LHD Benefit Advisors

250 West 96th Street | Suite 350 | Indianapolis IN | 46260-1317 | 317-705-1600

Summary of Consumer Directed Health Plan Enrollment & Utilization Compared to a Traditional Plan

Consumer Directed Health Plans (CDHPs), or sometimes referred to has High-Deductible Health Plans (HDHPs), have been steadily on the rise since the passage of the Health Savings Account (HSA) law in 2003. While CDHPs were in existence prior to the passage of the HSA law, their popularity grew due to the tax-preferred treatment of the money that individuals save for qualified medical expenses that was a part of that law. Coupled with ever increasing year over year healthcare costs approximately 29% of all employers offering a CDHP. (United Benefit Advisors, 2017)

Since 2014, Purdue University (Purdue) has offered four health plans to its near 12,000 benefit eligible employees; a traditional PPO plan, two CDHP plans that are HSA compatible and a J-1 Visa plan. Note, this review will not include participants in the J-1 plan as participation represents less than 2% of the total insured employees. Additionally, over the same time period (2014 – 2017) Purdue has maintained coverage through the same Third-Party Administrator (TPA), Anthem Blue Cross / Blue Shield. The stability of plan offerings and claims administration has improved Purdue's ability to remove typical barriers when analyzing their data. In addition, Purdue has leveraged LHD Benefit Advisors data analytics platform, Vital Incite, to gain an unparalleled examination into the medical plan performance and employee behaviors on a plan by plan basis.

Long-Term Healthcare Goal

At Purdue, there is a concerted effort to engage the faculty and staff in their personal healthcare journey. Keeping true to higher education, part of the strategy deployed at Purdue is centered around education. The intent is that as education continues to develop and employees are armed with the tools to make better healthcare buying decisions, they will embrace and ultimately migrate to one of the two CDHP plans. There is ample evidence to support that HSAs are a better way to finance healthcare expenses long term when compared to a more Traditional PPO plan (PPO plan).

Over the course of an employees' working career, financing healthcare expenses via a well-designed CDHP combined with a HSA will lead to a better financial outcome for the employee. It is true, and conceded, that in any one given year there is potential for an individual to be adversely affected when

comparing employee out of pocket expenses plan to plan. Over time, validated by the data shown later in this study, employees will ultimately achieve a lower net cost by financing their healthcare claim dollars through a CDHP with an HSA.

Migration Challenges

It was recently observed, by Purdue, that employees at Purdue have not migrated as much as the University would have liked. As a percentage of total insured employees, enrollment in the PPO since 2014 as seen a modest but steady decrease from 25.6% of total insured employees down to 21.0%. As shown in Table 1, employees have chosen to move out of the PPO and shifted into HSA 2. Overall a 4.6% decrease in employee enrollment in the PPO from 2014 to 2017 while a corresponding 4.6% increase in HSA 2 is observed.

Table 1

Percentage of Total Enrollment					
	2014	2015	2016	2017	Change
PPO	25.6%	23.3%	21.2%	21.0%	-4.6%
HSA 1	51.1%	50.6%	49.8%	51.1%	0.0%
HSA 2	23.3%	26.1%	29.0%	27.9%	4.6%

Plan migration is further broken down by year to further assess year over year enrollment patterns at Purdue. Tables 2 – 4 illustrate those that make up the enrollment in the first column, what percentage were in each plan the year prior.

Table 2

Enrollment Change from 2014 to 2015				
	2015 Employee Headcount	% From 2014 PPO	% From 2014 HSA 1	% From 2014 HSA 2
PPO	2,344	92.4%	6.0%	1.6%
HSA 1	5,053	4.7%	90.0%	5.3%
HSA 2	2,401	1.6%	17.3%	81.1%

Table 3

Enrollment Change from 2015 to 2016				
	2016 Employee Headcount	% From 2015 PPO	% From 2015 HSA 1	% From 2015 HSA 2
PPO	2,179	91.6%	6.6%	1.8%
HSA 1	5,118	4.9%	87.9%	7.2%
HSA 2	2,805	2.4%	19.6%	78.0%

Table 4

Enrollment Change from 2016 to 2017				
	2017 Employee Headcount	% From 2016 PPO	% From 2016 HSA 1	% From 2016 HSA 2
PPO	2,167	90.4%	6.9%	2.8%
HSA 1	5,412	2.9%	91.2%	5.9%
HSA 2	2,886	0.8%	6.5%	92.6%

While reviewing the enrollment changes year over year there are several items of note. The data in Tables 2 – 4 represent a cohort to cohort analysis. For this reason, the employee headcounts represented in the first columns do not reflect the total enrollment, rather they illustrate the unique employees we found enrolled in the prior year. By way of example, the actual unique enrollment in Table 4 PPO was 2,491 employees; said differently there were actually 324 (2,491 – 2,167 = 324) employees we found to be enrolled in the PPO in 2017 that we were unable to find in any plans for 2016.

