

# Benefits Perspectives

CURRENT ISSUES IN EMPLOYEE BENEFITS

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## Volatility-Based Investment Strategies

The differences between them and their fit in defined contribution retirement plans

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Peer reviewed by Rodrigo Dufeu and Peter Sun.

The 2008 financial crisis and its effects on capital markets have shaped the way that many plan sponsors and administrators approach the selection of fund options in defined contribution (DC) plans they oversee. In the immediate aftermath of the crisis, while markets were still recovering, interest in volatility-based strategies began to grow as asset managers sought to satisfy heightened demand for portfolio risk management.

Falling under the broader category of what financial or investment managers refer to as “strategic” or “smart” beta, these volatility-based strategies have been positioned as a way to maintain broad equity market exposure, but with a smoother, less volatile ride than conventional strategies to manage risk. The positioning has worked, as tens of billions of dollars have flowed into products offering exposure to these strategies. The messaging surrounding them has naturally targeted investors interested in reducing investment risk, a category into which many DC plan sponsors and participants fall.

While these strategies all incorporate volatility considerations into their respective methodologies, they are not all constructed in the same way. The differences in how they are constructed have significant implications across different market conditions, as manifested in their varying performance results. Plan sponsors and administrators considering these volatility-based products for inclusion within the plans they oversee will do well to understand the differences and, by extension, the potential effects on participants’ portfolios.

This article compares and contrasts three volatility-based strategies and discusses the implications, for both DC retirement plan sponsors and participants, of applying them in a plan.

### Overview of the Strategies

The three volatility-based strategies considered in this article are Low Volatility (Low Vol), Minimum Volatility (Min Vol), and Managed Risk (MR). The indexes used as proxies for these strategies are described below in general terms.

- **The S&P 500 Low Volatility Index** is constructed by selecting the 100 stocks from the S&P 500 Index that have exhibited the lowest volatility during the previous 12 months. Once selected, the stocks are weighted by the inverse of their volatility so that the least volatile stocks are assigned the largest weights. For example, a stock that has a volatility of 5% will be given twice the weight of a stock that has a volatility of 10%. The index is reconstituted through this process on a quarterly basis.
- **The S&P 500 Minimum Volatility Index** is constructed by selecting stocks from the S&P 500 Index, which when combined result in a portfolio that minimizes forecasted volatility. The index is reconstituted semi-annually so that each constituent’s maximum weight is the lower of 20 times its weight in the S&P 500 or 2%. Additionally, sector weights are constrained to be within five percentage points of the corresponding sector weights in the S&P 500.
- **The S&P 500 Managed Risk 2.0 Index** is designed to simulate a portfolio that dynamically allocates to the S&P 500 Index, the S&P U.S. Treasury Bond Current 5-Year Index and the S&P U.S. Treasury Bill 0-3 Month Index. The allocations between the equity and bond indices are calculated to maintain maximum equity exposure while preventing portfolio volatility from exceeding its 22% volatility threshold. The Index further manages its downside risk through the use of a capital protection strategy, which applies sophisticated investment techniques to defend against losses during significant and sustained market declines.

The general characteristics present in each of the three strategies can be summarized in the table below. Worth noting is that the Low and Min Vol strategies are implemented by selecting a subset of stocks from the S&P 500. As such, these strategies are not concerned with how much equity exposure to maintain. The MR strategy, on the other hand, is implemented through changes in the amount of exposure to the S&P 500 as a whole. This is a key distinction between these strategies.

**FIGURE 1: STRATEGY CHARACTERISTICS SNAPSHOT**

	LV	MV	MR
Volatility-Based Stock Selection	Yes	Yes	No
Correlation-Based Stock Selection	No	Yes	No
Individual Stock Weight Constraints	No	Yes	No
Sector Weight Constraints	No	Yes	No
Market-Cap Weighted Equity Exposure	No	No	Yes
Potential Fixed Income Exposure	No	No	Yes

Many asset managers have marketed these volatility-based strategies as a way for DC plan sponsors (and by extension to the plans' participants) to gain broad exposure to stocks in the S&P 500, but with less volatility than the S&P 500.

