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Preventive Drug Lists as Tools for Managing Asthma Medication Costs

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Families in the United States affected by asthma have experienced a dramatic rise in the costs of medications in recent years. One reason for increasing costs is that asthma medications have become more expensive as manufacturers have replaced affordable generics with higher-cost name-brand drugs, including biologics.

This shift has helped push average asthma medication costs to more than \$1800 per person per year.¹ At the same time, families are increasingly exposed to medication costs due to the proliferation of high-deductible health plans (HDHPs) that require them to cover costs until meeting deductibles of \$2700 or more per family²⁻⁴; HDHPs that are eligible for health savings accounts (HSAs) have traditionally required members to pay the full cost of medications before reaching the deductible. This cost sharing combines with higher medication costs to increase families' risk of out-of-pocket spending, which is associated with lower medication adherence and higher rates of asthma-related hospitalization.⁵⁻⁸ This convergence of market forces makes asthma a particularly salient test case for investigating the role of insurance design on health.

Preventive drug lists (PDLs) are a type of value-based insurance design that have been proposed as a tool for addressing the barriers to preventive care that attend HDHPs.⁹⁻¹¹ PDLs are meant to supplement HSA-eligible HDHP coverage so that members receive selected preventive medications for chronic conditions at lower or no cost before meeting their deductibles, broadening the interpretation of Internal Revenue Service (IRS) regulations governing HSAs that permit preventive services to be exempt from the deductible in qualifying HDHPs. In this way, PDLs are designed to reduce the financial burden of preventive medications with the goal of promoting adherence, improving health, and reducing the need for costly acute care. Based on this logic, insurers across the United States have begun to adopt PDLs,^{12,13} although IRS authorization to include medications for chronic conditions under the category of preventive care has not been legally explicit until recently.^{14,15}

Research to evaluate the effectiveness of value-based insurance designs, such as PDLs, is still in its early stages. The available evidence suggests that enhanced coverage for preventive medications can increase adherence across a range of health conditions, including asthma, without substantially increasing overall healthcare costs.¹⁶⁻²¹ However, improvements are typically modest, and little is known about members' experiences using PDLs and other value-based insurance designs.¹⁶ It may be that members are unaware of opportunities to lower cost sharing or that these designs are difficult to use. Understanding barriers to PDL use could inform efforts to improve these designs so as to maximize their impact on adherence and health.

Therefore, we conducted a qualitative interview study to explore PDLs from the perspective of families affected by asthma. Asthma is an exemplar chronic condition for evaluating PDLs, as it is a common chronic condition with costly preventive medications for which adherence improves outcomes. Our objectives were

to understand the extent to which PDLs help families manage asthma care costs and adhere to their preventive care regimens, as well as to identify barriers to and facilitators of PDL use. By providing novel data from HDHP members affected by asthma, this study seeks to inform the implementation of an increasingly common value-based insurance design.

METHODS

Participants

In 2017-2018, we conducted semistructured interviews about experiences related to asthma care costs with commercially insured adults. Eligible participants (1) were aged between 18 and 64 years, (2) had been continuously enrolled for at least 12 months in an HSA-eligible HDHP with a PDL (which in 2017 entailed an annual deductible of at least \$1300/individual or \$2600/family²²), and (3) had received a diagnosis of asthma and/or were the parent of a child aged 4 to 17 years with asthma.

We recruited participants from 2 sources. First, we used claims data from Harvard Pilgrim Health Care to identify members who were likely affected by asthma. Harvard Pilgrim is a large, not-for-profit insurer covering more than 1 million members living primarily in New England. Members were flagged if they or their children had at least 1 inpatient, emergency department (ED), or outpatient claim in the prior 2 years attributed to asthma. We invited identified members to participate in the study by mail and phone, and we verified plan type with enrollment records. At the time of the study, Harvard Pilgrim's PDL included all asthma controller and rescue medications that were on the plan's formulary, which included some but not all asthma medications within a class; listed medications were exempt from the deductible but required a co-payment or coinsurance that was graduated according to formulary tier such that lower-tier medications had the smallest co-pay.