Of particular concern, there has been growth in the percentage of the PPO enrollment coming from the two HSA plans. Of the 2,344 PPO participants in 2015, 7.6% of them came from one of the two HSA plans in 2014. The percentage of PPO participants coming from one of the HSA plans in 2016 grew 11% to 8.4% of total PPO participants. That number further jumped another 15%, year over year, in 2017 to 9.7% of the total PPO participants coming from one of the two HSA plans from 2016. Causing further concern, there has been a slowdown in the migration from the PPO plan to one of the two HSA plans. As shown in Table 4, only 3.7% of the 2016 PPO participants migrated to one of the two HSA plans. This is a sharp decrease from the year prior when 7.3% of the 2015 PPO participants moved to one of the two HSA plans.

While there has been a steady decrease in the overall percentage of participants enrolling in the PPO plan, a detailed review shows a recent slowdown in the migration from the PPO plan to one of the two HSA plans and an increase in our participants moving from one of the HSA plans back to the PPO. Given

the intent to help Purdue employees understand the long term financial benefits of an HSA and thereby migrate to those plans, it would seem efforts are producing results opposite of expectations. It therefore seems the concerns of Purdue's staff on the uptake of the HSA plans are well founded.

We now focus our attention to if Purdue employees are making wise decisions regarding their plan selection. Said differently, of the employees that were enrolled in the PPO plan, would they have been better served by enrolling in one of the two HSA plans?

Plan Participant Demographics and Population Risk

An important item to explore before reviewing plan outcomes is the underlying demographics and risks of the membership within each plan. Understanding these important participant details will provide insight into the "inertia" or lack thereof as we attempt to understand the year over year migration between the plans that Purdue offers.

To complete this analysis, we performed a four-year cohort analysis by plan design. As mentioned above and we'll review later under the Performance section, we're looking for continuous enrollment in plans as we believe long term, a well-designed CDHP paired with an HSA will produce a better financial outcome for the employee and the employee's insured dependents. To be included in the analysis the members had to be insured in the same plan and the same coverage tier in each of the four years assessed. We've segregated the demographics and risk of each plan to include only participants that were in that plan all four years.

Employee Demographic Review

When assessing plan migration successes and shortfalls it's important to understand the target audience. Targeting communication efforts that are geared towards different segments of an employer population is important because not all employees purchase healthcare the same way. Typically, employees who have more experience and remember the more traditional PPO models that are copay based plans with a low deductible are less inclined to adopt a CDHP with an HSA. As a broad generalization, these individuals view CDHP's as a benefit take-away or reduction. Younger employees that have the "invincible attitude" tend to gravitate to the lowest premium plan. Because they are young, healthy, and generally consume less healthcare than older demographics, they often will focus their decisions based on the plan that will allow them to keep the most money from their paycheck, thus electing a lower premium plan, which often is the CDHP. As we'll describe later both purchasers of

healthcare are not considering all of the facts, most notably the tax advantages associated with financing their healthcare expenses long-term via an HSA.

Below in Chart 1 is our baseline illustration showing the average age of Purdue's employee population by plan over time. Interestingly, in nearly each year, with a few exceptions, and in each plan, we've observed a reduction in the average age of the employee population enrolling in medical coverage.

Chart 1

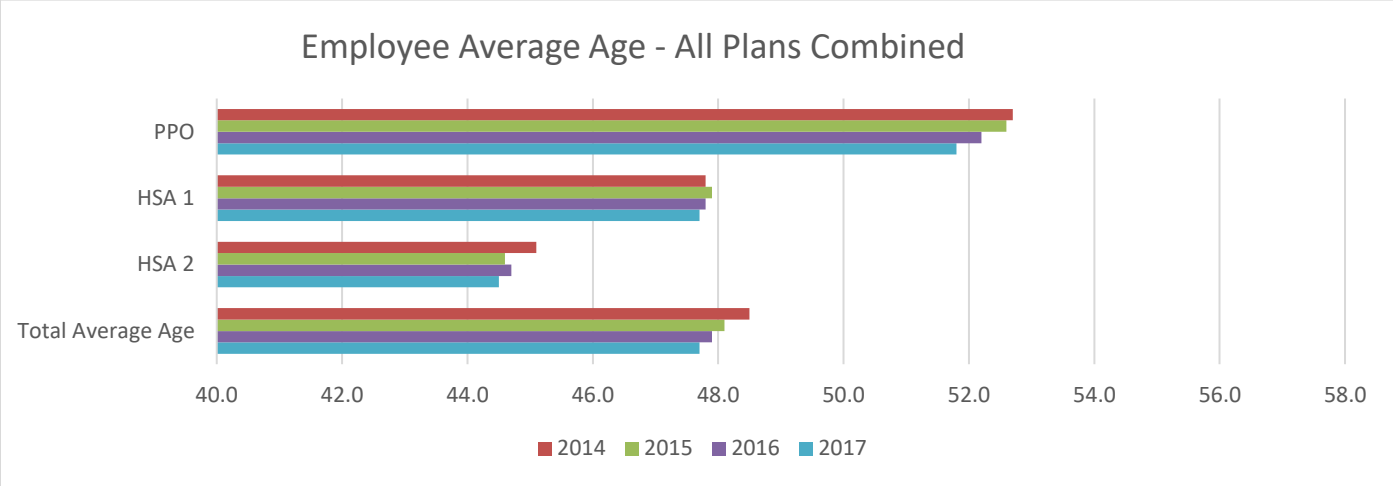
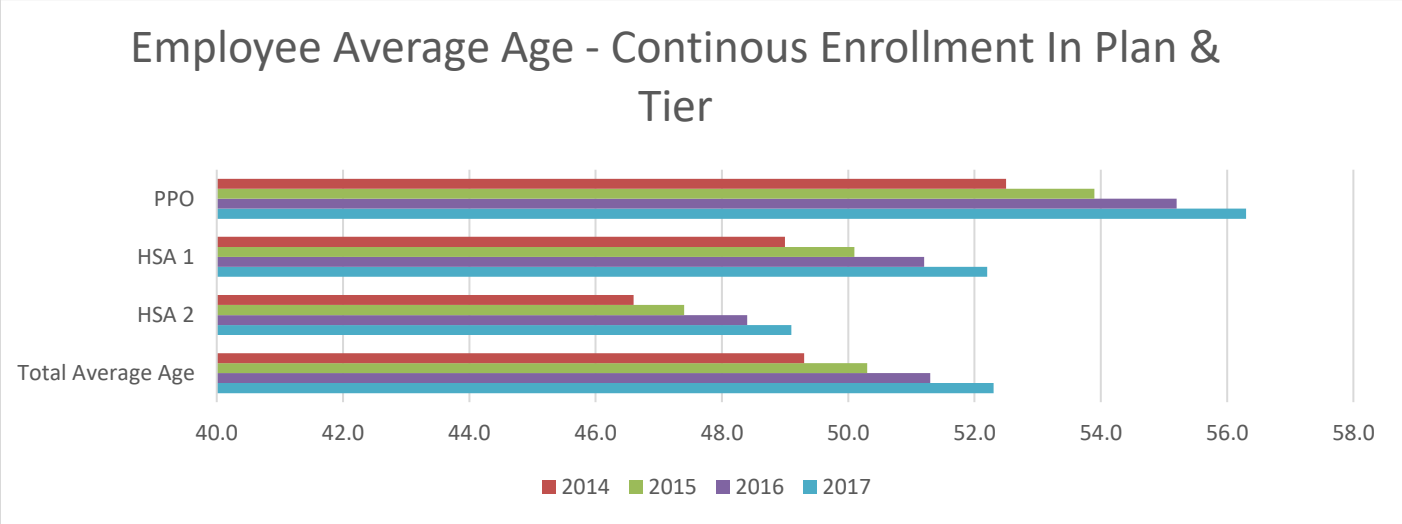


