

December 1, 2021

The Honorable Guy Guzzone  
Chairman  
Senate Budget and Taxation Committee  
Miller Senate Office Building, 3 West  
11 Bladen Street  
Annapolis, MD 21401

The Honorable Maggie McIntosh  
Chairwoman  
House Appropriations Committee  
House Office Building, Room 121  
6 Bladen Street  
Annapolis, MD 21401

Re: Joint Chairmen's Report – High Deductible Plans

Dear Chairman Guzzone and Chairwoman McIntosh,

Pursuant to page 45 of the Joint Chairmen's Report for the 2021 Session, the Maryland Health Benefit Exchange (MHBE) submits this report on the prevalence of high deductible health plans in the individual market and the impact of high deductible plans on enrollees and on service utilization.

If you have any questions regarding this report, please contact Becca Lane, Health Policy Analyst at [becca.lane@maryland.gov](mailto:becca.lane@maryland.gov).

Sincerely,



Michele Eberle  
Executive Director



Joint Chairmen's Report:  
High Deductible Plans

**Maryland Health Benefit Exchange**

December 1, 2021

## TABLE OF CONTENTS

I.	Introduction	5
II.	Background	5
	a. Deductibles	
	b. High deductible health plans	
	c. Hospital financial assistance policies	
	d. Literature review:	
	i. Impact of HDHPs on utilization	
	ii. Consumer perceptions on	
III.	Findings	10
	a. Prevalence of Individual Market HDHPs through Maryland Health Connection	
	b. Cost-sharing requirements by service type	
	c. Complaints to the MIA and HEAU	
IV.	Conclusion	21
V.	Appendices	
	a. Original Request from the Joint Chairmen's Report	23
	b. 2022 Value Plan Standards	24
	c. IRS HDHP Limits, 2016-2021	25
	d. Detailed Literature Review	26
	e. Claims Analysis	
	f. Detailed Cost-Sharing Table	

## Tables and Figures

Table 1: 2021 Federally designated Minimum Annual Deductible, Maximum Annual Deductible and Other Out-Of-Pocket (OOP) Expenses	7
Table 2: Number of People Enrolled in Individual High-Deductible Health Plans (HDHPs) and Non-HDHPs Purchased through the Maryland Health Connection, by Age Group, CY 2016 to CY 2019	11
Table 3: Number of HDHPs and Non-HDHPs by Plan Metal Type Offered through the Maryland Health Connection, Base Plans Only, CY 2016 to CY 2019	12-13
Figure 1: Inpatient Hospital Admissions Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, CY 2016 to CY 2019	18
Figure 2: Hospital Outpatient Visits Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, CY 2016 to CY 2019	19
Figure 3: Primary Care Provider Visits Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, CY 2016 to CY 2019	19
Figure 4: Avoidable and Unavoidable ED Visits Per Enrollee in HDHPs vs Non-HDHPs, CY 2016 to CY 2019	20

## I. INTRODUCTION

This report responds to the 2021 Joint Chairmen’s Report on the Fiscal 2022 State Operating Budget (HB 588) and the State Capital Budget (HB 590) and Related Recommendations<sup>1</sup> request that the Maryland Health Benefit Exchange (MHBE), along with the Maryland Insurance Administration (MIA), and the Office of Attorney General Health Education and Advocacy Unit (HEAU), submit a report on high deductible health plans. Specifically, the committees requested that “MHBE (to the extent available) provide data on the prevalence of high deductible health plans in the individual market on the Maryland Health Connection (MHC) for the 2016 through 2021 plan years, cost-sharing requirements for high deductible plans offered on MHC by service type, and the number of complaints filed to MIA and HEAU related to high deductible health plans offered on MHC.” In addition, the committees requested “a discussion of the perceived consumer knowledge of the cost-sharing obligations of high deductible plans prior to enrollment and the perceived impact of these plans on service utilization.”

## II. BACKGROUND

### A. Deductibles

A deductible is the amount of money an individual must pay for covered health services before their health plan begins to pay some or all of the costs. A deductible may apply to some services, but not others. For example, the Affordable Care Act requires that certain preventive services be covered at no cost to the individual; consequently, a deductible would not apply to those preventive services. Plans may have separate deductibles for medical services and prescription drugs, or a single deductible that applies to both.

Under state and federal law, plans on the exchange must have an out-of-pocket maximum (OOPM), which is the most an enrollee will have to pay for in-network covered services in a plan year.<sup>2</sup> After the enrollee reaches that limit, the carrier will pay 100% of the costs of covered benefits. The OOPM for 2022 is \$8,700 for an individual and \$17,400 for a family. Plans may have OOPMs below those caps. The OOPM represents the ceiling for deductibles; typically, plans have deductibles below the level of the OOPM.

MHBE has taken action to ensure that consumers have a choice of plans with lower deductibles. Pursuant to recommendations from a stakeholder Affordability Workgroup convened by MHBE, starting in 2020 MHBE required on-exchange carriers in the individual market to offer one Value Plan at each of

<sup>1</sup> “Report on the Fiscal Year 2022 State Operating Budget (HB 588) and the State Capital Budget (HB 590) and Related Recommendations (Joint Chairmen’s Report),” Senate Budget and Taxation Committee and House Appropriations Committee, General Assembly of Maryland, April 30, 2021, <https://mgaleg.maryland.gov/Pubs/BudgetFiscal/2021rs-budget-docs-jcr.pdf>.

<sup>2</sup> MD Insurance Code § 15-1A-19 and 45 C.F.R. § 156.130.

the bronze, silver, and gold metal levels. Value plans are designed to offer consumer-friendly cost-sharing by requiring that certain services be covered before the deductible and capping silver and gold Value Plan medical deductibles at \$2,500 and \$1,000, respectively. Complete 2021 Value Plan requirements are listed in Appendix B.<sup>3</sup>

## B. High deductible health plans (HDHPs)

The IRS defines HDHPs with annually designated thresholds, establishing a minimum threshold for deductibles and an upper limit on deductibles and out-of-pocket expenses (shown for 2021 in Table 1 and in Appendix C for years 2016-2021).<sup>4</sup> Plans that meet the IRS' definition of high deductible are eligible to be paired with a health savings account (HSA).<sup>5</sup> HSAs are tax-free savings accounts used exclusively for medical expenses. Not all HDHPs are HSA-compatible.

HDHPs may only cover certain preventive services before the deductible; no other services may be covered until the enrollee meets the deductible.<sup>6,7</sup> Any additional pre-deductible services mandated by a state, rather than by the federal government, disqualify a high deductible plan from being HSA-compatible.<sup>8</sup>

For the purposes of this report, MHBE considered plans to be HDHPs if they had the minimum annual HDHP deductible established by the IRS, regardless of whether they covered services in addition to preventive services pre-deductible and regardless of whether they used the IRS-defined maximum for the deductible and other out-of-pocket expenses. In other words, the only criteria that MHBE employed to define a plan as a HDHP was whether the plan's deductible (specifically, the deductible for self-only coverage) met or exceeded the minimum threshold established by the IRS for a given year.

*Purpose of HDHPs.* Insurers may design plans to have high deductibles to keep monthly premiums more affordable as the cost of health care rises. Additionally, some research theorizes that HDHPs may help control health care costs by incentivizing patients to shop for lower-cost care and services.

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<sup>3</sup> 2019-2021 value plan requirements may be found on MHBE's website at <https://www.marylandhbe.com/wp-content/uploads/2021/01/Evolution-and-Focus-of-Value-Plans.pdf>.

<sup>4</sup> "Publication 969 (2020), Health Savings Accounts and Other Tax-Favored Health Plans," *Internal Revenue Service*, <https://www.irs.gov/publications/p969>.

<sup>5</sup> Ibid.

<sup>6</sup> 26 USC §223(c)(2)(C).

<sup>7</sup> "IRS Expands Predeductible Care for HSA-Qualifying Health Plans," *Mercer*, July 23, 2019, <https://www.mercer.com/our-thinking/law-and-policy-group/irs-expands-predeductible-preventive-care-for-hsa-qualifying-health-plans.html>.

<sup>8</sup> IRS Notice 2004-23.

Table 1: Federally designated 2021 minimum annual deductible, maximum annual deductible and other out-of-pocket (OOP) expenses<sup>9</sup>

	Self-only coverage	Family coverage
Minimum annual deductible	\$1,400	\$2,800
Maximum annual deductible and other OOP expenses	\$7,000	\$14,000

### C. Hospital Financial Assistance Policies

It is important to note that individuals with low income are eligible for financial assistance for medically necessary hospital services in Maryland. Maryland law requires hospitals to provide free or reduced cost care as part of their financial assistance policies.<sup>10</sup> This assistance is available to insured individuals who have difficulty paying the cost-sharing owed under their plan, including because of a deductible.

- Maryland law and Maryland Health Services Cost Review Commission (HSCRC) regulations require hospitals to provide free, medically necessary care to individuals with family income at or below 200% of the FPL.<sup>11</sup>
- Hospitals must provide reduced-cost, medically necessary care to patients with family income between 200 and 300% of the FPL.<sup>12</sup>
- Hospitals must provide reduced-cost, medically necessary care to patients with family income below 500% of the FPL who have a financial hardship, which is referred to as the financial hardship policy.<sup>13</sup> In order to qualify as having a financial hardship, the medical debt incurred by a family over a 12-month period must exceed 25% of the family's income.<sup>14</sup>

The thresholds described above represent a minimum, and some hospitals have more generous policies.

<sup>9</sup> IRS Publication 696 (2020).

<sup>10</sup> MD. CODE. ANN., Health-Gen. § 19-214.1; COMAR 10.37.10.26.

<sup>11</sup> MD. CODE. ANN., Health-Gen. § 19-214.1(b)(2)(i); COMAR 10.37.10.26(A-2)(2)(a)(i).

<sup>12</sup> COMAR 10.37.10.26(A-2)(2)(a)(ii).

<sup>13</sup> COMAR 10.37.10.26(A-2)(3).

<sup>14</sup> COMAR 10.37.10.26(A-2)(1)(b)(i).

#### D. Literature review

The Hilltop Institute at UMBC assisted MHBE in examining the literature on high deductible health plans and their impact on service utilization, as well as consumer knowledge of cost sharing obligations, a summary of which is included in this section. Hilltop's full literature review is included in Appendix D.

##### *HDHP impact on service utilization*

The association between cost-sharing and health care service use was famously explored in the Rand Health Insurance Experiment of the 1970s, which found that people will seek less health care when they are responsible for covering more of the costs.<sup>15</sup> More recent research has found that reduced spending by HDHP enrollees is more often due to lower care utilization than to the active pursuit of services with the lowest costs.

One study examined a company that switched its employee health coverage offering from a free plan to a HDHP and concluded that a subsequent drop in company-wide health care spending was entirely due to employees using less health care.<sup>16</sup> Furthermore, the authors found that employees reduced their spending by 42% when they had not yet met their deductible and found no evidence that consumers had learned to price shop for care even after multiple years under the new HDHPs.<sup>17</sup>

Another study found that HDHP enrollees were no more likely than non-HDHP enrollees to engage in behaviors such as considering going to other health care providers or comparing the out-of-pocket costs of multiple providers, and only 65 enrollees of the study sample of 1,951 (3%) reported engaging in the latter behavior during their latest medical care episode.<sup>18</sup> However, most study participants in HDHPs reported that out-of-pocket costs were an important factor in choosing a provider (71%) and expressed a willingness to use health care price information if it was available (56%).<sup>19</sup>

HDHP enrollment is associated with a reduction in both appropriate and inappropriate health services use, including preventive care, according to the literature.<sup>20</sup> Some research finds more frequent delays

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<sup>15</sup> Michael Chernew and Joseph Newhouse, "What Does the RAND Health Insurance Experiment Tell Us About the Impact of Patient Cost Sharing on Health Outcomes?" *American Journal of Managed Care*, July 2008, [http://vbidcenter.org/wp-content/uploads/2014/11/What-Does-the-RAND-Health-Insurance-Experiment-Tell-Us-About-the-Impact-of-Patient-Cost-Sharing-on-Health-Outcomes\\_AJMC\\_2008.pdf](http://vbidcenter.org/wp-content/uploads/2014/11/What-Does-the-RAND-Health-Insurance-Experiment-Tell-Us-About-the-Impact-of-Patient-Cost-Sharing-on-Health-Outcomes_AJMC_2008.pdf).

<sup>16</sup> Zarek Brot-Goldberg, Amitabh Chandra, Benjamin Handel and Jonathan Kolstad, "What Does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics," *National Bureau of Economic Research*, October 2015, <https://www.nber.org/papers/w21632>.

<sup>17</sup> Brot-Goldberg et al, 2015.

<sup>18</sup> Anna Sinaiko, Ateev Mehrotra and Neeraj Sood, "Cost-Sharing Obligations, High-Deductible Health Plan Growth, and Shopping for Health Care: Enrollees with Skin in the Game," *JAMA Internal Medicine*, March 2016, <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2482348>.

<sup>19</sup> Sinaiko et al, 2016.

<sup>20</sup> Rajender Agarwal, Olena Mazurenko and Nir Menachemi, "High-Deductible Health Plans Reduce Health Care Cost and Utilization, Including Use of Needed Preventive Services," *Health Affairs*, October 2017,



in seeking specialty care,<sup>21</sup> lower use of imaging services,<sup>22</sup> and non-adherence to certain medication regimens due to cost concerns<sup>23</sup> among HDHP enrollees compared to non-HDHP enrollees.

### *Consumer perceptions of deductibles and their impact*

Polling by the Kaiser Family Foundation indicates that a significant portion of Americans perceive their deductible as too high and a barrier to care.<sup>24</sup> A 2019 survey found that a third of insured adults reported difficulty paying their deductible, and more than 40% of individuals in employer-sponsored plans with deductibles of \$1,500 or more had difficulty affording care or paying medical bills in the prior 12 months. Over 60% of individuals in employer-sponsored plans with deductibles of \$1,500 or more reported that they or a family member skipped or delayed care because of the cost. These results are unsurprising considering that more than a third of American adults report that they would be unable to readily cover an unexpected \$400 bill, according to surveys by the Federal Reserve.<sup>25</sup>

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[https://www.annualreviews.org/doi/10.1146/annurev-publhealth-040218-044225?url\\_ver=Z39.88-2003&rft\\_id=ori%3Arid%3Aacrossref.org&rft\\_dat=cr\\_pub++0pubmed](https://www.annualreviews.org/doi/10.1146/annurev-publhealth-040218-044225?url_ver=Z39.88-2003&rft_id=ori%3Arid%3Aacrossref.org&rft_dat=cr_pub++0pubmed) ;

Olena Mazurenko, Melinda Buntin and Nir Menachemi, "High-Deductible Plans and Prevention," *Annual Review of Public Health*, April 2019, [https://www.annualreviews.org/doi/10.1146/annurev-publhealth-040218-044225?url\\_ver=Z39.88-2003&rft\\_id=ori%3Arid%3Aacrossref.org&rft\\_dat=cr\\_pub++0pubmed](https://www.annualreviews.org/doi/10.1146/annurev-publhealth-040218-044225?url_ver=Z39.88-2003&rft_id=ori%3Arid%3Aacrossref.org&rft_dat=cr_pub++0pubmed).

<sup>21</sup> Frank Wharam, Fang Zhang, Jamie Wallace, Christine Lu, Craig Earle, Stephen Soumerai, Larissa Nekhlyudov, and Dennis Ross-Degnan, "Vulnerable and Less Vulnerable Women in High-Deductible Health Plans Experienced Delayed Breast Cancer Care," *Health Affairs*, June 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7268048/> ;

Adam Gaffney, Alexander White, Laura Hawks, David Himmelstein, Steffie Woolhandler, David Christiani, and Danny McCormick, "High-Deductible Health Plans and Healthcare Access, Use, and Financial Strain in those with Chronic Obstructive Pulmonary Disease," *Annals of the American Thoracic Society*, May 2019, [https://www.atsjournals.org/doi/10.1513/AnnalsATS.201905-400OC?url\\_ver=Z39.88-2003&rft\\_id=ori%3Arid%3Aacrossref.org&rft\\_dat=cr\\_pub++0pubmed](https://www.atsjournals.org/doi/10.1513/AnnalsATS.201905-400OC?url_ver=Z39.88-2003&rft_id=ori%3Arid%3Aacrossref.org&rft_dat=cr_pub++0pubmed).

<sup>22</sup> Sarah Zheng, Zhong Justin Ren, Janelle Heineke, Kimberly Geissler, "Reductions in Diagnostic Imaging with High Deductible Health Plans," *Medical Care*, February 2016, [https://journals.lww.com/lww-medicalcare/Abstract/2016/02000/Reductions\\_in\\_Diagnostic\\_Imaging\\_With\\_High.2.aspx](https://journals.lww.com/lww-medicalcare/Abstract/2016/02000/Reductions_in_Diagnostic_Imaging_With_High.2.aspx).

<sup>23</sup> Mark Fendrick, Jason Buxbaum, Yuexin Tang, "Association Between Switching to a High-Deductible Health Plan and Discontinuation of Type 2 Diabetes Treatment," *JAMA Open Network*, November 2019, <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2753788> ;

Frank Wharam, Fang Zhang, Bruce Landon, Robert LeCates, Stephen Soumerai, Dennis Ross-Degnan, "Colorectal Cancer Screening in a Nationwide High-Deductible Health Plan Before and After the Affordable Care Act," *Medical Care*, May 2016, [https://journals.lww.com/lww-medicalcare/Abstract/2016/05000/Colorectal\\_Cancer\\_Screening\\_in\\_a\\_Nationwide.8.aspx](https://journals.lww.com/lww-medicalcare/Abstract/2016/05000/Colorectal_Cancer_Screening_in_a_Nationwide.8.aspx).

<sup>24</sup> Ashley Kirzinger, Cailey Muñana, Bryan Wu, Mollyann Brodie, "Data Note: Americans' Challenges with Health Care Costs," *Kaiser Family Foundation*, June 11, 2019, <https://www.kff.org/health-costs/issue-brief/data-note-americans-challenges-health-care-costs/>.

<sup>25</sup> "Report on the Economic Well-Being of U.S. Households in 2020 - May 2021," *Board of Governors of the Federal Reserve System*, May 2021, <https://www.federalreserve.gov/publications/2021-economic-well-being-of-us-households-in-2020-dealing-with-unexpected-expenses.htm>.

