

ASSESSMENT OF A PRICE INDEX FOR HOSPITAL OUTPATIENT DEPARTMENT SERVICES USING COMMERCIAL CLAIMS DATA

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INTRODUCTION

Proposals for controlling health care spending have increasingly focused on prices in the hospital sector,¹ which vary more than threefold nationally and often far exceed Medicare rates.² In 2019, 57% of commercial health care spending occurred in hospital settings.³ Hospital outpatient department (HOPD) spending comprised more than half of this total, and was the fastest growing category of spending from 2015 to 2019, with 22% growth in prices and 7% growth in utilization.⁴ However, evaluating price levels and growth for HOPD services is difficult, with thousands of distinct services ranging from laboratory testing to colonoscopies, and there are no obvious means to aggregate them. In this cross-sectional study, the HPC assesses a market basket price index to evaluate HOPD price levels and growth.

OBJECTIVES

To develop and assess a new method for summarizing hospital outpatient department price levels and growth using commercial claims data. The HPC sought to test and apply a flexible approach that is empirically defined and can be applied across various units of analysis (e.g., statewide, or at the level of a hospital, health system, or payer) and can be a useful tool in monitoring and evaluating health care prices, a primary driver of health care cost trends.

STUDY DESIGN

The HPC constructed an analytic file using the Massachusetts All-Payer Claims Database⁵ for residents with commercial insurance based on a procedure code encounter (same patient, date of service, Current Procedural Terminology [CPT] code) for all HOPD services (place of service on professional claims: "19" or "22"), excluding encounters for patients that occurred on the same date as any emergency department visit, or observation/inpatient stay. The total cost ("price") for an HOPD encounter is the sum of professional and/or facility spending. Encounters were excluded if they were less than 20%, or more than 10 times, the statewide HOPD median price for the CPT code.

The HPC then created a 50-item Laspeyres price index defined as the aggregate sum of the average price of each item times its quantity—here, the 2018 average utilization rate (per 100 member-years) of each procedure code within the Massachusetts commercial All-Payer Claims Database population analyzed. These quantities remain fixed for all units of analysis and all years to isolate price differences. The services in the index include a range of clinical services that had the highest aggregate spending in Massachusetts in 2018 and were well represented across HOPDs throughout the state. The HPC focused on hospitals and health systems as the primary unit of analysis and imputed a price for entities with fewer than 20 encounters of a given CPT code using a price ratio for non-missing services compared with the statewide average price.

RESULTS

The HOPD price index accounted for 19.4% of statewide HOPD spending and 39.1% of HOPD volume in 2018. The statewide cost of the basket in 2018 was \$22,922 (i.e., the total amount in 2018 for the 50 services from an average Massachusetts hospital for 100 residents) and increased to \$24,575 in 2020, a 7.2% price increase over a two-year period. The HPC observed a nearly threefold variation in

the HOPD index across hospitals throughout the state, and one-point-five-fold variation across hospital systems. Price growth between 2018 and 2020 varied between 1.0% to 9.0% across hospital systems; there was also a positive linear correlation between price levels and growth by system, suggesting price variation increased over this period. Results were robust to complete case analyses