Chart 2 below is the same illustration of average age but reflects only the employees that were enrolled in that plan and in same tier continuously through all four years of the assessment.

Chart 2



250 West 96th Street | Suite 350 | Indianapolis IN | 46260-1317 | 317-705-1600

In combination with tables one through four, these two charts illustrate two important demographic facts about Purdue. First is that the older demographic, over the review period, is moving on from Purdue either to other employers or more likely into retirement. Purdue is replacing those employees with a younger demographic as evidenced by the slight reduction in average age. Further, those "new to the university" employees are enrolling in the CDHP plan offerings.

Another important point from these charts is the average age of those that have been continuously enrolled in the same plan and the same tier all four periods. In the time periods reviewed, when comparing those that have taken a long-term approach to the CDHP our average age is significantly higher than that of those that move in and out of the plans offered. Said differently, there is a significant portion of the employee membership that has made up their mind about their inability to move away from the PPO plan to one of the two CDHP's.

Assessment of Employee Risk

When assessing the risk of a particular population we segregate them into five buckets: No Information (0), Healthy (1), Low Risk (2), Moderate Risk (3), High Risk (4), & Very High Risk (5). To understand the risk associated with the population we further bucketed the population into three categories: Low Risk (0-2), Moderate Risk (3), and High risk (4-5). Reviewing the underlying risk of participants in each plan in each year can help us understand and ultimately help lead conversations around targeted communication. Naturally, one would expect that members in the traditional PPO plan incur and spend more claims but by understanding how their risk compares to the risk of the other plans can change our communications strategy. To normalize and review the data we look at the plan paid per employee per month ratios to the overall plan averages for those employees that have been continuously enrolled in each plan and coverage tier.

Table 5

	Risk Ratio to Total Plan Expenses		
	PPO	HSA 1	HSA 2
2014	1.57	1.03	0.32
2015	1.60	1.06	0.32
2016	1.54	1.09	0.42
2017	1.56	1.05	0.43

A ratio of 1.0 indicates a normal risk relative to the total membership in that year. The higher the ratio, the riskier the population. Consistently, year over year, Purdue's population that is riskier routinely selects the PPO while the less than average risk has selected HSA 2. Tables six through eight below illustrate the risk ratios for our Low, Moderate and High risk populations.

Table 6

	Low Risk Ratio to Total Plan Expenses		
	PPO	HSA 1	HSA 2
2014	1.52	1.15	0.55
2015	1.61	1.13	0.59
2016	1.62	1.08	0.70
2017	2.33	0.94	0.61

Table 7

	Moderate Risk Ratio to Total Plan		
	PPO	HSA 1	HSA 2
2014	1.22	1.04	0.53
2015	1.23	1.09	0.50
2016	1.36	1.05	0.58
2017	1.16	1.12	0.57

Table 8

	High Risk Ratio to Total Plan Expenses		
	PPO	HSA 1	HSA 2
2014	1.08	0.99	0.63
2015	1.03	1.03	0.69
2016	0.88	1.11	0.97
2017	0.95	1.06	0.94

Medical Plan Utilization and Deferring of Healthcare

Often times, analysis is performed comparing claim information between a population in one plan (traditional PPO) versus a population in another (CDHP) and conclusions are drawn pointing towards a CDHP being a less costly option for employees and the employer. Generally, this type of analysis results in two common assertions. First is that the population in the PPO is a more risky population than the population in the CDHP and thus are heavier utilizers of the plan. Secondly, CDHP participants will show a lower cost because they are deferring healthcare. In this section we will review each of these comments with actual data for those participants that are a part of our four-year cohort analysis.