Research also demonstrates that many consumers are unsure about the costs they will incur under their plans. Uncertainty over benefits, cost-sharing and pre-deductible coverage can lead patients to avoid necessary and preventive care.<sup>26</sup> More than half of adults in the U.S. report having low confidence in using their insurance to access health care and most adults have inadequate knowledge of their annual out-of-pocket costs and plan deductible amounts.<sup>27</sup> A Connecticut General Assembly Task Force on HDHPs recently recommended that the state address this challenge by increasing health insurance literacy education efforts.<sup>28</sup>

### III. Prevalence of Individual Market HDHPs through Maryland Health Connection

The following analysis is drawn from the report provided by the Hilltop Institute included in Appendix E. The report covers coverage years 2016-2019: the analysis excludes 2020 because utilization data from the first year of the pandemic obfuscates existing trends; data for 2021 is not yet available. Table 1 shows the number of HDHP and non-HDHP enrollees in each year from CY 2016 to CY 2019 and the number of enrollees who remained on their plan for at least 320 days, by age group. Non-HDHP enrollment was higher overall in each year except 2019. Total enrollment in both types of plans varied widely from one year to the next, with a large decline in non-HDHP enrollment in CY 2019. Please note that the changes between CY 2016 and CY 2017 are due in part to the large number of missing plan IDs in the 2016 data. These fluctuations, at least in part, can be traced to shifts in carriers' plan offerings. For example, in 2019 the CareFirst family of companies increased the deductible in their gold plans from \$1,000 to \$1,750, taking the plans over the HDHP threshold and largely accounting for the significant increase in HDHP enrollees in 2019 compared to 2018. HDHP and non-HDHP enrollees were most often between the ages of 35 and 54 years, with relatively few enrollees being under 18.

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<sup>26</sup> Yagi, Brian, et al., Association of Health Insurance Literacy with Health Care Utilization: a Systematic Review, *Journal of General Internal Medicine*, May 2021 <https://link.springer.com/article/10.1007/s11606-021-06819-0>.

<sup>27</sup> Edward, Jean, et al., Significant Disparities Exist in Consumer Health Insurance Literacy: Implications for Health Care Reform, *Health Literacy Research and Practice* Volume 3, Issue 4, November 2019, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6831506/>.

<sup>28</sup> Villagra, Victor, et al., Health Insurance Literacy: Disparities by Race, Ethnicity, and Language Preference, *American Journal of Managed Care* Volume 25, Issue 3, March 2019, <https://www.ajmc.com/view/health-insurance-literacy-disparities-by-race-ethnicity-and-language-preference>.

"High Deductible Health Plan Task Force Final Report," *Connecticut General Assembly*, February 2020, [https://www.cga.ct.gov/ins/tfs/20190822\\_High%20Deductible%20Health%20Plan%20Task%20Force/final%20report%20Feb%202020/High%20Deductible%20Health%20Plan%20Task%20Force%20Final%20Report%20pgs%201-149.pdf](https://www.cga.ct.gov/ins/tfs/20190822_High%20Deductible%20Health%20Plan%20Task%20Force/final%20report%20Feb%202020/High%20Deductible%20Health%20Plan%20Task%20Force%20Final%20Report%20pgs%201-149.pdf).

Table 2. Number of People Enrolled in Individual High-Deductible Health Plans (HDHPs) and Non-HDHPs Purchased through the Maryland Health Connection, by Age Group, CY 2016 to CY 2019

Plan Type	Age Group	CY 2016		CY 2017		CY 2018		CY 2019	
		Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320+ Days
Non-HDHP	0-17	3,159	1,316	2,677	1,064	3,276	1,436	1,342	444
	18 to 34	26,026	10,994	26,965	12,143	30,701	15,703	22,742	12,636
	35 to 54	35,276	18,239	35,421	19,404	41,151	25,088	29,328	19,498
	55+	24,002	13,646	25,787	15,467	33,010	22,108	23,503	16,746
Total		88,463	44,195	90,850	48,078	108,138	64,335	76,915	49,324
HDHP	0-17	5,941	2,506	7,271	3,220	4,352	1,832	6,267	3,141
	18 to 34	18,657	7,552	24,279	10,351	20,159	9,080	27,258	14,119
	35 to 54	23,865	11,729	30,728	15,403	23,705	12,810	33,262	20,751
	55+	21,309	12,013	27,803	15,591	21,005	12,767	31,162	20,399
Total		69,772	33,800	90,081	44,565	69,221	36,489	97,949	58,410
Plan Missing HIOS Number		26,664		95		4		0	

Table 3 below shows the number of “base” plans by HDHP status and metal level offered through MHC for 2016-2019. In addition to these base plans, federal law requires carriers to offer reduced cost-sharing to people at or below 250% of the federal poverty level and to American Indians and Alaska Natives. As a result, carriers offer low cost-sharing variants of all base metal level plans for American Indians and Alaska Natives, and low-cost sharing variants of all silver plans for people at or below 250% of the federal poverty level. It is possible for a “base” metal plan to be a HDHP while its low cost-sharing variants may have lower deductibles that result in those variants being non-HDHPs.

As the table indicates, only gold and platinum base level plans qualified as non-HDHPs during 2016-2019. The number of base plans at each metal level, regardless of HDHP status, generally declined over this period as several carriers exited the market. In 2019, there was a shift from most base gold plans being considered non-HDHPs to being considered HDHPs.

Table 3. Number of HDHPs and Non-HDHPs by Plan Metal Type Offered through the Maryland Health Connection, Base Plans Only, CY 2016 to CY 2019

Plan Type	Metal Level	CY 2016	CY 2017	CY 2018	CY 2019
Non-HDHP	Catastrophic	0	0	0	0
	Bronze	0	0	0	0
	Expanded Bronze	0	0	0	0
	Silver	0	0	0	0
	Gold	11	9	5	2
	Platinum	3	1	1	1
HDHP	Catastrophic	4	3	2	2
	Bronze	15	9	5	5
	Expanded Bronze	0	0	1	0
	Silver	17	13	7	6
	Gold	2	0	1	4
	Platinum	0	0	0	0

## B. Cost-sharing requirements

This section describes HDHP cost-sharing requirements for the 2016 – 2021 plan years for primary care physician (PCP) visits, specialist visits, emergency room services, inpatient hospital services, generic drugs, and preferred brand drugs.<sup>29</sup> A table containing this information can be found in Appendix F.

### *Bronze plans.*

In 2016, pre-deductible coverage for certain bronze plans included copays up to \$25 for generic drugs. Post-deductible, bronze plans had copays up to \$500 or coinsurance up to 50% for emergency room services and inpatient hospital services; copays up to \$20 or coinsurance up to 50% for generic drugs; copays up to \$75 or coinsurance up to 50% for preferred brand drugs; and copays up to \$50 or coinsurance up to 50% for primary care services and specialist visits.

In 2017, pre-deductible coverage for certain bronze plans included copays up to \$25 and \$50 for generic drugs and primary care, respectively. Post-deductible, bronze plans had coinsurance up to 60% for emergency room services; coinsurance up to 50% for inpatient hospital services; copays up to \$20 or coinsurance up to 50% for generic drugs; coinsurance up to 50% for preferred brand drugs; copays up to \$20 or coinsurance up to 40% for primary care; copays up to \$70 or coinsurance up to 40% for specialist visits.

In 2018, pre-deductible coverage for expanded bronze plans<sup>30</sup> included copays up to \$25 for generic drugs. Post-deductible, regular bronze plans had coinsurance up to 40% for emergency room services and inpatient hospital services; copays up to \$20 or coinsurance up to 40% for generic drugs; coinsurance up to 50% for preferred brand drugs; copays up to \$50 or coinsurance up to 40% for primary care services; and coinsurance up to 40% for specialist visits. Expanded bronze plans had post-deductible copays of up to \$100 for preferred brand drugs and copays up to \$50 and \$70, respectively, for primary care and specialist visits.

In 2019, pre-deductible coverage for certain bronze plans included copays of up to \$50 for primary care services. Post-deductible, bronze plans had coinsurance rates of up to 40% for emergency room and inpatient hospital services; copays up to \$20 or coinsurance up to 40% for generic drugs; coinsurance up to 50% for preferred drugs; and coinsurance up to 40% for primary care services and specialist visits.

In 2020, pre-deductible coverage for expanded bronze plans had copays of up to \$20 for generic drugs and copays of up to \$55 for primary care services. Post-deductible, expanded bronze plans had coinsurance between 20%-40% for emergency room and inpatient hospital services, or copays of up to \$300 and \$500, respectively. Generic drugs had copays between \$10-\$20 and preferred drugs had

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<sup>29</sup> Due to the way this data is collected, this section describes cost-sharing in terms of the ranges of copays and coinsurance for each service among the plans of each metal level during each plan year. Also due to data constraints, the drug deductible was not analyzed separately from the medical deductible; some plans separate these deductibles and others do not. Combining medical and drug deductibles for plans with separate deductibles has virtually no impact on the classification of a plan as high-deductible or non-high-deductible and so was disregarded for analytical purposes. Data is unavailable for catastrophic plans, and platinum plans do not appear in this section because none were HDHPs.

<sup>30</sup> Information on expanded bronze plans is available here: <https://www.healthmarkets.com/glossary/extended-bronze-plan/>. HDHPs at the expanded bronze level were available in 2018, 2020 and 2021.

copays of up to \$50. Copays for primary care services and specialist visits were \$30 and \$40, respectively.

In 2021, expanded bronze plans had pre-deductible copays of up to \$25 for generic drugs, up to \$55 for primary care services, and up to \$120 for specialist visits. After deductibles were met, emergency room services were subject to \$300-\$500 copays or 40% coinsurance. Inpatient hospital services had copays up to \$500 or coinsurance up to 50%. Generic drugs had copays of \$10-\$20 and preferred drugs had copays of up to \$50 or coinsurance up to 50%. Primary care services had copays up to \$30 or up to 40% coinsurance; specialist visits had copays of \$40-\$50 or up to 40% coinsurance. For regular bronze plans, all analyzed services had coinsurance up to 40%.

*Silver plans.<sup>31</sup>*

In 2016, pre-deductible coverage for certain silver plans included copays up to \$500 for emergency room services, copays up to \$15 for generic drugs, copays up to \$40 for preferred brand drugs, copays up to \$35 for primary care services, and copays up to \$70 for specialist visits. After deductibles were met, silver plans had copays between \$50-\$500 or coinsurance up to 30% for emergency room services; copays between \$500-\$1,500 or coinsurance up to 30% for inpatient hospital services; copays between \$5-\$15 or coinsurance up to 20% for generic drugs; copays between \$40-\$75 or coinsurance up to 30% for preferred brand drugs; copays between \$20-\$30 or coinsurance up to 20% for primary care services; and copays between \$40-\$50 or coinsurance up to 20% for specialist visits.

In 2017, pre-deductible coverage for certain silver plans included copays up to \$15 for generic drugs, \$55 for preferred brand drugs, \$30 for primary care services, and \$50 for specialist visits. After deductibles were met, silver plans had copays up to \$300 or coinsurance between 15%-40% for emergency room services; copays up to \$500 or coinsurance between 15%-30% for inpatient hospital services; copays between \$10-\$15 or coinsurance up to 15% for generic drugs; copays between \$30-\$75 or coinsurance up to 15% for preferred brand drugs; copays between \$20-\$30 or coinsurance between 15%-20% for primary care services; and copays up to \$40 or coinsurance between 15%-20% for specialist visits.

In 2018, pre-deductible coverage for certain silver plans included copays between \$10-\$20 for generic drugs; copays up to \$55 for preferred brand drugs; and copays of up to \$35 and \$55 for primary care services and specialist visits, respectively. After deductibles were met, silver plans had copays up to \$300 or coinsurance between 20%-35% for emergency room services; copays up to \$500 or coinsurance between 20%-35% for inpatient hospital services; copays up to \$15 for generic drugs; copays between \$50-\$60 for preferred brand drugs; and up to 20% coinsurance for primary care services and specialist visits.

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<sup>31</sup> This analysis does not include silver CSR plans, which have cost-sharing reductions ("CSR") and improved actuarial value for consumers with lower incomes.

In 2019, pre-deductible coverage for certain silver plans included copays between \$15-\$20 for generic drugs, copays up to \$35 for primary care services, and copays up to \$55 for specialist visits. After deductibles were met, silver plans had copays of up to \$300 or coinsurance between 20%-35% for emergency room services; copays between \$10-\$15 for generic drugs; copays up to \$500 or coinsurance between 20%-35% for inpatient hospital services; copays between \$50-\$60 for preferred brand drugs; copays up to \$30 or coinsurance up to 20% for primary care services; and copays up to \$40 or coinsurance up to 20% for specialist visits.

In 2020, pre-deductible coverage for certain silver plans included copays between \$15-\$25 for generic drugs, and copays up to \$40 and \$60 for primary care services and specialist visits, respectively. After deductibles were met, silver plans had copays up to \$300 or coinsurance between 20%-35% for emergency room services; copays between \$10-\$20 for generic drugs; copays up to \$500 or coinsurance between 20%-35% for inpatient hospital services; copays between \$50-\$60 for preferred brand drugs; copays up to \$30 or coinsurance up to 20% for primary care services; and copays up to \$40 or coinsurance up to 20% for specialist visits.

In 2021, pre-deductible coverage for certain silver plans includes copays between \$10-\$30 for generic drugs; copays up to \$60, \$40, and \$75 for preferred brand drugs, primary care services, and specialist visits, respectively. After deductibles were met, silver plans had copays between \$300-\$500 or coinsurance between 20%-35% for emergency room services; copays up to \$500 or coinsurance between 20%-35% for inpatient hospital services; copays between \$10-\$20 for generic drugs; copays between \$50-\$75 for preferred brand drugs; copays up to \$30 or coinsurance between 20%-30% for primary care services; and copays up to \$40 or coinsurance up to 20% for specialist visits.

#### *Gold plans.*

In 2016, pre-deductible coverage for certain gold plans included copays up to \$12 for generic drugs, and copays up to \$15 and \$30 for primary care and specialist visits, respectively. After deductibles were met, gold plans had coinsurance between 10%-20% for emergency room and inpatient hospital services; copays up to \$5 for generic drugs; copays up to \$35 or coinsurance up to 30% for preferred brand drugs; and copays up to \$20 and \$40 for primary care and specialist visits, respectively.

There were no gold HDHPs in 2017, but in 2018, pre-deductible coverage for certain gold plans included copays up to \$10, \$20, and \$40 for generic drugs, primary care, and specialist visits, respectively. After deductibles were met, gold plans had copays up to \$30 for preferred drugs and coinsurance up to 30% for emergency and inpatient hospital services, while other services were covered without cost-sharing.

In 2019, pre-deductible coverage for certain gold plans included copays up to \$10 and \$20 for generic drugs and primary care services, respectively, and copays between \$30-\$40 for specialist visits. Post-deductible, gold plans had copays up to \$300 or coinsurance up to 35% for emergency room services; copays up to \$450 or coinsurance up to 35% for inpatient hospital services; and copays between \$30-\$50 for preferred brand drugs. Generic drugs, primary care and specialist visits were covered without cost-sharing post-deductible.



In 2020, pre-deductible coverage for certain gold plans included copays up to \$10 for generic drugs, up to \$20 for primary care, and between \$30-\$40 for specialist visits. Post-deductible, gold plans had copays up to \$300 or coinsurance up to 35% for emergency room services; copays up to \$450 or coinsurance up to 35% for inpatient hospital services; and copays up to \$50 for preferred brand drugs.

In 2021, pre-deductible coverage for certain gold plans included copays up to \$15 for generic drugs, up to \$20 for primary care services, and up to \$40 for specialist visits. Post-deductible, gold plans had copays between \$300-\$500 or coinsurance up to 35% for emergency room services; copays up to \$450 or coinsurance between 20%-35% for inpatient hospital services; copays between \$50-\$55 for preferred brand drugs; and copays up to 30% for primary care and specialist visits. All generic drugs were covered without cost-sharing.

### C. Comparison of Utilization in HDHPs and non-HDHPs

This section compares utilization across several services among HDHP and non-HDHP enrollees in plans offered through Maryland Health Connection, with the analysis and figures also drawn from the report provided by the Hilltop Institute included in Appendix E.

As shown in Figure 1, per enrollee inpatient hospital admissions by HDHP enrollees increased steadily but slowly from CY 2016 to CY 2019. Inpatient admissions by non-HDHP enrollees rose at a similar rate from CY 2016 to CY 2018 before decreasing slightly in CY 2019. Inpatient utilization was consistently higher for non-HDHP enrollees.

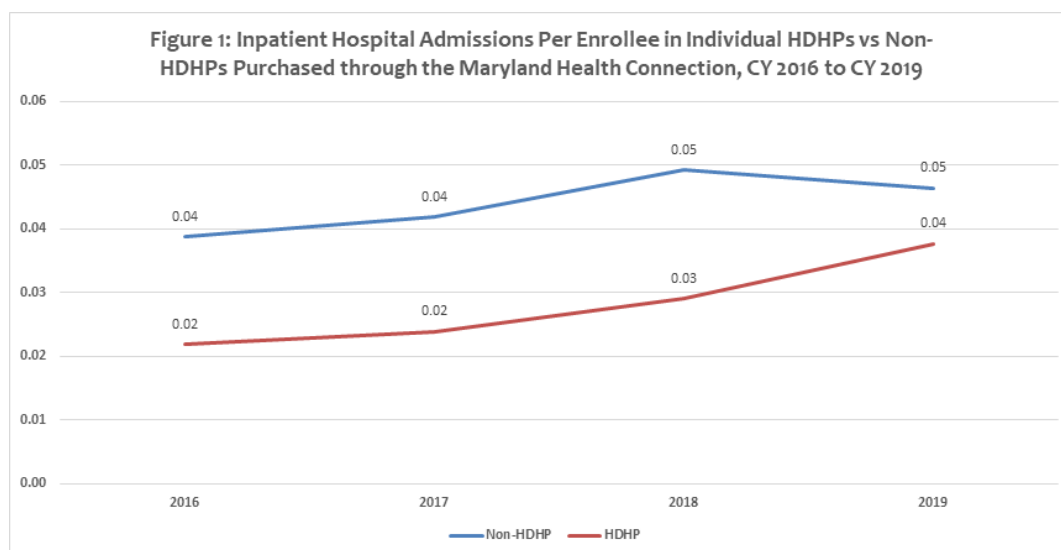


Figure 2 shows that outpatient hospital visits by HDHP enrollees increased steadily from CY 2016 to CY 2019, with a large increase in CY 2019 to more than double the CY 2016 rate. For non-HDHP enrollees, utilization per 1,000 of outpatient hospital services was higher in most years compared to HDHP enrollees but declined in 2019. The relatively and substantially lower per-person utilization by HDHP enrollees for CY 2016 to CY 2018 may result from people being generally less likely to use health services when they are responsible for more of the costs, as some research has shown. Alternatively, or in addition, this may suggest there were differences in health status between people in HDHPs compared to non HDHPs. The reversal of this difference in 2019 may require additional research to explain but may be due at least in part to the shift of a significant number of enrollees from non-HDHP gold plans to HDHP gold plans that year.

