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Location, Location, Location: Spending Differences for Physician-Administered Outpatient Medications by Site of Treatment

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AT A GLANCE

An increasing number of medications are being developed as either injectables or intravenous drugs. Physicians often administer these medications; thus, they are largely paid for via the medical benefit. A subset of these physician-administered outpatient drugs (PAODs), known as specialty medications, provide a highly sophisticated treatment, generally when there are few or no other treatment options available. Some of the benefits of specialty medications include the reduction in the number of relapses; prevention of disability progression; symptom management; maintenance and/or improvement of quality of life; and, sometimes, disease remission or cures. These specialty medications have piqued the attention of employers, more so than PAODs overall, because of their relatively high costs.

In this *Issue Brief*, we use data from the 2019 IBM® Marketscan® Commercial Claims and Encounters Database to analyze waste caused by pricing failure and measure site-of-treatment price differentials for PAODs. This analysis is important not only because of the observed price differentials but also because waste from site-of-treatment price differentials is being compounded by two other trends — the shifting of care from physician offices (POs) to more costly hospital outpatient departments (HOPDs) and the fact that prices for care in HOPDs are growing faster than PO prices. Ultimately, employers and workers bear the brunt of cost differences when HOPDs perform services that can be provided in less costly POs.

Key Findings:

- Just over one-half of PAODs were administered in HOPDs. One-third were administered in a PO, and 9 percent were received in other settings, such as a patient's home.
- Allowed charges were higher in HOPDs than in POs for all but two of the 72 PAODs examined in this study.
- In the aggregate, employers and workers would collectively save $10.3 billion annually if price differentials between HOPDs and POs were eliminated for the 72 PAODs examined in this paper. If we extended the savings to all PAODs, aggregate savings would be $14.1 billion each year.
- On a per-member, per-year basis, savings would be $80.21 for the 72 drugs examined in this paper and $110.03 for all PAODs if price differentials between HOPDs and POs were eliminated.

Employers could cut spending by $14.1 billion by shifting patients away from more costly HOPD settings or by negotiating site-neutral pricing for specialty medications. The $14.1 billion represents 1.5 percent of total health care spending on workers and their families.

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Introduction

This *Issue Brief* is the third in a series examining site-of-treatment price differentials for health care services. First, we determined that hospital outpatient departments (HOPDs) charged 81 percent more for oncology medications than physician offices (POs), controlling for drug mix and treatment intensity.[1] We concluded that, had PO prices prevailed in the HOPD setting, payers could have saved $9,766 per oncology patient in 2016. Next, we analyzed 25 outpatient services consisting of lab, imaging, and selected specialty medications.[2] For each of the 25 health care services examined, HOPDs charged more per unit of service than POs; costs were higher by between 15 percent and 531 percent, with a median difference of 91 percent. In aggregate, we estimated that employer health plan sponsors and plan enrollees could have saved more than $11 billion in 2018 on these services if HOPDs had charged PO prices. This represented about 1 percent of total health care spending on workers and their families. These price differentials are a form of waste, contributing to the 20–30 percent of overall spending that may be considered wasteful.[3]

In this *Issue Brief*, we focus on waste caused by pricing failure and conducted another analysis of site-of-treatment price differentials for outpatient drugs. Specifically, we expand and update our prior analyses to include 72 physician-administered outpatient drugs (PAODs). Together, these medications accounted for 49 percent of all claims and 73 percent of all spending on PAODs paid via the medical benefit. Following our derivation of drug-specific price markups by HOPDs relative to POs, we calculate estimated savings that could be realized if the higher prices charged by HOPDs could be eliminated.

This analysis is important not just because of the observed price differentials between HOPDs and POs but also because waste from site-of-treatment price differentials is being compounded by two other trends. First, care is shifting from POs to more costly HOPDs. In 2004, approximately 94 percent of chemotherapy infusions were administered in POs, but by 2014 that percentage had dropped to 57 percent with a corresponding shift toward HOPDs.[4] Second, prices for hospital-based outpatient care are growing faster than physician prices more generally. For example, a recent study found that between 2007 and 2014, prices for hospital-based outpatient care increased 25 percent, while physician prices grew 6 percent.[5] Ultimately, employers and workers bear the brunt of cost differences when HOPDs perform services that can be provided in less costly POs or in stand-alone lab or imaging facilities.

