COMMONWEALTH OF MASSACHUSETTS

HEALTH POLICY COMMISSION

TECHNICAL APPENDIX 3

COMMERCIAL PRICE TRENDS

ADDENDUM TO 2021 COST TRENDS REPORT

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1 Summary

This appendix describes the Health Policy Commission's (HPC) approach to the analyses contained in the **Price Chartpack,** an accompaniment of the 2021 Cost Trends Report.

2 Data sources

The HPC used the 2016 and 2018 Massachusetts All-Payer Claims Database v8.0 (APCD) for the analyses on ambulatory and inpatient prices. The HPC's APCD analytic files contain five of the largest commercial payers in the state: Blue Cross Blue Shield, Tufts Health Plan, and Harvard Pilgrim Health Care, Unicare, and AllWays (formerly known as Neighborhood Health Plan).

3 Defining ambulatory service encounters and inpatient stays

3.1 Ambulatory analytic file creation

The HPC's commercial APCD analytic files begin at the claim line level. To evaluate service prices across a range of services in both the office and hospital outpatient department, the HPC establishes an encounter-level file that allows for investigation using a uniform definition of an encounter. In this case, a procedure-encounter is used, defined as claim lines billed for the same person (patient), on the same day (date of service), under the same procedure code (CPT).

To create an ambulatory service encounter file for analysis, the analysis starts with all professional claims billed in ambulatory sites of service (for the purpose of this analysis: Office (11), Hospital Outpatient Department (19, 22), Ambulatory surgical center (24), and Independent Laboratory (81)) and all facility claims (which typically lack a site of service designation). Claim lines missing a procedure code were excluded, as were claim lines billed by out of state providers.

Claim lines billed reflecting emergency department utilization (HCCI OTP code=1 and/or CPT 99281-99285, 99291, 99292) were flagged. Claim lines billed for the same person on the same date as any emergency department utilization were excluded along with emergency department utilization to remove any procedures that were done in an acute setting.

Professional claims were identified according to site of service. Encounters were defined as mentioned above by grouping claim lines for the same person, that occur on the same day, and are billed with the same procedure code. Encounters were created by collapsing claim lines and summing allowed amounts across multiple claims lines (most often, 2 claim lines, 1 facility and 1 professional claim) for each encounter. The above procedure was completed for commercial medical claims in both 2016 and 2018, the most recent commercial data available to the HPC at the time of publication.

3.2 Inpatient analytic file creation

The HPC constructed a dataset of inpatient discharges in the APCD in which all claims for each inpatient discharge were combined. The price of each discharge was defined as the total of allowed amounts for facility and professional claims associated with the discharge. Each discharge had one or more Medicare Severity Diagnosis Related Groups (DRG) associated with it in the claims data.

3.3 Price trimming

To evaluate "real" prices/payments, exercises in price trimming were pursued to identify a reasonable threshold for inclusion. The goal in price trimming was to only affect encounters that were well below or well beyond a reasonable price for the service. A systematized approach was selected that was internally derived based on the median value for each procedure code.

The median allowed amount for each procedure code encounter group was generated. Additionally, for each procedure code 20% of the median allowed amount and 10 times the median allowed amount was computed. Encounters with allowed amounts less than 20% of the median value or greater than 10 times the median value were excluded from price analysis. The impact of price trimming was minimal but can provide confidence that any estimates of price are reasonable.

4 Analysis

4.1 General methods approach

Unless specified otherwise in text, the unit of analysis for all ambulatory care encounters is the procedure code encounter and therefore includes all payments made for the same procedure code (including relevant facility and professional payments which can often be billed separately). Prices for services paid under global payment arrangements or other non-fee-for-service methods are not included in the calculation of average prices.

The payments for all inpatient stays included both the facility and professional payments for services received during the stay. Since each inpatient stay varied in total services received (e.g., inpatient stays were evaluating spending more broadly than the facility DRG claim), this analysis refers to inpatient stay *payments* to capture that these are average payments across stays rather than *price* of a specific service.

