

HSAs Reduce Use of Outpatient Services and Prescription Drugs, Increase Use of Inpatient Services; Overall Spending Unaffected

By Paul Fronstin, Ph.D., Employee Benefit Research Institute, and M. Christopher Roebuck, Ph.D., RxEconomics, LLC

AT A GLANCE

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) included a provision that created what are commonly known as high-deductible health plans (HDHPs). The MMA also created health savings accounts (HSAs) to help individuals in high-deductible plans — the only tax-preferred account that gives individuals a “triple tax advantage.” Since that time, employers have taken two paths. Some have offered HDHPs in conjunction with HSAs, the combination of which is commonly known as HSA-eligible health plans or HSA plans. Others have simply raised deductibles in other types of health plans.

It appears that deductibles have been falling in both real and nominal dollars in HSA plans, but they have been increasing in other types of health plans, such as preferred provider organizations (PPOs). Furthermore, employer contributions to HSAs fill in part of the difference in deductibles between HSA plans and PPOs. While a gap remains, the movement of PPO deductibles toward HSA plan deductibles raises a question as to whether differences in deductibles are less of a distinguishing factor when it comes to managing health care use by type of health plan. If that is the case, it is important to understand whether the HSA impacts use of health care services and overall spending.

The purpose of this paper is to examine the impact of plan type on use of health care services and spending. The analysis focuses on enrollees in HSA plans and PPO enrollees who are in health plans with deductibles large enough to be HSA eligible as a way of isolating the impact of the HSA on use of health care services.

Key Findings:

- We find that HSA plans have mixed effects on use of health care services. Inpatient admissions and days were higher in HSA plans than in PPOs. The additional inpatient admissions do not appear to be coming from emergency department visits, as HSA plan enrollees used emergency departments less than PPO enrollees.
- Office visits shifted from specialist visits to primary care visits among HSA plan enrollees.
- HSA plan enrollees filled fewer prescriptions as compared with PPO enrollees.
- When it comes to health conditions, we see vast differences in changes in use of health care services by plan type between those with no health conditions and those with two or more. Among individuals with no health conditions, HSA plans resulted in fewer emergency department visits relative to PPO enrollees, fewer specialist visits, and fewer prescription drug fills, while visits to primary care providers increased. In contrast, among enrollees with two or more health conditions, there were no instances of decline in health care services among those in HSA plans relative to PPO enrollees. Instead, those with two or more health conditions experienced increases in inpatient admissions, inpatient days, and primary care office visits.

- The findings on the impact of HSA plans on spending relative to PPOs largely mimic the findings on use of health care services. Spending on inpatient services was \$61.30 per member per year (PMPY) higher among HSA plan enrollees than among PPO enrollees, and spending on primary care visits was \$4.20 higher PMPY. These amount to 6 percent and 2 percent higher, respectively, among HSA plan enrollees than PPO enrollees. In contrast, where use of services was lower, spending was also usually lower. Spending on emergency department visits was \$19.10 or 7 percent lower PMPY among HSA plan enrollees, and spending on specialist visits was \$4.60 or 2 percent lower PMPY. While prescription drug use was lower among HSA plan enrollees, spending on prescription drugs among HSA plan enrollees was not statistically different from spending among PPO enrollees.
- Overall, HSA plan enrollment had no impact on total spending — there was no statistically significant difference in overall spending between HSA plan and PPO enrollees. However, spending was \$60.30 or 2 percent lower PMPY among HSA plan enrollees with no health conditions as compared with PPO enrollees, but spending was \$2,490 or 6 percent higher PMPY among HSA plan enrollees with two or more health conditions. This higher spending was driven by 21 percent higher spending on inpatient services.

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HSA Reduce Use of Outpatient Services and Prescription Drugs, Increase Use of Inpatient Services; Overall Spending Unaffected

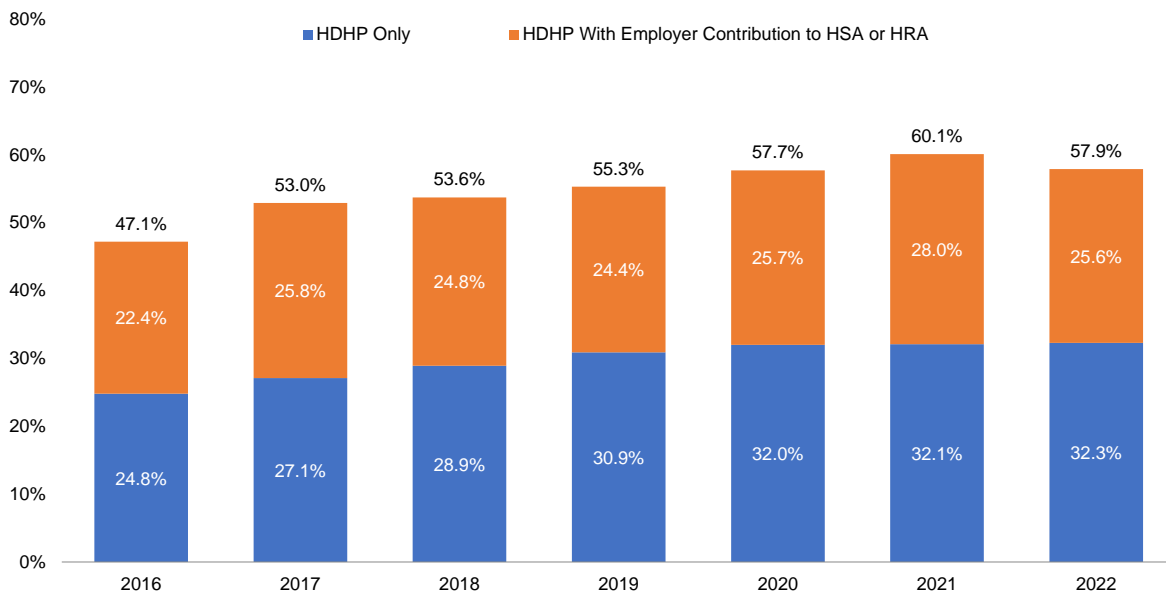
By Paul Fronstin, Ph.D., Employee Benefit Research Institute, and M. Christopher Roebuck, Ph.D., RxEconomics, LLC