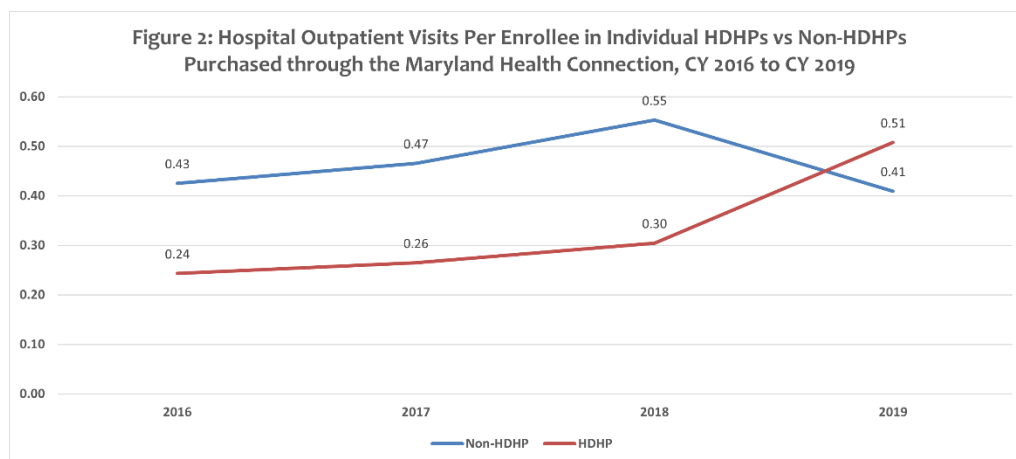
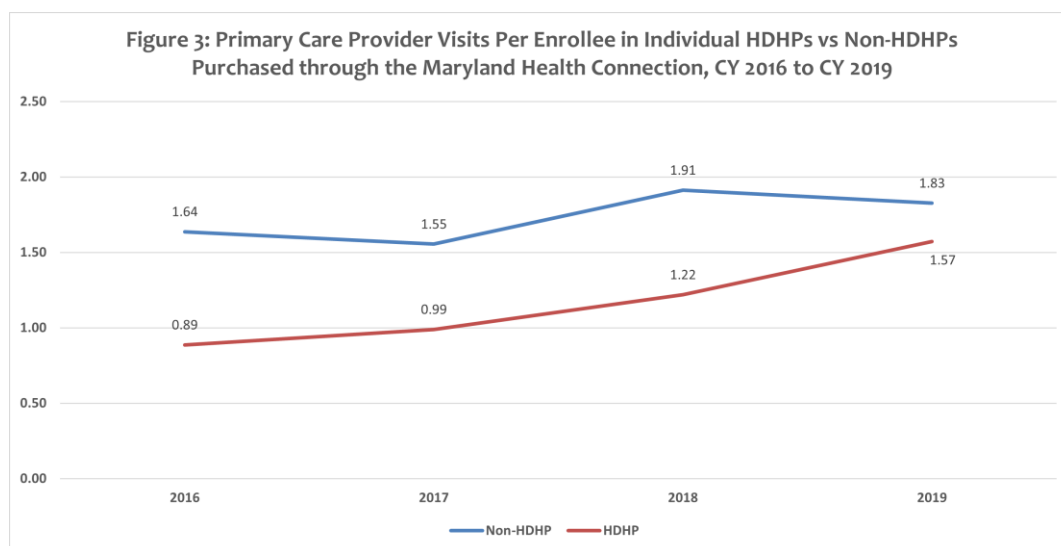
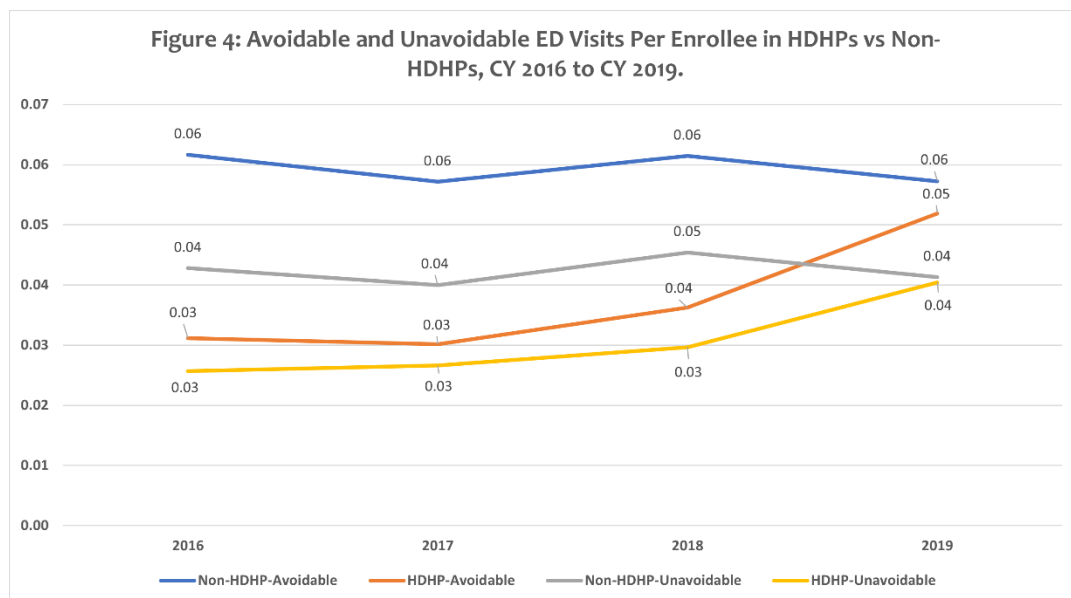


Figure 3 shows that PCP visits increased overall on a per enrollee basis from CY 2016 to CY 2019 for HDHP and non-HDHP enrollees, with those in both plan types utilizing primary care services at a more similar rate by the end of the study period compared to the beginning. A 2015 analysis by The Commonwealth Fund found that a substantial proportion of privately insured individuals were unaware that their plans were required to cover many preventive services without cost sharing.<sup>32</sup> The lower per-person utilization of PCP services by HDHP enrollees seen here may provide additional evidence of this, but it is impossible to know from these data alone.



<sup>32</sup> Collins, S.R., Gunja, M., Doty, M.M., & Beutel, S. (2015). How high is America's health care cost burden? Findings from The Commonwealth Fund Health Care Affordability Tracking Survey, July-August 2015. The Commonwealth Fund.

Figure 4 shows that both unavoidable and avoidable ED visits were higher on a per enrollee basis for non-HDHP enrollees compared to HDHP enrollees for each year except CY 2019, though rates of both types of ED visits were low in absolute terms for all plan types.



#### D. Consumer complaints

MHBE requested information from the Health Education and Advocacy Unit (HEAU) and the Maryland Insurance Administration (MIA) on consumer complaints related to HDHPs. As the responses from each agency, below, indicate, they do not separately categorize complaints related to HDHPs and so are unable to provide data on the number of complaints filed related to high deductible health plans offered on MHC.

#### **Health Education and Advocacy Unit**

The HEAU does not categorize the complaints received in a manner that complaints “related to high deductible health plans offered on MHC” can be readily identified. The committees also asked about the perceived consumer knowledge of the cost-sharing obligations of high deductible plans prior to enrollment. Anecdotally, it is fair to say that the HEAU frequently receives complaints from consumers who believe that their insurance carrier failed to cover a health care service when, in fact, the carrier covered the service but applied all or part of the cost to the consumer’s deductible. These consumers were surprised to learn how deductibles work, indicating a lack of understanding about the cost-sharing

obligations of high deductible plans. HEAU team members shared insights gained from direct consumer contact (hotline and case handling):

- Consumers report choosing high deductible health plans mostly based on premium prices and not really considering the deductible in their cost analysis.
- They admit to avoiding routine medical care because they cannot afford the out-of-pocket expenses. They only plan to use their HDHP for a major health emergency rather than routine or even preventative care.
- Even though they can receive certain preventative care without having to meet their deductible, they seem to be skeptical or afraid that there will be some unexpected out-of-pocket costs if they do seek preventative care. This skepticism is not without merit given the number of complaints received from consumers who presented to their healthcare providers for an annual physical and are billed for services not covered by the no-cost preventive service mandate (add-on labs, EKGs, etc.).
- When consumers with a HDHP have a major health emergency and must use their insurance, they admit that they have not been saving up to meet their deductible. They worry about how they will afford to pay their medical bill.

### **Maryland Insurance Administration**

The MIA does not have a way to analyze complaints to produce a report on complaints related to high-deductible health plans. The MIA collects data on the type of coverage, the reason for each complaint, and how the complaint was resolved, using a list of codes. The National Association of Insurance Commissioners (NAIC) has standard coverage, reason, and disposition codes for use by all states, so that data can be reported at a national level with uniform definitions. The MIA uses the NAIC complaint codes in tracking data and adds state-specific codes as needed. Neither the NAIC nor the MIA has a code that is specific to high deductible health plans.

### **CONCLUSION**

This report provides data on the prevalence of HDHPs in the individual market for the 2016 - 2021 plan years, presents cost-sharing requirements for HDHPs by service type, addresses complaints filed to MIA and HEAU related to HDHPs offered on MHC, and discusses consumer knowledge of cost-sharing obligations and the perceived impact of HDHPs on service utilization.

Research shows that HDHPs lead to reduced utilization of necessary health services; consumers find their deductibles to be too high and a barrier to care. Uncertainty over benefits and low health insurance literacy also leads to reduced care utilization. HDHP enrollment on MHC was lower than non-HDHP enrollment in all plan years analyzed except for 2019, but total enrollment between HDHPs and non-HDHPs varied widely. Unsurprisingly, cost-sharing requirements varied by metal level: some bronze plans had pre-deductible cost-sharing for generic drugs or primary care, while silver and gold plans had

progressively more pre-deductible coverage with progressively lower cost-sharing for services covered pre-deductible. Utilization was consistently higher for non-HDHP enrollees than HDHP enrollees across several service types, including inpatient and outpatient hospital admissions,<sup>33</sup> primary care, and avoidable and unavoidable emergency department visits.

Neither the HEAU nor the MIA can isolate complaints specifically related to HDHPs on MHC. However, the HEAU reports that they do receive complaints related to consumers' limited understanding of how their coverage works when they receive unexpectedly high bills.

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<sup>33</sup> Except for 2019, when outpatient hospital admissions for HDHP and non-HDHP enrollees converged.

## **APPENDICES**

### **Appendix A: Joint Chairmen's Report Request**

High Deductible Plans: The committees are concerned about the impact of high deductible health plans on enrollees and whether individuals understand the cost-sharing obligations of these types of plans prior to enrolling. The committees request that the Maryland Health Benefit Exchange (MHBE), in consultation with the Maryland Insurance Administration (MIA) and the Office of Attorney General Health Education and Advocacy Unit (HEAU), submit a report on high deductible health plans.

Specifically, the committees request that MHBE (to the extent available) provide data on the prevalence of high deductible health plans in the individual market on the Maryland Health Connection (MHC) for the 2016 through 2021 plan years, cost-sharing requirements for high deductible plans offered on MHC by service type, and the number of complaints filed to MIA and HEAU related to high deductible health plans offered on MHC.

In addition, the report should include a discussion of the perceived consumer knowledge of the cost-sharing obligations of high deductible plans prior to enrollment and the perceived impact of these plans on service utilization.

## Appendix B: 2021 Value Plan Standards

### Value Plan Goals and 2021 Requirements

**Value Plan Goals:** provide consumers with a choice of plans with lower deductibles and more pre-deductible coverage, while promoting cost-sharing structures that increase the use of high value care and align with state population health goals.

Requirements	Bronze	Silver	Gold
Minimum offering	Issuer must offer at least 1 "Value" plan.	Issuer must offer at least 1 "Value" plan.	Issuer must offer at least 1 "Value" plan.
Branding	Required.	Required.	Required.
Medical Deductible Ceiling	No requirement. Lower deductibles are encouraged.	\$2,500 or less.	\$1,000 or less.
Services Before Deductible	Issuer may allocate a total of no less than three office visits across one or more of the following settings: <ul style="list-style-type: none"> <li>• Primary Care Visit</li> <li>• Urgent Care Visit</li> <li>• Specialist Visit</li> </ul>	<ul style="list-style-type: none"> <li>• Primary Care Visit</li> <li>• Urgent Care Visit</li> <li>• Specialist Care Visit</li> <li>• Generic Drugs</li> <li>• Laboratory Tests</li> <li>• X-rays and Diagnostics+</li> </ul>	<ul style="list-style-type: none"> <li>• Primary Care Visit</li> <li>• Urgent Care Visit</li> <li>• Specialist Care Visit</li> <li>• Generic Drugs</li> <li>• Laboratory Tests</li> <li>• X-rays and Diagnostics</li> </ul>

+May be excluded from before deductible services



Appendix C: IRS' HDHP Limits by Year, 2016-2021

	2016		2017		2018		2019		2020		2021	
	Individual	Family	Individual	Family	Individual	Family	Individual	Family	Individual	Family	Individual	Family
Minimum annual deductible	\$1,300	\$2,600	\$1,300	\$2,600	\$1,300	\$2,600	\$1,350	\$2,700	\$1,400	\$2,800	\$1,400	\$2,800
<b>IRS Maximum annual deductible and other out-of-pocket expenses</b>	<b>\$6,550</b>	<b>\$13,100</b>	<b>\$6,550</b>	<b>\$13,100</b>	<b>\$6,550</b>	<b>\$13,100</b>	<b>\$6,750</b>	<b>\$13,500</b>	<b>\$6,900</b>	<b>\$13,800</b>	<b>\$7,000</b>	<b>\$14,000</b>

## **ASSESSING CONSUMERS' PERCEIVED KNOWLEDGE OF COST-SHARING OBLIGATIONS IN HIGH DEDUCTIBLE HEALTH PLANS AND THE PERCEIVED AND ACTUAL IMPACT OF THESE PLANS ON SERVICE UTILIZATION: LITERATURE REVIEW**

### **Search Strategy**

For the initial search strategy, The Hilltop Institute searched the database PubMed for studies under the Medical Subject Heading (MeSH) term “deductibles and coinsurance” and the subheading “economics.” Among the resulting articles, Hilltop scanned for those with terms such as “cost sharing,” “perception,” “high-deductible plans,” “service utilization,” and others in the title or abstract. Because these topics on their own are quite common in academic health services research, we paid particular attention to articles that had some combination of these and other relevant terms. Hilltop also used Google Scholar to identify articles with similar terms and combinations of terms anywhere in the body of the article. This approach often returned results numbering in the hundreds of thousands or more, so the articles were sorted by citations recorded and the first 1,000 results were scanned for relevant studies. Finally, Hilltop searched popular health services research sites *Health Affairs* and *The Kaiser Family Foundation* using a similar methodology. Except for one commentary article, all searches were limited to articles published in or after 2010.

### **Results**

From the above search strategies, Hilltop identified 18 relevant studies and articles that report on empirical investigations of consumers' *perceptions* of cost sharing in high deductible health plans (HDHPs) and their perceptions of health care services utilization with these plans (Table 1). Peer-reviewed empirical studies were chosen where available, however the relative scarcity of published materials concerning some topics of interest meant this was not always possible.

The articles found through this review assessed cost-sharing obligation perceptions in HDHPs and the perceived impact of HDHPs on enrollees' service utilization using a variety of measures, including consumer price shopping, perceptions about health care service affordability, and willingness to seek care under plans with varying levels of cost sharing. Authors of several articles reported choosing these outcomes to evaluate the idea that, relative to those covered by more traditional health insurance plans, HDHP enrollees will be more likely to seek out less expensive services, compare provider prices, and spend less on care overall. Nearly all of the articles found that HDHP enrollees did indeed spend less on care than those in other plans, but much of these reductions were due to lower care utilization rather than from actively pursuing services with the lowest costs. A 2015 study by Brot-Goldberg and colleagues (item 5 in Table 1) examined a company that switched its employee health coverage offering from a free plan to a HDHP and concluded that a subsequent drop in company-wide health care spending was entirely due to employees using less health care. Furthermore, the authors found that employees reduced their

spending by 42% when they had not yet met their deductible and found no evidence that consumers had learned to price shop for care even after multiple years under the new HDHPs.

Similar descriptions of consumers failing to act as they might be expected to in other, non-health care markets were found in other articles on this list. The 2016 article by Sinaiko, et al. (item 4) found that most study participants in HDHPs reported that out-of-pocket costs were an important factor in choosing a provider (71%) and expressed a willingness to use health care price information if it was available (56%). However, they were no more likely than non-HDHP enrollees to engage in behaviors such as considering going to other health care providers or comparing the out-of-pocket costs of multiple providers, and only 65 of the entire combined study sample of 1,951 (3%) reported engaging in the latter behavior during their latest medical care episode. Cliff and colleagues (item 1) presented study participants with hypothetical health care scenarios and asked how difficult and helpful they found certain consumer strategies, such as comparing prices and negotiating a lower price for care, as well as whether they intended to use any of them. Participants who considered a strategy helpful were also more likely to report that they would use the strategy, but less than half of participants enrolled in HDHPs reported intentions of using any of the strategies, regardless of the degrees of helpfulness or difficulty.

The second piece of this review concerned research on cost sharing in HDHPs and enrollees' perceptions of how this affects their service utilization. It is important to note that this is a different topic than how HDHP enrollment and cost sharing *actually* affects service utilization. The association between cost sharing and service use was most famously explored in the Rand Health Insurance Experiment of the 1970s, a brief summary of which is included here as item 7 in Table 1. In short, this landmark research found that higher levels of cost sharing resulted in decreased spending on health care, which is another way of saying that people will seek less care when they are responsible for covering more of the costs. Decades of subsequent research have largely supported this core finding and conducting a full review of this literature would be a significant task, so only a handful of articles are included here as items 8 to 18. Most of these articles focus on specific types of services and, again, the results are mostly consistent with those of the RAND study. There are some interesting points worth noting, however, namely that the selection of studies presented here do not offer a unanimous conclusion on health services use among HDHP enrollees. A majority of the articles examined in a 2017 systematic review by Agarwal and colleagues (item 18), some of which are also presented individually in Table 1, found an association between HDHP enrollment and a reduction in some types of both appropriate and inappropriate health services use, including preventive care. A subsequent review by Mazurenko, et al. in 2019 (item 12) also found reductions in primary care services across the academic literature, though the authors presented their findings with a bit more ambivalence, stating that it was unclear if all preventive services were affected and that more research was needed on the topic. Other work found more frequent delays in seeking certain types of specialty care (items 10 and 11), lower use of imaging services (item 13), and non-adherence to medication regimens due to cost concerns among HDHP enrollees (items 15 and 17), though the medication non-adherence was only observed among some subgroups and for

some medication types. Interestingly, research that accounted for restrictions on some forms of cost sharing due to the Patient Protection and Affordable Care Act found increased utilization of preventive services, namely long-acting removable contraception (item 8) and colorectal cancer screening (item 16).

Some of the other articles included in this current review reached similar conclusions regarding the depressive effect of HDHPs on service use, but they were selected because they also aimed to explore a less common idea, which was whether people in HDHPs were *willing to* seek care or how much care they *thought* they would use based on their cost sharing, or the extent of their cost-sharing obligation knowledge as evidenced by certain behaviors, rather than how much health care they did in fact use. Based on the admittedly limited evidence gathered here, it appears that higher cost sharing may also result in a decreased willingness to seek care independent of the actual amount of care utilized (items 2, 3, & 6).

