

# Incorporating Value-Based Insurance Design to Improve Chronic Disease Management in the Medicare Advantage Program

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### **The University of Michigan Center for Value-Based Insurance Design (V-BID Center)**

is the leading advocate for development, implementation, and evaluation of *clinically nuanced* health benefit plans and payment models. Since 2005, the Center has been actively engaged in understanding the impact of innovative provider facing and consumer engagement initiatives, and collaborating with employers, consumer advocates, health plans, policy leaders, and academics to improve clinical outcomes and enhance economic efficiency of the U.S. health care system. For more information, find us at [www.vbidcenter.org](http://www.vbidcenter.org) and follow us @UM\_VBID.



## Executive Summary

Cost-related non-adherence (CRN) is a state when patients are unable to abide by recommended medical care due to financial barriers. A growing body of published research reveals that increases in out-of-pocket costs for Medicare enrollees have created a significant deterrent to receiving essential services. CRN has been identified across the entire continuum of clinical care (e.g., physician visits, screenings, prescription drugs), and is more problematic for vulnerable populations, particularly those individuals with multiple chronic conditions. Since the decreased use of evidence-based services leads to reductions in quality, suboptimal patient-centered outcomes and, in certain instances, increases in aggregate health care spending, solutions to this growing problem are urgently needed.

Value-Based Insurance Design (V-BID) has been proposed as a potential strategy to mitigate CRN. V-BID is built on the principle of lowering or removing financial barriers to essential, high-value clinical services and providers. These innovative products are designed using the tenets of 'clinical nuance,' recognizing that 1) medical services differ in the amount of health produced, and 2) the clinical benefit derived from a specific service depends on the consumer using it, who provides it, and where the service is provided. V-BID approaches have increasingly been used in the commercial market, and the inclusion of clinically nuanced V-BID elements may be an effective tool to improve the quality of care and reduce the cost of care for Medicare Advantage enrollees with chronic diseases. However, V-BID approaches have generally not been incorporated into Medicare Advantage due to existing regulations.

Accordingly, the Gary and Mary West Health Policy Center has supported the University of Michigan Center for Value-Based Insurance Design to conduct a multi-part project to explore the clinical and cost implications of incorporating V-BID principles into the Medicare Advantage (MA) program. The aims include:

- 1) review the literature examining CRN among Medicare beneficiaries;
- 2) perform subject-expert interviews to assess the feasibility and viability of a V-BID program in MA; and
- 3) use actuarial modeling to estimate the fiscal implications of a novel Medicare benefit incorporating targeted reductions in consumer cost-sharing for specific clinical conditions.

This project coincides with the CMS announcement of the Medicare Advantage Value-Based Insurance Design Model Test, set to begin in seven states in January 2017. Specifically, the demonstration will examine the utility of structuring patient

cost-sharing and other health plan design elements to encourage patients to consume high-value clinical services, thereby improving quality and reducing costs.

A systematic review of the published literature revealed that the rise in cost-sharing for Medicare beneficiaries resulted in lower adherence with recommended preventive screenings and prescription drugs to manage common chronic conditions, as well as reduced outpatient visits leading to a rise in hospitalizations. CRN was seen to impact the most vulnerable patient populations, especially those with lower socioeconomic status and multiple chronic conditions.

Qualitative interviews with an array of Medicare Advantage experts yielded diverse perspectives. All respondents supported the implementation of V-BID principles into MA plans, but for different reasons. While favoring a trial of V-BID in MA, respondents expressed their views on the limitations of targeted cost-sharing and identified potential barriers to this novel approach.

Actuarial modeling estimated the financial impact of V-BID implementation on consumer, plan, and societal costs for three common conditions: diabetes mellitus (DM), chronic obstructive pulmonary disease (COPD), and congestive heart failure (CHF). The V-BID program reduced consumer out-of-pocket costs in all 3 conditions. Plan costs increased slightly for DM and COPD; savings resulted to the plan for CHF. From the societal perspective, the DM program was close to cost neutral; net savings resulted in the COPD and CHF programs.

CRN in the Medicare program is a well-established and growing problem, affecting our most vulnerable beneficiaries, contributing to poor patient-centered outcomes, worsening disparities, and, in some instances, increasing expenditures. Expert interviews and quantitative modeling reveal that the implementation of V-BID programs that reduce consumer cost-sharing for high-value services for select chronic conditions is a viable and fiscally feasible option for the Medicare program. Moreover, the alignment of consumer engagement initiatives with ongoing value-based payment initiatives is a critical step to improve quality of care, enhance patient experience, and contain cost growth.

