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Lower Health Care Spending and Use for People with Chronic Conditions in Consumer-Directed Health Plans

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Since 2010, high-deductible health plans (HDHPs) have become increasingly common for those covered by employer-sponsored insurance (ESI). HDHPs present a trade-off for consumers, offering lower premiums in exchange for more exposure to out-of-pocket payments. Previous research indicates that HDHPs are successful at decreasing enrollee health care spending. The effect of HDHPs on service use is less clear, as HDHPs appear to decrease service use in some but not all care settings. When HDHPs are associated with lower service use, they are typically associated with decreases in use that occur across the board rather than being limited to services that are of low value.

In This Brief

To better understand differences in spending and use across types of health plans, we examine individuals enrolled in consumer-directed health plans (CDHPs) and individuals enrolled in non-CDHP health plans. CDHPs are a type of HDHP that typically include a health savings account (HSA) or a health reimbursement arrangement (HRA). We analyzed a sample of over 10 million individuals under the age of 65 who were enrolled in a full year of employer-sponsored insurance (ESI) coverage between 2014 and 2016, of which 26% were enrolled in a CDHP. We measured their total spending (whether paid by the plan or the enrollee) and examined use of services across four categories: inpatient facilities, outpatient facilities, professional services, and prescription drugs. Because CDHP and non-CDHP enrollees may differ in other ways that affect their use of care, we cannot attribute all of the differences we observe to differences in plan designs.

Results

We found that individuals enrolled in CDHPs in 2016 had 13% lower total spending, on average, than individuals not enrolled in CDHPs. Across the four service categories, spending per person for CDHP enrollees was consistently lower than for non-CDHP enrollees. For each service category, lower per-person spending for the CDHP population largely reflected lower average levels of service use.

To examine the possibility that differences in spending and service use occur disproportionally among healthy individuals, we also studied CDHP and non-CDHP enrollees diagnosed with three common chronic conditions: type 2 diabetes, chronic obstructive pulmonary disease, and hypertension. CDHP enrollees with these chronic conditions had overall spending ranging from 3% (Hypertension) to 10% (Type 2 Diabetes) lower than non-CDHP enrollees with similar conditions. The spending differences among the chronic condition subgroups were slightly lower than the differences observed in the entire sample. However, we found that among individuals both with and without these chronic conditions, CDHP enrollees had substantially lower service use across service categories.

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Average Spending for People in CDHPs was 13% Lower than for People in Non-CDHP Plans in 2016

We examined total health care spending levels for the population of enrollees in CDHPs versus the population in traditional non-CDHP plans from 2014 to 2016.

CDHP enrollees had lower spending per person in each year than did non-CDHP enrollees (Figure 1):

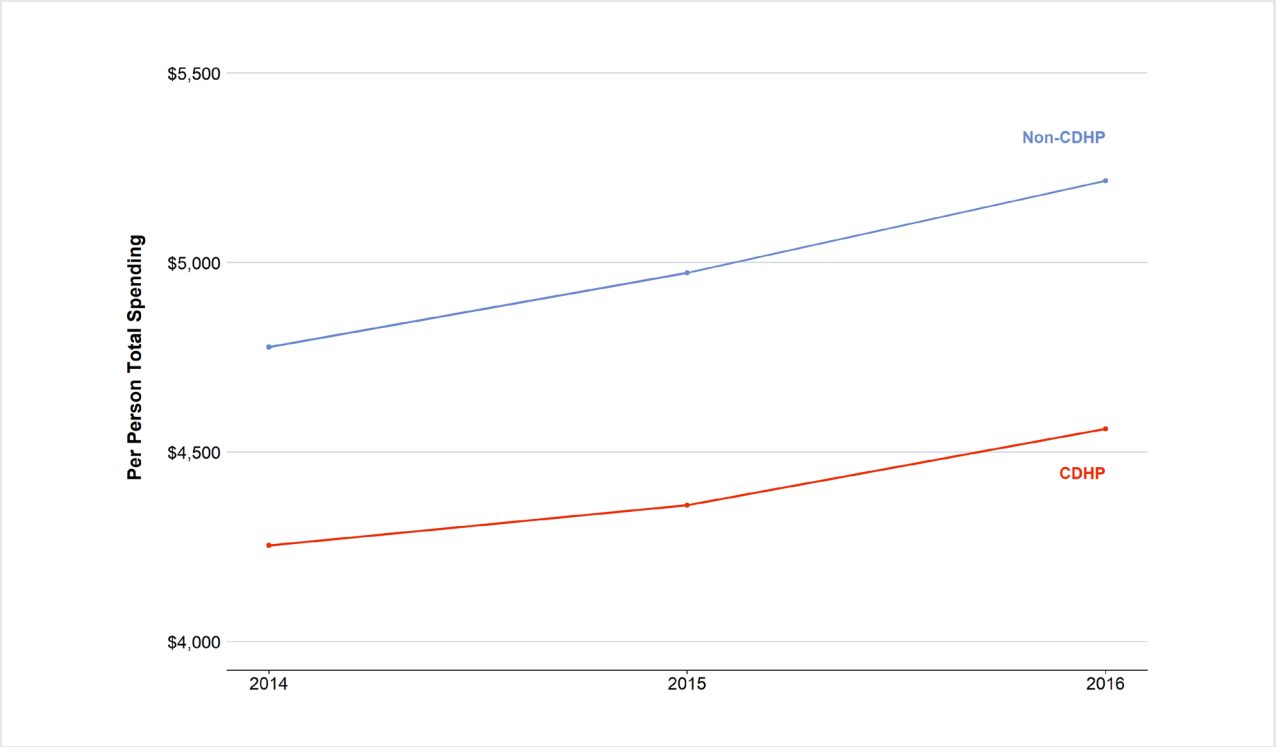
- In 2016, spending was $5,216 per person for non-CDHP enrollees and $4,562 for CDHP enrollees (13% lower).
- This difference in spending persisted across years. In 2014 and 2015, CDHP sending per person was 11% and 12% lower, respectively.