4.2 Evaluation and management visit trends

Established evaluation and management visits (99211-99215) were examined for changes in price and utilization between 2016 and 2018. Statistics shown represent a blend of services rendered in both office and HOPD settings, and include a variety of provider types who can bill for these services (including primary care providers, specialists, advanced practice providers etc.). Changes in volume were calculated after correcting for changes in enrollment between

2016 and 2018. Changes in average price were calculated from mean prices for each procedure code (including facility and professional claims when billed as part of the same encounter).

4.3 Office and HOPD procedure encounter price changes

Price growth is computed at the level of the procedure code encounter. Encounters are defined as the same person, same date of service, same procedure code to capture the potential for both facility and professional claims billed on the same day for the same service based on the setting. Procedure codes with < 20 services or < $1,000 in aggregate spending in 2018 were excluded. Overall average percent price growth by procedure code for office and HOPD was weighted by 2018 aggregate spending for the procedure code in the respective setting.

4.4 HOPD services by hospital provider

4.4.1 Mammography

Facilities listed are limited to those with at least 1,000 commercial encounters for the service in 2018. Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. Prices for services paid under global payment arrangements or other non-fee-for-service methods are not included in the calculation of average price. Mammography (CPT 77067, 'Screening mammography, bilateral, including computer-aided detection (CAD) when performed'). Price growth is not shown in this figure because the CPT 77067 was newly introduced in 2017 to replace a retiring CPT code, G0202.

4.4.2 Colonoscopy

Facilities listed are limited to those with at least 100 commercial encounters delivered in 2018. Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. Prices for services paid under global payment arrangements or other non-fee-for-service methods are not included in the calculation of average price. Colonoscopy (CPT 45380, 'Colonoscopy, flexible; with biopsy, single or multiple'). Percent change in average price by HOPD is listed in grey above each average price bar and was calculated as the percent change in average price between 2016 and 2018.

4.4.3 Surgical pathology service

Data are for surgical pathology (CPT 88305, 'Level IV Surgical pathology, gross and microscopic examination'). Facilities listed are limited to those with at least 500 commercial encounters delivered in 2018. Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. Prices for services paid under global payment arrangements or other non-fee-for-service methods are not included in the calculation of average price. Percent change in average price by HOPD is listed in grey above each average price bar and was calculated as the percent change in average price between 2016 and 2018.

4.4.4 GI endoscopy

Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. GI endoscopy (CPT 43239, 'Esophagogastroduodenoscopy'). Prices for services paid under global payment arrangements or other non-fee-for-service methods are not included in the calculation of average price. Percent change in average price by HOPD is listed in grey above each average price bar and was calculated as the percent change in average price between 2016 and 2018.

4.5 Inpatient payment changes

Average inpatient payment growth includes both facility and professional claims for an inpatient stay. Types of inpatient stays were identified by MS-DRG. Only DRGS with at least 20 inpatient stays and at least $10,000 in 2018 aggregate spending were included in this analysis. Overall average percent payment growth was weighted by 2018 aggregate spending for the DRG.

4.6 Changes in payments and volumes for select high volume inpatient stays

Average payment shown includes both facility and professional claims for an inpatient stay collapsed across severity levels for a DRG-stay (e.g., with and without major complexity or comorbidity). DRGs that differed only by severity classification were grouped together to account for coding changes across years (for more information see 2019 Cost Trends Report Chapter 3. Hospital Inpatient Spending and Utilization). Vaginal delivery includes MS-DRGs 774 and 775. Major joint replacement includes MS-DRG 469 & 470. Cesarean section delivery includes 765 and 766. Sepsis includes MS-DRG 871 and 872, but not 870 (with mechanical ventilation). Obesity procedures includes MS-DRGs 619-621. Cellulitis includes MS-DRGs 603 and 604. Psychoses only includes MS-DRG 885. Digestive disorders includes MS-DRGs 391 and 392. Volume is adjusted for total member months in each year.