Medical Plan Utilization

To review how plan participants access and utilize the healthcare system we separated claims and studied the actual utilization for medical claims and the actual utilization for prescription drug claims. To normalize the data for enrollment variation we break down the utilization and illustrate it as a per employee per month (PEPM). Finally, we produce a ratio, based on that PEPM, compared to the entire population reviewed. This gives us a quality look into how the participants in each plan performed against the greater group. Tables 9 – 11 illustrate these ratios.

Table 9

	Ratio to Total Medical Utilization		
	PPO	HSA 1	HSA 2
2014	1.20	1.08	0.60
2015	1.20	1.11	0.59
2016	1.19	1.11	0.65
2017	1.21	1.10	0.63

Table 10

	Ratio to Total Rx Utilization		
	PPO	HSA 1	HSA 2
2014	1.38	1.04	0.50
2015	1.40	1.06	0.51
2016	1.44	1.05	0.56
2017	1.43	1.04	0.56

250 West 96th Street | Suite 350 | Indianapolis IN | 46260-1317 | 317-705-1600

Table 11

	Ratio to Total Utilization		
	PPO	HSA 1	HSA 2
2014	1.31	1.06	0.54
2015	1.31	1.08	0.54
2016	1.34	1.07	0.60
2017	1.34	1.06	0.59

As expected, based on the review of risk, we see higher utilization from our PPO participants. In fact, when comparing the PPO participants to the HSA 1 participants, the PPO participants consume about 20% more healthcare services. What the analysis showed that was of particular interest are the results specifically for medical utilization. When looking at the same two plans and comparing only the medical plan utilization, HSA 1 participants consumed 8-10% less (depending on the year) medical services than the PPO participants. Where the analysis showed significant variance, between these two plans, was on the prescription drug utilization with HSA 1 participants consuming around 25-27% less services. There is a significant variance in utilization from the PPO to HSA 2, however some of this is to be expected as their overall risk and average age compared to the entire population is significantly less.

Deferring Healthcare / Generalist Seen

We often hear that CDHP plans paired with an HSA cause the members to defer care due to the higher out of pocket limits. Deferring care has all kinds of cost implications down the road for both the member and the plan. Detailed impact on deferring care is beyond the scope of this paper but it is widely accepted the notion that if this practice occurs it can and will have a severe negative impact on the plan and its members. To review this concept of deferring care we performed the same type of analysis as described in the medical plan utilization section above. But added a layer to review the pattern of utilization based on whether or not the population had seen a generalist within the review period. Tables 12 and 13 show the ratios for generalist seen versus not seen within the review period.

Table 12

	Ratio to Total Utilization - Generalist Seen		
	PPO	HSA 1	HSA 2
2014	1.20	1.04	0.61
2015	1.24	1.05	0.60
2016	1.25	1.06	0.64
2017	1.26	1.05	0.63

Table 13

	Ratio to Total Utilization - Generalist Not Seen		
	PPO	HSA 1	HSA 2
2014	1.54	1.11	0.61
2015	1.35	1.22	0.58
2016	1.42	1.17	0.64
2017	1.37	1.12	0.70

These tables tell Purdue two very important items of note. The first, though not the original intent, shows that for the most part, those that engage with a generalist are consuming less healthcare goods and services. Conversely, when we compare the ratios in Table 13 to those in table 11, those that have not seen a generalist in the review period in all instances consumed more healthcare than the total population average. These findings stress the importance of each member engaging with a primary care provider or generalist.

Additionally, when comparing these tables to the total utilization, shown in Table 11, there does not appear to be a significant variation in utilization patterns. While some variation exists, particularly with the non-generalists seen, the absence of a large swing in utilization ratios suggests that care is not being deferred, at least with the population that was reviewed. Finally, in reviewing Table 12, there is, with varying degrees, utilization growth in all three plans from the start of the review period to the end of the review period. Preventive care is something that the plans cover 100%. We would have expected that for the members that engage with generalist there would be an overall reduction in utilization if care was being deferred. Broadly, as members engage with a generalist, follow-up care (i.e. prescription drugs, additional medical testing etc.) is routine and can be costly depending on conditions discovered as a result of generalist or primary care engagement. If care was being deferred by these members, we would have expected to see a dip in utilization. With a lack of significant change in utilization patterns

coupled with a growth in overall utilization when members engage a generalist suggests that care is not being deferred.

Plan Performance – Are Employees Making Wise Plan Selection Decisions?