Introduction

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) included a provision that created what are commonly known as high-deductible health plans (HDHPs). The MMA also created health savings accounts (HSAs) — the only tax-preferred account that gives individuals a “triple tax advantage.” Contributions are excludable from taxable income. Distributions for qualified medical expenses and certain premium payments are tax free. And interest and capital gains on account balances also build up tax free.

Since that time, employers have taken two paths. Some employers have offered HDHPs in conjunction with HSAs, the combination of which is commonly known as HSA-eligible health plans or HSA plans. Others have simply raised deductibles in other types of health plans. By 2022, 57.9 percent of workers were in a health plan with a deductible large enough to be an HSA-eligible health plan (Figure 1).¹ A little more than one-half of them (32.3 percent) were in a plan that was not associated with an HSA, while a little less than one-half (25.6 percent) were in a plan that was associated with an HSA.²

Figure 1
**Percentage of Persons Enrolled in a High-Deductible Health Plan (HDHP),
 by Employer Contribution to HSA or HRA,* Among Those With Private-Sector
 Health Coverage and Employee-Only Coverage, 2016–2022**



* HSA = health savings account, HRA = health reimbursement arrangement.
 Source: Medical Expenditure Panel Survey - Insurance Component (MEPS-IC).

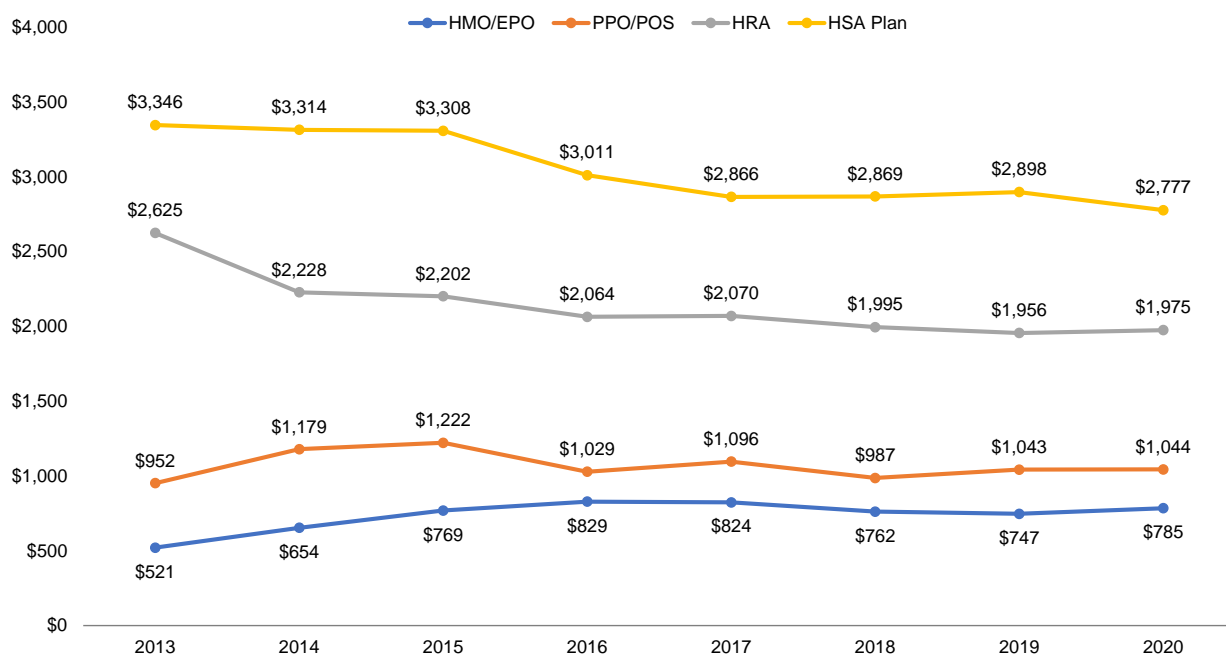
Employers have been increasing deductibles because it is one of the easiest plan design changes to adopt to manage the cost of providing health benefits. It is much easier and less disruptive to increase deductibles than to make other plan design changes to manage costs, e.g., change insurance carriers, alter networks, move to a high-performing

network, move to a limited network, change the formulary, offer health-risk assessments, offer financial incentives for biometric screenings, or audit the plan for non-eligible dependents.