**Table 1. Selected Peer-Reviewed Publications and Other Reports on High Deductible Health Plan Enrollees' Perceptions of Cost-Sharing Obligations and their Perceived Impact on their Health Services Utilization.**

<i>No.</i>	<b>First Author</b>	<b>Year of Publication</b>	<b>Manuscript Title</b>	<b>Primary Outcome</b>	<b>Data Source(s)</b>	<b>Primary Finding</b>	<b>Link to Full Manuscript</b>
<b>1</b>	<b>Cliff</b>	<b>2019</b>	Attitudes About Consumer Strategies Among Americans in High-deductible Health Plans	In regards to two hypothetical healthcare scenarios, the difficulty and helpfulness of: comparing prices, discussing cost with a provider, negotiating a lower price, and, in one of the scenarios, comparing quality of providers.	Investigators surveyed participants in GfK's Knowledge Panel in 2016.	Fewer than half of HDHP enrollees intended to engage in any of the surveyed strategies. Enrollees who viewed a consumer strategy as helpful were more likely to engage in that strategy; no associations were found with perceived difficulty of a strategy and intent to engage in it.	<a href="#">Medical Care</a>
<b>2</b>	<b>Abdus</b>	<b>2020</b>	The role of plan choice in health care utilization of high-deductible plan enrollees	Various measures of healthcare utilization across 4 plan types among people who did and did not have a choice of plans.	2011 to 2016 Medical Expenditure Panel Survey Household Component	Among adults with a choice of plans, HDHP enrollees had lower levels of utilization compared with those of the no-deductible health plan enrollees for any ambulatory visit, any specialist visit, and most preventive services. Among adults without any choice of plans, the differences between HDHP enrollees and NDHP enrollees were not statistically significant.	<a href="#">Health Services Research</a>
<b>3</b>	<b>Kosteas</b>	<b>2018</b>	Out of Pocket Costs and Health Insurance Take-Up Rates	Impact of out-of-pocket costs on take-up rates of coverage by employees at firms that offer multiple plan types.	2005 to 2012 Employer Health Benefits Survey	Fixed effects estimations suggest that workers respond to an increase in the out-of-pocket contributions for Health Maintenance Organization (HMO) plans by switching to PPO plans without impacting the overall take-up rate, while workers respond to increases in the out-of-pocket contribution for Preferred Provider Organization (PPO) plans by	<a href="#">Applied Health Economics and Health Policy (link to PDF)</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
						switching to HMO plans or dropping out of the group coverage.	
4	Sinaiko	2016	Cost-Sharing Obligations, High-Deductible Health Plan Growth, and Shopping for Health Care: Enrollees With Skin in the Game	Attitudes about price shopping, and whether, when they most recently received care, participants considered going to see another health care professional or if out-of-pocket costs were compared between different health care providers.	GfK's Knowledge Panel (no year specified)	During their last use of medical care, HDHP enrollees were no more likely than enrollees in traditional plans to consider going to another health care professional for their care, or to compare out-of-pocket cost differences across health care professionals. A total of 611 HDHP enrollees (56%) say they would use additional sources of health care price information if available.	<a href="#">JAMA Internal Medicine</a>
5	Brot-Goldberg	2015	What Does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics	Consumer price shopping, healthcare utilization, other measures of consumer responsiveness to medical care prices.	2006 to 2015 claims data from a large, self-insured firm	Following their company's switch to a HDHP, we found that a firm-wide spending reduction on healthcare of between 11.79%-13.80% were entirely due to outright reductions in the quantity of healthcare used. We found no evidence of consumers learning to price shop after two years in high-deductible coverage. We found that consumers responded heavily to spot prices at the time of care, and reduce their spending by 42% when under the deductible. There is no evidence of learning to respond to the true shadow price of care in the second year post-switch to an HDHP.	<a href="#">National Bureau of Economic Research (page has a link to PDF)</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
6	Collins	2015	How High Is America's Health Care Cost Burden? Findings from the Commonwealth Fund Health Care Affordability Tracking Survey, July–August 2015	Multiple measures of perceived health services affordability, willingness to seek care.	Commonwealth Fund Health Care Affordability Tracking Survey	When privately insured adults were asked how they rated their plan's affordability, greater shares reported their premiums and deductible costs were difficult or impossible to afford than the Commonwealth Fund Health Care Affordability Index would suggest. Health plan deductibles and copayments had negative effects on many people's willingness to get needed health care or fill prescriptions. In addition, many consumers are confused about which services are free to them and which count toward their deductible.	<a href="#">The Commonwealth Fund (link to PDF)</a>
7	Chernew	2008	What Does the RAND Health Insurance Experiment Tell Us About the Impact of Patient Cost Sharing on Health Outcomes	None (commentary article).	None (commentary article).	In general, as a person's cost-sharing obligations increase, their health care service utilization decreases, though the effects of cost sharing on health outcomes are less clear.	<a href="#">The American Journal of Managed Care (link to PDF)</a>
8	Becker	2021	ACA Mandate Led To Substantial Increase In Contraceptive Use Among Women Enrolled In High-Deductible Health Plans	Long-acting reversible contraceptive (LARC) use.	2010 to 2017 Truven Health Marketscan Commercial Claims and Encounters database	Pre-ACA HDHP enrollees had lower LARC initiation rates than women in non-HDHPs and that rates of LARC initiation increased by 35 percent more post-mandate for women in HDHPs than for women in traditional plans.	<a href="#">Health Affairs (link to PDF)</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
9	Buntin	2011	Healthcare spending and preventive care in high-deductible and consumer-directed health plans	Healthcare spending (cost growth) and use of preventive care services.	2004 to 2005 MarketScan data, other administrative claims data (no specific name given)	Families enrolling in HDHPs or CDHPs for the first time spent 14% less than similar families enrolled in conventional plans. Families in firms offering an HDHP or a CDHP spent less than those in other firms. Significant savings for enrollees were realized only for plans with deductibles of at least \$1000, and savings decreased with generous employer contributions to healthcare accounts. Enrollment in HDHPs or CDHPs was also associated with moderate reductions in the use of preventive care.	<a href="#">The American Journal of Managed Care</a>
10	Wharam	2019	Vulnerable And Less Vulnerable Women In High-Deductible Health Plans Experienced Delayed Breast Cancer Care	Time to first breast cancer diagnostic testing, diagnosis, and chemotherapy.	2003 to 2014 Optum claims data	Low-income women in HDHPs experienced relative delays of 1.6 months to first breast imaging, 2.7 months to first biopsy, 6.6 months to incident early-stage breast cancer diagnosis, and 8.7 months to first chemotherapy. High-income HDHP members had shorter delays that did not differ significantly from those of their low-income counterparts.	<a href="#">Health Affairs</a>
11	Gaffney	2020	High-Deductible Health Plans and Healthcare Access, Use, and Financial Strain in Those with Chronic Obstructive Pulmonary Disease	Multiple measures of access to care, financial strain, and healthcare utilization.	2011 to 2017 sample from the National Health Interview Survey	Individuals enrolled in an HDHP more frequently reported delayed or foregone care, cost-related medication nonadherence, medical bill problems, and financial strain. They also more frequently reported out-of-pocket	<a href="#">Annals of the American Thoracic Society</a>



No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
						healthcare spending in excess of \$5,000 a year. Although the two groups' office visit rates were similar, those enrolled in an HDHP were more likely to report a hospitalization or emergency room visit in the past year.	
12	Mazurenko	2019	High-Deductible Health Plans and Prevention	Review and critique of other scholarly articles.	N/A	After summarizing the findings from the most methodologically sophisticated studies, we conclude that the balance of the evidence shows that HDHPs are reducing the use of some preventive service, especially screenings. However, it is not clear if HDHPs affect all preventive services. Additional research is needed to determine why variability in conclusions exists among studies.	<a href="#">Annual Review of Public Health</a>
13	Zheng	2016	Reductions in Diagnostic Imaging With High Deductible Health Plans	Diagnostic imaging utilization and standardized payments.	2010 Thomson-Reuters MarketScan	HDHP enrollment was associated with a 7.5% decrease in the number of imaging studies and a 10.2% decrease in standardized imaging payments. HDHP enrollees were 1.8% points less likely to use imaging; once an enrollee had at least 1 imaging study, differences in utilization and associated payments were small. Associations between HDHP and utilization were largest in the lowest (least sick) risk score tercile.	<a href="#">Medical Care</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
14	Waters	2011	Impact of high-deductible health plans on health care utilization and costs	Utilization and expenditure for primary care, specialty physician, other outpatient, ED, and prescription drugs, as well as several subcategories for prescription drugs.	2005 to 2007 member data for BlueCross BlueShield of Tennessee enrollees	HDHP enrollment was associated with reduced emergency room use, increases in prescription medication use, and no change in overall outpatient expenditures. The impact of HDHPs on utilization differed by subgroup. Chronically ill enrollees and those who clearly had a choice of plans were more likely to increase utilization in specific categories after switching to an HDHP plan.	<a href="#">Health Services Research</a>
15	Fendrick	2019	Association Between Switching to a High-Deductible Health Plan and Discontinuation of Type 2 Diabetes Treatment	Discontinuation of branded and generic antihyperglycemic medications.	2013 to 2014 IBM MarketScan Commercial Claims and Encounters	Of 2980 adults with type 2 diabetes who were taking at least 1 antihyperglycemic medication, there was no difference in unadjusted discontinuation rates between groups with and without a high-deductible health plan. However, a greater proportion of patients with high-deductible health plans did not refill branded medications.	<a href="#">JAMA Network Open</a>
16	Wharam	2016	Colorectal Cancer Screening in a Nationwide High-deductible Health Plan Before and After the Affordable Care Act	Annual rates of overall colorectal cancer screening, colonoscopy, and fecal-occult blood testing.	2003 to 2012 Optum database	Before the ACA, colorectal cancer screening tests declined by 37/10,000 among HDHP members versus controls; after the ACA, HDHP members experienced a nonsignificant increase in screening. Corresponding changes in colonoscopy were -55/10,000 before and +20/10,000 after the ACA. Thus, the ACA was associated with increased	<a href="#">Medical Care</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
						colorectal cancer screening rates and screening colonoscopies among HDHP members.	
17	Zhao	2019	Cancer History, Health Insurance Coverage, and Cost-Related Medication Nonadherence and Medication Cost-Coping Strategies in the United States	Cost-related medication nonadherence (CRN) and cost-coping strategies.	2013 to 2016 National Health Interview Survey	Cancer survivors were more likely than adults without a cancer history to report CRN and cost-coping strategies. Among the privately insured, the difference in CRN by cancer history was the greatest among those enrolled in HDHPs without health savings accounts (HSAs). Among adults with HDHP and HSA, cancer survivors were less likely to report cost-coping strategies. Regardless of cancer history, CRN and cost-coping strategies were the highest for those uninsured, enrolled in HDHP without HSA, and without prescription drug coverage under their health plan.	<a href="#">Value in Health</a>
18	Agarwal	2017	High-Deductible Health Plans Reduce Health Care Cost And Utilization, Including Use Of Needed Preventive Services	Systematic review.	N/A	HDHPs were associated with a significant reduction in preventive care in seven of twelve studies and a significant reduction in office visits in six of eleven studies—which in turn led to a reduction in both appropriate and inappropriate care. Furthermore, bivariate analyses of data extracted from the included studies suggested that the plans may be associated with a reduction in appropriate	<a href="#">Health Affairs</a>

No.	First Author	Year of Publication	Manuscript Title	Primary Outcome	Data Source(s)	Primary Finding	Link to Full Manuscript
						preventive care and medication adherence. Current evidence suggests that HDHPs are associated with lower health care costs as a result of a reduction in the use of health services, including appropriate services.	

# The Hilltop Institute



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**To:** MHBE  
**From:** Hilltop  
**Date:** November 16, 2021  
**Re:** High Deductible Health Plan Data Tables

## Introduction

At the request of the Maryland Health Benefit Exchange (MHBE), Hilltop has prepared an analysis on the number of people who enrolled in high deductible health plans (HDHPs) in the individual market on Maryland Health Connection (MHC) from calendar year (CY) 2016 to CY 2019. Hilltop has also prepared an analysis on the utilization of certain types of health services by HDHP enrollees during the same period. Finally, Hilltop compared all enrollment and utilization metrics for HDHP enrollees to non-HDHP enrollees. The purpose of this memorandum is to explain the methodology and present the results of the analyses.

## Methodology

Using the eligibility files in the All-Payer Claims Database (APCD) Standard Analytic File maintained by the Maryland Health Care Commission (MHCC), Hilltop first identified a cohort of participants who purchased health coverage on the individual market through the MHC in each year from CY 2016 to CY 2019. CY 2020 data were excluded due to underutilization and other data anomalies due to the pandemic. Hilltop then categorized each member's plan as an HDHP or non-HDHP according to the plan Health Insurance Oversight System (HIOS) number. These HIOS numbers were provided to Hilltop by MHBE (see Appendices A1, A2, and A3). Plans with a missing HIOS were excluded from the analysis. Hilltop also identified the number of enrollees who maintained their health coverage for at least 320 days in each year. These counts were then further stratified into four groups based on the enrollees' age (0-17, 18 to 34, 35 to 54, 55 and older) as shown in Table 1 and six groups based on the health plan provider (CareFirst BlueChoice, Inc.; CareFirst of Maryland, Inc.; Group Hospitalization and Medical Services, Inc.; Kaiser Permanente Mid-Atlantic States; UnitedHealthcare Insurance Co.; Evergreen Health Cooperative, Inc.) as shown in Table 2.

Next, Hilltop used the APCD's institutional and professional files to identify inpatient hospital admissions, outpatient hospital visits (including hospital emergency department [ED] visits), professional office visits, and primary care provider (PCP) visits. Detailed definitions for each of these visit types are included here in Appendices B through F, but in general they were defined using a combination of service- and facility-type codes, provider taxonomy codes, and other information included in the APCD. For the subset of outpatient hospital visits that could be classified as ED visits, Hilltop used an algorithm developed by researchers at the New York University (NYU) Center for Health and Public Service Research to classify visits as avoidable or

memorandum

unavoidable based on the primary diagnosis. Additional information about the NYU algorithm is included in Appendix G

Please note that HDHPs have been found to reduce medical costs, partly because the deductible amount tends to discourage use of services by the covered individuals. This reduced cost is reflected in lower premiums, deemed actuarially fair by the Maryland Insurance Administration. However, the lower premiums along with potentially higher cost if services are needed, may attract greater enrollment by individuals who consider themselves healthy and less likely to need such services. It is beyond the scope of this analysis to determine if reductions in utilization observed in HDHPs are due to the greater cost sharing leading to less use of care or because the enrollees themselves are at lower risk of care.

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## Results

Table 1 shows the number of HDHP and non-HDHP enrollees in each year from CY 2016 to CY 2019 and the number of enrollees who remained on their plan for at least 320 days, by age group. Non-HDHP enrollment was higher overall in each year except 2019. Total enrollment in both types of plans varied widely from one year to the next, with a large decline in non-HDHP enrollment in CY 2019. Please note that the changes between CY 2016 and CY 2017 are due in part to the large number of missing plan IDs in the 2016 data.. These fluctuations, at least in part, can be traced to shifts in carriers' plan offerings. For example, in 2019 the CareFirst family of companies increased the deductible in their gold plans from \$1,000 to \$1,750, taking the plans over the HDHP threshold and largely accounting for the significant increase in HDHP enrollees in 2019 compared to 2018. HDHP and non-HDHP enrollees were most often between the ages of 35 and 54 years, with relatively few enrollees being under 18.

**Table 1. Number of People Enrolled in Individual High-Deductible Health Plans (HDHPs) and Non-HDHPs Purchased through the Maryland Health Connection, by Age Group, CY 2016 to CY 2019**

Plan Type	Age Group	CY 2016		CY 2017		CY 2018		CY 2019	
		Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320+ Days
Non-HDHP	0-17	3,159	1,316	2,677	1,064	3,276	1,436	1,342	444
	18 to 34	26,026	10,994	26,965	12,143	30,701	15,703	22,742	12,636
	35 to 54	35,276	18,239	35,421	19,404	41,151	25,088	29,328	19,498
	55+	24,002	13,646	25,787	15,467	33,010	22,108	23,503	16,746
<b>Total</b>		<b>88,463</b>	<b>44,195</b>	<b>90,850</b>	<b>48,078</b>	<b>108,138</b>	<b>64,335</b>	<b>76,915</b>	<b>49,324</b>
HDHP	0-17	5,941	2,506	7,271	3,220	4,352	1,832	6,267	3,141
	18 to 34	18,657	7,552	24,279	10,351	20,159	9,080	27,258	14,119
	35 to 54	23,865	11,729	30,728	15,403	23,705	12,810	33,262	20,751
	55+	21,309	12,013	27,803	15,591	21,005	12,767	31,162	20,399
<b>Total</b>		<b>69,772</b>	<b>33,800</b>	<b>90,081</b>	<b>44,565</b>	<b>69,221</b>	<b>36,489</b>	<b>97,949</b>	<b>58,410</b>
<b>Plan Missing HIOS Number</b>		<b>26,664</b>		<b>95</b>		<b>4</b>		<b>0</b>	

Table 2 shows HDHP and non-HDHP enrollment by carrier. CareFirst had the most HDHP enrollees each year.

**Table 2. Number of People Enrolled in Individual High-Deductible Health Plans (HDHPs) and Non-HDHPs Purchased through the Maryland Health Connection, by Coverage Provider, CY 2016 to CY 2019**

Plan Type	PNUM Eligibility	CY 2016		CY 2017		CY 2018		CY 2019	
		Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days
Non-HDHP	CareFirst BlueChoice	52,070	28,998	46,102	26,631	50,948	31,141	22,485	15,472
	CareFirst of MD	*	*	2,892	1,826	3,750	2,081	1,537	947
	GHMSI	*	*	2,194	*	1,357	808	282	177
	Kaiser	28,036	11,910	39,662	19,612	52,083	30,305	52,611	32,728
	United	943	*	*	*	0	0	0	0
	Evergreen	7,398	3,277	*	*	0	0	0	0
<b>Total</b>		<b>88,463</b>	<b>44,195</b>	<b>90,850</b>	<b>48,078</b>	<b>108,138</b>	<b>64,335</b>	<b>76,915</b>	<b>49,324</b>
HDHP	CareFirst BlueChoice	51,405	26,386	60,631	33,090	37,143	20,724	64,697	40,411
	CareFirst of MD	1,944	1,131	2,007	1,085	1,239	691	3,223	2,010
	GHMSI	1,397	*	1,495	*	745	375	1,650	991
	Kaiser	10,035	3,610	25,948	10,387	30,094	14,699	28,379	14,998
	United	539	*	0	*	0	0	0	0
	Evergreen	4,452	1,856	0	*	0	0	0	0
<b>Total</b>		<b>69,772</b>	<b>33,800</b>	<b>90,081</b>	<b>44,565</b>	<b>69,221</b>	<b>36,489</b>	<b>97,949</b>	<b>58,410</b>
<b>Plan Missing HIOS Number</b>		<b>26,664</b>		<b>95</b>		<b>4</b>		<b>0</b>	

Despite the enrollment fluctuations, per enrollee inpatient hospital admissions by HDHP enrollees increased steadily but slowly from CY 2016 to CY 2019 as shown in Figure 1. Inpatient admissions by non-HDHP enrollees rose at a similar rate from CY 2016 to CY 2018 before decreasing slightly in CY 2019. Inpatient utilization was consistently higher for non-HDHP enrollees.