Background

Prescription drugs can be covered under the pharmacy benefit or the medical benefit. Most oral and other patient-administered medications (e.g., insulin) are filled at retail pharmacies or through mail-order pharmacies, and those claims are adjudicated under the pharmacy benefit. An increasing number of medications are being developed as either injectables or intravenous drugs. Because a physician often administers these medications, they are largely paid for via the medical benefit. Much of the utilization of these PAODs is concentrated in relatively inexpensive, generic-dominated therapeutic classes such as antibiotics, antiemetics, corticosteroids, benzodiazepines, and nonsteroidal anti-inflammatories. However, overall spending on PAODs is concentrated in the more costly, yet less common, subset of PAODs known as specialty medications. Specialty medications are different from traditional prescription drugs and are increasingly used to treat cancer and other diseases such as multiple sclerosis (MS), which has a prevalence rate of about 0.1 percent in the United States. These specialty medications frequently require specific handling and/or storage.

Specialty medications provide a highly sophisticated treatment — generally when there are few or no other treatment options available. Some of the benefits of specialty medications include the reduction of the number of relapses;

prevention of disability progression; symptom management; maintenance and/or improvement of quality of life; and, sometimes, disease remission or cures. These medications have piqued the attention of employers, more so than PAODs more generally, because of their relatively high costs.

Employers often try to use cost sharing to manage spending on specialty medications because of their high cost. When it comes to the retail pharmacy benefit, nearly all covered workers have coverage for specialty medications, and nearly one-half (45 percent) of them are in a plan with a separate cost sharing tier for them.[6] Among those workers, 45 percent have a copayment, and 53 percent have coinsurance.[7] The average copayment is $109 and the average coinsurance is 26 percent.[8] In plans with three or more tiers of cost sharing for prescription drugs (the most common plan design), average copayments are $11 for first-tier drugs (i.e., generics), $35 for second-tier drugs (i.e., preferred brands), $62 for third-tier drugs (i.e., nonpreferred brands), and $116 for fourth-tier drugs (i.e, specialty drugs).[9] Average coinsurance rates are 18 percent for first-tier drugs, 25 percent for second-tier drugs, 37 percent for third-tier drugs, and 28 percent for fourth-tier drugs.[10]

There is evidence that patient cost sharing has an impact on use of specialty medications. A recent systematic review of the literature concluded that reductions in specialty drug use were associated with higher cost sharing, with stronger effects for non-initiation or abandonment of a prescription at the pharmacy and somewhat smaller or no effects for refill behavior once therapy was initiated.[11] More recent studies have also found that member cost sharing is an impediment to optimal specialty medication use among Medicare beneficiaries covered by Part D.[12]

Cost sharing may have its limits when it comes to managing use of high-cost medications. Many plans have maximum dollar amounts for medications. And all plans have an overall maximum out-of-pocket limit, which is not difficult to reach when someone is using a high-cost medication. Where specialty medications are covered by the medical plan because they are physician administereed, outpatient cost sharing (i.e., deductibles and coinsurance) would apply. However, spending on these PAODs would be subject to the same maximum out-of-pocket limit, which could easily be reached as these medications are often high-cost as well. Thus, we turn our attention to another approach to managing the cost of specialty medications: focusing on site-of-treatment price differentials of such medications.

Data and Methods

Data and Study Sample

This study makes use of the 2019 IBM® Marketscan® Commercial Claims and Encounters Database (CCAE). The CCAE database contains member enrollment information as well as adjudicated inpatient and outpatient medical and pharmacy claims. We constructed an analytical dataset of adults (ages 18–64) who were continuously enrolled in employment-based health plans in 2019. Members in capitated plans were excluded. A total of 10.8 million individuals met these criteria. Sample averages for the following characteristics are reported in Figure 1: gender, age, relationship to policyholder, and plan type.

Physician-Administered Outpatient Drugs

We used the 2019 CCAE outpatient data file to extract all claims with Healthcare Common Procedure Coding System (HCPCS) codes in the "J," "Q," and "S" ranges for our cohort. We subsequently selected the top 100 medications in terms of total expenditures to model further. Saline and Ringer's lactate solutions were excluded from the analysis. Next, we examined raw counts of unique patients and claims for each medication by place of service: HOPD, PO, and other. For sufficient power in subsequent steps, we required at least 10 patients in each of both HOPD and PO. This reduced the set of medications to 72. Together, these medications accounted for 49 percent of all drug claims and 73 percent of total spending on drugs adjudicated via the medical benefit.

