial or complete common control.

- Contracting Affiliation
  Any relationship between a provider organization and another provider or provider organization for the purposes of negotiating, representing, or otherwise acting to establish contracts for the payment of health care services, including for payment rates, incentives, and operating terms, with a carrier or third-party administrator.

- Pediatricians
  Provider organizations were directed to use their own internal methodology when determining whether or not to classify a physician as a pediatrician. In the event that the provider organization did not have an existing methodology to classify physicians as pediatricians, the MA-RPO program asked that they consider classifying a physician as a pediatrician if a majority of the physician's patients are pediatric patients.

3.3 Analysis

In **Exhibit 3.2**, Summary data on the largest Massachusetts provider organizations, the HPC included summary data for the eight largest provider organizations in Massachusetts as determined by commercial adult primary care market share statewide (by visits or by revenue), based on current affiliations and 2013 All-Payer Claims Database data.

Main sites of acute hospitals that are on the same license, but that have separate addresses that are not geographically proximate (e.g., located in different zip codes), were counted separately for the purposes of **Exhibit 3.2**.

Physicians listed as "Both [PCP and specialist]" in response to a PCP status question were included in both the PCP and the specialist counts, but were counted only once in the overall total number of physicians reported.

4 Inpatient discharges from top 5 networks

4.1 Data

The HPC used the Center for Health Information and Analysis (CHIA) Hospital Inpatient Discharge Database (HIDD) for FY 2012 to 2015. For additional information on this data source, see **Technical Appendix: "Data Sources."**

4.2 Analysis

Using data from the HIDD, the HPC counted commercial discharges from each acute care hospital (excluding Shriners' two hospitals, as well as federal hospitals, long-term care hospitals,

and psychiatric hospitals) in Massachusetts. For this analysis, discharges were limited to Massachusetts residents enrolled in commercial plans. Additional exclusions were made for patients with lengths of stay longer than 180 days, normal newborns (to avoid double counting discharges), and discharges that fell within major diagnostic categories (MDCs) 19 and 20 (Mental Diseases and Disorders, and Alcohol/Drug Use or Induced Mental Disorders, respectively).

Hospitals were grouped by network, which include both contracting and corporate affiliations. The networks were then sorted by number of discharges. The top five networks are defined by the HPC as the five highest-volume networks. These figures are presented in **Exhibit 3.6**.

5 Unwarranted variation in provider prices

5.1 Data

The HPC used the following two data sets from CHIA for **Exhibit 3.7** and **Exhibit 3.8**: Relative Price Databook, 2014 and Acute Hospital Data Appendix, 2014. For more on these data sources, see **Technical Appendix C: "Data Sources".**

5.2 Definitions

- Inpatient Net Patient Service Revenue per Case-Mix-Adjusted Discharge (NPSR/CMAD)
  Inpatient NPSR includes all revenue received for inpatient services from all payers, including any MassHealth supplemental payments attributed to inpatient services. Inpatient NPSR/CMAD is inpatient NPSR divided by the product of hospital discharges and case mix index (adjustments for volume and patient acuity). Each hospital's Inpatient NPSR and CMAD are publicly reported by CHIA.

- Inpatient Relative Price
  As described in CHIA's 2016 paper on relative price methodology,[1] relative price (RP) is a "calculated, aggregate measure used to evaluate variation in health care provider prices…RP compares prices paid to different providers within a payer's network, while accounting for differences in the quantity and types of services delivered by providers and for differences in the types of insurance product offered by payers." Inpatient RP is publicly reported by CHIA each year. See *Methodology Paper: Relative Price* for a full description of how RP is calculated.

5.3 Analysis

[1] Center for Health Information and Analysis. Methodology Paper: Relative Price. 2016 Sep. Available from http://www.chiamass.gov/assets/docs/r/pubs/16/RP-Methodology-Paper-9-15-16.pdf.

Exhibit 3.7, Inpatient relative price for one major commercial payer compared to inpatient net patient service revenue per case-mix-adjusted discharge across all payers, shows each hospital's position compared to the average for both inpatient RP and inpatient NPSR/CMAD for one major payer. The horizontal axis presents inpatient RP for each hospital for the selected payer. The vertical axis presents each hospital's normalized inpatient NPSR/CMAD. Inpatient NPSR/CMAD is normalized by dividing each hospital's inpatient NPSR/CMAD by the average NPSR/CMAD of all hospitals to allow for easier comparison to inpatient RP.

Exhibit 3.8, Hospital inpatient relative prices in Medicaid Managed Care Organization networks, 2014, presents inpatient RP for each hospital for several MassHealth Managed Care Organizations. The HPC calculated the extent of the variation in inpatient RP for each payer by dividing the highest inpatient RP by the lowest inpatient RP in each payer's hospital network.