PRACTICE VARIATION BY PROVIDER ORGANIZATION IN MASSACHUSETTS

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INTRODUCTION & OBJECTIVES

There is growing evidence that hospital-owned provider practices tend to have higher spending and prices than other provider organizations without significant differences in quality. Primary care providers (PCPs) may play an important role in this spending variation, as they largely determine where and how their patients get care by recommending diagnostic tests and courses of treatment, managing patients' chronic illnesses, and making referrals to specialist physicians or hospitals. Previous research on variation across provider organizations relied on Medicare or area-level aggregate data, limiting the provider practices and measures available for comparison. The Massachusetts Health Policy Commission (HPC) sought to assess performance and spending variation among provider organizations in the Commonwealth by linking patients in the Massachusetts All Payer Claims Database (APCD) to PCPs and their larger provider organizations using the state's Registry of Provider Organizations.

STUDY DESIGN

The HPC conducted a claims-based analysis using the 2015 APCD to compare spending and utilization measures across the 14 largest provider organizations in the Commonwealth. Patients in the APCD were attributed to PCPs and their larger provider organizations using the Registry of Provider Organizations, supplemented with the commercial dataset SK&A (**Figure 1**).

Patients were matched to PCPs in a two-step hierarchical process using:

1. *assignment flags denoted by payers in the underlying claims data (primarily for enrollees of health maintenance organization (HMO) or point of service (POS) plans)*

Or, for those lacking assignment flags:

2. *attribution algorithms that assign patients to PCPs empirically based on observed patterns of health care usage.*

Eighty two percent of the adult patients in the APCD were attributed to a PCP using either method, resulting in a final sample of 1,355,527 Massachusetts residents (ages 18 and older) with commercial coverage provided through any of the state's three largest payers. These payers, Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, or Harvard Pilgrim Health Care, represent 61% of the commercial market in Massachusetts.

Spending and utilization measures were averaged across each provider organization's attributed patient population. Spending across all sites of care (e.g., specialist, inpatient, post-acute) for patients is attributed to the PCP and its affiliated provider organization, regardless of whether the care was actually delivered by that provider organization. To account for underlying differences in the patient populations, the HPC risk adjusted spending data and further adjusted utilization data for demographic characteristics including socioeconomic status measures linked to patient zip codes, age, sex, and product type.

Provider organizations were classified according to hospital ownership: academic medical center (AMC) anchored, teaching hospital anchored, community hospital anchored, or physician-led.

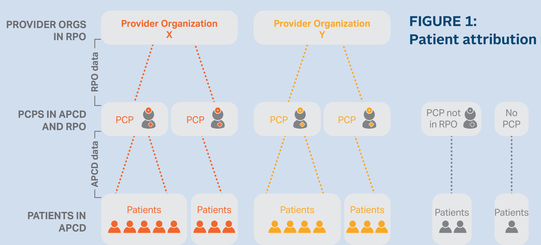
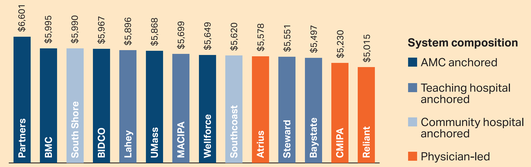


FIGURE 1: Patient attribution methodology

RESULTS

Average risk-adjusted spending per member per year varied substantially across provider organizations. The highest-cost organization spent 32 percent more per patient than the lowest-cost organization ($6,601 and $5,015, respectively) (**Figure 2**). Comparing the composition of systems, systems anchored by an AMC had 13.2% higher risk-adjusted spending than physician-led systems ($6,176 versus $5,455) and 8.8% higher spending than other hospital-anchored systems ($5,676).

FIGURE 2: Average risk-adjusted commercial spending per member per year, by provider organization, 2015

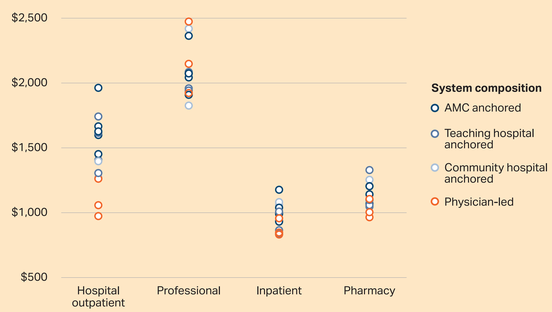


The HPC also examined spending variation by category of service to further understand drivers of spending differences across organizations (**Figure 3**). AMC-anchored systems had:

- 8.7% higher hospital inpatient spending
- 65.7% higher hospital outpatient spending
- 8.2% lower professional spending
- 13.7% higher pharmacy spending,

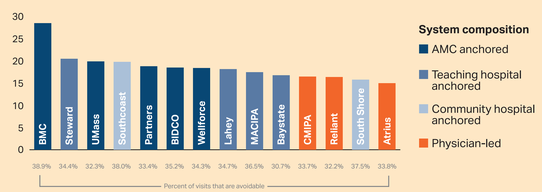
compared to physician-led systems. Not shown here, radiology and laboratory spending were also significantly higher in AMC-anchored systems than physician-led systems, by 80.3% and 34.1% respectively. Within categories, hospital outpatient spending varied the most across provider organizations; spending varied more than two-fold, compared to 41% variation in hospital inpatient spending.

FIGURE 3: Average risk-adjusted commercial spending per member per year, by category of service and provider organization, 2015



We also compared utilization by organization and organization type. AMC-anchored provider organizations had 26.2% more emergency department (ED) visits than physician-led systems and 25.1% more avoidable ED visits, as identified by the NYU Billings algorithm (**Figure 4**).

FIGURE 4: Adjusted ED visits, per 100 members, by provider organization, 2015



CONCLUSIONS

The HPC found that provider organizations in Massachusetts vary across spending and utilization measures, even after adjusting for health risk and demographic characteristics of the attributed patient populations. In particular, AMC-anchored systems have higher inpatient, outpatient, laboratory, and pharmacy spending and more total and avoidable emergency department visits than other hospital-anchored and physician-led systems. There is likely some site-of-care substitution between physician offices and hospital outpatient departments leading to higher hospital outpatient but lower professional spending in hospital-based systems. Ongoing work will seek to better isolate reasons for the underlying differences.

POLICY IMPLICATIONS

The HPC's findings are consistent with existing literature that hospital-based systems tend to provide more expensive patient care, on average. These findings are consistent with lower rates of success in the Medicare shared savings program among hospital-led ACOs, which may pressure physicians to refer in-system and maintain hospital volumes. Our findings also emphasize the need for payment policies that do not pay excessive facility fees and that reward consumers for seeking care in low-cost provider organizations. Prices also likely play a role in that hospital-based systems often have market leverage that they employ to negotiate higher prices. These findings may provide valuable evidence to policymakers and others reviewing physician-hospital market transactions.

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