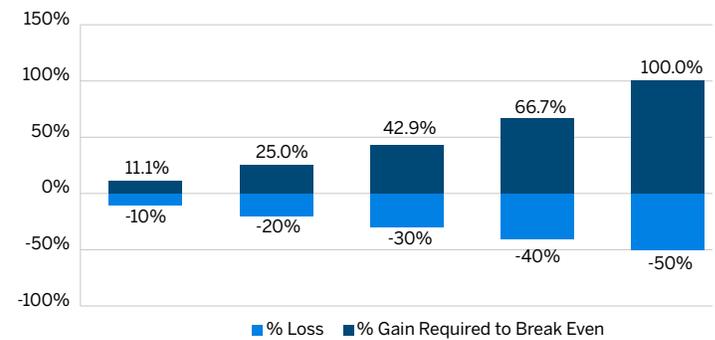
But plan sponsors would be prudent to ask, "Is there merit in the idea of volatility-based investing? Do the results of the strategy live up to the messaging?"

### Merit of Volatility-Based Investing

The descriptions of the volatility-based strategies presuppose a desire to mitigate downside losses, while attempting to partake (even if only partially) in the upside. For many plan sponsors and participants, the value of such an approach may be illustrated by the following chart. Every loss naturally requires a subsequent gain to get back to even, but the magnitude of the breakeven amount can be easily overlooked. It is not merely that deeper losses necessitate proportionately larger gains; the relationship is actually greater than one-to-one.

For example, a loss of 20% requires a gain of 25% to break even (difference of 5 percentage points), but a loss of 40% requires a gain of 66.7% to break even (a difference of 26.7 percentage points). At a 20% loss, an investor still must climb out of a hole, but it takes proportionately less recovery than the 40% loss. Notice that while the losses in the chart grow in 10% increments, the corresponding breakeven amounts grow at a faster rate. The deeper the hole, the more disproportionately difficult it becomes to climb out.

**FIGURE 2: LOSS AND RECOVERY**

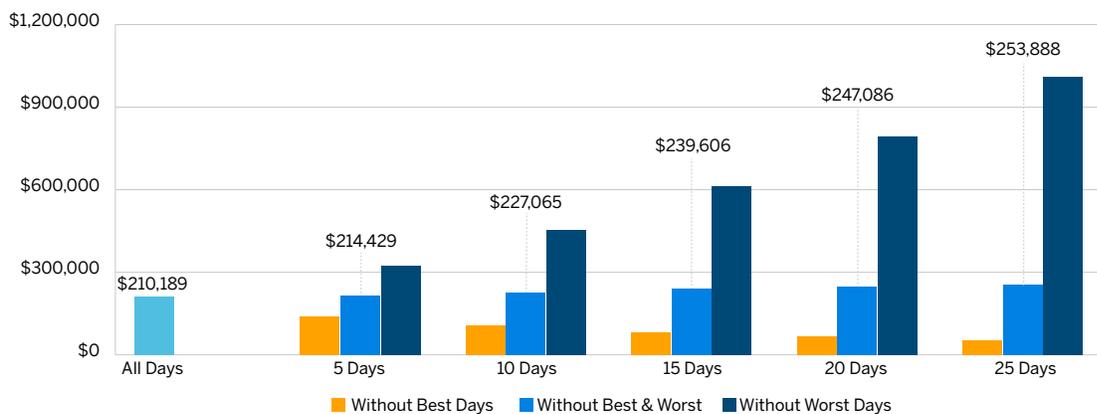


The chart reveals that the time and effort spent climbing out of a hole is greater than that required to avoid falling into it.

In the context of investing – such as in the case of a DC plan participant accumulating retirement assets – the effects can be illustrated by examining the performance of the S&P 500 after removing its best and worst returns. The chart below shows that removing the worst daily returns has a much larger effect than removing the best.

Thus, by taking preventive measures (i.e., pursuing lower portfolio volatility) to diminish the effects during market drawdowns, a volatility-based approach may reduce the need for post-drawdown cures.