Figure 1
Sample Characteristics, 2019

	2019
Gender	
Male	49%
Female	51%
Age, Years	**41.8**
18–24	15%
25–34	18%
35–44	21%
45–54	23%
55–64	23%
Person Covered	
Policyholder	62%
Spouse	24%
Child/other dependent	15%
Type of Health Plan	
HMO/EPO	14%
PPO/POS	59%
HRA	14%
HSA-eligible health plan	13%

Source: Employee Benefit Research Institute estimates based on administrative enrollment and claims data.

Note: HMO=health maintenance organization; EPO=exclusive provider organization; PPO=preferred provider organization; POS=point of service; HRA=health reimbursement arrangement; HSA=health savings account.

Analysis

Using the 2019 data, for each of the 72 medications (indexed by *d*), by place of service (denoted by *HOPD*, *PO* and *OTHER*), we measured:

- Total number of members (*N*=10.8 million) in the sample.
- Total number of patients for each drug (P_d).
- Average number of claims per patient for each drug (X_d).
- Average annual total cost ($COST_d$) (i.e., allowed amount) per patient for each drug, as well as the member and plan-cost components.
- This allowed for the derivation of the market share enjoyed by HOPDs at the drug-level:

$$MARKET\ SHARE_d^{HOPD} = \frac{({P_d}^{HOPD}{X_d}^{HOPD})}{({P_d}^{HOPD}{X_d}^{HOPD}) + ({P_d}^{PO}{X_d}^{PO}) + ({P_d}^{OTHER}{X_d}^{OTHER})}$$

As well as, in aggregate:

$$MARKET\ SHARE^{HOPD} = \frac{\sum_{d=1}^{72}[({P_d}^{HOPD}{X_d}^{HOPD})]}{\sum_{d=1}^{72}[({P_d}^{HOPD}{X_d}^{HOPD}) + ({P_d}^{PO}{X_d}^{PO}) + ({P_d}^{OTHER}{X_d}^{OTHER})]}$$

- Prevalence in the HOPD setting was also calculated for each drug:

$$PREVALENCE_d^{HOPD} = \frac{P_d^{HOPD}}{N}$$

The next step in the analytical process was to determine the per-unit price differential between HOPDs and POs, for each medication and in aggregate. This required cleansing the data of claims with suspect "units" field values. Based on our prior work, we removed claims where:

- Units<=1 or were missing.
- Payment amounts were <$0.01.
- Payment amounts were missing.
- Claims were marked as capitated.

We deleted claims with units=1 because it would have been impossible to determine whether these claims involved National Drug Code (NDC)-based billing (vs. HCPCS unit-based). Claims for five drugs where units=1 was the only plausible value (because all NDCs had the same dosage/strength as the HCPCS unit) were retained. Finally, as in our previous analyses, we trimmed tails at the 1st and 99th percentiles of the (drug-specific) units' distributions to reduce the influence of outliers that likely represented data entry errors.

Using the remaining (cleaned) data, for each claim, we divided the cost by the number of units. We subsequently calculated the average cost per unit by drug and place of service, namely:

$$U_d^{HOPD} \text{ and } U_d^{PO}$$

Therefore, drug-specific HOPD markups (i.e., price differentials) were calculated as:

$$MARKUP_d^{HOPD} = 1 - (\frac{U_d^{HOPD}}{U_d^{PO}})$$

We report the average and median HOPD markup across the 72 drugs.