Second, to increase the diversity of our sample, we recruited participants in partnership with the Asthma and Allergy Foundation of America (AAFA), a national, not-for-profit patient organization. We invited participation via posts to AAFA's Asthma Online Community, email listserv, newsletters, and flyers. We confirmed participants' eligibility prior to interviews using a standardized screening form. We determined our sample size by thematic saturation.²³

Data Collection

Four investigators trained in qualitative methods conducted telephone interviews that lasted 39 minutes on average (range, 20-68 minutes). Our semistructured interview guide was designed to explore the impact of asthma on participants' daily lives, as well as their experiences using their insurance to manage asthma care costs (see **eAppendix** [[available at *ajmc.com*](#)]). After completing interviews, participants provided data on demographics and asthma severity through responses to closed-ended survey questions. We piloted the interview guide and survey questions with 6 AAFA members prior to fielding.

Interviews were audio-recorded and transcribed verbatim. Participants provided verbal informed consent and received a \$50 gift card. The study protocol was approved by the Harvard Pilgrim Health Care Institutional Review Board.

Analysis

We analyzed data iteratively via thematic content analysis.²³ In the first, inductive phase of analysis, 4 investigators (M.B.G., L.A.C., R.S.G., A.A.G.) independently coded a subset of interviews to identify broad topics of discussion. We compared and refined these codes, organizing them into a standardized codebook. We then practiced applying them to transcripts independently until we reached a high level of agreement (>90%). One investigator (L.A.C.) then applied codes to all transcripts systematically using NVivo version 12 (QSR International; Melbourne, Australia). A second investigator (M.B.G.) reviewed the coded transcripts to identify disagreements in coding, which the team resolved via discussion. In the second, deductive phase of analysis, we considered data code by code, describing emerging patterns thematically. Finally, 8 AAFA members who were members of the study's Patient and Family Advisory Council reviewed our manuscript and provided feedback to improve the clarity and focus of our report.

RESULTS

Sample

Our sample included 22 participants who had asthma themselves (n = 14), were the parent of a child with asthma (n = 5), or both (n = 3) ([Table²⁴](#)). They were recruited primarily through Harvard Pilgrim (n = 18), with a smaller number recruited through AAFA (n = 4). Most were female (n = 18) and non-Hispanic white (n = 20).

Perceived Benefits of PDLs

Some members credited their PDL with substantially reducing their asthma-related cost burden. Members consistently discussed the high cost of asthma medications, with many comparing the cost with that of a monthly car payment. Some reported that having a PDL made a meaningful difference in their finances:

"I'm lucky enough to have health insurance that provides for the medications which are my biggest cost, so [managing medication costs] really isn't an issue....If I didn't have [this plan], it would be." — Harvard Pilgrim member (#361), adult with asthma

Several members reported that PDL benefits increased their adherence to preventive medications and, in turn, improved their health. For some members, having a PDL was financially advantageous, but they did not perceive it as necessary for maintaining adherence to their medications. However, others, including a few members with lower incomes, imagined struggling to take their medications consistently without the coverage provided by their PDL. These members reported that having enhanced medication coverage had substantially improved their ability to manage their asthma. Most notably, a woman with severe asthma described her medication coverage as allowing her to flourish physically and socially after many years of struggling to afford medications and maintain her health:

"Since I had a job with good insurance, my asthma has been basically fantastic. Prior to that, getting into

adulthood, it was terrible....For a long time, I just didn't have medicine and I just suffered, mostly through my 20s. I just suffered, suffered, suffered....And this went on, basically, until I got my job with health insurance." — Harvard Pilgrim member (#444), adult with asthma

Barriers to Benefiting From PDLs

PDLs did not guarantee comprehensive coverage for asthma medications. In contrast to members who reported that PDLs reduced their medication-related cost burden, others reported receiving no or limited benefit. For some, asthma medications were not included on their PDL at all. For others, the price of their medications was reduced prior to reaching their deductible, but it was still substantial. For these members, cost sharing could total from \$65 to more than \$100 per inhaler.