Between 2014 and 2016, spending per person increased for both populations:

- Spending increased 9% ($438 per person) for non-CDHP enrollees.
- Spending increased 7% ($308 per person) for CDHP enrollees.

It is important to note that these findings are descriptive and do not prove that CDHP enrollment *caused* lower health care spending and use. Differences in spending and use could, for example, arise because those enrolled in CDHPs tend to be younger, healthier and may differ in other ways that affect their health care use.

Figure 1: CDHP enrollees had lower spending levels but similar spending growth compared to non-CDHP enrollees



Spending Per Person Was Lower For CDHP Enrollees Across All Service Categories

We decomposed total health care spending into four service categories: inpatient facility, outpatient facility, professional services, and prescription drugs.

Across all four service categories, spending per person was lower for CDHP enrollees than non-CDHP enrollees in all years studied (Figure 2). In 2016:

- Inpatient: 13% lower spending ($110 per person).
- Outpatient: 7% lower ($99 per person).
- Professional services: 8% lower spending ($139 per person).
- Prescription drugs: 26% lower gross spending ($306 per person).

Figure 2: Across all service categories, in all years, CDHP enrollees had lower spending per person

Between 2014 and 2016, both populations saw their spending grow similarly across all service categories:

- Gross spending on prescription drugs saw the fastest growth of any category: average *annual* growth of 7% for non-CDHP enrollees and 6% for CDHP enrollees.
- Professional services spending grew the slowest: average *annual* growth of 3% for non-CDHP enrollees and 2% for CDHP enrollees.

Lower Spending Among CDHP Population Largely Reflected Lower Use Across Service Categories

To further understand the differences in CDHP and non-CDHP spending, we compared service use between enrollees in CDHP and non-CDHP plans.

We found that across service categories, lower spending by enrollees in CDHP plans compared to enrollees in non-CDHP plans largely reflected lower service use (Figure 3).

Figure 3: Relative differences in spending between CDHP and non-CDHP enrollees largely mirrored differences in service use

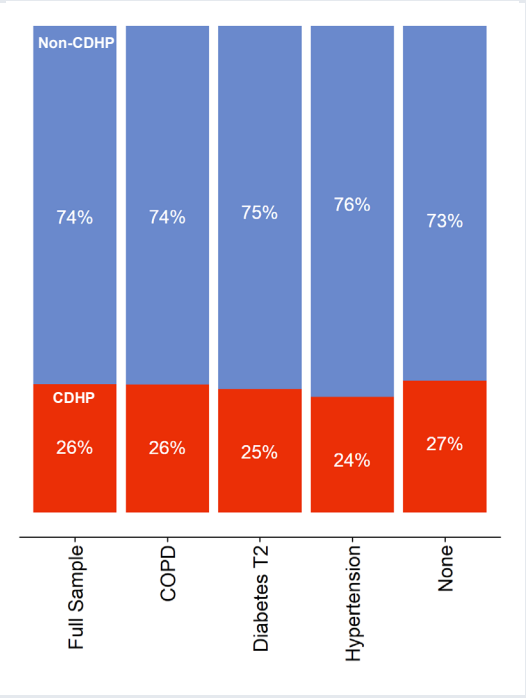
Examining the relative difference between CDHP and non-CDHP spending and use across service categories shows that services used by CDHP and non-CDHP enrollees had, on average different prices. For example, in 2016:

- People in CDHPs used 12% fewer outpatient services but only had 7% lower spending. This is consistent with individuals using fewer, but on average more expensive outpatient services. There was a similar pattern for inpatient admissions.
- People in CDHPs used 17% fewer prescriptions and had 26% lower gross spending on prescriptions. This implies that enrollees in CDHP plans used both fewer prescriptions and prescriptions with lower point-of-sale prices on average than enrollees in non-CDHP plans.