Much research has been done to understand the impact that the deductible in HSA plans, and HDHPs more generally, has had on use of health care services and spending.³ The initial studies tended to focus on broad questions like who enrolls in an HDHP, how enrollees differ from non-enrollees, risk selection, and the impact of HDHPs on overall use of services and spending. More recent studies examined more targeted questions, such as medication adherence for individuals with chronic conditions (Fronstin, Sepúlveda, and Roebuck, 2013); generic drug use (Fronstin and Roebuck, 2014); whether individuals with an HDHP are likely to price shop (Brot-Goldberg, Chandra, Handel, and Kolstad, 2017); quality of health care received (Fronstin and Roebuck, 2014); use of specialty medications (Fronstin and Roebuck, 2018); delays in breast cancer screening (Wharam et al., 2019); the combination of deductible size, presence of an HSA or health reimbursement arrangement (HRA), and type of HDHP (Haviland, Sood, McDevitt, and Marquis, 2011); the role of the HSA (Fronstin and Roebuck, 2019); and the impact of deductibles on use of low-valued services (Fronstin, Roebuck, Buxbaum, and Fendrick, 2020). Recent studies are also examining more current data and plan enrollees' behaviors over longer time periods. While there are differences in results across the studies, the consistent finding is that HDHPs reduce use of health care services.

Deductibles tend to be highest in HSA plans, followed by HRA plans and preferred provider organizations (PPO) (Figure 2). It appears that deductibles have been falling in both real and nominal dollars in HSA plans, but they have been increasing in PPOs. In other words, deductibles in PPOs are on their way toward catching up to deductibles in HSA plans. For instance, deductibles for employee-only coverage in PPOs increased from \$952 to \$1,044 between 2013 and 2020, a 10 percent increase. In contrast, deductibles in HSA plans fell from \$3,346 in 2013 to \$2,777, a 17 percent decrease. As a result, in 2020, PPO deductibles were 38 percent of HSA plan deductibles, up from 28 percent in 2013.

Figure 2
Deductibles, Employee-Only Coverage, by Plan Type, 2013–2020



Source: Employee Benefit Research Institute estimates based on administrative enrollment data.
Note: Deductibles are adjusted for inflation and are in 2020 dollars.

Employer contributions to HSAs fill in part of the difference in deductibles between HSA plans and PPOs. While a gap remains, as PPO deductibles move toward HSA plan deductibles, this raises a question as to whether differences in deductibles are less of a distinguishing factor when it comes to managing health care use by type of health plan. If that

is the case, it is important to understand whether the HSA impacts use of health care services and overall spending. On the one hand, HSAs may create a savings mentality among plan enrollees as they weigh whether they should be using a particular health care service against saving money for future necessary care. On the other hand, enrollees may view the HSA as earmarked for current spending, especially any employer contributions to the HSA, and therefore may feel that there is no need to be cost conscious.

The purpose of this paper is to examine the impact of plan type on use of health care services and spending. The analysis focuses on enrollees in HSA plans and PPO enrollees who are in health plans with deductibles large enough to be HSA eligible as a way of isolating the impact of the HSA on use of health care services.

Differences Between PPOs and HSA Plans

An HSA-eligible health plan is a health plan with a deductible of at least \$1,600 for employee-only coverage and \$3,200 for family coverage in 2024. Maximum out-of-pocket limits for in-network care cannot exceed \$8,050 for employee-only coverage and \$16,100 for family coverage. HSA plans may provide coverage of certain preventive services prior to the satisfaction of the health plan deductible. Under the initial IRS guidance, until the deductible is met, coverage does not include "any service or benefit intended to treat an existing illness, injury, or condition, including drugs or medications" (Internal Revenue Service, 2004). This narrow definition of the "safe harbor" has likely caused some plan members to go without needed care, as it is well established that increases in cost sharing for health care have been associated with deleterious consequences. Thus, the U.S. Department of Treasury issued guidance in 2019, via IRS Notice 2019-45, to further increase the flexibility of HSA plans to cover 14 specific low-cost preventive services to prevent the exacerbation of chronic conditions on a pre-deductible basis. HSA-eligible health plans are now able to adopt a more flexible benefit design, offering more protection for certain medical services through a value-based insurance design (V-BID) plan structure — a health plan feature that encourages optimal use of high-valued health care by lowering member out-of-pocket (OOP) costs through reductions in deductibles, coinsurance, or copays (Chernew, Rosen, and Fendrick, 2007).

In contrast to HSA plans, PPOs do not have such statutory requirements. PPOs do not have to use deductibles, though they often do. When they include deductibles, they do not need to be at a certain threshold, though we find that they are often large enough to be HSA eligible. This would explain why we found that 32.3 percent of enrollees with private-sector health coverage were in HDHPs without an HSA or HRA. Out-of-pocket maximums for in-network care cannot exceed \$9,450 for employee-only coverage and \$18,900 for family coverage, thresholds that are higher than those in HSA plans. When deductibles are used, any service could be excluded from or subject to the deductible, at the discretion of the employer or health plan.

It is at the discretion of the employer whether they offer an HSA in conjunction with the HSA-eligible health plan. There is no requirement that employers offer an HSA when they offer such a plan, but many do so. About three-quarters of employers also contribute to the HSA. It is possible that employers are choosing high-deductible PPOs instead of offering an HSA plan for several reasons. Employers may not want to set expectations that they will fund an HSA. Employers may want the flexibility that goes along with PPO coverage and are therefore not offering an HSA plan. Employers also cannot offer an HSA with a PPO if the PPO does not meet the strict plan design requirements of an HSA. Instead, employers can offer either health reimbursement arrangements (HRAs) or flexible spending accounts (FSAs) with PPOs, which can be and are typically set up as unfunded, notional arrangements.