**Expert interviews and quantitative modeling reveal that the implementation of V-BID programs which reduce consumer cost-sharing for high-value services and providers for select chronic conditions is a viable and fiscally feasible option for the Medicare Advantage Program.**

# Incorporating Value-Based Insurance Design to Improve Chronic Disease Management in the Medicare Advantage Program

## Table of Contents

I.	Background	5
II.	Literature Review: Cost-related Non-adherence in Medicare	6
III.	Qualitative Interviews with Medicare Advantage Plan Experts	11
IV.	Actuarial Modeling of Novel Benefit Design	12
V.	Conclusion	18

## I. Background

A robust and growing body of peer-reviewed evidence demonstrates that cost-related non-adherence (CRN) exists among Medicare beneficiaries for high-value medical services across the spectrum of clinical care, including preventive screenings, clinician visits, and prescription medication use.<sup>i-iii</sup> This sub-optimal use of evidence-based services results in negative clinical outcomes, increased disparities, and, in some clinical scenarios, higher aggregate costs to the Medicare program.<sup>ii</sup> These undesirable clinical and financial effects of CRN are more pronounced for individuals with multiple chronic conditions and the most financially vulnerable.<sup>ii,iii</sup>

Value-Based Insurance Design (V-BID) is an innovative approach that can improve clinical outcomes and contain cost, thereby reducing CRN. V-BID plans lower or remove financial barriers to essential, high-value clinical services by aligning patients' out-of-pocket costs, such as copayments and coinsurance, with the clinical value -- not the acquisition cost -- of services. V-BID programs are designed with the tenets of "clinical nuance" in mind. These tenets recognize that 1) medical services differ in the amount of health produced, and 2) the clinical benefit derived from a specific service depends on the consumer using it, as well as when, where, and by whom the service is provided.

To date, most V-BID programs have been part of commercial health plans and focus on removing financial barriers to high-value prescription drugs used to treat common, chronic conditions for which evidence-based guidelines exist (e.g., diabetes, asthma, heart disease). A 2013 *Health Affairs* systematic review of V-BID prescription drug programs in commercial plans reported that lowering consumer cost-sharing on targeted drug classes modestly improved adherence and lowered consumer out-of-pocket costs, without significant increase in total spending.<sup>iv</sup>

As V-BID plans are increasingly implemented, the recognition of plan features that demonstrate clinical and economic success is accumulating. The lessons learned from V-BID's extensive implementation by private and public payers offer translatable opportunities for innovations in the Medicare Advantage (MA) program. Medicare Advantage plans may capitalize on these successes to increase care quality, improve patient-centered outcomes, and reduce health disparities, while also decreasing costs among a target-rich population.

To better understand and inform the potential impact of V-BID principles in the Medicare Advantage programs, a multi-part project to explore the clinical and cost implications of incorporating V-BID principles into the Medicare Advantage (MA) program was conducted. The specific aims include: 1) review the literature examining CRN among Medicare beneficiaries; 2) perform subject-expert interviews to assess the feasibility and viability of a V-BID program in MA; and 3) use actuarial

modeling to estimate the fiscal implications of a novel Medicare benefit incorporating targeted reductions in consumer cost-sharing for specific clinical conditions.

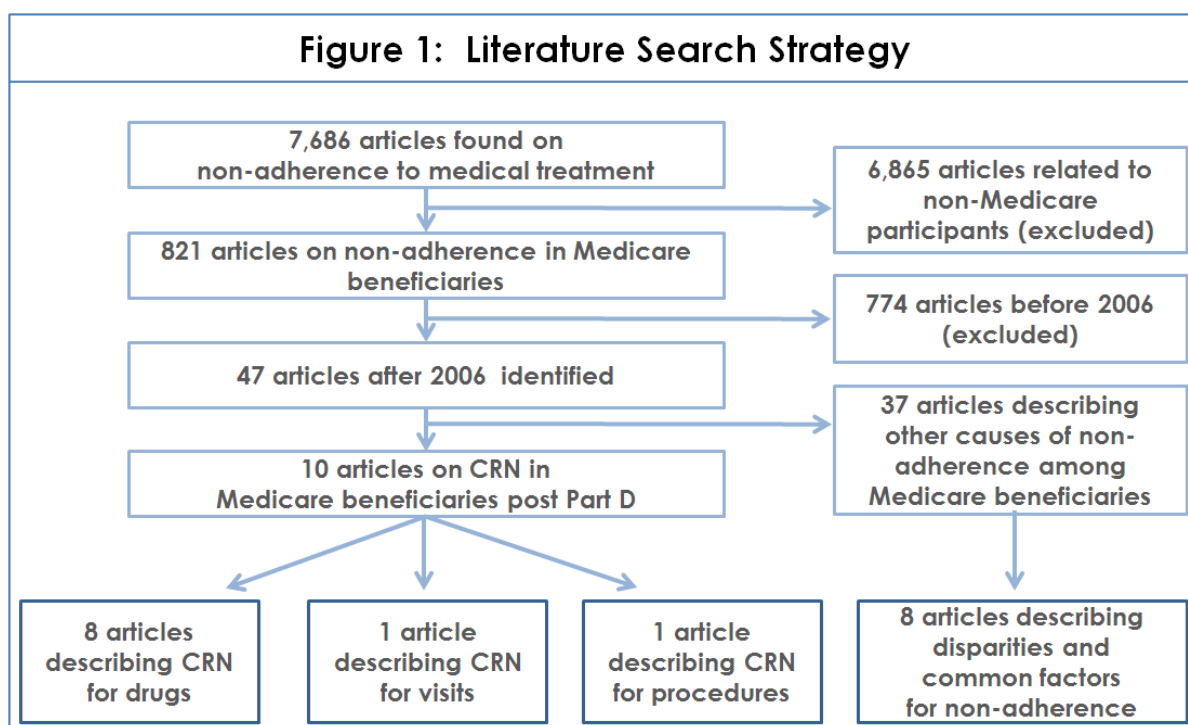
This report coincides with the CMS announcement of the Medicare Advantage Value-Based Insurance Design Model Test, set to begin in seven states in January 2017. Specifically, the demonstration will examine the utility of structuring patient cost-sharing and other health plan design elements to encourage patients to consume high-value clinical services, thereby improving quality and reducing costs.