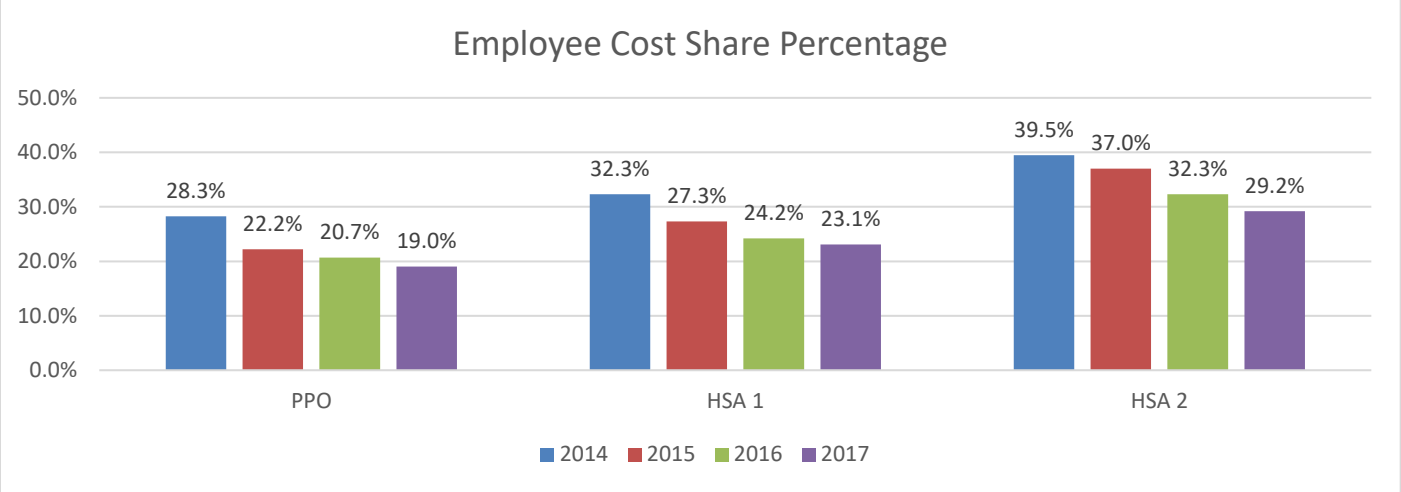
Now that we have a good understanding of the plan demographics and each plans' underlying risk we'll focus our attention on the actual performance of the employees measured during the time period. To perform the analysis, we follow the same measures as outlined above. To be included in the assessment, employees needed to be enrolled in the same plan and in the same coverage tier all four years. The reason for the segregation of the data in this fashion is rooted in the belief that over time, a CDHP paired with a HSA is a better way for an individual to finance their healthcare expenses. By looking at individuals who are continuously enrolled in each period we've effectively zeroed in on the employees that have clearly made a long-term decision to stay enrolled in a particular plan. In each year we'll review the average amounts paid by employees to meet their deductibles, copays and other out-of-pocket expenses.

A missing, but very key, element from many other studies are the amounts withheld from employee paychecks in the form of employee premiums. It cannot be underscored enough that a well designed CDHP with an HSA must have a well-defined employee premium strategy such that the employee, and the plan, are left in a better financial position when the employee elects the CDHP versus the PPO. Purdue has a unique employee premium strategy that sets premiums based of the employees' annual salary. Employees that earn less than $44,000 have one set of premiums and employees that earn more than $44,000 have a higher amount withheld from their paycheck for their portion of the premiums. While we were able to obtain salary level data and integrate that into the most recent year of the analysis, prior years could not be obtained. Thus, we elected to apply averages to the prior years and appropriately weight those averages based on the actual calculations for the current year.

Total Employee Cost Share

Before we begin to look at each individual cost component we want to level set the employee cost share. Chart 3 below illustrates the employee out-of-pocket percentage of the total paid expenses for each year and in each plan.