What Is an HSA?

An HSA is a tax-exempt trust or custodial account funded with contributions and assets that an individual can use to pay for current- or future-year health care expenses. Individuals can contribute to an HSA only if they are enrolled in an HSA-eligible health plan. An employee's contributions to the account are deductible from taxable income, an employer's contributions to the account for an employee are excludable from the employee's gross income, and distributions for qualified medical expenses from the HSA are excluded from taxable income to the employee. Tax-free distributions are

also allowed for certain premium payments. Any interest or other capital earnings on assets in the account build up tax free. Finally, HSAs are always funded, unlike similar types of health accounts such as health reimbursement arrangements, which are usually provided on a notional basis.

Data

Enrollment information and medical and pharmacy claims from the MarketScan® Commercial and Benefit Plan Design databases were used for this analysis. Full-time workers and their dependents who were continuously enrolled in health coverage in each year from 2017 through 2021 were included in the study. Individuals were required to be enrolled in either a PPO or an HSA-eligible health plan. Further, the annual statutory minimum deductible thresholds (see Appendix Figure 1) were imposed to exclude those in PPO plans with comparably lower deductibles. Finally, the presence of a valid medical coinsurance rate in the Benefit Plan Design Database was also required for the ensuing analyses. Final cohort sizes, which varied by year and plan type (i.e., there was an unbalanced panel dataset), ranged from 472,000 in PPOs during 2021 to 1.6 million in HSA-eligible health plans during 2018.

For all enrollees, we captured the following characteristics: age, male/female, region, individual/family coverage, household size, policyholder/spouse/dependent, Charlson Comorbidity Index (CCI),⁴ indicators for depression and anxiety, deductible amount, and coinsurance rate. A vector of 18 measures of health services use and spending were also constructed (Figure 3). All spending measures were converted into 2022 dollars using the Consumer Price Index for Medical Care.⁵

Figure 3
Measures of Health Services Use and Spending

<u>Use Variables</u>	<u>Spending Variables</u>
Inpatient Hospitalizations (#)	Total Spending
Inpatient Hospital Days (#)	Inpatient
Emergency Department Visits (#)	Outpatient
Physician's Office Visits (#)	Emergency Department
Primary care physician's office visits (#)	Physician's Office Visits
Specialist physician's office visits (#)	Primary care physician's office visits
Prescription Drug Fills (#)	Specialist physician's office visits
Breast Cancer Screening (%)	Prescription Drugs
Cervical Cancer Screening (%)	
Colorectal Cancer Screening (%)	

Bivariate comparisons of mean values for all variables are presented in Figure 4 for demographics, Figure 5 for use of health care services, and Figure 6 for spending on health care services, alongside significance levels based on p-values from Kruskal-Wallis equality of populations tests across the two cohorts Kruskal and Wallis (1952). While we used data from 2017–2021, we only present the means for 2021, as there is not a lot of variation from year to year.

In large part, PPO enrollees in plans with high deductibles and HSA plan enrollees are very similar to each other. With respect to demographics, the average ages for PPO and HSA plan enrollees were 32.2 and 32.5 respectively. While the difference in the average age and the distribution by age are statistically significant, the difference is statistically significant because of large sample sizes. Similarly, men represent about 51 percent of both PPO and HSA plan enrollees. The largest difference between the two samples can be seen in the type of coverage. Just over 13 percent of PPO enrollees had individual coverage, while 18 percent of HSA plan enrollees had individual coverage. This implies that HSA plan enrollees were either less likely to cover their dependents or that they were less likely to have dependents. More specifically, 43.4 percent of HSA plan enrollees were policyholders, compared with 41.1 percent among PPO enrollees. In other words, PPO enrollees were a little more likely than HSA plan enrollees to be the spouse or child/dependent of the policyholder.

When it comes to health status, HSA plan enrollees were a little less healthy than PPO enrollees. HSA plan enrollees had a slightly higher CCI than PPO enrollees, and they were slightly more likely to have depression and anxiety.

Even though we limited PPO enrollees to those with deductibles large enough to be HSA eligible, HSA plan enrollees had higher deductibles than PPO enrollees. HSA enrollees had an average deductible of \$3,643, while PPO enrollees had an average deductible of \$3,300. In contrast, HSA plan enrollees had lower coinsurance than PPO enrollees (18 percent and 21 percent, respectively).

Figure 4
Demographic and Other Differences, by Plan Type, 2021

	PPO	HDHP	
Age (Years)	32.2	32.5	***
Under 18	26.8%	26.1%	***
18–24	12.0%	11.5%	***
25–34	13.2%	13.5%	***
35–44	17.2%	17.8%	***
45–54	17.3%	17.5%	
55–64	13.5%	13.7%	***
Gender			
Male	51.5%	50.9%	***
Female	48.5%	49.1%	***
Type of Coverage			
Individual	13.3%	18.0%	***
Family	86.7%	82.0%	***
Household Size (#)	3.4	3.3	***
Policyholder	41.1%	43.4%	***
Spouse	20.2%	19.2%	***
Child / Dependent	38.7%	37.4%	***
Comorbidities			
Charlson Comorbidity Index (#)	0.179	0.181	*
Depression	3.7%	3.9%	***
Anxiety	5.9%	6.6%	***
Cost Sharing			
Deductible	\$3,300	\$3,643	***
Coinsurance rate	21%	18%	***

Statistical significance denoted as follows: ***p<0.01; **p<0.05; *p<0.10, are based on Kruskal-Wallis equality of populations test of differences in mean value.