In the last stage of the analysis, we estimated the potential savings that could be realized if PO prices prevailed in the HOPD setting. To do so, using the drug prevalence rates measured in our sample, we first extrapolated the number of HOPD patients for each drug that would be expected in the U.S. population of adults, using an estimate of 128.5 million adults with employment-based health plans.[13]

$$\widehat{P_d^{HOPD}} = PREVALENCE_d^{HOPD} \bullet 128.5\, million$$

Next, we derived the potential per-patient, per-year (PPPY) savings for each drug assuming that the observed average annual HOPD cost reflected the estimated HOPD markup. In other words, we calculated the difference between the actual average annual HOPD cost and the counterfactual (under PO prices) average annual HOPD cost. This method holds treatment intensity constant in the HOPD setting. Specifically,

$$PPPY\ SAVINGS_d = COST_d^{HOPD} - \frac{COST_d^{HOPD}}{1 + MARKUP_d^{HOPD}}$$

We then calculated the total potential savings as the product of the expected number of HOPD patients in the population for each drug and the potential PPPY savings:

$$TOTAL\ SAVINGS_d = \widehat{P_d^{HOPD}} \bullet PPPY\ SAVINGS_d$$

Summing across all 72 drugs yields the aggregate potential savings in dollars.

$$AGGREGATE\ SAVINGS = \sum_{d=1}^{72} TOTAL\ SAVINGS_d$$

Dividing the aggregate savings by the estimated 128.5 million adults with employment-based health benefits gives the per-member, per-year (PMPY) potential savings — that is, the savings spread across all plan enrollees.

$$PMPY\ SAVINGS = \frac{AGGREGATE\ SAVINGS}{128.5\ million}$$

We also present alternative estimates that scale up to represent 100 percent of PAODs. This step assumes that the drugs not studied (i.e., the remaining 27 percent of PAOD expenditures) would have the same average HOPD markup as the 72 drugs analyzed (i.e., 73 percent of PAOD expenditures). Also presented is the aggregate HOPD markup — which is essentially the expenditure-weighted average of drug-specific HOPD markups — derived as aggregate savings divided by the aggregated counterfactual HOPD cost.

$$AGGREGATE\ HOPD\ MARKUP = \sum_{d=1}^{72} TOTAL\ SAVINGS_d \Big/ \sum_{d=1}^{72} \widehat{P_d^{HOPD}} \bullet \frac{COST_d^{HOPD}}{1 + MARKUP_d^{HOPD}}$$

Finally, we conclude by calculating the percentage of total health care spending that the aggregate potential savings would represent.

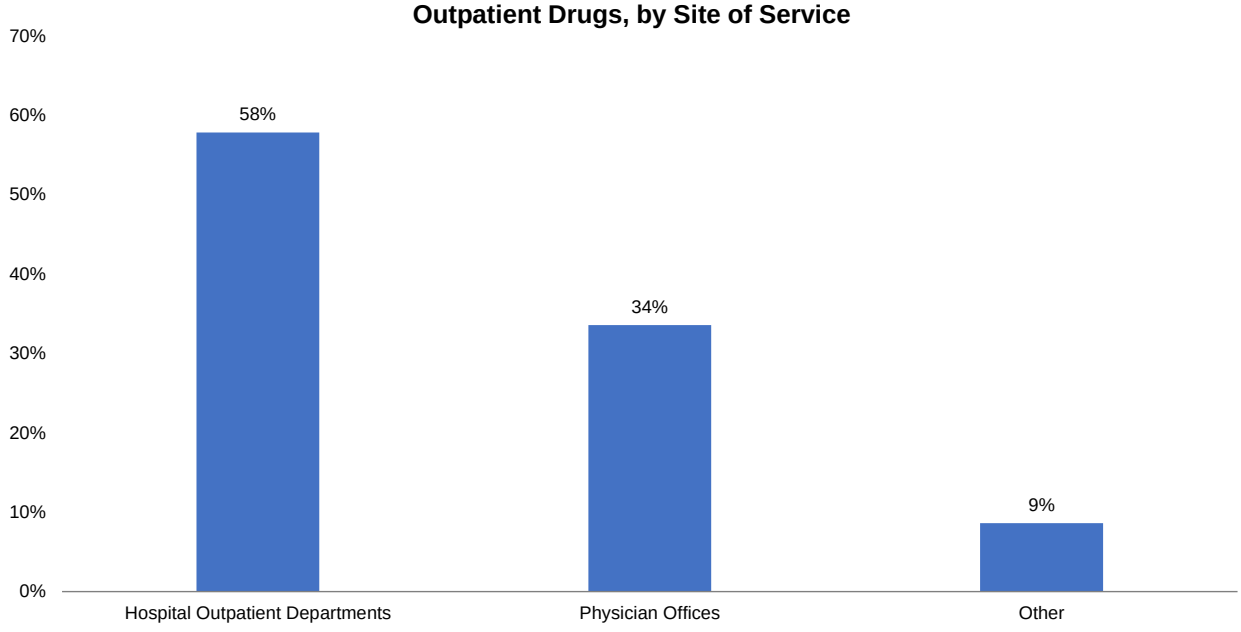
Results

Where Do Plan Members Receive Physician-Administered Outpatient Medications?