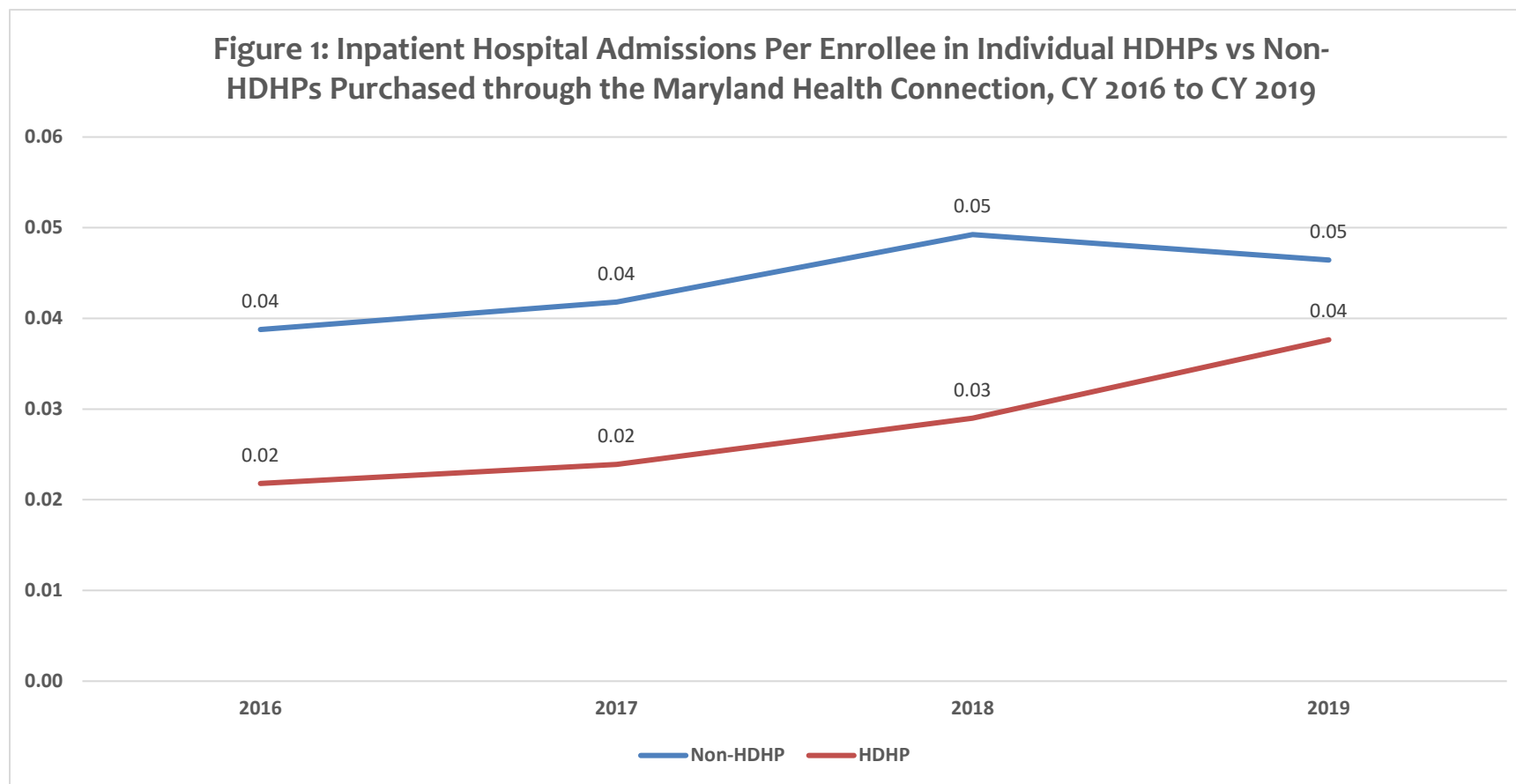


Figure 2 presents inpatient hospital admissions by age group and shows similar trends as observed in Figure 1 across most age groups. The only notable exceptions were among the 17-and-under age group. HDHP enrollees in this age group had a larger increase in per enrollee admissions from CY 2017 to CY 2018 than HDHP enrollees in other groups and remained basically unchanged from CY 2018 to CY 2019. The trend for the 17-and-under non-HDHP enrollees was also a notable deviation from the overall trend, with a particularly large increase between CY 2017 to CY 2018 and from CY 2018 to CY 2019. Among the other age groups, inpatient admissions per enrollee were highest among those 55 and older regardless of plan type.

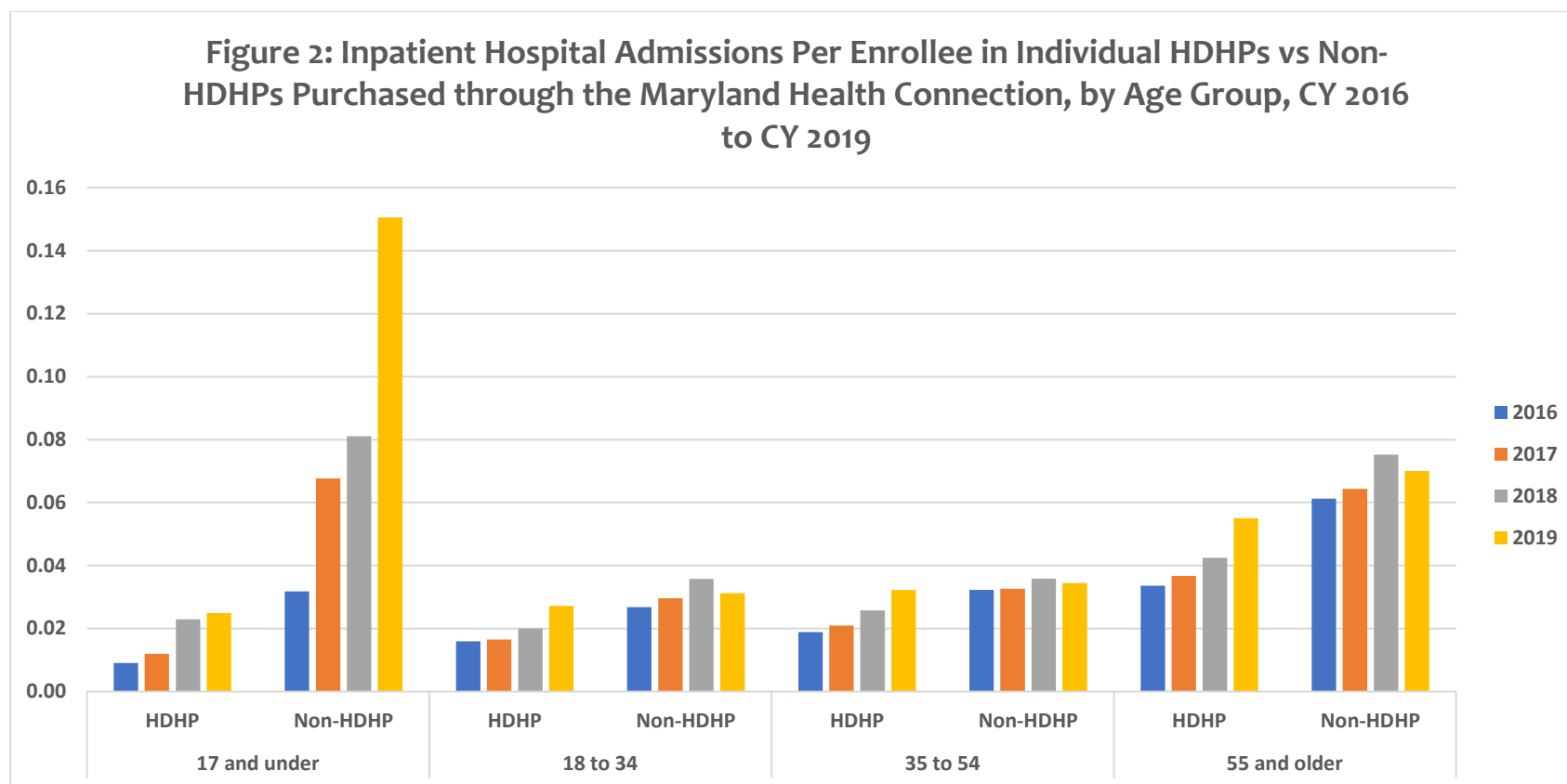
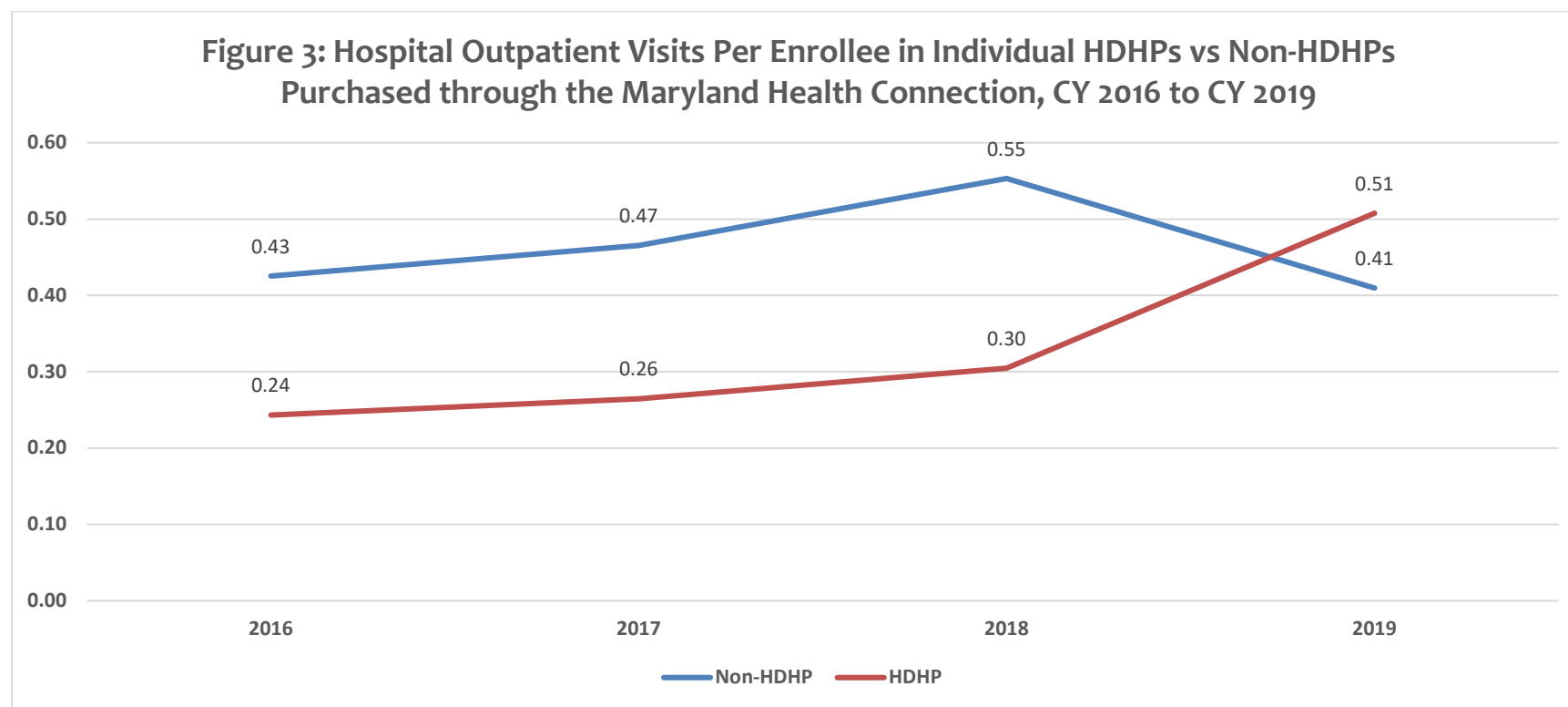


Figure 3 shows that outpatient hospital visits by HDHP enrollees increased steadily from CY 2016 to CY 2019, with a large increase in CY 2019 to more than double the CY 2016 rate. For non-HDHP enrollees, utilization per 1,000 of outpatient hospital services was higher in most years compared to HDHP enrollees, but declined in 2019. The relatively and substantially lower per-person utilization by HDHP enrollees for CY 2016 to CY 2018 may result from people being generally less likely to use health services when they are responsible for more of the costs, as some research has shown.<sup>1,2</sup> This may suggest there were differences in health status between people in HDHPs compared to non HDHPs. The reversal of this difference in 2019 may require additional research to explain.

<sup>1</sup> Chernew, M.E., & Newhouse, J.P. (2008). What does the RAND health insurance experiment tell us about the impact of patient cost sharing on health outcomes? *American Journal of Managed Care*, 14(7), 412-414.

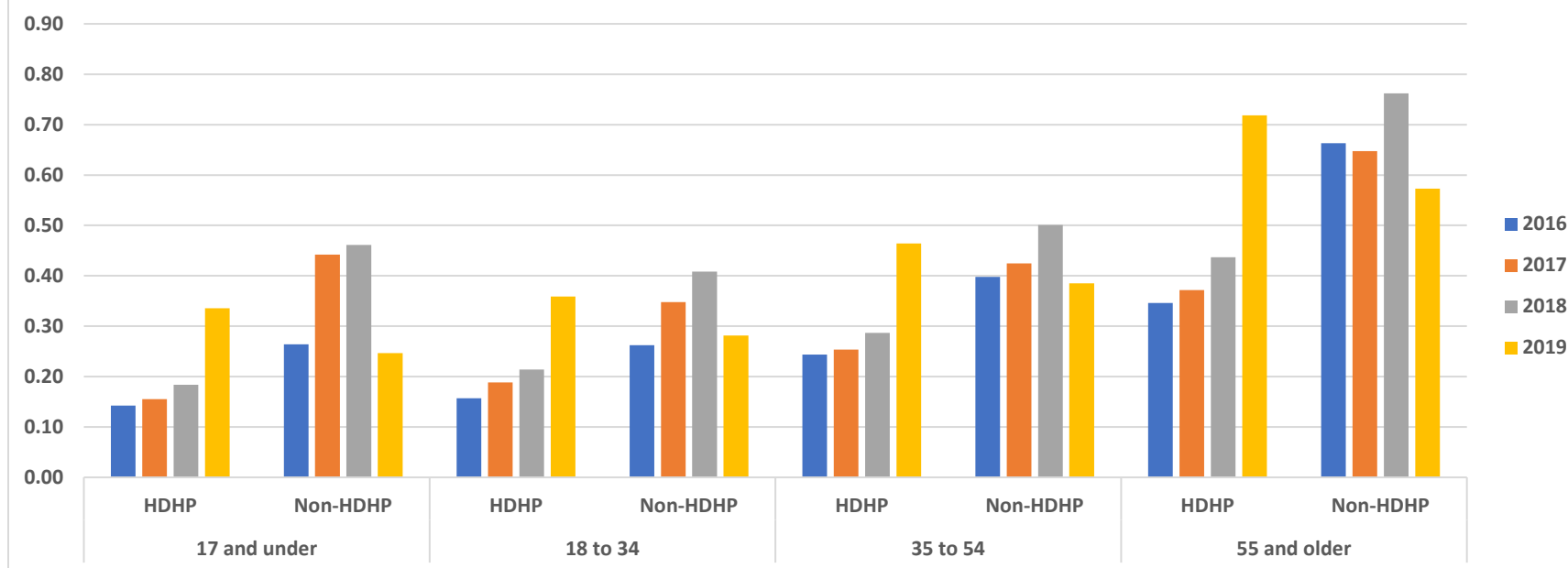
<sup>2</sup> Abdus, S. (2020). The role of plan choice in health care utilization of high-deductible plan enrollees. *Health Services Research*, 55(1), 119-127.

Additional evidence for this can be seen when comparing the magnitudes of the yearly differences between plan types shown in Figure 3 to per-enrollee inpatient admissions shown in Figure 1. The inpatient admissions in Figure 1 are less likely to be voluntary, and therefore harder to avoid paying for, than the outpatient visits in Figure 3.



Unlike the large differences in inpatient admissions among the 17-and-under age group seen in Figure 2, Figure 4 shows that per enrollee hospital outpatient visits within each age group largely mirrored the overall trend for both HDHP and non-HDHP enrollees. Across age groups, per enrollee utilization was generally highest among those 55 and older in both HDHPs and non-HDHPs.

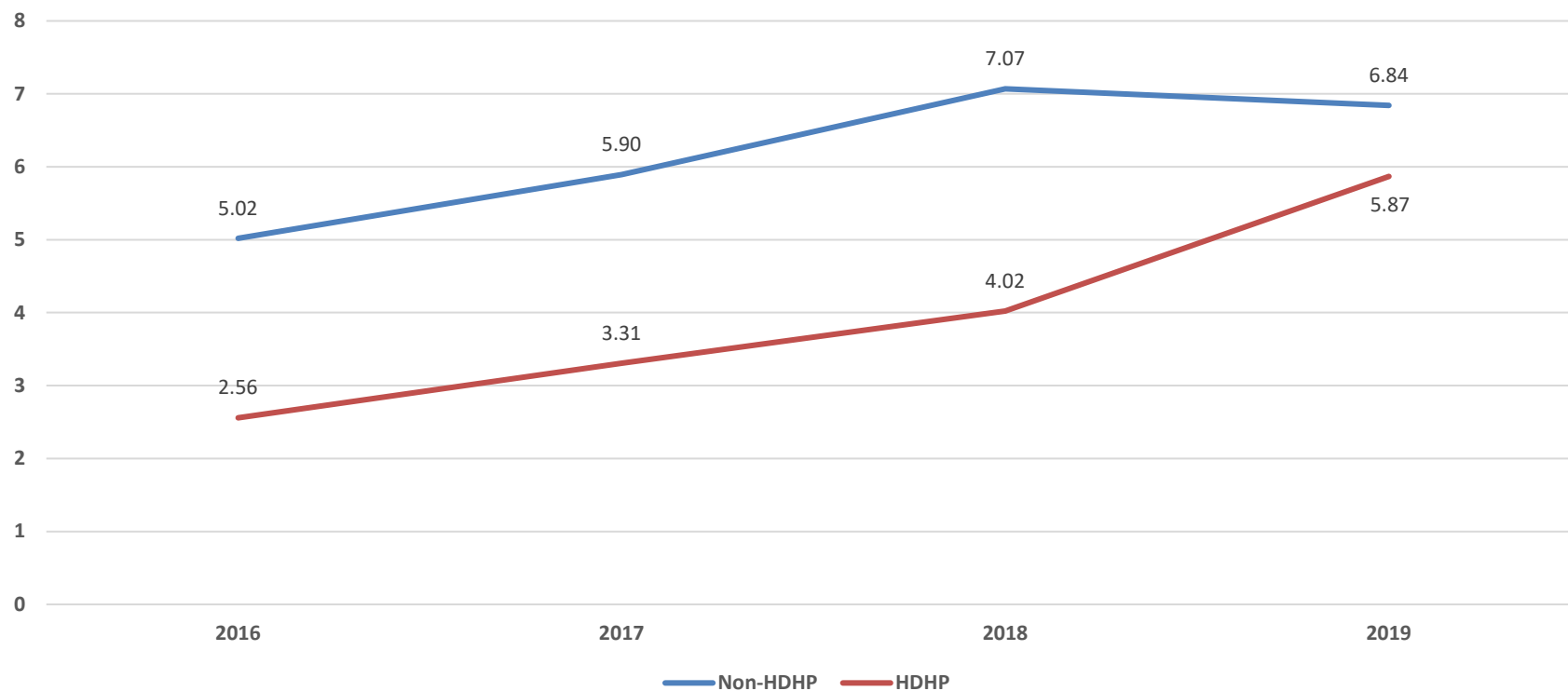
**Figure 4: Hospital Outpatient Visits Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, by Age Group, CY 2016 to CY 2019**



Per enrollee outpatient office visits (Figure 5) followed similar trends as per enrollee inpatient admissions (Figure 1), though the increase in per enrollee utilization from CY 2016 to CY 2019 was sharper among those in HDHPs. Figure 6 below shows that within-age group utilization trends largely matched the overall trends seen in Figure 5, though utilization appeared to increase steadily with age. As was observed in Figure 3, Figure 5 also echoes findings from academic research showing that HDHP enrollment may have a lower likelihood of engaging in outpatient and preventive services.<sup>3</sup> Lower care costs for HDHP enrollees may be due at least in part to reduced use of necessary, as well as inappropriate services. In this analysis, we cannot differentiate between appropriate and inappropriate care use

<sup>3</sup> Agarwal, R., Mazurenko, O., & Menachemi, N. (2017). High-deductible health plans reduce health care cost and utilization, including use of needed preventive services. *Health Affairs*, 36(10), 1762-1768.