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

PPO and HSA plan enrollees are also very similar when it comes to their use of health care and spending. Use of inpatient services and emergency department visits was nearly identical. And while HSA plan enrollees used more physician office visits (in particular, primary care physicians), prescription drugs, and cancer screenings, the differences were statistically significant because of large sample sizes. Otherwise, use of these health care services was about the same between PPO and HSA plan enrollees.

Figure 5
Use of Health Care Services, by Plan Type, 2021

	PPO	HDHP	
Inpatient Hospitalizations (#) (per 1,000 enrollees)	31.4	31.4	
Inpatient Hospital Days (#) (per 1,000 enrollees)	153.9	153.0	
Emergency Department Visits (#) (per 1,000 enrollees)	442.3	431.8	
Physician's Office Visits (#)	3.6	3.7	***
Primary care physician's office visits	1.9	2.1	***
Specialist physician's office visits	1.6	1.6	***
Prescription Drug Fills (#)	11.2	11.9	***
Use of Preventive Screening Services			
Breast cancer screening	48%	50%	***
Cervical cancer screening	29%	30%	***
Colorectal cancer screening	18%	19%	***

Statistical significance denoted as follows: ***p<0.01; **p<0.05; *p<0.10, are based on Kruskal-Wallis equality of populations test of differences in mean value.

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

Overall spending on health care services was \$5,983 for PPO enrollees and \$5,990 for HSA plan enrollees. While HSA plan enrollees' spending was a little higher for office visits and prescription drugs, the differences were not large and were also likely due to our large sample sizes.

Figure 6
Spending on Health Care Services, by Plan Type, 2021

	PPO	HDHP	
Total Spending	\$5,983	\$5,990	***
Inpatient	1,029	1,016	
Outpatient	3,691	3,665	***
Emergency department	300	296	
Physician office visits	498	509	***
Primary care physician office visits	259	277	***
Specialist office visits	238	233	***
Prescription Drugs	1,263	1,309	***

Statistical significance denoted as follows: ***p<0.01; **p<0.05; *p<0.10, are based on Kruskal-Wallis equality of populations test of differences in mean value.

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

Methods

To examine whether the HSA-eligible health plan — relative to the PPO — was associated with differences in health services use and spending, multivariate regressions were specified. Namely, for each of the 18 outcomes, a linear fixed-

effects model was estimated, which included the key regressor of interest — HSA-eligible health plan — as well as the following covariates: age, region, household size, CCI, depression, anxiety, deductible amount, coinsurance rate, and year indicators. The coefficient for HSA-eligible health plans from these models is interpreted as representing the impact of having (access to) an HSA — the key contrast between an HSA-eligible health plan and a PPO plan after controlling for deductible and coinsurance. Of course, any other differences (e.g., copayments and provider networks) would also be potential explanations of the estimated effects.

It is worth noting that fixed-effects modeling makes use of within-subject variation (i.e., over time) to generate estimates of the impact of the independent variables on the dependent variables. The advantage of this approach is that unmeasured, time-invariant characteristics are eliminated as possible sources of confounding. In the present analysis, this is valuable since individuals likely selected their health plans for reasons that are not controlled for by the covariates. Unobservables that are dynamic within person, however, remain sources of potential bias.

Findings

The results from the linear fixed-effects models estimated on the full sample are reported in Figures 7 through 9. We also present findings on the following sub-samples: males, females, enrollees in individual plans, enrollees in family plans, policyholders (in family plans), spouses (in family plans), children/dependents (in family plans), those who never met the deductible during any year, those with CCI = 0, and those with CCI \geq 2. Figure 7 contains the findings on use of health care services, and Figures 8 and 9 contain the findings on spending.

Overall Effects on Use of Health Care Services

We find that HSA plans have mixed effects on use of health care services. Inpatient admissions and days were higher in HSA plans than in PPOs. There were 1.2 additional inpatient admissions per 1,000 enrollees in HSA plans as compared with PPOs, and HSA plan enrollees had 15.1 more hospital days per 1,000 enrollees than PPO enrollees.

The additional inpatient admissions do not appear to be coming from emergency department visits, as HSA plan enrollees used emergency departments less than PPO enrollees. HSA plan enrollees had 29.6 fewer emergency department visits per 1,000 enrollees as compared with PPO enrollees.

Interestingly, we see a shift from specialist visits to primary care visits among HSA plan enrollees. Overall, HSA plan enrollees used 25.6 fewer physician office visits per 1,000 enrollees as compared with PPO enrollees. They saw specialists 47.8 fewer times per 1,000 enrollees, while they saw primary care physicians 22.2 more times.

In terms of prescription drugs, HSA plan enrollees filled 135.4 fewer prescriptions per 1,000 enrollees as compared with PPO enrollees.