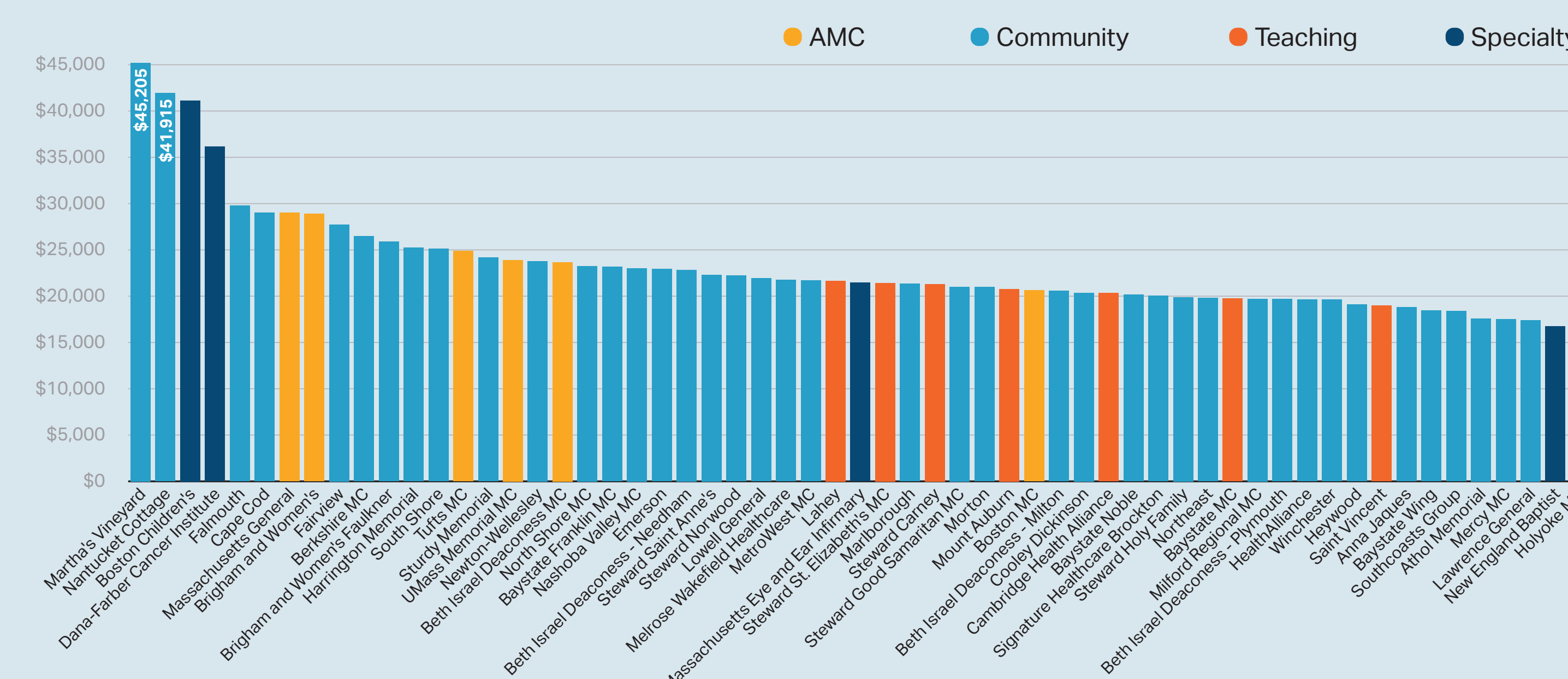
among a set of hospitals with sufficient volume across a more restricted set of 10, 20, 30, and 40 CPT codes, and were similar using a simplified imputation method using statewide average prices for missing services, rather than estimating a hospital-specific relative price for missing services.

Exhibit 1. HOPD Index Contents

CPT	Procedure code description	Number of HOPDs with adequate volume	Statewide spending, 2018	Average price, 2018	Volume per 100 members per year	Total spending for 100 patients at average hospital	Weight of the service in the basket
77067	Screening mammography, bilateral, including CAD when performed	57	\$29,769,530	\$290	6.4	\$1,863	8.1%
45380	Colonoscopy, flexible; with biopsy, single or multiple	53	\$28,381,588	\$1,718	1.1	\$1,843	8.0%
45385	Colonoscopy with polypectomy	53	\$24,110,934	\$1,880	0.8	\$1,521	6.6%
88305	Surgical pathology (Level IV), gross and microscopic examination	56	\$22,899,980	\$303	4.8	\$1,464	6.4%
99214	Evaluation and Management visit - 45 minutes	56	\$20,987,216	\$184	7.8	\$1,441	6.3%
43239	Esophagogastroduodenoscopy ('GI Endoscopy')	56	\$18,975,394	\$1,474	0.8	\$1,211	5.3%
45378	Colonoscopy, flexible; diagnostic, including collection of specimen(s) by brushing or washing, when performed	50	\$16,482,558	\$1,576	0.7	\$1,044	4.6%
74177	CT Abdomen/Pelvis; with Contrast	53	\$15,543,457	\$1,191	0.9	\$1,030	4.5%
93306	Transthoracic echocardiography (TTE) w/doppler complete	53	\$14,615,646	\$1,135	0.8	\$925	4.0%
97110	Physical therapy, 15 minutes	57	\$13,882,467	\$139	6.3	\$874	3.8%