**Figure 5: Outpatient Office Visits Per Enrollee in Individual HDHPs vs Non-HDHPs  
Purchased through the Maryland Health Connection, CY 2016 to CY 2019**



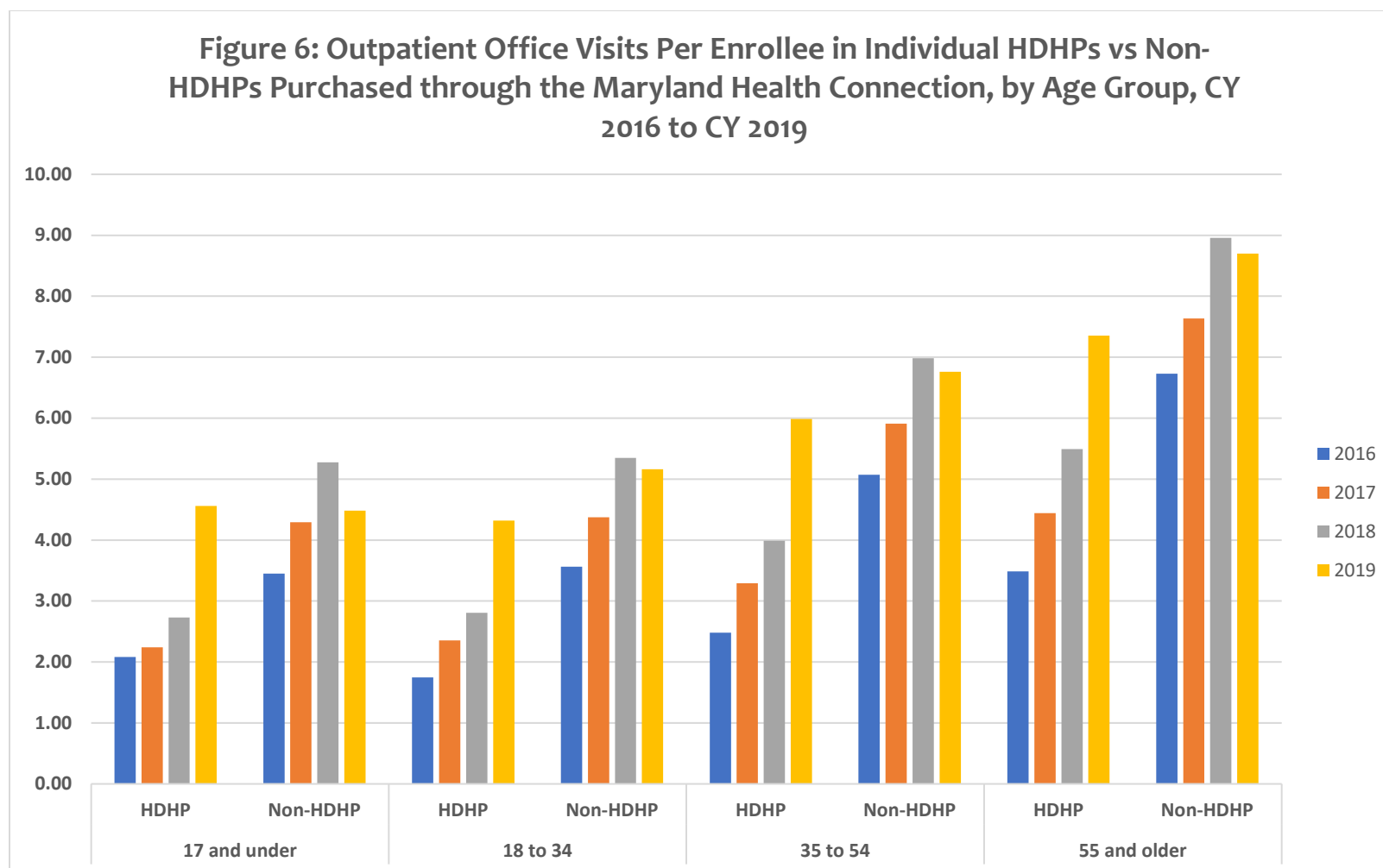
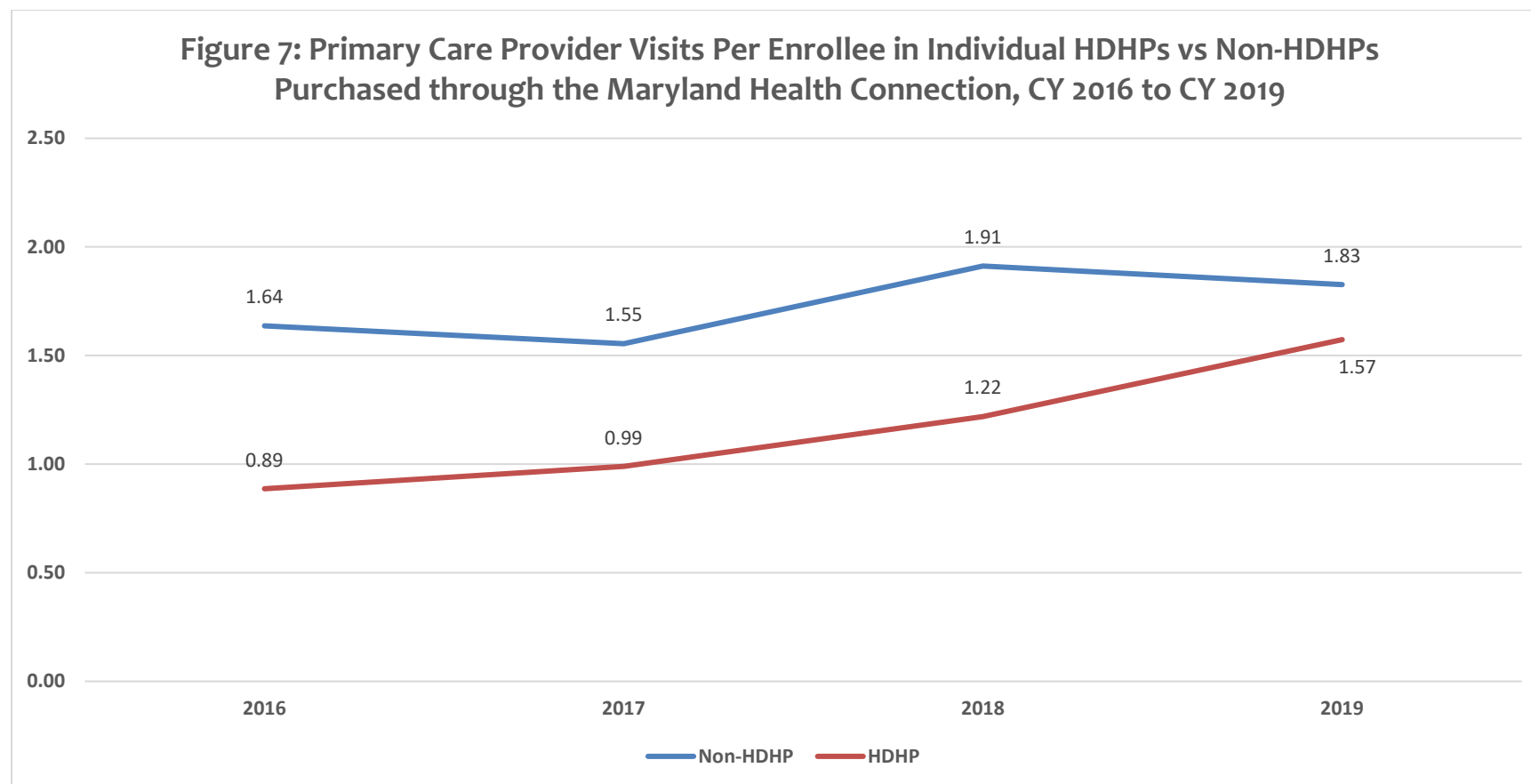


Figure 7 shows that PCP visits increased overall on a per enrollee basis from CY 2016 to CY 2019 for HDHP and non-HDHP enrollees, with those in both plan types utilizing primary care services at a more similar rate by the end of the study period compared to the beginning. A 2015 analysis by The Commonwealth Fund found that a substantial proportion of privately insured individuals were

unaware that their plans were required to cover many preventive services without cost sharing.<sup>4</sup> The lower per-person utilization of PCP services by HDHP enrollees seen here may provide additional evidence of this, but it is impossible to know from these data alone.



<sup>4</sup> Collins, S.R., Gunja, M., Doty, M.M., & Beutel, S. (2015). How high is America's health care cost burden? Findings from The Commonwealth Fund Health Care Affordability Tracking Survey, July-August 2015. [The Commonwealth Fund](#).

As seen in many of the other age-stratified charts, PCP utilization per enrollee generally increased with age. Interestingly, Figure 8 shows that those in the youngest group sought primary care services at the highest rate in several of the study years relative to older enrollees with the same type of plan.

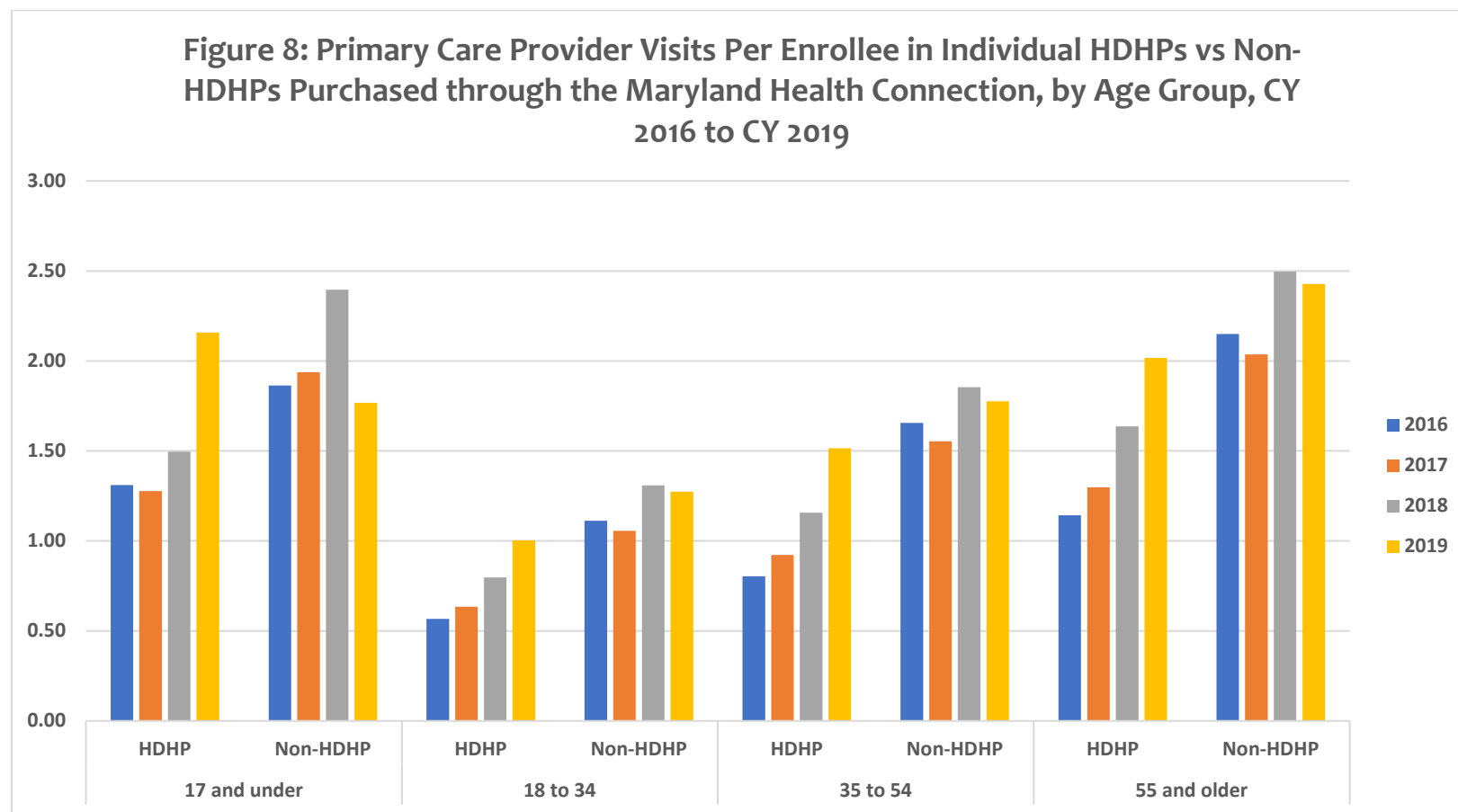


Table 3 presents the number of avoidable and unavoidable ED visits as classified by the NYU algorithm. The number of each type of visit predictably rose and fell with enrollment, though Figure 9 shows that the proportion of each category of ED visit remained nearly identical for CY 2018 and CY 2019. The same is true for CY 2016 and CY 2017 though those proportions are not presented here.



**Table 3. Avoidable and Unavoidable Emergency Department Visits Among HDHP vs Non-HDHP Enrollees, CY 2016 to CY 2019**

Plan Type	CY 2016			CY 2017			CY 2018			CY 2019		
	Avoidable ED Visits	Unavoidable ED Visits	Unclassified	Avoidable ED Visits	Unavoidable ED Visits	Unclassified	Avoidable ED Visits	Unavoidable ED Visits	Unclassified	Avoidable ED Visits	Unavoidable ED Visits	Unclassified
Non-HDHP	5,392	3,632	1,809	5,196	3,630	1,924	6,644	4,911	2,672	4,404	3,177	1,590
HDHP	2,172	1,794	819	2,714	2,398	1,100	2,508	2,054	991	5,083	3,960	2,063
<b>Total</b>	<b>7,564</b>	<b>5,426</b>	<b>2,628</b>	<b>7,910</b>	<b>6,028</b>	<b>3,024</b>	<b>9,152</b>	<b>6,965</b>	<b>3,663</b>	<b>9,487</b>	<b>7,137</b>	<b>3,653</b>
<b>Grand Total ED Visits</b>	<b>19,239</b>			<b>16,967</b>			<b>19,780</b>			<b>20,277</b>		

Figure 9. The Proportion of ED Visits Classified by the NYU Algorithm as Avoidable, Unavoidable, and Unclassified, CY 2018 and CY 2019

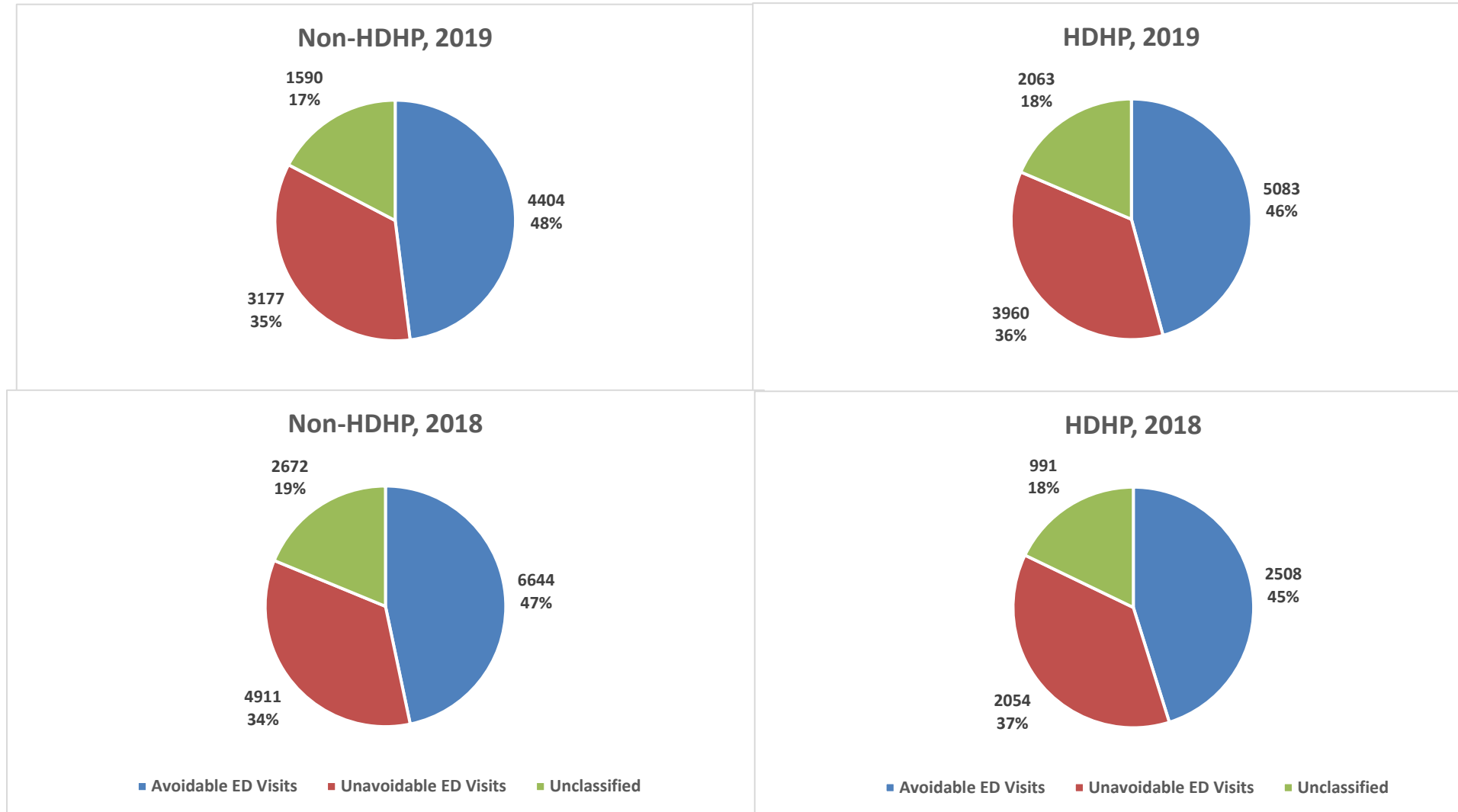


Figure 10 shows that both unavoidable and avoidable ED visits were higher on a per enrollee basis for non-HDHP enrollees compared to HDHP enrollees for each year except CY 2019, though rates of both types of ED visits were low in absolute terms for all plan types.