When it comes to cancer screenings, female HSA plan enrollees had nine fewer breast cancer screenings and 3.4 fewer cervical cancer screenings per 1,000 enrollees. HSA plans had no impact on colorectal cancer screenings.

Changes in Use of Health Care Services by Subgroups

Looking only at the overall effects masks important differences by various subgroups. For instance, women were the drivers of higher inpatient admissions and days among HSA plan enrollees. Similarly, while both men and women reduced use of emergency department visits, specialist visits, and prescription drug fills, women reduced use of those services by a greater degree than men. And when it comes to the increase in primary care visits, women increased their use by 27.3 visits per 1,000 enrollees, while men increased their use by 15.5 visits.

Enrollees with family coverage were also larger drivers of the differences than those with employee-only coverage. Those with family coverage drove the increase in inpatient admissions, inpatient days, and primary care office visits. They also were more responsible for fewer specialist visits, and they were completely responsible for lower use of

prescription medications. Enrollees with family coverage also accounted for the decline in breast and cervical cancer screening.

The spouse of the policyholder was also the driver of changes in the use of health care services. It was the spouse that experienced fewer inpatient admissions, and spouses accounted for a larger increase in hospital days. They had slightly fewer emergency department visits and slightly fewer specialist visits. They also accounted for fewer prescription drug fills, though policyholders and children also had fewer drug fills. While we do not have the work status of the covered spouse, given they account for higher inpatient use, it is possible that they are not working because of their health status.

When it comes to health conditions, we see vast differences in changes in use of health care services by plan type between those with no health conditions and those with two or more as defined by the CCI. Among individuals with no health conditions, HSA plans resulted in fewer emergency department visits relative to PPO enrollees, fewer specialist visits, and fewer prescription drug fills. Visits to primary care providers increased. In contrast, among enrollees with two or more health conditions, there were no instances of declines in health care services among those in HSA plans relative to PPO enrollees. Instead, those with two or more health conditions experienced increases in inpatient admissions (18 per 1,000 enrollees), inpatient days (298.6 days per 1,000 enrollees), and primary care office visits (96.6 visits per 1,000 enrollees).

Figure 7
Effects of HDHP on Use of Health Care Services Relative to PPO, per 1,000 Enrollees

	Full Sample	Male	Female	Employee-Only Coverage	Family Coverage	Policyholder in Family	Spouse in Family	Child or Dependent in Family	Charlson = 0	Charlson ≥ 2
Inpatient Hospitalizations	1.2 **	0.7	1.7 **	-0.2	1.0 *	0.2	4.4 ***	-0.1	0.7	\$18 *
Inpatient Hospital Days	15.1 ***	6.0	24.2 ***	12.7	12.7 **	13.4 *	37.4 ***	0.2	4.2	\$299 ***
Emergency Department Visits	-29.6 ***	-24.5 ***	-35.0 ***	-33.8 ***	-28.2 ***	-28.0 ***	-30.0 ***	-27.3 ***	-29.0 ***	-1.7
Physician's Office Visits	-25.6 ***	-18.4 *	-33.0 ***	-28.8	-38.1 ***	-44.9 ***	-48.7 ***	-33.8 ***	-27.4 ***	37.9
Primary care physician's office visits	22.2 ***	15.5 **	27.3 ***	14.0	12.0 **	24.5 ***	23.3 **	-10.0	16.1 ***	96.6 *
Specialist physician's office visits	-47.8 ***	-33.9 ***	-60.3 ***	-42.8 ***	-50.1 ***	-69.3 ***	-72.0 ***	-23.8 ***	-43.5 ***	-58.7
Prescription Drug Fills	-135.4 ***	-112.8 ***	-160.8 ***	-58.7	-186.9 ***	-278.3 ***	-350.3 ***	-53.2 ***	-143.0 ***	-170.3
Use of Preventive Screening Services										
Breast cancer screening	-9.0 ***		-9.0 ***	-5.6	-11.5 ***	-23.0 ***	-6.6		-13.0 ***	-6.6
Cervical cancer screening	-3.4 *		-3.4 *	-4.1	-4.7 **	-12.2 ***	-1.5	-1.4	-3.3	2.6
Colorectal cancer screening	-1.1	0.9	-3.0	-2.7	-0.8	-2.1	1.0		-1.7	-2.1

Notes: Presented are HDHP (vs. PPO) coefficients from linear fixed-effects models of dependent variables using the full sample, and specific cohorts as defined in column headers. All models included the following covariates (if time-varying): age, male/female, region (Northeast, Midwest, South, West, other), individual/family coverage, policyholder/spouse/dependent, household size, Charlson Comorbidity Index, depression, anxiety, deductible amount (individual or family), and coinsurance rate. *p<0.10, **p< 0.05, ***p<0.01.

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

Overall Effects on Spending

The findings on the impact of HSA plans on spending relative to PPOs largely mimic the findings on use of health care services. Spending on inpatient services was \$61.30 (6 percent) per member per year (PMPY) higher among HSA plan enrollees than among PPO enrollees, and spending on primary care visits was \$4.20 (2 percent) higher PMPY among HSA plan enrollees as well (Figures 8 and 9). In contrast, where use of services was lower, spending was also usually lower. Spending on emergency department visits was \$19.10 (7 percent) lower PMPY among HSA plan enrollees, and spending on specialist visits was \$4.60 (2 percent) lower PMPY. While prescription drug use was lower among HSA plan

enrollees, spending on prescription drugs among HSA plan enrollees was not statistically different than spending among PPO enrollees. Overall, HSA plan enrollment had no impact on total spending — there was no statistically significant difference in overall spending between HSA plan and PPO enrollees.