## II. Literature Review: Cost-related Non-adherence in Medicare

To better understand the social, clinical, and economic impact of cost-related non-adherence (CRN) in the Medicare program, the University of Michigan Center for Value-Based Insurance Design undertook a systematic review of the peer-reviewed literature.

### Study Data and Methods

An extensive electronic search of the peer-reviewed literature was performed using PubMed and Google Scholar to identify research published on the phenomenon of cost-related non-adherence (CRN) among Medicare beneficiaries. (Figure 1) The initial search included key words 'non-adherence' and revealed 7,686 articles. Articles not including Medicare participants, studies including non-U.S. subjects, and articles focused on prescription drugs published prior to the implementation of Medicare Part D (2006) were excluded. Ultimately, 47 articles addressing non-adherence in Medicare beneficiaries were included.



To explore the causes of non-adherence, combinations were used of key terms such as: Medicare beneficiaries, Medicare enrollees, cost analysis, cost-related non-adherence, Part D, donut hole, copayments, cost-sharing, benefit design, Medicare Part D, and drug benefits. A total of 18 articles were included in this review -- 10 articles explicitly addressing CRN in Medicare beneficiaries and an additional 8 describing factors for non-adherence.

## **Key Findings**

### *Factors Driving Non-adherence*

Non-adherence to essential care can lead to declining health and diminishing quality of life, as well as potentially increasing downstream costs associated with specialized and emergency care. Notably, the elderly population is facing numerous challenges to adhere to prescribed treatment regimens. Mounting evidence shows that Medicare beneficiaries adopt several cost-coping behaviors for treating serious conditions such as diabetes and cardiovascular disease.<sup>v</sup> As the number of Medicare beneficiaries continues to rise, there will be unique challenges for payers, providers, and policy makers who strive to achieve the triple aim of high quality care, optimal health for all, and reduction in per capita cost of care.

Numerous studies investigated non-adherence in the elderly population and identified the principal influences as medication costs, lack of symptom control, side effects of drugs, fear of future risk of disease, negative health experiences, trust in caregivers,<sup>vi</sup> illness beliefs, and complexity of regimen.<sup>vii</sup> A growing body of evidence highlights financial barriers as a major contributor towards promoting non-adherence to essential treatment and medications.<sup>viii</sup> Consequently, cost-related non-adherence to prescription drugs has generated remarkable interest, and recent research has focused on changes in CRN after the implementation of Medicare Part D's prescription drug coverage.

## **Cost-related non-adherence (CRN)**

### *Prescription Drugs*

Prior to Part D, payers adopted various strategies to curtail rising spending on prescription drugs with poor results. For example, a study conducted by Hsu et al on a Medicare + Choice program showed that capping drug benefits, coupled with increased out-of-pocket costs to prevent injudicious use of health services, resulted in decreased adherence to drug therapy for patients suffering from hypertension, diabetes, and hyperlipidemia.<sup>ix</sup> Similarly, Heisler et al found that 32.1% of those who restricted medications due to cost factors reported a significant decline in self-reported health status, especially in middle-aged and elderly Americans among vulnerable populations.<sup>x</sup>



As a result, Medicare Part D was created to increase access to prescription drugs for seniors through tax concessions and subsidies. However, the verdict on the anticipated increase in drug utilization and lowering of out-of-pocket costs has been divided. Although a few studies early after Part D implementation observed that Medicare Part D modestly increased the number of medications used by the elderly and lowered out-of-pocket spending on drugs<sup>xi</sup>, subsequent studies reported that weaknesses in the existing system remained. Specifically, the coverage gap known as the 'donut hole' -- a temporary limit on drug spending -- was associated with higher rates of cost-coping behavior, reduced adherence, and financial distress.<sup>v</sup>