**FIGURE 3: S&P 500 W/OUT ITS BEST & WORST DAYS: GROWTH OF \$10,000 FROM 1988-2017**



Of course, it is one thing to want to reduce taking part when markets are on the downswing. It is another, however, to sacrifice upside participation in the process. As the chart shows, however, removing both the best and worst returns generates a better result than the S&P 500 (and by definition, does so with lower volatility). Thus, the lesson here is that DC plan investors can indeed trade substantial upside participation for downside mitigation and still maintain the potential to come out ahead. An approach that mitigates downside risk at the expense of some upside potential may be preferable in the long run to one that aims to capture all the upside but has to endure and recover from the full depths of drawdowns. If this is indeed what volatility-based strategies do, plan sponsors and participants may do well to consider using them.

### Illustrative Strategy Results for a DC Plan

To evaluate these strategies and their potential fit within a DC plan, their returns, their risk profiles, and their longevity in a decumulation scenario are examined here. For reference purposes, the following compares the three volatility-based strategies to the S&P 500 and to a hypothetical, blended portfolio comprised of 70% S&P 500

and 30% Bloomberg Barclays U.S. Aggregate Bond Index (70/30 Blend), rebalanced annually.

The index returns are measured over a 27-year period, from the end of 1990 through the end of 2017. Over the entire period, all three volatility-based strategies generated a higher return than both the S&P 500 and the 70/30 blend; the margin between their annualized returns, however, was less than one-half of one percent. As such, the differences between the strategies emerge less in where they ended up and more in how they got there.

Over the 27-year period, the MR strategy exhibited the lowest volatility, the smallest drawdown, and the lowest maximum volatility (the highest level of 21-day volatility) of the three, resulting in it generating the highest risk-adjusted return.

### Sequence-of>Returns Risk

If upside participation is important in the retirement-asset accumulation phase, downside mitigation is paramount in the decumulation phase. In the absence of withdrawals, the sequence of returns – the order in which a series of investment returns occurs – has no effect on a portfolio’s cumulative return. In the presence of withdrawals, however, the effect is substantial, with the potential to severely diminish the lifespan of a portfolio as a source of retirement income.

FIGURE 4: CUMULATIVE MONTHLY RETURNS

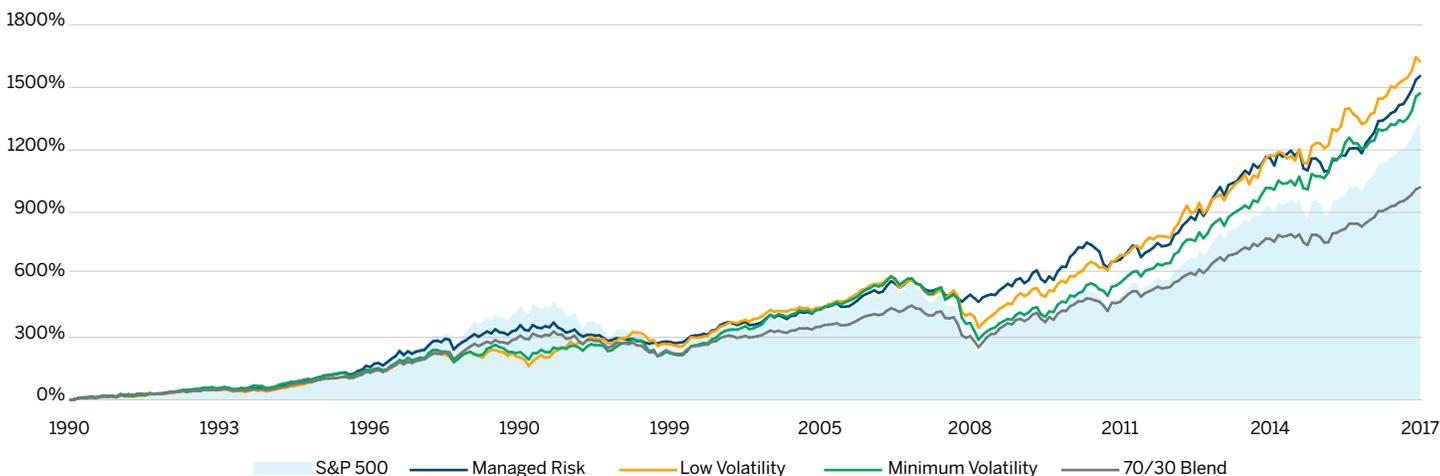


FIGURE 5: SEQUENCE-OF>Returns RISK

	MR 2.0	LOW VOL	MIN VOL	S&P 500	70/30 BLEND
Annualized Return	11.0%	11.1%	10.7%	10.3%	9.4%
Annualized Volatility	11.6%	13.0%	14.4%	17.6%	11.9%
Risk-Adjusted Return	0.94	0.86	0.75	0.58	0.79
Maximum Volatility	34.4%	71.2%	74.5%	86.3%	52.2%
Maximum Drawdown	-24.1%	-40.4%	-48.9%	-55.3%	-39.7%