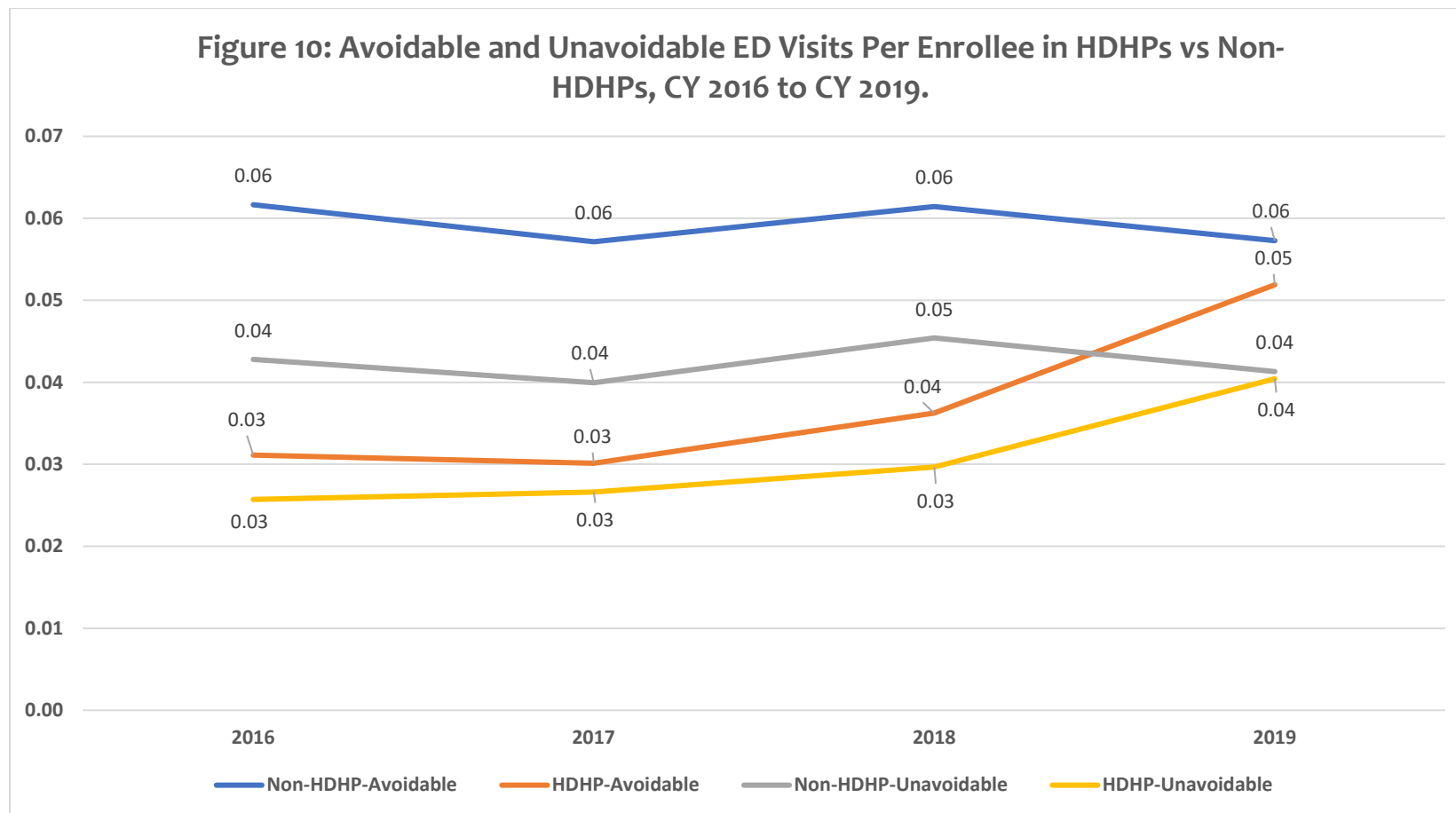


Table 4 presents enrollment in Catastrophic, Bronze, Silver, Gold, and Platinum HDHPs and non-HDHPs. In general, HDHPs tended to be categorized as a Silver plan or below, while non-HDHPs were mostly Silver or higher. These differences are likely because deductible amounts are an important factor in determining a plan's metal level. Enrollment in Catastrophic and Bronze HDHPs remained steady across the study period even while overall enrollment waivered, and there was a sizeable increase in the number of Gold HDHP enrollees in CY 2019.

**Table 4. Number of People Enrolled in Individual HDHPs and Non-HDHPs Purchased through the Maryland Health Connection, by Plan Metal Level, CY 2016 to CY 2019.**

Plan Type	Metal Level	CY 2016		CY 2017		CY 2018		CY 2019	
		Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days	Total Enrolled	# Enrolled ≥ 320 Days
Non-HDHP	Catastrophic	0	0	0	0	0	0	0	0
	Bronze	330	60	78	47	57	35	38	26
	Silver	75,582	37,626	81,239	43,319	70,667	42,549	67,032	44,047
	Gold	10,954	5,882	8,579	4,286	35,915	21,055	7,726	4,211
	Platinum	1,597	627	954	426	1,499	696	2,119	1,040
<b>Total</b>		<b>88,463</b>	<b>44,195</b>	<b>90,850</b>	<b>48,078</b>	<b>108,138</b>	<b>64,335</b>	<b>76,915</b>	<b>49,324</b>
HDHP	Catastrophic	3,434	1,139	4,567	1,872	4,005	1,675	3,973	1,892
	Bronze	39,896	20,920	33,277	17,329	36,479	20,494	35,568	21,623
	Expanded Bronze	0	0	0	0	2,290	1,270	0	0
	Silver	26,129	11,623	52,237	25,364	24,668	12,101	14,238	7,120
	Gold	313	118	0	0	1,779	949	44,170	27,775
	Platinum	0	0	0	0	0	0	0	0
<b>Total</b>		<b>69,772</b>	<b>33,800</b>	<b>90,081</b>	<b>44,565</b>	<b>69,221</b>	<b>36,489</b>	<b>97,949</b>	<b>58,410</b>
<b>Plan Missing HIOS Number</b>		<b>26,664</b>		<b>95</b>		<b>4</b>		<b>0</b>	

Figures 11 and 12 present per enrollee utilization of hospital inpatient and outpatient services by metal level, respectively. Inpatient admissions per enrollee were low in absolute terms across all years and plan types, though rates increased as the metal level "increased".

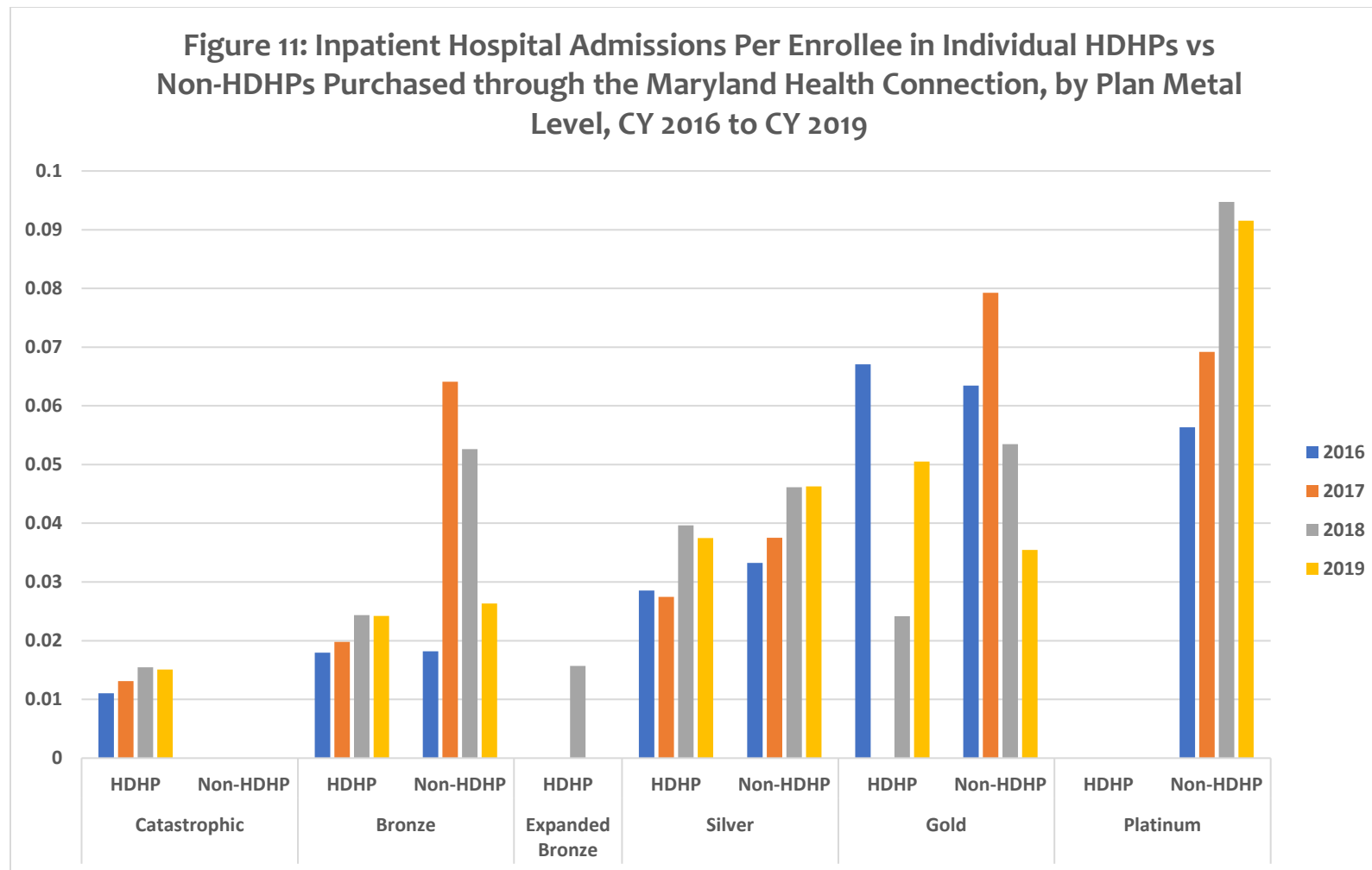


Figure 12 presented per enrollee hospital outpatient services by metal level. Utilization of hospital outpatient services on a per enrollee basis was highest for Gold non-HDHP enrollees.

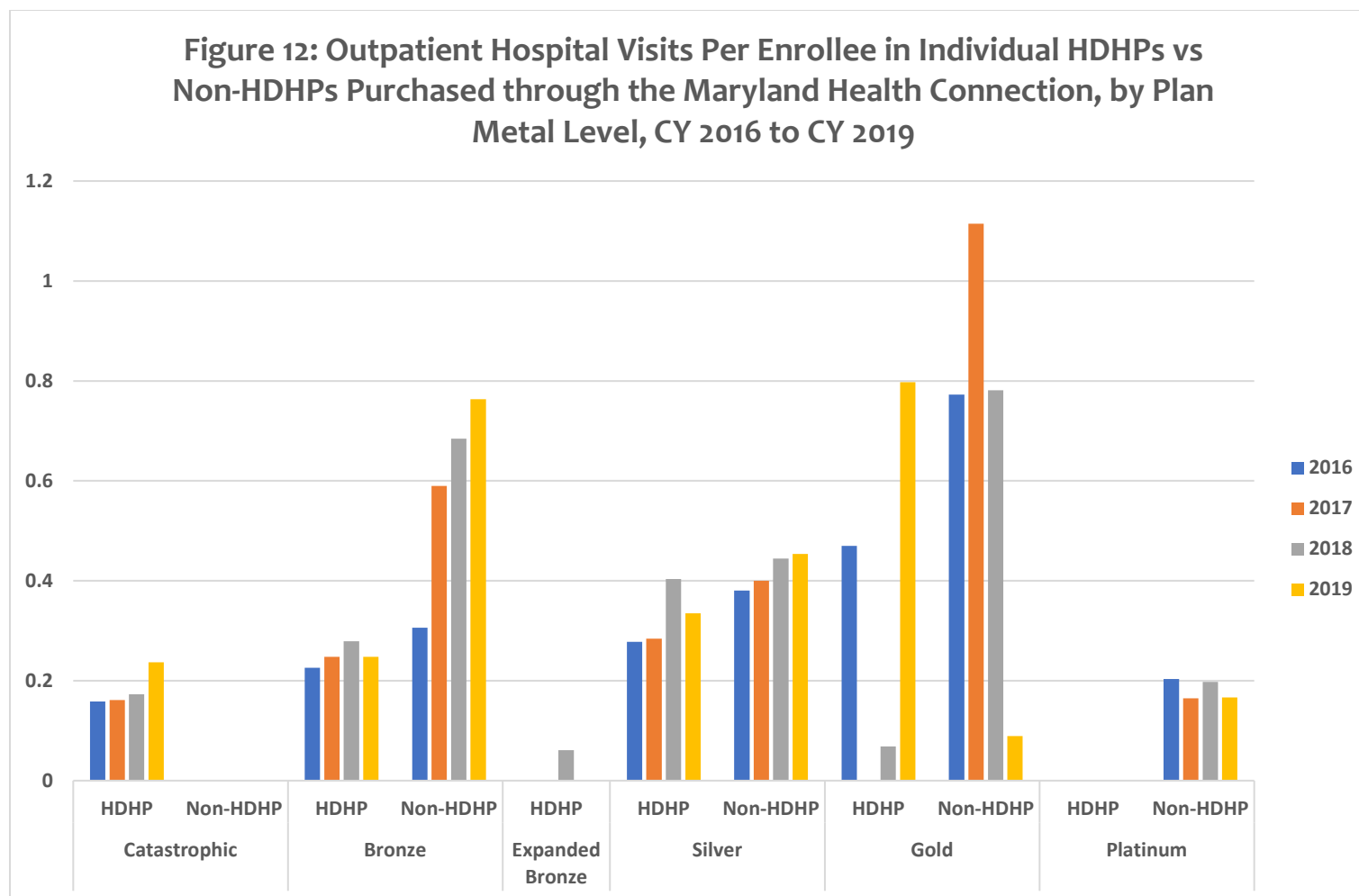
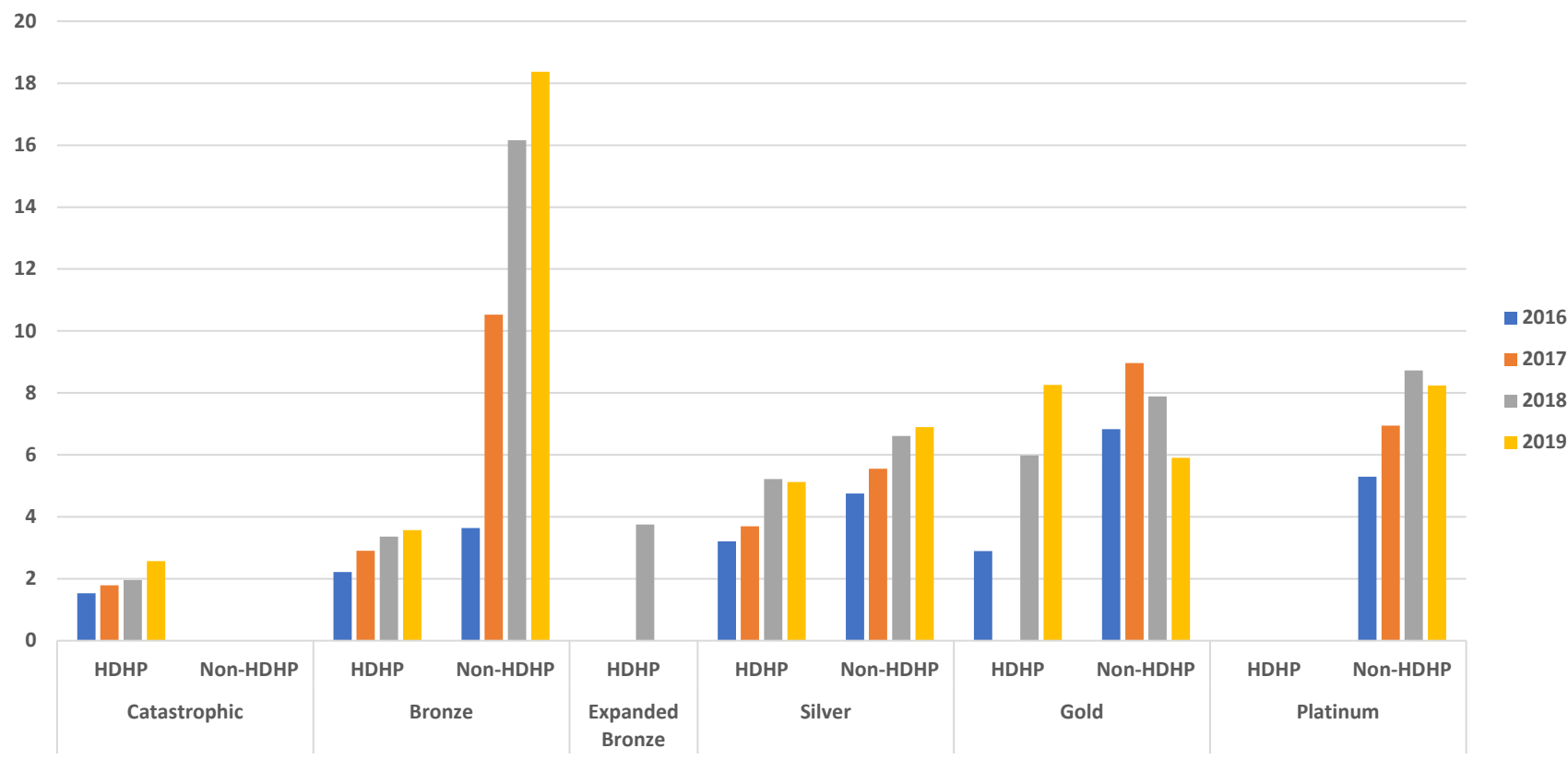
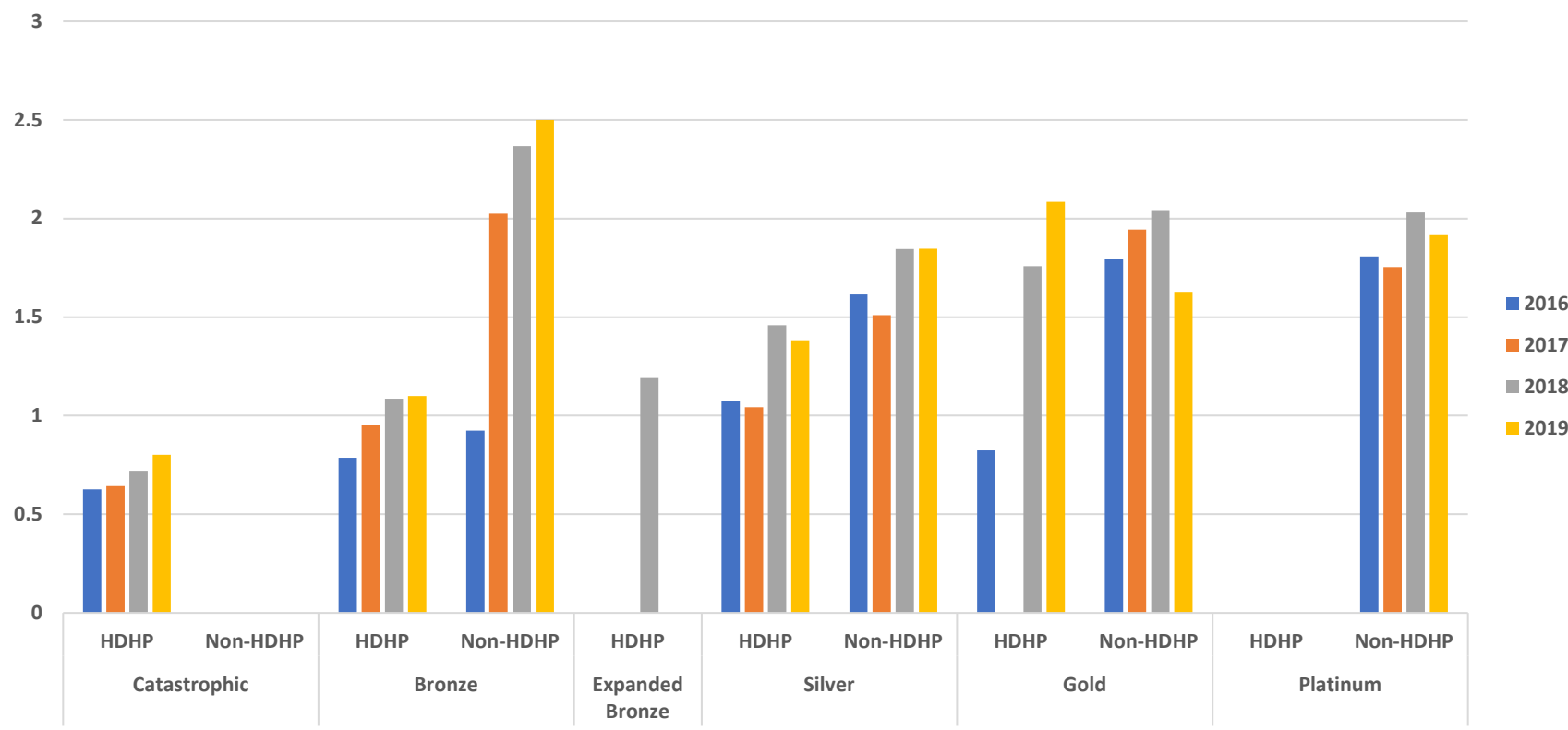