In consequent studies, Madden et al reported that after the implementation of Medicare Part D, CRN was observed in 11.5% of older adults in 2006, and there was no net decrease in CRN among the sickest beneficiaries.<sup>viii</sup> Remarkably, while CRN declined after Part D, this finding was associated with a concurrent forgoing of basic necessities to afford medications, dampening its effect. A follow-up study concluded that these findings were sustained, and Medicare Part D may not have addressed the rigorous medication requirements and financial needs for those who need it the most.<sup>xii</sup>

As drug prices continue to rise, policies are put in place attempting to steer patients away from expensive medication through higher cost-sharing, formulary tiers, and augmented prior-authorization restrictions.<sup>xii</sup> Studies by Naci et al included affordability indicators and established that in order to afford medications, a growing number of elderly patients with four or more chronic conditions were reallocating funds from basic needs to prescription drugs. This scenario effectively captures the financial circumstances faced by seniors with fixed incomes and consequent non-adherence to key treatment regimens.<sup>iii</sup>

### *Clinician Visits*

In fact, as patients are asked to pay more out-of-pocket for their care, access is falling across the care continuum, including clinician visits. In a case-control study examining the effects of increases in Medicare copayments for ambulatory care visits, the beneficiaries facing higher cost-sharing experienced a 19.8% decline in annual outpatient visits, a 2.2% rise in annual hospitalizations, and a 13.4% increase in inpatient days (Figure 2). This effect was amplified in African Americans, enrollees from lower socioeconomic strata, and those with multiple health conditions such as diabetes, hypertension, or a history of myocardial infarction.<sup>ii</sup> Additional studies have shown that a rise in copayments of \$10 resulted in a significant decline in outpatient visits and a concurrent increase in hospital care utilization among elderly beneficiaries receiving supplementary insurance from California Public Employees Retirement System (CalPERS).<sup>xiii</sup>

**Figure 2: Increased Copayment Effects on Care Usage Among Medicare Enrollees**

<b>Ambulatory copayment increase (Dec 2001-Jan 2006)</b>		<b>Type of care</b>	<b>Mean copayment increase (%)</b>		<b>Use of care</b>	<b>Changes (%)</b>
	→	Primary care visits	95%	→	Annual outpatient visits	19.8%↓
		Specialist care visits	74%		Annual hospital admissions	2.2%↑
		Inpatient care	122%		Annual hospital days	13.4%↑

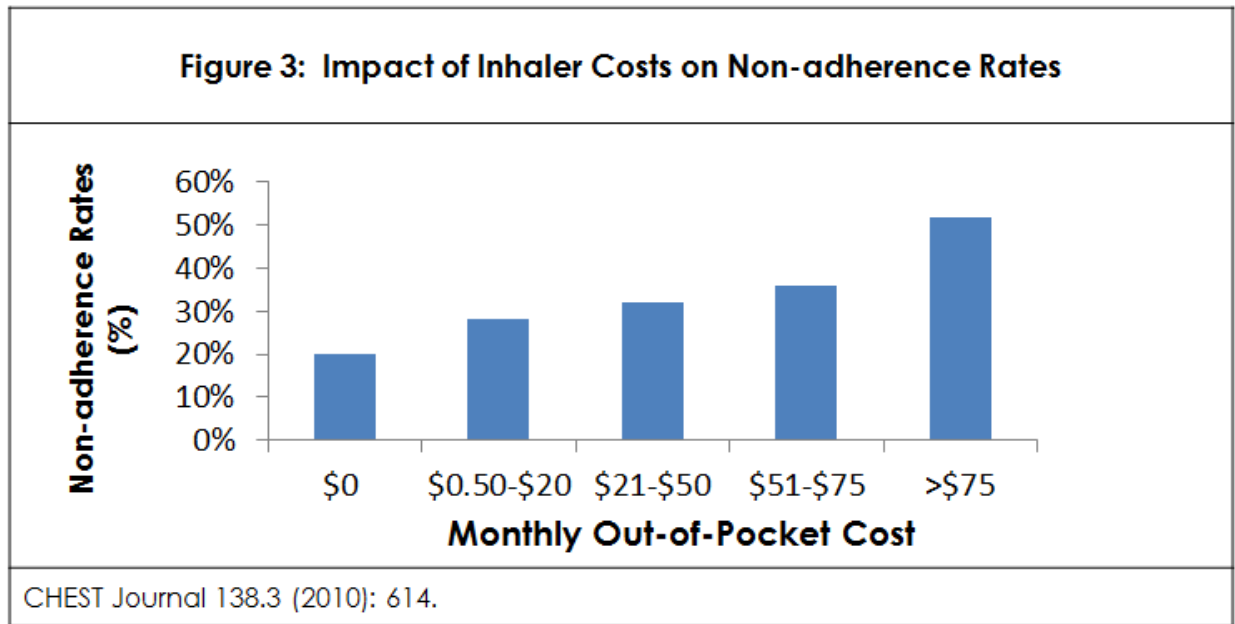
New England Journal of Medicine 362.4 (2010): 320-28