The distribution of treatment settings for PAODs is shown in Figure 2. PAODs are provided in three locations: HOPDs; POs; and other, which most commonly includes the patient's home. Just over one-half (58 percent) of PAODs were administered in HOPDs. One-third (34 percent) were administered in a PO, and 9 percent were administered in another setting.

There was quite a bit of variation in the percentage of PAODs being administered in HOPDs and POs. Over one-half were administered in the HOPD or PO between 30 and 70 percent of the time. In contrast, very few PAODs were administered in the 'other' setting 10 percent of the time or more.

Figure 2
Distribution of Various Physician-Administered Outpatient Drugs, by Site of Service

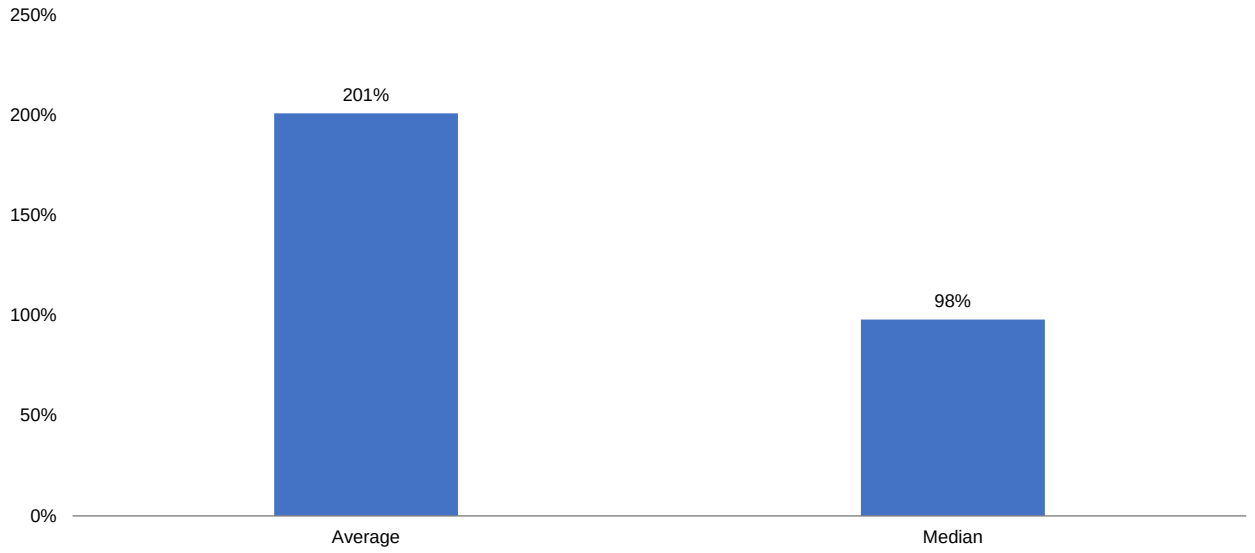


Source: Authors' analysis of IBM MarketScan administrative enrollment and claims data.

How Do Allowed Payments Differ by Site of Treatment?

Allowed payments were higher in HOPDs than in POs for all but two of the 72 PAODs examined in this study. The annual median price differential was $5,099 but reached $78,674 for one specific oncology injection. The average unit price differential was 201 percent (Figure 3). In other words, on average, plan payments to HOPDs were triple what plan payments were to POs for the same unit of medication. The median unit price differential was 98 percent. We did not examine the price differential between HOPD and other sites of treatment, because for most of the PAODs studied, very few were administered outside an HOPD or PO.

Figure 3
Average and Median Percentage Price Differential per Unit Based on 72 Physician-Administered Outpatient Drugs



Source: Authors' analysis of IBM MarketScan administrative enrollment and claims data.