Members also reported that the inconsistency of their PDL benefits was problematic, given that benefits were dependent on the insurer's underlying formulary. Several members reported incurring unanticipated costs when their medication was removed from the formulary and, in turn, from their PDL. In this way, PDLs did not protect members from fluctuations in formularies. Several participants expressed frustration with their PDL for failing to provide the coverage needed to be fully adherent to preventive medications:

"I just think that asthma medications really ought to be part of...preventative drug lists....I mean, for God's sake. Because when you look at one exacerbation and that cost and the physical cost of having to be put on oral steroids? I mean, this is ridiculous that we're having to pay these exorbitant amounts for a disease that can be managed. It can be managed." — AAFA member (#24), parent of a child with asthma

Some members with PDLs also reported difficulty affording nonmedication costs related to asthma care.

Members, including some who were satisfied with their medication benefits, noted that other aspects of asthma care could be financially burdensome with a high-deductible plan. Relevant costs included those related to ED visits; hospitalizations; diagnostic testing such as spirometry; and pulmonologist, allergist, and other specialist visits. Some members perceived these costs as being high, although they allowed that they could afford them. However, a few reported being adversely affected enough by nonmedication costs to forgo care:

"[Having a PDL] doesn't really make a big impact if we have an ER [emergency room] cost or a hospitalization cost....The last ER visit we had I think cost about \$1500. The last hospitalization we had cost at least over \$5000. [Interviewer: That you had to pay?] That we had to pay. Yes." — AAFA member (#70), parent of a child with asthma

Receiving PDL benefits at times required members to actively manage their medications. Because PDL benefits were tied to health plan formularies and to the plan's underlying medication tiering structure for cost sharing outside the deductible, some members reported attempts to switch to formulary medications or lower-tier medications to lower cost. Some of these members consulted directly with their insurer to determine what would be covered, whereas others discussed the decision with their physicians or pharmacists. In several cases, members reported that they decided to forgo PDL benefits to stay with an unlisted preferred medication:

“[My insurance company] sent me a letter saying, ‘Your [current inhaler brand] is not going to be covered. Here’s your alternatives that are on the preventative therapy list.’ But at the time I reviewed those with my physician. He was like, ‘These aren’t appropriate for your condition.’...So I had to do a prior auth[orization].” — AAFA member (#29), adult with asthma

Members perceived PDL benefits as being somewhat arbitrary and indicated that managing changes in their medications could be confusing and frustrating. Although providers were willing to discuss cost and consider alternative medications, members noted that providers could often offer only limited support given that they lacked in-depth knowledge of the plans.

Many members with PDLs were unaware they had the benefit. Among the subset of 18 members with plan types verified from Harvard Pilgrim enrollment data, about half with PDLs reported that they did not know of the benefit. This lack of awareness was not always a barrier, given that members could receive coverage automatically for medications that were included on their PDL. However, members who were unaware could not speak to whether they were making full use of their available benefits.

Facilitators of PDL Use

Insurer mailings and employer outreach helped members learn about their PDLs. Among members who were aware of having a PDL, several reported learning about medications on the list through a mailing provided by their insurance company. Others reported that they received information at work, either formally from their employer or more informally through conversations with coworkers:

“They tell us [about the preventive drug list] right in the company meeting....They give you a list of medication tiers. They give you the generic, the preferred, the high-cost, and then the no-cost preventative ones.” — Harvard Pilgrim member (#26), adult with asthma and parent of a child with asthma

Once members were aware of having a PDL, they used the insurer’s customer service hotline or website to learn more about their plan.