### Preventive Screenings

A similar analysis examined the impact of copayments on screening mammography. Women in Medicare plans faced with higher cost-sharing were less likely to receive this clinically recommended procedure. The study revealed that from 2002 to 2004, mammography rates decreased by 5.5 percentage points in 7 plans that instituted cost-sharing in 2003, as compared to an increase in 3.4 percentage points in the control group of 14 plans. Increased cost-sharing exacerbates the under-utilization of recommended services, especially among socioeconomic and racially disparate populations.<sup>i</sup>

### Chronic Disease Management

Supplementary studies on CRN focused on specific clinical conditions and repercussions of fragmented care across the disease spectrum. Castaldi et al described the prevalence of CRN due to high costs of inhaled prescription medications for chronic pulmonary disease patients (Figure 3). The study also pointed out that tiered formularies create access barriers, as the advanced tier drugs are sometimes more efficacious for long-term symptom control, yet are cost-prohibitive.<sup>xiv</sup> A separate analysis found that Medicare beneficiaries with depression did not benefit much from Medicare Part D, with negligible improvements in rates of CRN and forgoing of basic necessities. Given the current trends in beneficiary cost-sharing, this situation will likely aggravate and may be reflected in other chronic conditions as well.<sup>xv</sup>



### Healthcare Disparities

A corollary to most of the CRN-focused studies reveals that the benefit structures in place tend to isolate the populations that need healthcare services the most. These are comprised of vulnerable subgroups, such as those with racial or socioeconomic disparities and multiple chronic conditions. Prior to Part D reform, Gellad et al established that a quarter of the Black and Hispanic study population reported spending less on food and other necessities in order to afford prescription drugs.<sup>xvi</sup> Similarly, Heisler et al pointed out that cardiovascular disease and depression worsened in older people eligible for Medicare who restricted their medication.<sup>x</sup>

Although Part D would improve access to prescription drugs, Holmes et al concluded that, in spite of a general trend of increased adherence, Blacks and Hispanics still had lower adherence levels to hypertensive medication compared to whites Post Part-D.<sup>xvii</sup> In addition, Frankenfield et al established that Hispanic Medicare enrollees were more likely to report CRN than non-Hispanics.<sup>xviii</sup> Similarly, a study conducted by Turner et al showed that cost coverage barrier was one of the most significant causes of non-adherence among racially diverse elderly patients suffering from hypertension.<sup>xix</sup>

### Summary

A systematic review of the published literature revealed that the rise in cost-sharing for Medicare beneficiaries resulted in lower adherence with recommended preventive screenings and prescription drugs to manage common chronic conditions, as well as reduced outpatient visits, leading to a rise in hospitalizations. CRN was seen to impact the most vulnerable patient populations, especially those with lower socioeconomic status and multiple chronic conditions. Policies such as

Medicare Part D and planned phasing of the coverage gap address selected challenges associated with CRN, but cannot guarantee a broad solution. The lack of robust consumer incentives to improve their own health, coupled with illness burden, intense medication needs, and high out-of-pocket costs, often lead to undesired clinical and financial outcomes, particularly for the most vulnerable beneficiaries.

### III. Qualitative Interviews with Medicare Advantage Plan Experts

To assess the interest and viability of incorporating Value-Based Insurance Design (V-BID) principles in the Medicare Advantage program, the V-BID Center sought the viewpoints of seven experts representing health plans, health care systems, and private consulting firms. The interviewees were asked open-ended questions to obtain broad perspectives about the opportunities, feasibility, and challenges of implementing clinically-nuanced cost-sharing in the Medicare Advantage program. Participants were specifically asked to comment on the CMS Medicare Advantage V-BID Model Test.

#### Key Takeaways

The aging United States population and related increase in the prevalence of chronic disease will impose substantial financial strain on the Medicare program, threatening its solvency. Consumer cost-sharing is a necessary tactic to constrain health care cost growth and enhance consumer engagement. As Medicare patients are asked to pay a significant portion of their health care costs, problems resulting from cost-related non-adherence will remain considerable and are likely to grow in importance.

The incorporation of V-BID elements into Medicare Advantage plans is viewed as a way to increase care quality, improve patient-centered outcomes, and reduce health disparities. All seven participants supported the inclusion of an approach that reduced cost-sharing for selected services for specific Medicare Advantage patient populations.