The findings by gender, employee-only vs. family coverage, and policyholder vs. spouse/dependent also largely mimic the findings by use of health care services for these groups. And while the findings by health condition, as defined by the CCI, also largely follow the findings by use of health services, it is worth discussing these results further.

Enrollees with two or more health conditions accounted for the increase in use of inpatient services among HSA plan enrollees. As a result, spending on inpatient services was \$2,334 (21 percent) PMPY higher among HSA plan enrollees. This implies that the presence of the HSA did not reduce the use of these services. In fact, the opposite was true. It is possible that either HSA balances or possibly employer contributions enabled HSA plan enrollees with health conditions to use more inpatient services. And since emergency department visits (and associated spending) were not higher among HSA plan enrollees, we can conclude that it was necessary for enrollees with health conditions to receive the services they did in the inpatient setting.

Overall, spending was \$60.30 (2 percent) lower PMPY among HSA plan enrollees with no health conditions as compared with PPO enrollees, but spending was \$2,490 (6 percent) higher PMPY among HSA plan enrollees with two or more health conditions. Because so few enrollees have two or more health conditions, increases in spending among this group was completely offset by the larger group with no health conditions who saw their overall spending decline.

Figure 8
Effects of HDHP on Spending Relative to PPO in Dollars

	Full Sample	Male	Female	Employee-Only Coverage	Family Coverage	Policyholder in Family	Spouse in Family	Child or Dependent in Family	Charlson = 0	Charlson ≥ 2
Total Spending	\$9.1	-\$69.1	\$86.4	-\$47.3	-\$11.7	-\$32.3	\$193.5	-\$107.5	-\$60.3 **	\$2,490 **
Inpatient Services	\$61.3 *	\$42.4	\$78.2 *	-\$48.0	\$57.8 *	\$81.2	\$248.9 ***	-\$56.1	-\$5.5	\$2,334 ***
Emergency Department	-\$19.1 ***	-\$13.8 ***	-\$24.3 ***	-\$2.7	-\$22.7 ***	-\$18.4 ***	-\$34.1 ***	-\$19.7 ***	-\$17.9 ***	-\$2.2
Physician Office Visits	-\$0.4	-\$0.4	-\$0.3	-\$4.9 *	-\$0.8	-\$3.1	-\$1.1	\$0.3	-\$0.5	\$14.6
Primary care physician office visits	\$4.2 ***	\$3.2 ***	\$5.2 ***	-\$0.3	\$3.8 ***	\$4.6 ***	\$6.2 ***	\$1.1	\$3.9 ***	\$15.6 *
Specialist office visits	-\$4.6 ***	-\$3.6 ***	-\$5.5 ***	-\$4.5 **	-\$4.6 ***	-\$7.7 ***	-\$7.4 ***	-\$0.8	-\$4.4 ***	-\$1.0
Prescription Drugs	\$8.6	-\$19.5	\$35.8 **	-\$9.4	\$6.8	-\$27.7	\$30.2	\$17.5	\$9.5	\$2.6

Notes: Presented are HDHP (vs. PPO) coefficients from linear fixed-effects models of dependent variables using the full sample, and specific cohorts as defined in column headers. All models included the following covariates (if time-varying): age, male/female, region (Northeast, Midwest, South, West, other), individual/family coverage, policyholder/spouse/dependent, household size, Charlson Comorbidity Index, depression, anxiety, deductible amount (individual or family), and coinsurance rate. *p<0.10, **p< 0.05, ***p<0.01.

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

Figure 9
Effects of HDHP on Spending Relative to PPO in Percentages

	Full Sample	Male	Female	Employee-Only Coverage	Family Coverage	Policyholder in Family	Spouse in Family	Child or Dependent in Family	Charlson = 0	Charlson ≥ 2
Total Spending	0.2%	-1%	1%	-1%	-0.2%	-1%	2%	-3%	-2% **	6% **
Inpatient services	6% *	5%	7% *	-5%	6% *	7%	15% ***	-10%	-1%	21% ***
Emergency Department	-7% ***	-6% ***	-8% ***	-1%	-9% ***	-8% ***	-11% ***	-8% ***	-8% ***	-0.2%
Physician Office Visits	-0.1%	-0.1%	-0.1%	-1% *	-0.2%	-1%	-0.2%	0.1%	-0.1%	1%
Primary care physician office visits	2% ***	1% ***	2% ***	-0.1%	1% ***	2% ***	2% ***	0.4%	2% ***	3% *
Specialist office visits	-2% ***	-2% ***	-2% ***	-2% **	-2% ***	-3% ***	-2% ***	-1%	-2% ***	-0.1%
Prescription Drugs	1%	-2%	3% **	-1%	1%	-2%	2%	3%	1%	0.03%

Notes: Presented are HDHP (vs. PPO) coefficients from linear fixed-effects models of dependent variables using the full sample, and specific cohorts as defined in column. All models included the following covariates (if time-varying): age, male/female, region (Northeast, Midwest, South, West, other), individual/family coverage, policyholder/spouse/dependent, household size, Charlson Comorbidity Index, depression, anxiety, deductible amount (individual or family), and coinsurance rate. *p<0.10, **p< 0.05, ***p<0.01.