To illustrate, the charts below compare two different sequences of returns, in both an accumulation phase and a decumulation phase. Each portfolio experiences the same set of annual returns. The only difference is the order in which the returns occur. In the first chart, where there are no portfolio withdrawals, the portfolios take different paths, but end up at the same value.

In the second chart, where the retirement plan participant takes withdrawals, each portfolio experiences the same sequence of returns as it does in the accumulation chart. This time, however, not only are the paths different, but the final amounts are also much different:

In both charts, the dotted line is the path the portfolio would take if it experienced zero volatility and earned the exact same return each year for 30 years.

At its essence, sequence-of-returns risk is the danger that portfolio withdrawals, combining with an unfavorable sequence

of returns, produce a result like Portfolio 1 in the decumulation chart. The exhaustion of the portfolio is the result of withdrawals coinciding with negative returns at an inopportune time, thereby diminishing future portfolio growth potential.

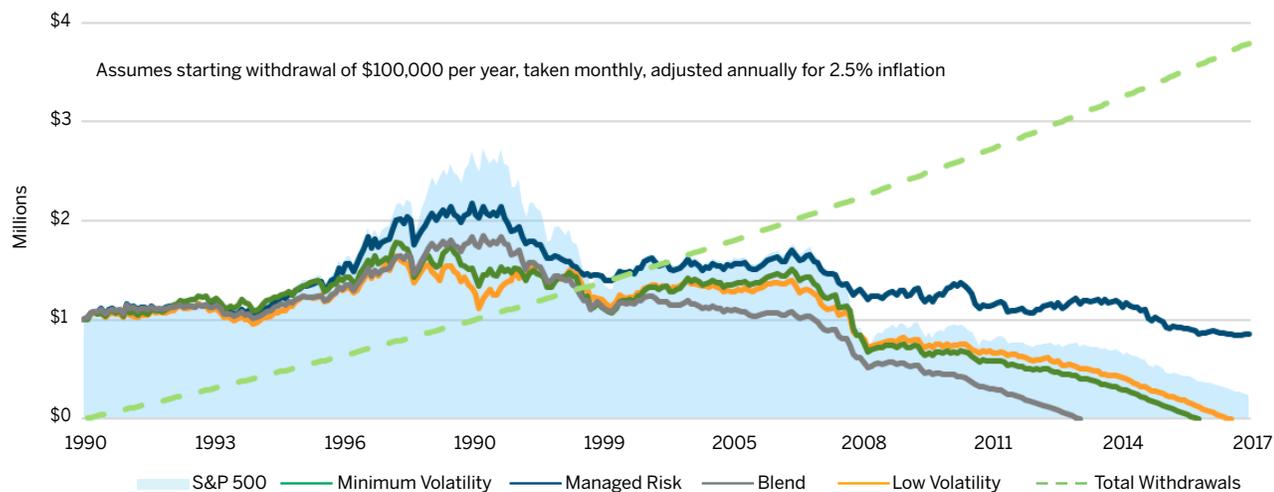
To illustrate the extent to which these volatility-based strategies are exposed to sequence-of-returns risk, the following chart depicts the value of a \$1 million portfolio invested in each strategy through a decumulation phase. The chart tracks the value of each portfolio as a retiree takes monthly retirement plan withdrawals, starting with \$100,000 per year, adjusted annually for inflation.

In this example, the Low Vol, Min Vol and 70/30 Blend portfolios are depleted before the end of the period. The S&P 500 portfolio finishes the period with \$240,000, or about 15 months of 2017 income, while the MR portfolio finishes with \$852,000. Having generated similar returns over this period, the lower volatility and smaller drawdown exhibited by MR help it outlast Low Vol and Min Vol during decumulation.