Potential Aggregate Savings

In the aggregate, employers and workers would collectively save $10.3 billion per year if price differentials between HOPDs and POs were eliminated for the 72 PAODs examined in this paper (Figure 4). If we extended the savings to all PAODs, aggregate savings would be $14.1 billion per year. This represents 1.5 percent of total health care spending on workers and their dependents.

On a per-member, per-year basis, savings would be $80.21 for the 72 drugs and $110.03 for all PAODs if price differentials between HOPDs and POs were eliminated.

Figure 4
Estimated Savings

Top 72 Physician-Administered Outpatient Drugs (PAODs)	$10.3 billion
All Physician-Administered Outpatient Drugs	$14.1 billion
Potential Savings From Hospital Outpatient Department (HOPD) Markup of 72 PAODs (per member, per year)	$80.21
Percentage of Aggregate Spending	1.1%
Porential Savings From HOPD Markup of All PAODs (per member, per year)	$110.03
Percentage of Aggregate Spending	1.5%

Source: Authors' analysis of IBM MarketScan administrative enrollment and claims data.

Member Savings

We examined patient payments for all claims for the 72 PAODs examined in the paper and found that few plan members paid anything out of pocket for these drugs. More specifically, 91 percent of the claims had $0 in the deductible field, 81 percent had $0 coinsurance, and 98 percent had $0 copayments. Overall, plan member payments toward deductibles amounted to only 1 percent of total spending, and coinsurance amounted to only 1.6 percent. Thus, most of the potential savings from eliminating price differentials would initially be reflected in employer- and insurer-paid amounts. However, to the degree total spending falls as a result of eliminating site-of-treatment price differentials, workers and their families should share in this savings as premiums fall.

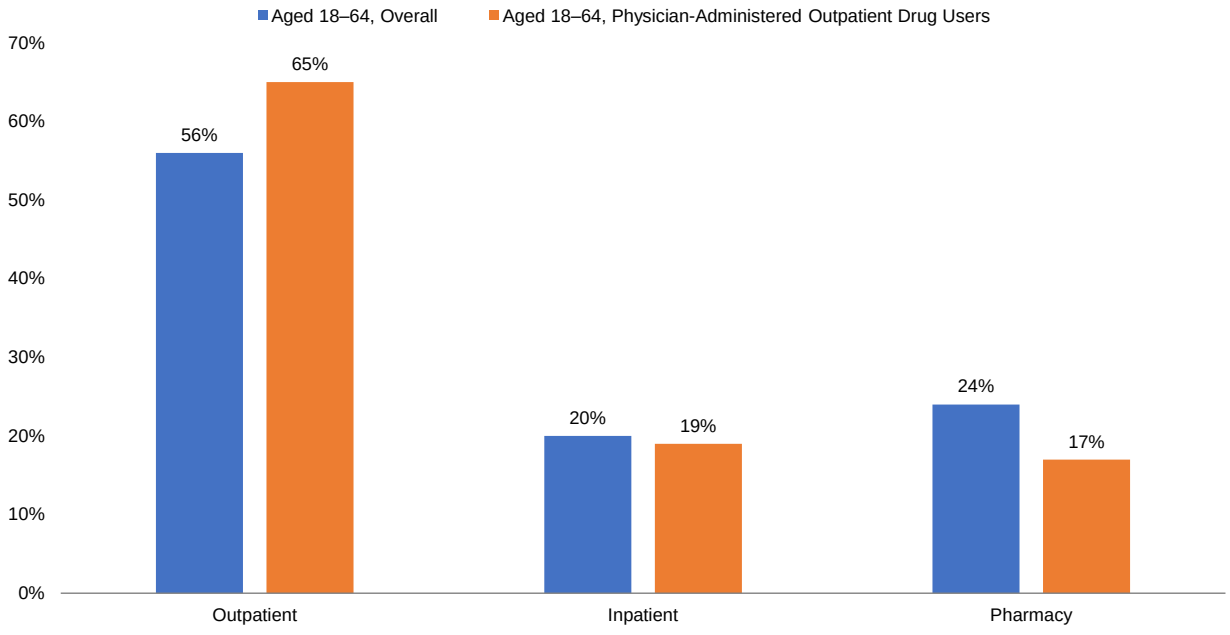
High Users of Health Care Services

In prior research, we found that 10 percent of the population account for 70 percent of health care spending (Fronstin and Roebuck 2019). Within this group, 50–60 percent reached not only their deductible but also their maximum out-of-pocket limit. As a result, much of the health care these people use is subject to low or no cost sharing, which lowers the savings potential for these plan members from any reduction in price differentials. Employers would continue to realize savings if these plan members switched from high-cost to low-cost providers, because employers pay for nearly all of these claims.