Figure 13 shows per enrollee outpatient office visits by metal level. These visits were generally highest among non-HDHP Bronze enrollees.

**Figure 13: Outpatient Office Visits Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, by Plan Metal Level, CY 2016 to CY 2019**



**Figure 14: Primary Care Provider Visits Per Enrollee in Individual HDHPs vs Non-HDHPs Purchased through the Maryland Health Connection, by Plan Metal Level, CY 2016 to CY 2019**





## Appendix A1. Health Information Oversight System (HIOS) Numbers Used to Identify High Deductible Health Plans, CY 2016

HIOS Number	Level of Coverage	HIOS Number	Level of Coverage
28137MD0390002-01	Silver	36677MD0020005-03	Silver
28137MD0390002-03	Silver	36677MD0020005-04	Silver
28137MD0390002-04	Silver	36677MD0020007-01	Bronze
28137MD0370001-01	Silver	36677MD0020007-03	Bronze
28137MD0370001-03	Silver	36677MD0020008-01	Catastrophic
28137MD0370009-01	Bronze	45532MD0250004-01	Bronze
28137MD0370009-03	Bronze	45532MD0250004-03	Bronze
28137MD0370010-01	Silver	72564MD0090015-01	Silver
28137MD0370010-03	Silver	72564MD0090015-03	Silver
28137MD0370011-01	Bronze	72564MD0090015-04	Silver
28137MD0370011-03	Bronze	72564MD0090016-01	Silver
28137MD0370004-01	Catastrophic	72564MD0090016-03	Silver
28137MD0390001-01	Bronze	72564MD0090016-04	Silver
28137MD0390001-03	Bronze	72564MD0090017-01	Bronze
31112MD0030004-01	Silver	72564MD0090017-03	Bronze
31112MD0030004-03	Silver	72564MD0090018-01	Catastrophic
31112MD0030004-04	Silver	72564MD0110010-01	Gold
31112MD0030016-01	Bronze	72564MD0110010-03	Gold
31112MD0030016-03	Bronze	72564MD0110011-01	Silver
31112MD0030010-01	Silver	72564MD0110011-03	Silver
31112MD0030010-03	Silver	72564MD0110011-04	Silver
31112MD0030010-04	Silver	72564MD0110012-01	Bronze
31112MD0030019-01	Bronze	72564MD0110012-03	Bronze
31112MD0030019-03	Bronze	72564MD0190003-01	Silver
32812MD0010001-01	Bronze	72564MD0190003-03	Silver
32812MD0010001-03	Bronze	72564MD0190003-04	Silver
32812MD0010002-01	Silver	90296MD0610006-01	Bronze
32812MD0010002-03	Silver	90296MD0610006-03	Bronze
32812MD0010002-04	Silver	90296MD0610003-01	Silver
36677MD0020002-01	Silver	90296MD0610003-03	Silver
36677MD0020002-03	Silver	90296MD0610004-01	Silver
36677MD0020002-04	Silver	90296MD0610004-03	Silver
36677MD0020006-01	Bronze	90296MD0610005-01	Silver
36677MD0020006-03	Bronze	90296MD0610005-03	Silver
36677MD0020001-01	Gold	90296MD0610005-04	Silver
36677MD0020001-03	Gold	90296MD0610008-01	Bronze
36677MD0020003-01	Silver	90296MD0610008-03	Bronze
36677MD0020003-03	Silver	90296MD0610009-01	Bronze
36677MD0020003-04	Silver	90296MD0610009-03	Bronze
36677MD0020004-01	Silver	90296MD0610007-01	Catastrophic
36677MD0020004-03	Silver	94084MD0130004-01	Bronze
36677MD0020004-04	Silver	94084MD0130004-03	Bronze
36677MD0020005-01	Silver		

## Appendix A2. Health Information Oversight System (HIOS) Numbers Used to Identify High Deductible Health Plans, CY 2017

HIOS Number	Level of Coverage	HIOS Number	Level of Coverage
28137MD0370001-01	Silver	72564MD0090021-03	Silver
28137MD0370001-03	Silver	72564MD0090021-04	Silver
28137MD0370001-04	Silver	72564MD0090023-01	Catastrophic
28137MD0370010-01	Silver	72564MD0110022-01	Bronze
28137MD0370010-03	Silver	72564MD0110022-03	Bronze
28137MD0390002-01	Silver	90296MD0610003-01	Silver
28137MD0390002-03	Silver	90296MD0610003-03	Silver
28137MD0390002-04	Silver	90296MD0610003-04	Silver
28137MD0370004-01	Catastrophic	90296MD0610004-01	Silver
28137MD0370011-01	Bronze	90296MD0610004-03	Silver
28137MD0370011-03	Bronze	90296MD0610004-04	Silver
32812MD0040001-01	Bronze	90296MD0610005-01	Silver
32812MD0040001-03	Bronze	90296MD0610005-03	Silver
32812MD0040002-01	Silver	90296MD0610005-04	Silver
32812MD0040002-03	Silver	90296MD0610007-01	Catastrophic
32812MD0040002-04	Silver	90296MD0610009-01	Bronze
45532MD0250005-01	Silver	90296MD0610009-03	Bronze
45532MD0250005-03	Silver	90296MD0610012-01	Silver
45532MD0250004-01	Bronze	90296MD0610012-03	Silver
45532MD0250004-03	Bronze	90296MD0610012-04	Silver
72564MD0090022-01	Bronze	90296MD0610006-01	Bronze
72564MD0090022-03	Bronze	90296MD0610006-03	Bronze
72564MD0110021-01	Silver	90296MD0610011-01	Bronze
72564MD0110021-03	Silver	90296MD0610011-03	Bronze
72564MD0110021-04	Silver	94084MD0130005-01	Silver
72564MD0190011-01	Silver	94084MD0130005-03	Silver
72564MD0190011-03	Silver	94084MD0130004-01	Bronze
72564MD0190011-04	Silver	94084MD0130004-03	Bronze
72564MD0090021-01	Silver		

## Appendix A3. Health Information Oversight System (HIOS) Numbers Used to Identify High Deductible Health Plans, CY 2018 and CY 2019

CY 2018		CY 2019	
HIOS Number	Level of Coverage	HIOS Number	Level of Coverage
28137MD0370001-01	Silver	28137MD0370001-01	Silver
28137MD0370001-03	Silver	28137MD0370001-03	Silver
28137MD0370001-04	Silver	28137MD0370003-01	Gold
28137MD0370004-01	Catastrophic	28137MD0370003-03	Gold
28137MD0370011-01	Bronze	28137MD0370011-01	Bronze
28137MD0370011-03	Bronze	28137MD0370011-03	Bronze
45532MD0250005-01	Silver	28137MD0370004-01	Catastrophic
45532MD0250005-03	Silver	45532MD0250003-01	Gold
45532MD0250005-04	Silver	45532MD0250003-03	Gold
45532MD0250004-01	Bronze	45532MD0250005-01	Silver
45532MD0250004-03	Bronze	45532MD0250005-03	Silver
90296MD0610013-01	Gold	45532MD0250004-01	Bronze
90296MD0610013-03	Gold	45532MD0250004-03	Bronze
90296MD0610003-01	Silver	90296MD0610013-01	Gold
90296MD0610003-03	Silver	90296MD0610013-03	Gold
90296MD0610003-04	Silver	90296MD0610004-01	Silver
90296MD0610004-01	Silver	90296MD0610004-03	Silver
90296MD0610004-03	Silver	90296MD0610004-04	Silver
90296MD0610004-04	Silver	90296MD0610012-01	Silver
90296MD0610012-01	Silver	90296MD0610012-03	Silver
90296MD0610012-03	Silver	90296MD0610012-04	Silver
90296MD0610012-04	Silver	90296MD0610005-01	Silver
90296MD0610005-01	Silver	90296MD0610005-03	Silver
90296MD0610005-03	Silver	90296MD0610005-04	Silver
90296MD0610005-04	Silver	90296MD0610011-01	Bronze
90296MD0610006-01	Expanded Bronze	90296MD0610011-03	Bronze
90296MD0610006-03	Expanded Bronze	90296MD0610009-01	Bronze
90296MD0610007-01	Catastrophic	90296MD0610009-03	Bronze
90296MD0610009-01	Bronze	90296MD0610007-01	Catastrophic
90296MD0610009-03	Bronze	94084MD0130003-01	Gold
90296MD0610011-01	Bronze	94084MD0130003-03	Gold
90296MD0610011-03	Bronze	94084MD0130005-01	Silver
94084MD0130005-01	Silver	94084MD0130005-03	Silver
94084MD0130005-03	Silver	94084MD0130004-01	Bronze
94084MD0130005-04	Silver	94084MD0130004-03	Bronze
94084MD0130004-01	Bronze		
94084MD0130004-03	Bronze		

## Appendix B. Criteria for Identifying Hospital Inpatient Admissions in the Institutional Services Files of the APCD

Variable Name	Possible Variable Values
Service <b>AND</b>	1
Facility Type <b>AND</b>	1
Institutional Record Status (3 <sup>rd</sup> digit of Bill Type variable) <b>OR</b>	1 – 4
Bill Classification (1 <sup>st</sup> -2 <sup>nd</sup> digit of Bill Type variable) <b>OR</b>	11 – 19, 21 – 26, 29, 31 – 34, 41 – 44, 48, 51, 53, 59, 61, 63, 65, 71 – 79, 81 – 86, 88, 89, 91, 93, 99
Record Type	10 – 14, 20 – 23, 30

## Appendix C. Criteria for Identifying Hospital Outpatient Visits in the Institutional Services Files of the APCD

Variable Name	Possible Variable Values
Service <b>AND</b>	1
Facility Type <b>AND</b>	2
Institutional Record Status (3 <sup>rd</sup> digit of Bill Type variable) <b>OR</b>	1 – 4
Bill Classification (1 <sup>st</sup> -2 <sup>nd</sup> digit of Bill Type variable) <b>OR</b>	11 – 19, 21 – 26, 29, 31 – 34, 41 – 44, 48, 51, 53, 59, 61, 63, 65, 71 – 79, 81 – 86, 88, 89, 91, 93, 99
Record Type	10 – 14, 20 – 23, 30

## Appendix D. Criteria for Identifying Outpatient Office Visits in the Professional Services Files of the APCD

Variable Name	Possible Variable Values
Service <b>AND</b>	1
Place of Service <b>AND</b>	Office
Routine Dental Services Flag <b>AND</b>	0
Orthodontic Flag <b>AND</b>	0
FFS Payment $\leq 1$ , Allowed Amount $\leq 0$ Flag <b>AND</b>	0
Claim Paid by Other Insurance Indicator <b>AND</b>	$\neq 1$
Uncovered Services Flag	0

## Appendix E. Criteria for Identifying Outpatient Office Visits with a Primary Care Provider in the Professional Services Files of the APCD

Variable Name	Possible Variable Values
Service <b>AND</b>	1
Place of Service <b>AND</b>	Office
Routine Dental Services Flag <b>AND</b>	0
Orthodontic Flag <b>AND</b>	0
FFS Payment $\leq 1$ , Allowed Amount $\leq 0$ Flag <b>AND</b>	0
Claim Paid by Other Insurance Indicator <b>AND</b>	$\neq 1$
Uncovered Services Flag <b>AND</b>	0
Practitioner Taxonomy Code #1, #2, or #3	208D00000X, 207Q00000X, 207QA0000X, 207QA0505X, 207R00000X, 207RA0000X, 208000000X, 2080A0000X, 363L00000X, 363LP2300X, 363LA2200X, 363LF0000X, 363LP0200X

## Appendix F. Criteria for Identifying Hospital Outpatient Visits in the Institutional Services Files of the APCD

Variable Name	Possible Variable Values
Service <b>AND</b>	1
Facility Type <b>AND</b>	2
Institutional Record Status (3 <sup>rd</sup> digit of Bill Type variable) <b>OR</b>	1 – 4
Bill Classification (1 <sup>st</sup> -2 <sup>nd</sup> digit of Bill Type variable) <b>OR</b>	11 – 19, 21 – 26, 29, 31 – 34, 41 – 44, 48, 51, 53, 59, 61, 63, 65, 71 – 79, 81 – 86, 88, 89, 91, 93, 99
Record Type	10 – 14, 20 – 23, 30
Revenue Code	045, 0981



## Appendix G. Description of the New York University (NYU) Algorithm to Classify ED Visits as Avoidable, Unavoidable, or Unclassified

This algorithm was developed by researchers at the NYU Center for Health and Public Service Research.<sup>5</sup> The original version of the algorithm was created to use ICD-9 diagnosis codes and was not revised to incorporate new ICD-9 and ICD-10 codes that were added each year. Because this resulted in an increase in the percentage of unclassified ED visits over time, researchers revised the algorithm to account for updated ICD-9 and ICD-10 codes released in 2001 through 2014.<sup>6</sup> According to Billings et al. (2000), the ED profiling algorithm categorizes emergency visits as follows:

1. *Non-emergent*: Immediate care was not required within 12 hours based on the patient's presenting symptoms, medical history, and vital signs.
2. *Emergent but primary care treatable*: Treatment was required within 12 hours but it could have been provided effectively in a primary care setting (e.g., CAT scan or certain lab tests).
3. *Emergent but preventable/avoidable*: Emergency care was required, but the condition was potentially preventable/avoidable if timely and effective ambulatory care had been accessible and received during the episode of illness (e.g., asthma flare-up).
4. *Emergent, ED care needed, not preventable/avoidable*: Ambulatory care could not have prevented the condition (e.g., trauma or appendicitis).
5. *Injury*: Injury was the principal diagnosis.
6. *Alcohol-related*: The principal diagnosis was related to alcohol.
7. *Drug-related*: The principal diagnosis was related to drugs.
8. *Mental health-related*: The principal diagnosis was related to mental health.
9. *Unclassified*: The condition was not classified in one of the above categories by the expert panel.

Each of these categories is given a value between 1% and 100% based on the primary diagnosis given during the visit to describe the nature of the visit. The sum of each category cannot exceed 100% for a single visit/diagnosis. ED visits that fall into the first three categories above may indicate problems with access to primary care, including access during non-traditional work hours. ED visits in categories 4 (emergent, ED care needed, not preventable/avoidable) and 5

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<sup>5</sup> Billings, J., Parikh, N., & Mijanovich, T. (2000). Issue brief: Emergency department use: The New York story. [The Commonwealth Fund](#).

<sup>6</sup> Johnston, K. J., Allen, L., Melanson, T. A., & Pitts, S. R. (2017). A "patch" to the NYU emergency department visit algorithm. [Health Serv. Res.](#) 52(4), 1264–1276.

(injury) are the least likely to be prevented with access to primary care. For the purposes of the present analyses, ED visits were simply classified as “avoidable” if the percentages in the first three categories summed to 51% or greater, indicating the visit was more avoidable than unavoidable. Visits were classified as “unavoidable” if the sum of the percentages in those three categories was less than 51% or if the percentages in any of categories five through 8 were 51% or greater.

**Appendix H. Number of HDHPs and Non-HDHPs by Plan Metal Type and Base or Variant Plan Type Offered through the Maryland Health Connection, CY 2016 to CY 2019**

Plan Type	Metal Level	CY 2016		CY 2017		CY 2018		CY 2019	
		Base Plan	Variant Plan	Base Plan	Variant Plan	Base Plan	Variant Plan	Base Plan	Variant Plan
Non-HDHP	Catastrophic	0	0	0	0	0	0	0	0
	Bronze	0	15	0	9	0	5	0	5
	Expanded Bronze	0	0	0	0	0	1	0	0
	Silver	0	53	0	42	0	21	0	21
	Gold	11	24	9	18	5	11	2	8
	Platinum	3	6	1	2	1	2	1	2
HDHP	Catastrophic	4	0	3	0	2	0	2	0
	Bronze	15	15	9	9	5	5	5	5
	Expanded Bronze	0	0	0	0	1	1	0	0
	Silver	17	30	13	23	7	14	6	9
	Gold	2	2	0	0	1	1	4	4
	Platinum	0	0	0	0	0	0	0	0

Note that federal law requires carriers to offer reduced cost-sharing to people at or below 250% of the federal poverty limit and to American Indians and Alaska Natives. As a result, carriers offer low cost-sharing variants of "base" metal level plans for these populations. These variants are counted as distinct plans in this table. It is possible for a "base" metal plan to be counted as a HDHP while its low cost-sharing variants may have lower deductibles that result in those variants being counted as non-HDHPs.

[illegible]

[illegible]