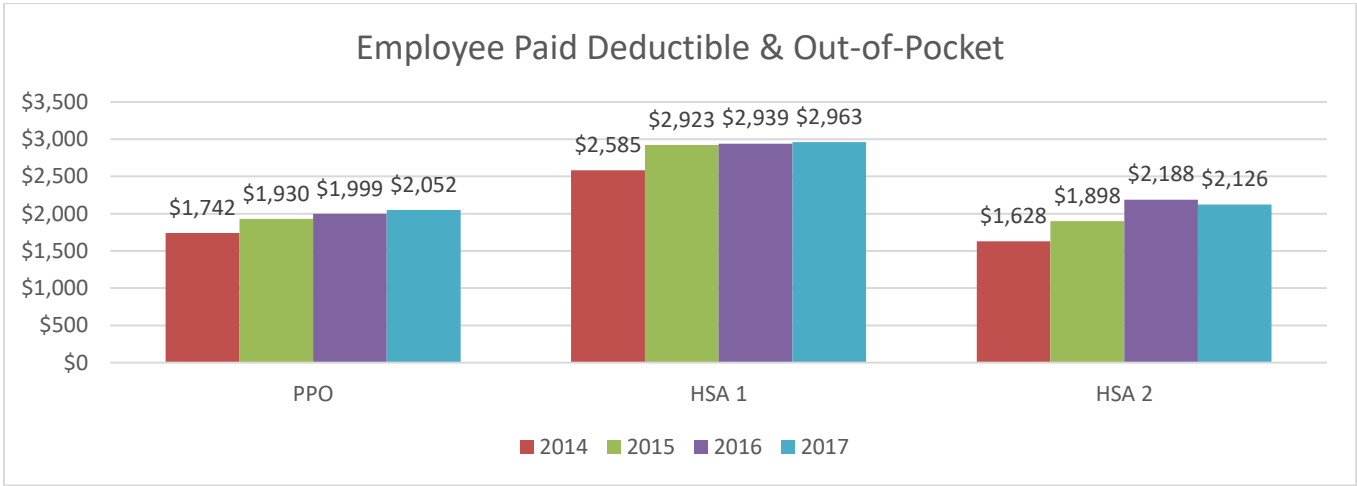
Chart 3



As is often mentioned and widely accepted with a CDHP we see that the percentage that members of each plan contribute relative to the percentage the employer contributes to the total cost of the plan is higher. Members of a CDHP generally have a higher plan deductible and sometimes a higher plan maximum which leads to them contributing a greater percentage of the total cost. An interesting finding of this chart really begins to illustrate is what's known as plan leveraging. When an employer makes little to no changes in a medical plan, and the plan is in an inflationary environment, the plan itself becomes leveraged against. Said differently, the plan ultimately ends up paying a greater percentage of the costs.

Employee Out-of-Pocket Expenses

Chart 4



As expected when employees adopt a CDHP the cost share associated with the removal of copays and a higher deductible increases the employee out of pocket expense for the medical and pharmacy claims incurred.

Chart 5

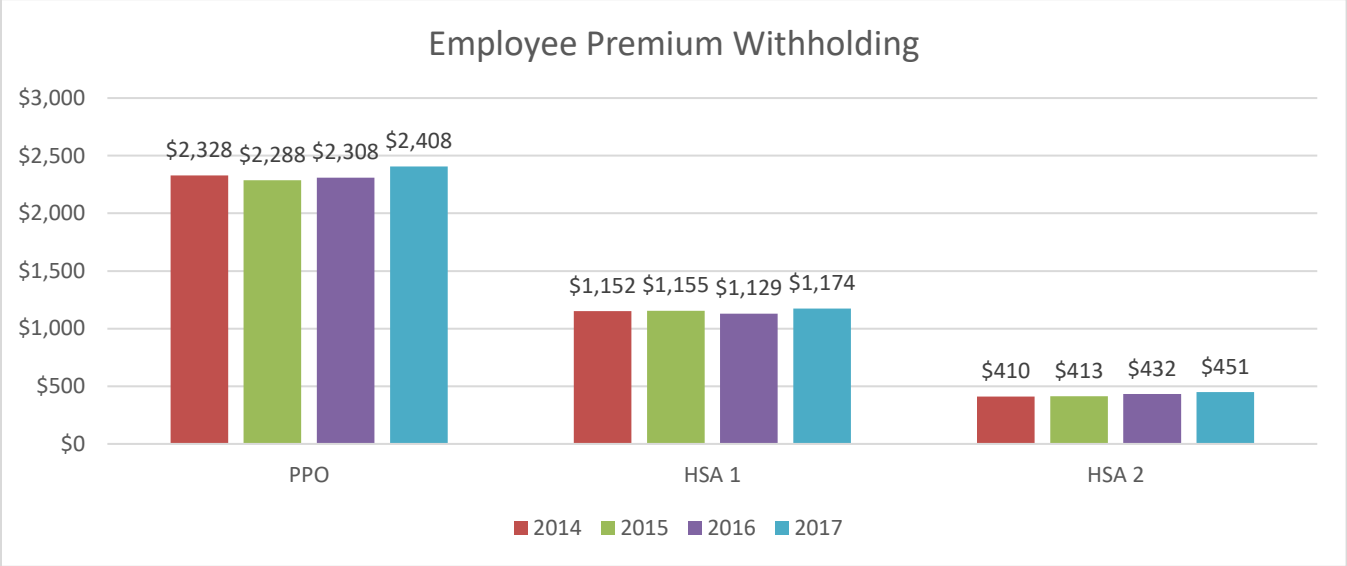
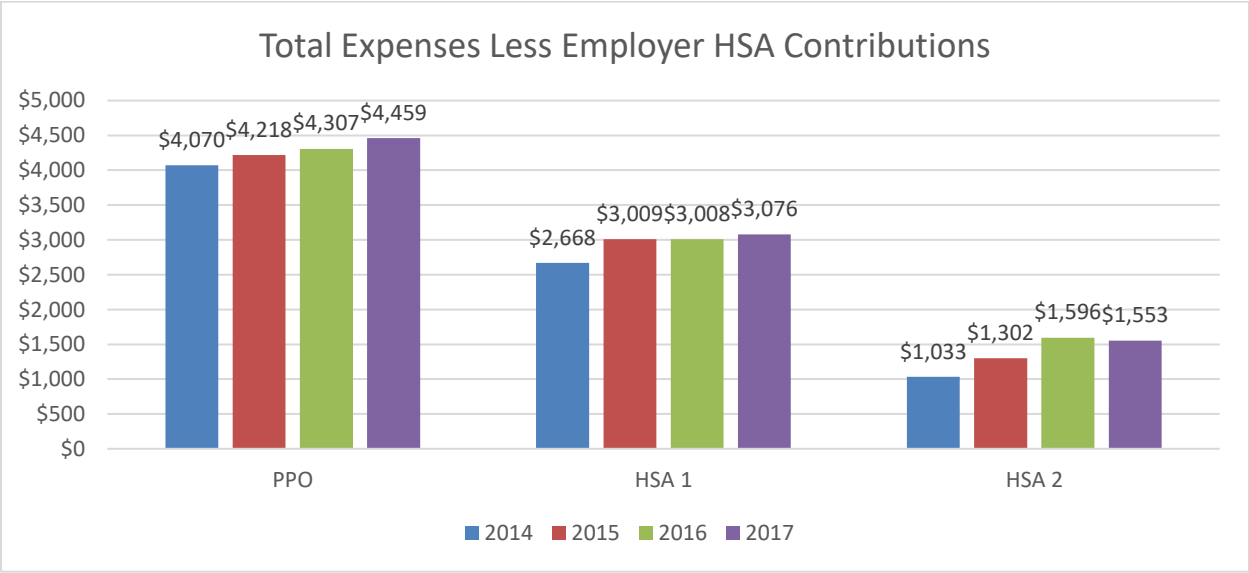