This may come as a surprise, especially since plan members are seeing their out-of-pocket costs increase mainly due to rising health plan deductibles. The fact is that plan members using PAODs, especially specialty medications, were mostly high users of health care services in 2019. Three-quarters used at least $3,000 of health care, and median overall spending was nearly $8,000. These plan members were likely to not only reach their deductible but also to often reach their maximum out-of-pocket limit.

The overall sample used an average of $1,690 in prescription drugs in 2019, and the subset of those using any of the 72 PAODs used an average of $3,515. While the subset used more prescription medicines than the overall population, they also used more health care in general than the overall population. As a result, we find that pharmacy spending as a percentage of total health care spending was lower among PAOD users than among the entire population. Pharmacy spending accounted for 24 percent of spending for all adults in our sample but only 17 percent among adults who used at least one of the 72 PAODs examined in the paper (Figure 5).

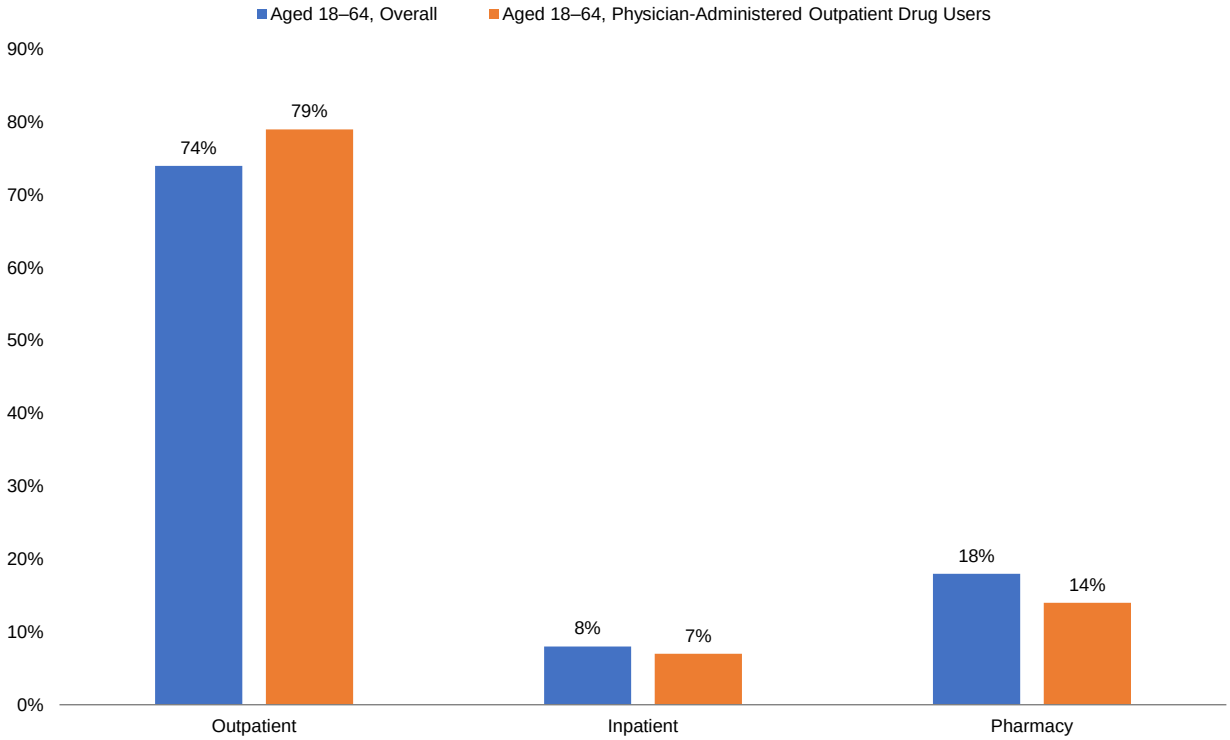
Figure 5
Distribution of Health Care Spending, 2019



Source: Authors' analysis of IBM MarketScan administrative enrollment and claims data.