CDHP Enrollees with Chronic Conditions Had Slightly Lower Spending than Non-CDHP Enrollees

To test whether lower spending and service use was limited to observably healthier CDHP enrollees, we also compared the differences in per-person spending and service use between CDHP and non-CDHP enrollees for groups diagnosed with one of three chronic conditions: type 2 diabetes (Diabetes T2), chronic obstructive pulmonary disease (COPD), and hypertension.

Figure 4: CDHP Enrollment for Individuals with or without Chronic Conditions (2016)



We categorized individuals who do not have a diagnosis for any of these conditions as "none".

There was minimal difference in the proportion of enrollees in CDHP plans across individuals with and without chronic conditions (Figure 4).

Overall, CDHP enrollees with chronic conditions had spending ranging from 3% (Hypertension) to 10% (Type 2 Diabetes) less than comparable non-CDHP enrollees (Table 1).

- The sub-group with the largest difference in spending were those with none of the studied conditions.

For individuals with chronic conditions, those enrolled in CDHPs in general had only slightly lower spending across most medical categories (inpatient, outpatient, professional).

Table 1: Spending Per Person with or without Chronic Conditions by Plan Type (2016)

		Service Category				
		All	Inpatient	Outpatient	Professional	Prescriptions
Full Sample	Non-CDHP	$5,216	$875	$1,419	$1,753	$1,168
	CDHP	$4,562	$766	$1,320	$1,614	$862
COPD	Non-CDHP	$7,014	$1,046	$1,978	$2,461	$1,530
	CDHP	$6,579	$1,059	$1,939	$2,341	$1,239
Diabetes T2	Non-CDHP	$7,894	$1,130	$1,958	$2,588	$2,218
	CDHP	$7,138	$1,068	$1,927	$2,412	$1,731
Hypertension	Non-CDHP	$10,171	$2,155	$3,053	$3,041	$1,921
	CDHP	$9,867	$2,154	$3,095	$3,008	$1,610
None	Non-CDHP	$3,328	$420	$905	$1,292	$712
	CDHP	$3,004	$380	$879	$1,216	$529

CDHP Enrollees with Chronic Conditions Had Lower Health Care Use Across Service Categories

Spending for CDHP enrollees was lower than for non-CDHP enrollees for each of the chronic condition populations. For some conditions and in some service categories, this spending difference was relatively small. However, across all sub-populations, CDHP enrollees had, on average, lower use of all service categories (Table 2).

Table 2: Across Chronic Conditions, Consistently Lower Service Use by CDHP Enrollees

	Service Category							
	Inpatient		Outpatient		Professional		Prescriptions	
	Per Capita Spending	Per Capita Use	Per Capita Spending	Per Capita Use	Per Capita Spending	Per Capita Use	Per Capita Spending	Per Capita Use
COPD	1%	-8%	-2%	-9%	-5%	-7%	-19%	-11%
Diabetes T2	-5%	-9%	-2%	-6%	-7%	-7%	-22%	-10%
Hypertension	0%	-4%	1%	-6%	-1%	-4%	-16%	-4%
None	-9%	-10%	-3%	-7%	-6%	-5%	-26%	-15%

While differences in average spending between CDHP and non-CDHP enrollees with chronic conditions were generally smaller than those without chronic conditions, within all subgroups CDHP enrollees had similarly lower service use:

- For individuals with hypertension, across medical service categories, CDHP enrollees had almost no difference in spending but between 4 and 6% lower service use than non-CDHP enrollees.
- Across sub-populations with and without chronic conditions, CDHP enrollees had between 1% and 3% lower outpatient spending but between 7 and 9% lower service use.

Prescription drugs had the largest difference in gross spending and use between CDHP enrollees and non-CDHP enrollees – across all chronic condition sub-populations.

Prescription drugs was also the only category of services for which CDHP enrollees and non-CDHP enrollees had a bigger difference in their gross spending than in their service use.

- This implies that CDHP enrollees not only used fewer prescriptions but also used prescriptions with lower point-of-sale prices on average. This trend is consistent across the three studied chronic conditions.