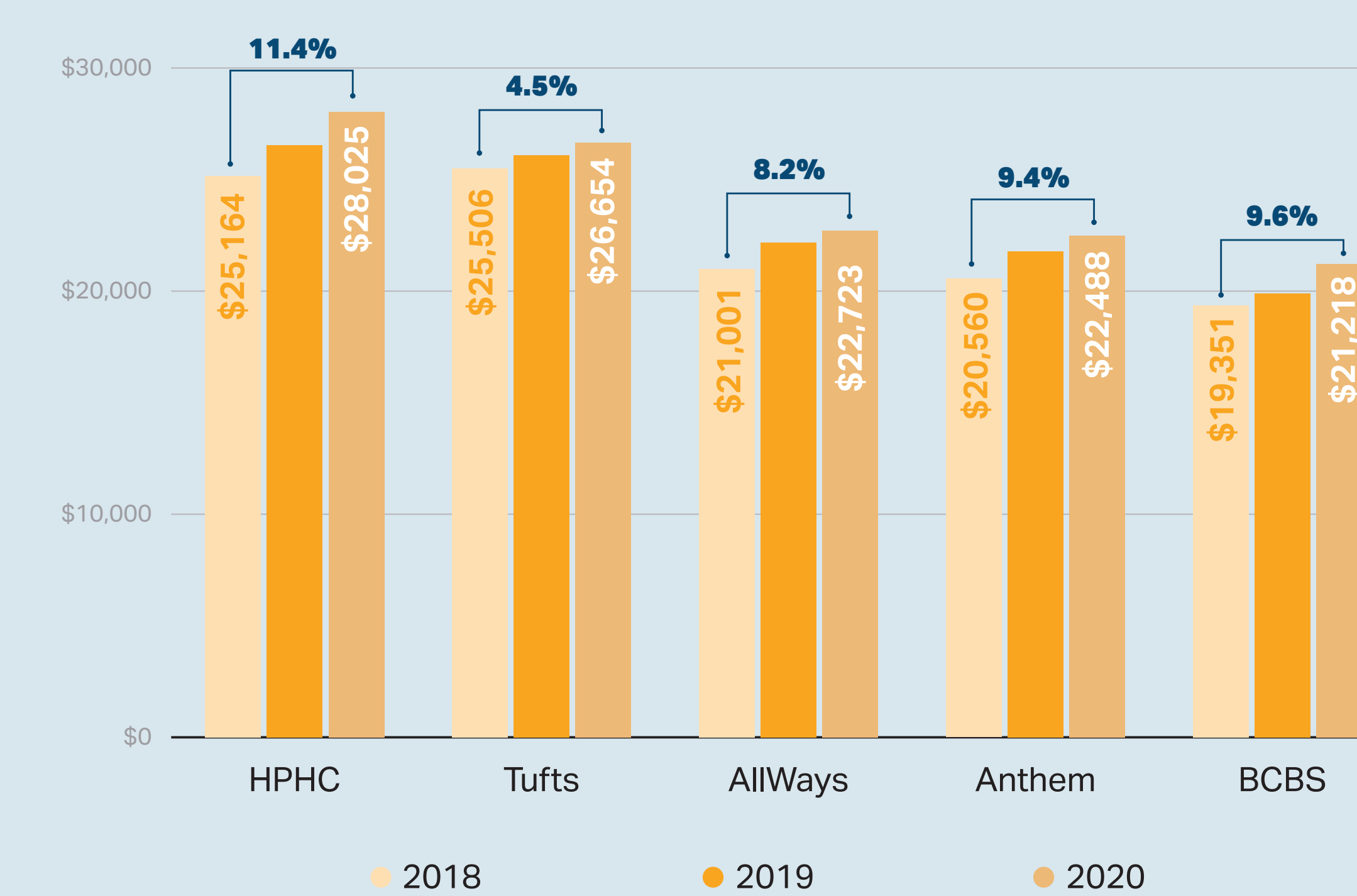
Notes: Contents of HOPD index, top 10 services based on statewide aggregate commercial spending in 2018. Item weights are calculated by multiplying the volume (per 100 members per year) by the average price of a procedure encounter and then summing across all 50 services in the index.