Similarly, when it comes to out-of-pocket spending, users of PAODs spent less out of pocket as a percentage of total spending than the overall population. Pharmacy spending accounted for 18 percent of out-of-pocket spending among the total adult population in our sample but only accounted for 14 percent among users of the 72 PAODs examined in the paper (Figure 6).

Figure 6
Distribution of Out-of-Pocket Health Care Spending, 2019



Source: Authors' analysis of IBM MarketScan administrative enrollment and claims data.

Conclusion and Implications for Employers and Insurers

Our findings have implications for both employers and insurers. There are a number of actions these third-party payers can take. First, they can exert pressure on hospitals to shift from discounted charge contracts based on a multiple of Medicare to some other prospective case rate. Employers could also exert such pressure on health plans to do the same with the hospitals in their networks. A coalition of employers across Illinois, Iowa, and Wisconsin is already trying this.[14]

However, increasing consolidation of health care providers makes it harder for employers and insurers to exert any kind of pricing pressure on hospitals.[15] In the absence of such market power, employers and insurers can attempt to engage patients through increased price transparency. However, price transparency by itself has been found to be insufficient in reducing hospital prices[16] unless combined with plan design changes intended to steer patients to less costly sites of treatment. Furthermore, recent public policy efforts to address pricing transparency found that 34 percent of hospitals have not posted usable pricing data, and another 12 percent posted data, but those data fell well short of the requirements.[17]

Our findings also suggest that attempts to change patient behavior may be fruitless, because patients are subjected to very little cost sharing for PAODs. In other words, employers and insurers who would normally use a combination of value-based insurance design (VBID)[18] and reference pricing[19] to vary patient cost sharing based on the choices that they make regarding choice of health care provider may find that those efforts do not change patient behavior with respect to use of specialty medications for the reasons given above. Employers and insurers would need to think of

more strategic ways to share the savings. For example, research has shown that the influence of referring physicians is larger than the influence of cost sharing even when out-of-pocket costs are significantly high.[20]

Finally, instead of introducing financial incentives, which may or may not work, employers and insurers could move patients from HOPDs to other sites of treatment by removing the HOPDs from their network. Such an arrangement is most common in staff-model health maintenance organizations (HMOs) but can be applied more generally to any network plan. Providers could respond by lowering their prices so that they may return into the network. This strategy has its limitations as well. It may not work well in areas with limited provider choices or in areas where powerful hospital systems limit payers' ability to exclude certain high-cost provider locations from their network.

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Endnotes

[1] See Fronstin, Roebuck, and Stuart 2020.

[2] See Fronstin and Roebuck 2021.

[3] See Institute of Medicine of the National Academies 2010, Shrank, Rogstad and Parekh 2019.

[4] See Winn et al. 2018.

[5] See Cooper et al. 2019.

[6] See Figure 9.9 in https://www.kff.org/report-section/ehbs-2020-section-9-prescription-drug-benefits/.

[7] See Figure 9.10 in https://www.kff.org/report-section/ehbs-2020-section-9-prescription-drug-benefits/.

[8] See Figure 9.11 in https://www.kff.org/report-section/ehbs-2020-section-9-prescription-drug-benefits/.

[9] See Figure 9.6 in https://www.kff.org/report-section/ehbs-2020-section-9-prescription-drug-benefits/.

[10] See Figure 9.6 in https://www.kff.org/report-section/ehbs-2020-section-9-prescription-drug-benefits/.

[11] See Doshi et al. 2016.

[12] See Doshi et al. 2016; Winn, Keating, and Dusetzina 2016; and Li et al. 2017.

[13] Author estimates from the 2020 Annual Social and Economic Supplement to the Current Population Survey.

[14] See Koller and Khullar 2019.

[15] See Fulton 2017.

[16] See White and Whaley 2019.

[17] See https://www.wsj.com/articles/methodology-how-the-wsj-analyzed-hospital-pricing-data-11625583571.

[18] See http://vbidcenter.org/frequently-asked-questions/.

[19] See Fronstin and Roebuck 2014.

[20] See Chernew et al. 2019.

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