Data and Methods

Data

The analytic sample includes data from Aetna, Humana, and United Healthcare, consisting of all claims for enrollees younger than age 65 and covered by ESI for the years 2014 through 2016. To be included in the sample, enrollees had to be younger than age 65, have valid age, gender, and state information, and be enrolled for 12 months of continuous coverage in a qualifying health insurance plan and continuous prescription drug coverage. Qualifying health insurance plans were preferred provider organization (PPO), health maintenance organization (HMO), point of service (POS), or exclusive provider organization (EPO) plans. Members were considered to be enrolled in a CDHP if their plan was defined as such by their insurer.

We flagged individuals as being diagnosed with one of our chronic conditions if they had any ICD-9 or ICD-10 diagnosis code that indicated a respective Clinical Classification Software (CCS) code for the following conditions: diabetes, hypertension, and chronic obstructive pulmonary disease (COPD). Following the methodology from Lo-Ciganic et al. (2011), we categorized type 1 diabetes and type 2 diabetes separately; we subsequently excluded type-one diabetics from our analysis. An individual was flagged as being diagnosed with COPD or diabetes in our data for each year if they had any relevant diagnosis code at any point in any year. However, consistent with previous methodology, we re-flagged individuals as diagnosed with hypertension in a particular year only if they had a hypertension diagnosis that year. We omitted people diagnosed with multiple of the chronic conditions we studied from our analysis. When measuring spending and use, we included all of the services received by people with chronic conditions – not just the services with the relevant diagnosis codes. Those measures of service use and spending thus include care received for other health problems the enrollees had. The “none” group excludes people with any of the three chronic conditions we examined, but includes people with other chronic conditions.

Methods

The analytic sample was used to analyze spending and use of health care services. We calculated total spending per person as the sum of allowed payments divided by the total number of members in the relevant group. We subsequently decomposed health care spending per person into four distinct categories of services: inpatient facility, outpatient facility, professional services, and prescription drugs. For a more thorough discussion, please see the HCCI Methodology Document. We calculated service use per person differently depending on the category of services. For inpatient, outpatient, and professional services we summed the total number of services received and divided by the number of members in the relevant group. For prescription drugs we aggregated the total number of prescription filled days divided by the number of members in the relevant groups.

Limitations

This study has several limitations that affect the interpretation of the findings presented. Principally, the findings of this study are descriptive and not causal. Because we do not account for underlying differences between people who enroll in CDHP and non-CDHP plans, on their own our results should *not* be interpreted as saying that CDHP plans cause people to have lower health care spending or use fewer health care services. It could be the case that people who enroll in such plans are those who are either healthier or know they plan on having lower spending or service use. However, our findings are consistent with existing research (namely, Brot-Goldberg et al., 2017) which does provide causal evidence that high-deductible plans induce lower spending and service use. We consider our work a starting point for analysis and research on the commercially insured population rather than a complete analysis of this populations' health care spending and service use.

Another limitation of this study concerns identifying individuals diagnosed with chronic diseases. Because we identify individuals' diagnoses through their medical claims, by construction individuals with chronic diseases in our sample are more likely than the average individual with the relevant chronic disease to have medical claims and therefore higher spending and service use. Further, because we identify individuals with chronic diseases only if they have a medical claim with relevant diagnoses, it is possible that we under-identify individuals with chronic diseases. Because, on average, CDHP enrollees use fewer services it is possible that by construction we identify fewer CDHP enrollees with chronic conditions; those that we do identify may have more serious forms of their respective condition and therefore be more likely to have higher spending and service use. Similarly, it is possible that by construction non-CDHP enrollees who we classify as not having the chronic conditions we study are more likely to actually have one of those chronic conditions but no diagnosis in our sample. Both of these possibilities potentially inflate the relative differences in spending and use between CDHP and non-CDHP enrollees we identify as having a chronic condition compared to the differences in spending and use between CDHP and non-CDHP enrollees we do not identify as having one of the conditions. HCCI invites readers to review our methodology for this report and comment on how to better identify the chronically ill from claims data.

Another general limitation is that all prescription drug spending we observe is gross spending. It is possible that rebates and/or co-pay coupons reduce the total spending on prescription drugs or point-of-sale prices we observe. In that sense our gross spending numbers presented here may overstate true net prescription drug spending and, therefore, spending overall. For that reason we consistently refer to all prescription drug spending as "gross spending" and all prescription drug prices as "point-of-sale" prices.

Lastly, the findings of this study do not account for differences in the premiums or other benefit design elements, insurance options offered by employers, or other employer contributions for enrollees of CDHP versus non-CDHP plans. All of these factors could also affect whether people use health care services, which services they use, and the settings where people use services.