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

Conclusion

Deductibles have been falling in both real and nominal dollars in HSA plans, but they have been increasing in other types of health plans, such as PPOs. While a gap remains, the trending of PPO deductibles toward HSA plan deductibles raises a question as to whether differences in deductibles are less of a distinguishing factor when it comes to managing health care use by type of health plan. If that is the case, it is important to understand whether the HSA impacts use of health care services and overall spending.

In this paper, we examined the impact of plan type on use of health care services and spending. The analysis focuses on enrollees in HSA plans and PPO enrollees who are in health plans with deductibles large enough to be HSA eligible as a way of isolating the impact of the HSA on use of health care services.

We find that HSA plans have mixed effects on use of health care services. Inpatient admissions and days were higher in HSA plans than in PPOs. The additional inpatient admissions do not appear to be coming from emergency department visits, as HSA plans enrollees used emergency departments less than PPO enrollees. Interestingly, we see a shift from specialist visits to primary care visits among HSA plans enrollees. HSA plan enrollees also filled fewer prescriptions as compared with PPO enrollees. Overall, HSA plan enrollment had no impact on total spending — there was no statistically significant difference in overall spending between HSA plan and PPO enrollees.

Our findings suggest that the HSA plays a role in changing the way enrollees use health care services. The HSA appears to cause enrollees to use fewer outpatient services, and perhaps this means that they use health care services more appropriately, as evidenced by the shift from specialists to primary care physicians. This would indicate that HSA enrollees are starting to shift from a spending mentality to a savings mentality with respect to the HSA. We see this with other aspects of HSAs — the longer an individual has had an HSA, the more they contribute and the more likely they are to invest (Spiegel and Fronstin, 2024).

It is well established that increases in cost sharing for health care have been associated with deleterious consequences (Fronstin and Volkov, 2023). It is possible that the HSA may cause enrollees to use not only fewer unnecessary services but also fewer necessary services as they weigh saving for future health care expenses against paying for their current health care needs. Hence, more work needs to be done to better understand why we see an increase in inpatient admissions and associated lengths of stay among HSA enrollees even after differences in deductibles were removed as a determinant of differences in health care use between HSA plan and PPO enrollees.

Appendix

Appendix Figure 1 Statutory HSA Limits, 2004–2023							
	Minimum Deductible		Maximum Contribution		Maximum Out-of-Pocket Limit		Per-Person Catch-up Contribution Limit
	Individual	Family	Individual	Family	Individual	Family	
2004	\$1,000	\$2,000	\$2,600	\$5,150	\$5,000	\$10,000	\$500
2005	1,000	2,000	2,600	5,150	5,000	10,000	600
2006	1,050	2,100	2,700	5,450	5,250	10,500	700
2007	1,100	2,200	2,850	5,650	5,500	11,000	800
2008	1,100	2,200	2,900	5,800	5,600	11,200	900
2009	1,150	2,300	3,000	5,950	5,800	11,600	1,000
2010	1,200	2,400	3,050	6,150	5,950	11,900	1,000
2011	1,200	2,400	3,050	6,150	5,950	11,900	1,000
2012	1,200	2,400	3,100	6,250	6,050	12,100	1,000
2013	1,250	2,500	3,250	6,450	6,250	12,500	1,000
2014	1,250	2,500	3,300	6,550	6,350	12,700	1,000
2015	1,300	2,600	3,350	6,650	6,450	12,900	1,000
2016	1,300	2,600	3,350	6,750	6,550	13,100	1,000
2017	1,300	2,600	3,400	6,750	6,550	13,100	1,000
2018	1,350	2,700	3,450	6,900	6,650	13,300	1,000
2019	1,350	2,700	3,500	7,000	6,750	13,500	1,000
2020	1,400	2,800	3,550	7,100	6,900	13,800	1,000
2021	1,400	2,800	3,600	7,200	7,000	14,000	1,000
2022	1,400	2,800	3,650	7,300	7,050	14,100	1,000
2023	1,500	3,000	3,850	7,750	7,500	15,000	1,000

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Endnotes

¹ In 2024, these plans had to have a deductible of at least \$1,600 for individual coverage and \$3,200 for family coverage.

² According to KFF, among workers with an HSA or health reimbursement arrangement (HRA) in 2023, about four-fifths of workers had an HSA and one-fifth had an HRA. See Figure 8.4 in <https://www.kff.org/report-section/ehbs-2023-section-8-high-deductible-health-plans-with-savings-option/>.

³ See Buchmueller (2009); Bundorf (2012); Buntin, Haviland, McDevitt, and Sood (2011); Fronstin and Roebuck (2013); and Fronstin, Sepúlveda, and Roebuck (2013).

⁴ The Charlson Comorbidity Index (CCI) is a measure of health status. More specifically, it is a weighted index that predicts risk of death within one year of hospitalization for patients with specific comorbid conditions. It is widely used in the extant literature as a gauge of general health status. Medical conditions such as diabetes, cancer, and heart disease are included. Overall, the CCI currently consists of 17 health conditions. See Charlson, Pompei, Ales, and MacKenzie (1987); Deyo, Cherkin, and Ciol (1992); and Quan et al. (2005) for more information.

⁵ See <https://www.bls.gov/cpi/factsheets/medical-care.htm>.