DISCUSSION

Findings of this qualitative study suggest both potential promise and pitfalls for using PDLs to help families affected by asthma manage medication costs. Some members in our sample expressed a high degree of satisfaction with their PDLs. These members, who typically had low or no co-pays for PDL medications, viewed their enhanced medication coverage as a substantial financial benefit and, in a few cases, necessary for adhering to preventive asthma care regimens. Interviews with several lower-income members were particularly noteworthy because they suggested that PDLs could be beneficial for increasing access to care for families with more limited financial resources. Future studies should consider whether PDLs could be a tool to address asthma-related health disparities, which is a critical goal given that lower-income families experience disproportionate health burdens associated with asthma and financial burdens associated with HDHP enrollment.²⁵⁻²⁷

Barriers to PDL use centered on members’ experience of the benefit as incomplete and inconsistent. We

found that some insurance plans did not include asthma medications in their PDLs or did not include all asthma medications. Others provided only limited coverage because asthma medications were classified in a high formulary tier and still required a substantial co-pay or coinsurance. Furthermore, PDLs did not protect members from fluctuations in their plans' formularies, and participants expressed frustration with what they perceived to be arbitrary and disruptive changes in their medication coverage as plans shifted medications on and off formulary and between tiers. These findings suggest variability in the ways PDLs are being implemented; whereas some insurers, like Harvard Pilgrim, offered relatively generous PDLs, others provided little to no benefit. Future research to evaluate the effectiveness of PDLs for lowering patients' out-of-pocket costs and improving their medication adherence should seek to differentiate impact by level of PDL coverage.

By partnering with a health insurer to recruit participants, we were able to assess whether Harvard Pilgrim members with verified PDLs were aware of having the benefit, finding that only about half were aware. Lack of awareness may be a problem to the extent that it impedes members' ability to find the lowest-cost medications. Our findings suggest that employers are currently one source of information about PDLs, but greater outreach by health plans is likely also needed to educate members about how PDLs work and help members identify and obtain the most cost-effective medications. Insurers may also have a chance to improve members' health and satisfaction with their plans by providing generous PDL benefits for asthma medications in terms of scope and amount of residual cost sharing and by minimizing formulary changes that can lead to disruption in coverage. With recent changes in the rules governing services qualifying for exemption from the deductible in HSA-eligible HDHPs, prevalence of PDLs may expand. However, changes in the list of eligible services, which includes inhaled steroids for asthma but not other controllers, will require effective communication so enrollees are able to optimally use PDL benefits.¹⁵

Strengths and Limitations

This study provides novel data on the benefits of and barriers to using PDLs to manage asthma care costs, and our findings may be relevant to understanding PDL use for other common chronic conditions. By partnering with a large, not-for-profit insurer and a national patient advocacy organization, we were able to recruit commercially insured adults across several insurance plans to our study. Along with these strengths, our findings should be interpreted in light of several limitations. Given that a large portion of our sample is drawn from a single insurer, our findings may be less transferrable to other regions of the country or to PDLs offered by other insurers. Although our qualitative approach was well suited to the study's aim of understanding the range of participants' perspectives on PDLs, our findings cannot quantify the prevalence of those views. Similarly, we based our assessment of members' out-of-pocket asthma medication costs and asthma severity on self-report. Future research will be needed to quantify the impact of PDLs on member costs and adherence using medical record and administrative claims data.

CONCLUSIONS

For consumers with HDHPs, PDLs can serve as a tool for enhancing access to preventive medications. Findings of this study suggest that, in the case of asthma care, PDLs may vary in their implementation, with some offering generous coverage and others offering limited, inconsistent, or no benefit. To realize the full

potential of PDLs, insurers will likely need to make this benefit easier to use while also supporting members in navigating medication decisions to reduce costs. Although PDLs do not provide comprehensive asthma care coverage, our study offers reasons to be optimistic that they can be effective for helping families manage asthma care costs and may even have potential to address disparities in asthma medication adherence. Given the importance of this goal, additional implementation research is warranted to improve PDLs and ensure that families can make full use of this benefit.