**FIGURE 6: SEQUENCE-OF-RETURNS RISK**



**FIGURE 7: SEQUENCE OF RETURNS**



The relatively muted level of inflation during the 21st century has arguably made inflation easier to overlook and its effects easier to underestimate. Consider, however, that at the time of the first withdrawal in January 1991, monthly withdrawals are \$8,333. But by January 2014, when the 70/30 Blend portfolio is exhausted, monthly withdrawals are \$14,700, equal to a loss of 43% of the dollar's purchasing power.

Unlike stocks, which can offer both price and dividend growth, traditional bonds have no built-in mechanism to adjust for inflation. One drawback to target date funds is that they tend to maintain a large fixed allocation to bonds after reaching their target date. This may make for a less volatile portfolio, but also limits both its growth potential and its ability to keep up with inflation.

In the Sequence of Returns chart, the exhaustion of the 70/30 Blend portfolio after 23 years means it would last a retiree from age 65 to 88. For some retirees, 23 years of investment income will be sufficient, but for many it will not. Planning for a longer retirement and/or unanticipated expenses and accounting for inflation can help reduce both the risk of running out of money and the stress and anxiety associated with such an outcome. Moreover, a portfolio that outlives a retiree creates the potential benefit of being able to leave an inheritance to beneficiaries.

## Conclusion

While considerations of return and volatility are appropriate and necessary during the period that DC plan participants accumulate assets, alone they are insufficient during the decumulation phase. Planning for retirement income must also consider sequence of returns, inflation, and longevity risks. Managing volatility is an important objective in handling these retirement-specific risks, but volatility-based strategies can vary in construction and, by extension, in their performance profile. Even if investment returns are similar, strategies that generate a smoother ride and smaller drawdowns are likely to create superior results in the presence of withdrawals from a retirement account. Plan sponsors will do well to understand both the potential role of volatility-based strategies in a qualified plan, as well as the nuanced differences between them.

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# Take Control of Pharmacy Program Costs

## Managing pharmacy costs through focused analytics

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The pharmacy market is evolving quickly and dynamically, with drug costs continuing to strain the budgets of employers and health plans that provide prescription drug coverage. The 2018 Milliman Medical Index reports a 6% increase in pre-rebate prescription drug costs, which is greater than the 4.5% reported increase in total healthcare costs. Current media attention has focused on high drug prices, increasing member out-of-pocket costs, significant growth of high-cost specialty medications, and high-profile mergers and acquisitions in the pharmacy benefits supply chain.

Effective pharmacy management strategies enable plan sponsors to reduce pharmacy costs while maintaining high quality pharmacy programs. This article discusses the importance of focused analytics that include retrospective and prospective reviews of internal and external forces. Plan sponsors can optimize their pharmacy management by evaluating past experience, benchmarking experience against the industry, aligning program goals, and responding to industry changes.

## Evaluating Pharmacy Program Experience

### INTERNAL/RETROSPECTIVE REVIEW THROUGH MONITORING AND AUDITING

Effective pharmacy program management requires regular reviews of the plan sponsor's experience. Internal monitoring and routine claim audits will reveal opportunities to improve operational processes, plan designs, and financial performance.

- **Monitoring:** Employers and health plans should monitor pharmacy claims experience on at least a monthly or quarterly basis. During this process, plan sponsors evaluate cost trends, utilization trends, and use of specific high-cost medications to identify any unexpected changes. Doing so allows for rapid identification and better understanding of what is driving higher-than-expected pharmacy cost. Monitoring pharmacy claims experience can help determine if the changes are producing the desired

outcome, whether the desired outcome is financially based, rooted in improving member experience, or designed to achieve some other outcome.

- **Auditing:** A pharmacy benefit manager (PBM) audit is an in-depth review of claims processing and contract compliance. Audits are different from simple monitoring, as the audit focus is on contract compliance and accurate benefit adjudication versus evaluating cost and utilization trends.
  - *Claims processing audits* primarily include reviewing the accuracy of member and plan payments based on the plan sponsor's benefit design. A claims processing audit also reviews whether a PBM is appropriately applying cost and patient safety preventive measures (e.g., prior authorizations and formulary exclusions).
  - *Contract compliance audits* include independently calculating performance against financial pricing guarantees (e.g., rebates, discounts, dispensing fees, and administrative costs). To validate the financial reconciliation performed by the PBM, plan sponsors should compare an independent calculation to those done by the PBM. Rebate audits typically require additional time and effort if a review of manufacturer contracts is allowed.