#### Strengths

- Wider access to high quality healthcare (5 respondents)
- Better health outcomes (4)
- Potential to lower health care costs (3)
- No possible adverse impact on patient care (3)
- Increased customer satisfaction (1)
- Greater adherence to recommended care (1)
- Positive effects of incentives on beneficiaries (1)

### *Limitations*

- Resistance to change by the medical community (3 respondents)
- Increased short-term spending may negatively impact plan financials (3)
- Complexity in communicating 'value' may confuse beneficiaries

### *Opportunities*

- Create incentives for providers to enroll eligible beneficiaries
- Establish long-term financial models that reward short-term investment in quality

## **CMS Medicare Advantage V-BID Model Test**

The respondents all endorsed the CMS MA V-BID demonstration and suggested a variety of changes to Medicare policies and regulations that could enhance health plans' capacity to successfully implement V-BID principles. These included the relaxation of compliance criteria allowing CMS to be more flexible with its pricing policies, the creation of a low-cost data platform for the standardization and collection of quality outcomes data. Other comments include:

- Reductions in cost-sharing should be targeted at specific conditions
- Focus on geographic areas with high numbers of Medicare enrollees
- Assess the effect of V-BID in lower socioeconomic populations
- Reduce cost-sharing for a broad set of services across care continuum
- Add incentives for demonstrating increasing levels of adherence with high-value medical protocols
- Invest in communications to assuage patient concerns that might occur when health plans change
- Identify and measure plan-specific quality metrics and patient-centered outcomes

## **Summary**

In-depth interviews with a diverse group of Medicare Advantage experts identified cost-related non-adherence as a growing problem in the Medicare program. The concept of clinically nuanced cost-sharing reductions was viewed as a potential partial solution. The respondents unanimously supported the inclusion of V-BID principles into MA plans and the CMS Model Test, but recognized fiscal and logistical challenges concerning implementation and sustainability of this novel approach.

## **IV. Actuarial Modeling of Novel Benefit Design**

The successful implementation of V-BID principles into the Medicare Advantage (MA) program will depend on the fiscal implications for the beneficiary, the MA plans, and the Medicare program. The V-BID Center, in collaboration with Aetna, undertook a project to estimate the financial effects of a novel Medicare benefit

structure incorporating targeted reductions in consumer cost-sharing for three common conditions: diabetes mellitus (DM), chronic obstructive pulmonary disease (COPD), and congestive heart failure (CHF). Changes in expenditures resulting from the V-BID benefit design were examined from the consumer, plan, and societal perspectives. An actuarial modeling approach was used to best reproduce methods used by health plans to determine the spending implications of specific benefit design changes. In addition to informing individual plan decision-making, fiscal estimates resulting from the modeling exercise are likely to be relevant to CMS, as well as the Congressional Budget Office analysts responsible for scoring V-BID proposals.

### Conceptual and Analytic Framework

The implementation of targeted reductions in consumer cost-sharing will affect spending primarily through three mechanisms:

1. The shift effect measures the fiscal impact of shifting cost-sharing for high-value services from the beneficiary to the plan. For example, if beneficiaries were paying a \$20 copayment per prescription for high-value diabetes medications, and the V-BID program eliminated that copay, shift effect measures the resulting increase in plan liability (and corresponding decrease in beneficiary liability) for existing users. *There is no increase in total system wide spending from the shift effect.*
2. The expansion effect measures the increase in plan and potential beneficiary spending incurred from increased utilization induced by lower beneficiary cost-sharing. If copays are eliminated, there will be no added beneficiary liability from the expansion effect. The added health plan spending due to the expansion effect represents an increase in overall health care spending, but it is important to recognize that this spending, by definition, is for high-value services often considered health plan quality indicators. *Thus, the increase in spending captured by the expansion effect represents a success.*
3. The offset effect represents savings to the plan, beneficiary, and the system overall from reduced use of clinical services due to the increased use of the targeted high-value services. For example, better management of diabetes may reduce use of emergency department visits or hospitalizations. These reductions in spending are captured by the offset effect.

### Study Sample

Claims from 766,980 Aetna Medicare Advantage members enrolled in 2014 were used for the analysis. This sample was narrowed to beneficiaries with a chronic illness with characteristics making it amenable to a V-BID program. Features include:

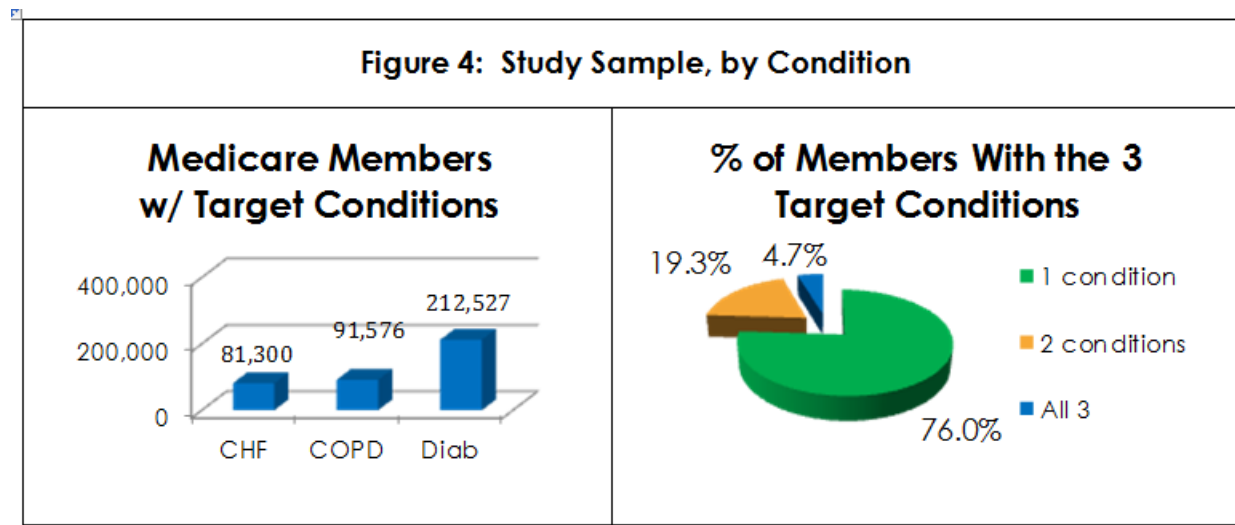
1. Disease prevalence
2. Suboptimal adherence of recommended condition-specific services
3. Potential to reduce preventable hospital readmissions
4. Possible medical cost savings

Based on these parameters, three chronic conditions were chosen (Figure 4):

- Diabetes Mellitus (DM) - 212,527 members
  - 73% had only diabetes (no CHF or COPD)
  - Baseline per member per month (PMPM) spending - \$1,560
- Congestive Heart Failure (CHF) - 91,576 members
  - 36% had only CHF (no Diabetes or COPD)
  - Baseline PMPM - \$3,012
- Chronic Obstructive Pulmonary Disease (COPD) - 81,300 members
  - 48% had only COPD (no CHF or Diabetes)
  - Baseline PMPM - \$2,382

The baseline PMPM for the entire MA sample was \$921.

All medical and pharmacy claims with dates of service between 1/1/2014 and 12/31/2014 were included. For members with more than one of the chosen conditions, each disease was modeled separately. Thus, patients with more than one condition were included in multiple analyses.



### High-Value Services

High-value services were defined as those services that are clinically meaningful in the practice of medicine, improve quality of care or clinical outcomes for Medicare beneficiaries, and are usually standards of care as part of evidence-based guidelines or care pathways (Figure 5). These include various services such as office



visits, diagnostic/laboratory tests, as well as prescription pharmaceuticals. These services were identified using available claims data normally available to a fiduciary claim payer such as Medicare Advantage. Services without specific claim codes or that were not adequately captured with medical chart reviews were not included. In addition, services that are not a Medicare covered benefit (e.g., non-emergent medical transportation, home meal delivery) were considered out of scope for this analysis.

**Figure 5: High-value Services, by Condition**

<b>Diabetes</b>	<b>COPD</b>	<b>CHF</b>
PCP Visits	PCP Visits	PCP Visits
Endocrinologist	Pulmonologist	Cardiologist
HgA1c testing	Bronchodilators	ACE/ARB
Antihypertensive Medications	Inhaled Steroids	Beta Blockers
Statins/triglyceride lowering Medications	Long-acting Beta-agonists (only in combination with inhaled steroids)	Aldosterone Antagonists
Insulin/other glycemic lowering agents	Anticholinergic Medications	Hydralazine/ isosorbide dinitrate
Glucometer & test strips		

### Baseline Spending on High-value Services

Claims analysis determined baseline utilization of the high-value services for each chronic condition during calendar year 2014. Member and plan costs per encounter for high-value services are shown in Figure 6.

**Figure 6: Cost per Encounter for High-value Services, by Condition**

	Member cost (\$)	Plan cost (\$)
Diabetes	\$12.67	\$59.26
COPD	\$22.17	\$104.58
CHF	\$13.83	\$54.12



## Estimating Changes in Service Utilization

The elimination of the member cost-sharing for specified high-value services should result in an increase in utilization (i.e., expansion effect). Enhanced access to, and incremental utilization of, evidence-based services for the selected chronic conditions can lead to the prevention of disease complications, resulting in reductions in certain services (e.g. inpatient admissions/readmissions, emergency room visits). Offset services were included in the model to determine net financial impact of the V-BID program.