Chart five above does a wonderful job illustrating Purdue's contribution strategy. Purdue has a done a good job designing the contribution strategy to provide ample employee premium savings for the employees that select one of the two CDHP plans.

Chart 6



In chart six we sum the employee out-of-pocket expenses with the employee premiums and then subtract the employer contributions made to each employee's health savings account to get a good understanding of the true total out-of-pocket expense borne by employees in each plan. In every year reviewed employees on the PPO plan spent significantly more on average than employees on one of the two CDHP plans. Some of this, without question is due to adverse selection that is occurring with the riskier population selecting the PPO. Regardless we see over time, a very significant save in total expenses that employees are paying for their medical coverage.

Health Savings Account Tax Advantages

Given Purdue's aggressive strategies to migrate employees to a CDHP coupled with an HSA it's worth discussing the tax advantages in more detail. The tax treatment of employee HSA monies is a significant contributing factor to a successful CDHP. When an employee elects to fund an HSA those monies are excluded from income tax. At 2017's tax rates, in total, this amounts to additional savings of 27%-37% depending on income and filing status. The tax advantages the government provides for medical expenses when run through an HSA is significant. Further these monies grow tax deferred and provided funds are used for qualified expenses, distributions are not taxable.

Some argue, the same level of preferred tax treatment can be achieved through a medical flexible savings account (FSA). Such is true, but under current law, FSA elections must be made annually while HSA elections can be changed as frequently as an employer will allow. This means, at the start of the plan year, as the employee, I must make a projection of what my medical expenses are going to be for the next twelve months. Of course, this is a difficult projection for even the most experienced industry professional let alone a lay person. The advantage of being able to change my election mid-year to better fit my actual incurred medical expense versus what I projected is a significant advantage for HSA participants.

Another important factor to consider is the carry over benefit associated with an HSA. When employees make an elected deferral into the FSA they're projecting what they think they'll spend. If they undershoot, and their expenses come in lower and they do not use all monies they deferred, those funds are lost. As the employee, those are monies they earned that they thought they'd spend that ultimately end up getting consumed by the plan. Whereas if they choose to defer money into an HSA, there is no "use it or lose it" rule. Which means that account balances can be carried forward year to year. The pressure of trying to project their expenses for the future year is eliminated under an HSA because no matter what, those funds will roll to the next year if unused. This adds a level of consumerism we don't get with a medical FSA.

In Purdue's case specifically, we know that in 2017, members on the PPO plan made deferrals into the medical FSA totaling $1,302,025. This represents approximately 30% of the actual member paid deductible, coinsurance and copayments (while taking into account forfeitures). Applying this average to the number of participants included in our assessment means of the approximate $2.6 million paid by

the members, in the form of deductibles, coinsurance, and copayments, on this plan they would have funded about $170,500 into their medical FSAs. Given this, it's reasonable to assume that for the members that were insured under the PPO plan paid approximately $2.4 million of incurred medical expenses with post tax dollars. Interestingly enough, at the end of 2017 the average HSA account balance was $2,645 while blended expenses under the two CDHP's totaled $2,677 for our segmented population. It can therefore be assumed that the majority of monies paid in the form of deductible, coinsurance and copayments were likely paid with tax advantaged money run through the HSA.

When we apply these averages, as well as an assumed 27% tax advantage for HSA participants, across all years and all plans for our segmented population, the difference between net total expenses paid under one of the CDHP's furthers, significantly bettering their position against the PPO.