Exhibit 2. HOPD Index by Hospital, 2020



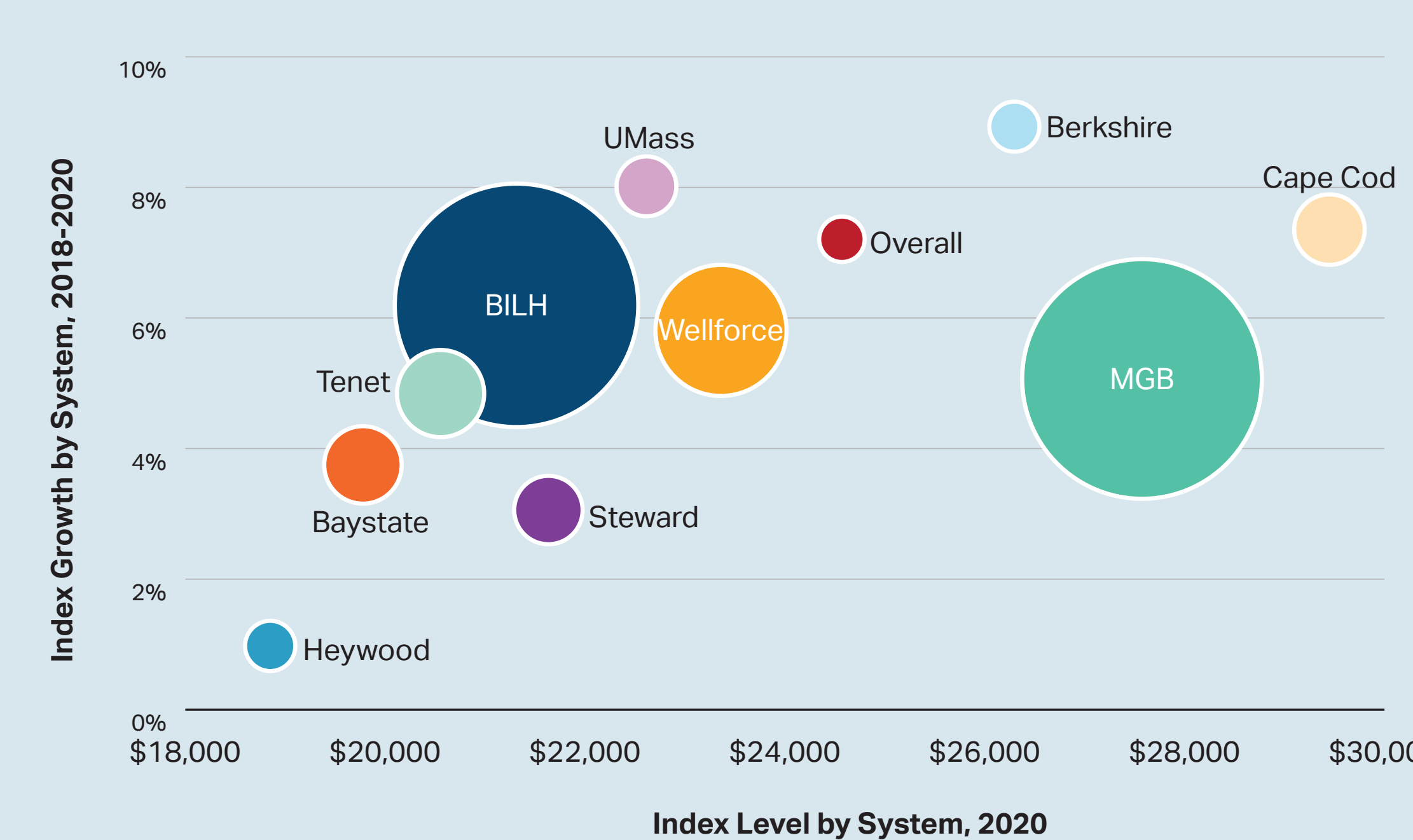
Notes: AMC refers to 'Academic medical center.' For each hospital, the same 50 procedure codes are evaluated using a fixed statewide volume (computed using 2018 data) and hospital-specific mean service prices in 2020 for each procedure code. Hospitals with fewer than 20 service encounters for any individual procedure code have imputed values for that procedure code. See appendix for more details on methodology.

Exhibit 3. HOPD Index by Commercial Payer, 2018-2020



Notes: HPHC and Tufts merged in January 2021 to form Point32Health. The HPC's version of the APCD includes claims for members enrolled in commercial insurance products from the five payers shown. These claims include most GIC members but otherwise are more heavily representative of members with fully-insured products, and overall represent approximately 30% of the commercial market in Massachusetts. For more information on what data can be found in the APCD please see: www.chiamass.gov/ma-apcd

Exhibit 4. HOPD Index by Hospital System, Levels and Growth, 2018-2020



Notes: Hospital systems are sourced from CHIA's latest hospital profiles. Bubble size corresponds to percent of index service volume affiliated with each system. 19.9% of index service volume for the 50 CPT codes takes place at hospitals not represented on this graph but included in the 'Overall' data-point. The 'Overall' data point bubble size is representative only and does not reflect statewide volume.

CONCLUSIONS

These analyses demonstrate a novel approach to evaluating hospital prices inclusive of relevant professional and facility spending in the hospital outpatient setting. This approach enables robust price comparisons across health care organizations, payers, or states, at a point in time or across time, and can be replicated in any claims database or with newly available hospital price transparency data (along with an assumption about quantities). A limitation of this approach is that volume is held constant to be able to isolate changes and variation in price. There may be circumstances where factoring in shifts in volume over time (e.g., due to major shifts in practice patterns) may be important.

In this cross-sectional study, the HPC identified extensive variation both in price levels and price growth across hospitals and health systems throughout Massachusetts. Opportunities to improve the value of health care spending should seek to address extensive price variation. This index is one tool that can aid in the targeting of policy efforts to identify higher-priced health care organizations and to evaluate the projected effect of potential policy changes.

POLICY IMPLICATIONS

This HOPD price index can be used to model the effects of policy efforts that may seek to reduce excessive price variation, to monitor growth in prices over time, or to intervene on high price levels established by market dominant providers.

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