Claim processing and contract compliance audits often result in recoveries that exceed the cost to perform the audit. Audits are typically performed on an annual basis, but targeted audits or informal reviews can occur as often as needed and as allowed by the contract, such as to investigate a certain issue, or during the implementation of a new PBM, plan design, or clinical program.

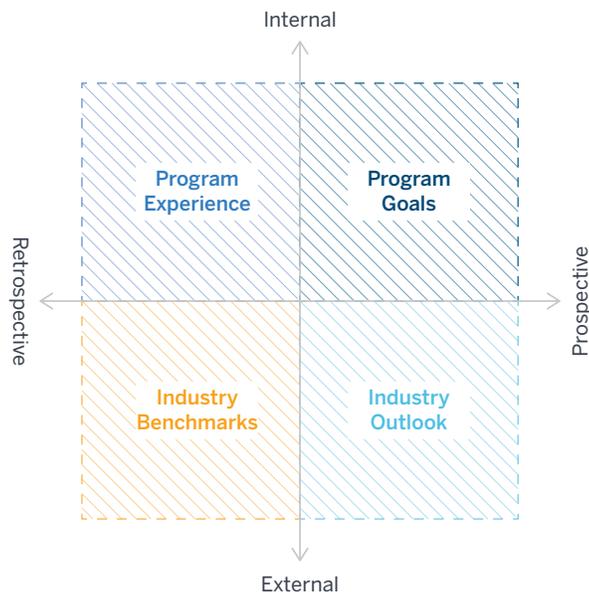
## Reviewing Industry Benchmarks and Improving Contractual Terms

### EXTERNAL/RETROSPECTIVE REVIEW THROUGH COMPETITIVE BENCHMARKING AND MARKET CHECKS

Once the plan sponsor has a grasp on its current contract performance and benefit set-up, it should gain an understanding of how the plan and contract compare to similar organizations in the industry. PBMs often provide materially different contractual terms to organizations with similar characteristics (e.g., companies of equal size with similar pharmacy programs). Plan sponsors can determine if they are receiving competitive financial terms and service level guarantees by comparing their contracts to those of comparable plans in the industry through competitive benchmarking and market checks.

- **Competitive Benchmarking:** Cost and utilization benchmarking compares the experience of the plan to that of comparable plans in the industry to identify outliers and opportunities for improvement of the pharmacy program. Key utilization metrics include generic dispensing rates (GDR), multi-source brand and non-formulary usage, year-over-year utilization / cost trends, and per member per month (PMPM) costs. While these analyses are often performed by the PBM comparing to the PBM's book of business, plan sponsors should also leverage an independent third party to evaluate industrywide benchmarks independent of the PBM to include data sources from across the industry and assess areas where the PBM may not be competitive in any of its contracts.
- **Market Checks:** Plan sponsors can often improve financial guarantees and contractual terms through performing a market check and amending the existing PBM contract. Market checks are an important tool for employers and health plans to evaluate PBM contractual terms. Plan sponsors should negotiate their PBM contracts to allow for immediate and retroactive adjustments to pricing guarantees as a result of a market check. Revisiting pricing terms annually can determine whether the current contract has the best available terms. If a recent market check indicates there is more favorable pricing than what the incumbent is willing to offer for similar services, this may indicate the current PBM contract should be renegotiated or opened to the competitive bidding process through a request for proposal (RFP) from other PBMs.

Regular benchmarking is critical given the rapid evolutions within the pharmacy market. For example, with specialty and high-cost brands being significant drivers of total pharmacy costs, PBMs negotiated larger rebates and entered into price protection (i.e., inflation protection) arrangements with pharmaceutical manufacturers. Price protection agreements provide rebates to guarantee that a price increase will not exceed a certain threshold. The 2017 Milliman Medical Index reported rebates received as a percent of pharmacy claims increasing from 10% in 2013 to 16% in 2016. Without an understanding of how rapidly rebate payments have increased through benchmarking and market checks, a plan sponsor's rebate guarantees may not have adjusted to account for these additional rebate payments.