Chart 7

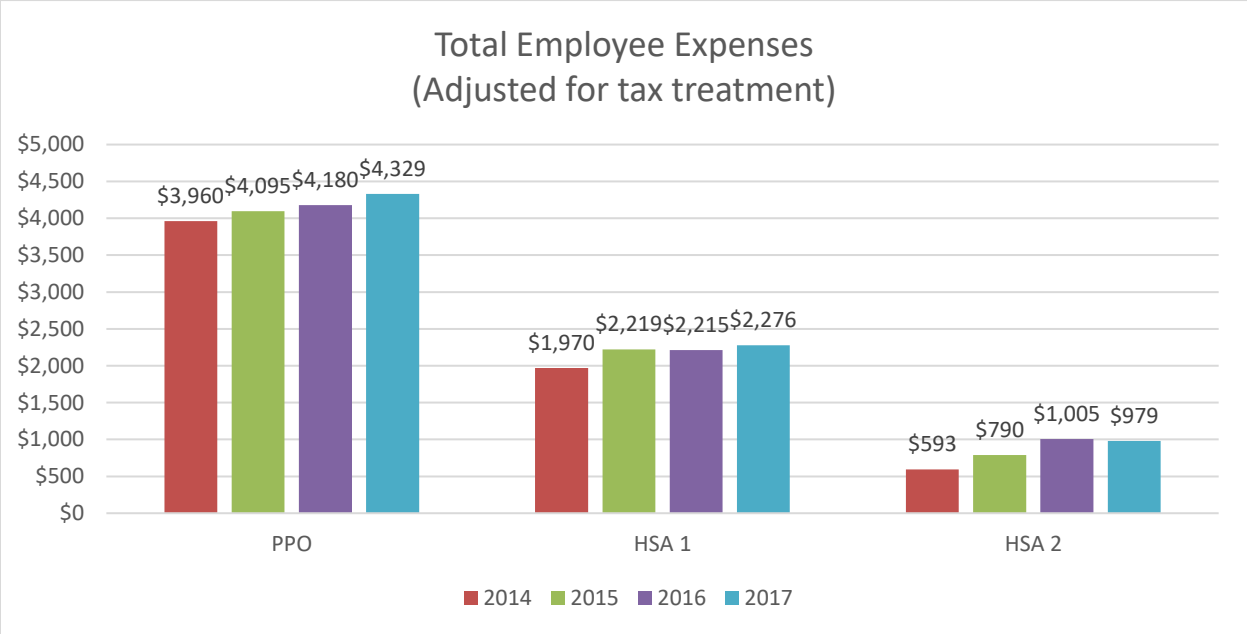
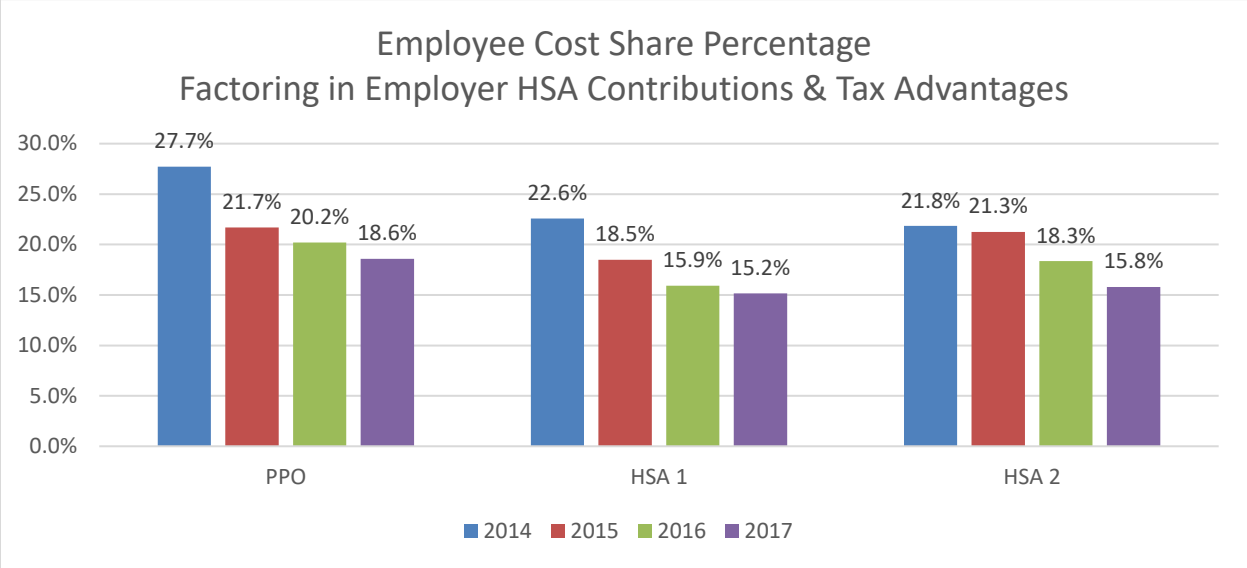


Chart 8



Finally, in Chart 8 we replay the employee cost share percentage analysis taking into account everything described above in charts 4-7. We notice there is a significant shift in the employee cost share percentages across the board when we take into account both the employer HSA contributions as well as the tax advantages our HSA participants enjoy.

Conclusion and Recommendations

While the jump from a traditional PPO to a CDHP can be a troubling decision for employees, we've shown over a period of four years there is a significant reduction in total expenses to employees and the university. Further we do not see data to suggest that employees, in any of the plans, are deferring care. We recommend heavy communication around the financial advantages associated with a CDHP paired with a HSA. Communication should be centered around tax advantages as described above but should also be a wholistic strategy to be inclusive of topics like preventive medicine and the Center for Healthy Living. Beyond communication regarding general financial impact, Purdue should consider targeted communication at our low and moderate risk membership that continually enroll in the PPO plan as they likely have much to gain by moving to a CDHP based on a comparison of their expenses relative to the segmented population.