4.7 Inpatient Services by hospital provider

Average payments were calculated by hospital and included facility and professional components for the inpatient stay. Percent change in average payment from 2016 to 2018 was listed above the bars. Only hospitals with at least 20 inpatient stays in both 2016 and 2018 were included in this analysis.

4.8 Additional data:

Table. Inpatient Stays for Vaginal Deliveries, 2016 and 2018					
Hospital	**Number of Deliveries**		**Average Payment**		**% Change in Payment**
	2016	2018	2016	2018	
Massachusetts General Hospital	400	450	$ 17,538	$ 18,147	3%
Brigham and Women's Hospital	804	848	$ 16,984	$ 17,318	2%
Steward Norwood Hospital	62	40	$ 11,845	$ 15,339	29%
Steward St. Elizabeth's Medical Center	124	89	$ 14,652	$ 14,866	1%
UMass Memorial Medical Center	310	298	$ 13,795	$ 14,661	6%
North Shore Medical Center	88	116	$ 13,414	$ 14,543	8%
Tufts Medical Center	93	113	$ 13,715	$ 14,527	6%
Beth Israel Deaconess Medical Center	784	734	$ 13,735	$ 14,336	4%
Falmouth Hospital	50	45	$ 13,603	$ 14,141	4%
South Shore Hospital	446	460	$ 13,454	$ 13,856	3%
MetroWest Medical Center	88	79	$ 11,758	$ 13,838	18%
Newton-Wellesley Hospital	855	830	$ 12,850	$ 13,210	3%
Cape Cod Hospital	82	100	$ 12,396	$ 13,031	5%
Emerson Hospital	226	194	$ 12,213	$ 12,860	5%
Saint Vincent Hospital	220	204	$ 11,394	$ 12,827	13%
Winchester Hospital	393	403	$ 12,461	$ 12,699	2%
Lowell General Hospital	193	150	$ 11,872	$ 12,569	6%
Milford Regional Medical Center	111	75	$ 12,331	$ 12,367	0%
Southcoast Hospitals Group	193	221	$ 12,161	$ 12,306	1%
Steward Holy Family Hospital	58	73	$ 11,626	$ 12,249	5%
Mount Auburn Hospital	420	406	$ 11,227	$ 12,130	8%
Baystate Medical Center	128	150	$ 12,320	$ 12,079	-2%
Steward Good Samaritan Medical Center	66	57	$ 12,016	$ 12,013	0%
Hallmark Health	145	118	$ 12,479	$ 11,959	-4%
Northeast Hospital	366	281	$ 11,309	$ 11,820	5%
Signature Healthcare Brockton Hospital	78	87	$ 11,120	$ 11,807	6%
Baystate Franklin Medical Center	44	28	$ 11,384	$ 11,729	3%
Cooley Dickinson Hospital	49	40	$ 11,878	$ 11,513	-3%
Berkshire Medical Center	32	40	$ 11,500	$ 11,493	0%
Beth Israel Deaconess Hospital - Plymouth	108	112	$ 11,519	$ 11,398	-1%
HealthAlliance Hospital	51	64	$ 10,427	$ 11,091	6%
Lawrence General Hospital	35	55	$ 11,401	$ 10,987	-4%
Sturdy Memorial Hospital	70	41	$ 10,016	$ 10,976	10%
Anna Jaques Hospital	73	70	$ 11,230	$ 10,961	-2%
Mercy Medical Center	31	29	$ 13,294	$ 10,865	-18%
Cambridge Health Alliance	75	72	$ 10,015	$ 10,637	6%
Boston Medical Center	92	44	$ 11,809	$ 10,584	-10%
Heywood Hospital	45	40	$ 9,293	$ 10,057	8%
Notes: Only stays labeled with MS-DRG 795 were included in this analysis. Hospitals with under 20 inpatient stays for DRG 795 in either 2016 or 2018 were excluded from the analysis.					
Sources: Center for Health Information and Analysis All-Payer Claims Database v8.0					