**RX MANAGEMENT FRAMEWORK**

## Considering Program Goals

### INTERNAL/PROSPECTIVE REVIEW THROUGH EVALUATING THE IMPACT OF PLAN CHANGES

Once group health plan sponsors have a deep understanding of their current pharmacy program and PBM contract, as well as how the plan is performing against the industry, they should form specific and measurable goals. These may include:

- improving financial guarantees and terms to favorable market rates and terms;
- increasing the GDR;
- ensuring utilization occurs in the appropriate setting (e.g., hospital, physician office, home);
- shifting utilization to the most cost effective channel (e.g., mail order, specialty pharmacy)
- decreasing multi-source brand and non-formulary utilization; and
- increasing member adherence to appropriate medications.

In setting any goals, plan sponsors should carefully consider the objectives of their pharmacy program to develop appropriate actions and measures. With all potential changes, employers and health plans should evaluate the tradeoffs between program savings and member satisfaction.

There are strategies plan sponsors can apply to address rising pharmacy costs proactively while still maintaining member satisfaction. The key to maintaining member satisfaction is communication, education, and transparency.

Plan sponsors may consider strategies that modify the following benefit features:

- Member cost sharing;
- Formulary;
- Utilization management; and
- Pharmacy networks.

Changes in member behavior with associated disruption is sometimes necessary to achieve goals (e.g., increasing the GDR).

Plan sponsors often implement cost-sharing incentives to encourage members to be prudent consumers. Plans must communicate and educate members on the “what” and “why” of the changes to maintain member satisfaction. Multiple modes of communication may be necessary to ensure impacted members are aware and educated on the changes (e.g., letters, phone calls, e-mails, text messages, benefit fairs).

Some strategies require high-touch member and provider communication. For example, a plan sponsor’s goal may be to increase member adherence. Typical reasons for non-adherence may include medication costs, adverse side-effects, belief that medication is not necessary, or simply forgetting to fill the prescription. The plan sponsor must evaluate why members are non-adherent and offer solutions to address the member’s needs and lifestyle.

## Assessing the Industry Outlook

### EXTERNAL/PROSPECTIVE REVIEW THROUGH MARKET MONITORING

Proactive pharmacy management requires monitoring, anticipating, planning, and reacting to the continuously evolving changes in the pharmacy industry. In particular, plan sponsors should remain informed on emerging drug trends, industry innovations, and market consolidation. Doing so will inform and properly prepare them for discussions with their PBMs.

Plan sponsors should monitor market consolidation and evaluate any potential synergies that may enhance their pharmacy program. In recent years, there has been a trend of consolidating insurers, PBMs, and pharmacies. As public policy and market forces apply pressure and increase costs, pharmacy supply chain integration and industry consolidation may present new opportunities to lower pharmacy costs through more integrated medical and pharmacy management.

Employers and health plans that provide prescription drug coverage can leverage numerous market innovations to enhance the pharmacy programs offered to members. Examples of recent innovations include:

- **Purchasing coalitions:** A group of employers formed to increase their purchasing power.
- **Private exchanges:** Online marketplaces run by insurance companies, brokers, or consultants where individuals and employers can shop for health insurance.
- **Closed pharmacy network options:** Restricting members to a subset of pharmacies dictated by the plan sponsor.
- **Narrow or tiered pharmacy network options:** Providing members a choice of pharmacies, but lowering their out-of-pocket costs at a given subset.
- **Value-based contracting:** Financial arrangements between plan sponsors and pharmaceutical manufacturers that link payments to outcomes or member behaviors.

## Take Action

With the rapid transformation of the pharmacy market, plan sponsors should regularly revisit and refine their pharmacy program. Managing pharmacy benefits, programs, contracts, and vendor relationships through retrospective and prospective reviews of internal and external forces is critical to gain a deep understanding of the actions needed to manage a pharmacy program effectively. With this knowledge and oversight, employers and health plans can develop a strategy to increase the value of their pharmacy program.

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