Standard actuarial methods were used to estimate utilization changes for selected services, including office visits, office administered drugs, preventive care, and vision exams. Since variations in utilization are expected at different levels of cost-sharing, adjustments were made to smooth the impact for large changes. The impact of the elasticity factors ranged from 7% for Diabetes to 13% for COPD. Proprietary methodology was used to calculate the size of the offset effect. As a result of an increase in use of targeted high-value services, inpatient services were projected to fall an average of 1.1%, and ER visits were projected to decrease 2.5%.

## Results

The impact of targeted cost-sharing reductions for high-value services from the beneficiary, plan, and societal perspective are shown in Figure 7.

### Diabetes Mellitus

For members with diabetes, there was a decrease in beneficiary spending of \$21.37 PMPM on targeted high-value services, but an increase in plan spending of \$32.66 PMPM (largely due to the shift effect) on these services. In total, this represents increased spending of \$11.30 PMPM for high-value services. This increase in spending on high-value care is offset by \$8.35 PMPM in decreased spending on inpatient and ER services (of which \$0.25 is saved by beneficiaries and \$8.10 is saved by the plan). Combining the increased spending on high-value services with the decrease in spending on offset services, yields a \$2.94 PMPM net increase in total system-wide spending (\$21.62 PMPM savings for beneficiaries, \$24.56 PMPM increase for plan). The \$24.56 added spending by the plan represents a 1.7% increase in plan PMPM for these beneficiaries. As a share of total plan PMPM, the increase is less than 1%.

### COPD

The spending estimates for the COPD V-BID program are slightly more optimistic, resulting in a \$3.27 PMPM net savings in overall system-wide expenditures. Beneficiaries see a significant decrease (\$17.63 PMPM), while plan spending increases by \$14.36 PMPM, a 0.6% increase in plan PMPM for COPD members (and a negligible increase total plan PMPM).

## CHF

Of the clinical conditions studied, CHF produced the most favorable spending profile. Savings result for beneficiaries and plans leading to a \$13.29 PMPM net decrease in aggregate system-wide expenditures. For this condition, the cost offsets that result from increased use of high-value care can fully finance the shift in cost-sharing responsibility from beneficiaries to the plan, as well as the added spending on targeted services. Thus in CHF, the actuarial modeling suggests that V-BID is projected to be a win-win-win for beneficiaries, the plan, and the Medicare program.

	Services	Total Societal Costs PMPM	Member Cost Share PMPM	Plan Paid Amount PMPM	% Impact on Plan PMPM for the target cohort
<b>Diabetes</b>					
	High-value	\$11.30	-\$21.37	\$32.66	2.3%
	Offset	-\$8.35	-\$0.25	-\$8.10	-0.6%
	Total	\$2.94	-\$21.62	\$24.56	1.7%
<b>COPD</b>					
	High-value	\$12.09	-\$17.17	\$29.26	1.3%
	Offset	-\$15.36	-\$0.46	-\$14.91	-0.7%
	Total	-\$3.27	-\$17.63	\$14.36	0.6%
<b>CHF</b>					
	High-value	\$7.94	-\$12.14	\$20.07	0.7%
	Offset	-\$21.23	-\$0.59	-\$20.64	-0.7%
	Total	-\$13.29	-\$12.73	-\$0.56	0.0%

## Summary

Actuarial modeling estimated the financial impact of V-BID implementation on consumer, plan, and societal costs for three common conditions (diabetes mellitus (DM), chronic obstructive pulmonary disease (COPD), and congestive heart failure (CHF)). The actuarial assumptions underlying the model suggest that removing existing cost-sharing for targeted high-value services will increase their use by 5% to 15%. The fiscal ramifications of this added spending on high-value services are partially offset by fewer inpatient stays and ED visits.

In all 3 conditions, a V-BID program reduced consumer out-of-pocket costs. Plan costs increased slightly for DM and COPD; savings resulted to the plan for CHF. For the conditions where plan spending increased (e.g., DM and COPD), the PMPM changes are very modest for the subset of patients with the specified conditions, and the effect on the total plan impact is even less. *From the societal perspective, the DM program was close to cost neutral; net savings resulted in the COPD and CHF programs.*

## V. Conclusion

A systematic review of the peer-reviewed literature reveals that cost-related non-adherence (CRN) among the Medicare beneficiaries is a well-established and growing problem, affecting our most vulnerable beneficiaries, contributing to poor patient-centered outcomes, and in some instances increasing expenditures.

Since consumer cost-sharing is an integral part of the Medicare benefit structure, it is vital to ensure that policies aimed to lower Medicare spending neither compromise clinical care nor increase healthcare costs. The incorporation of Value-Based Insurance Design (V-BID) principles to reduce financial barriers to high-value services, including clinician visits, diagnostic tests, drugs, and procedures, may mitigate the negative effects of CRN, especially for the most vulnerable. The current model of one-size-fits-all cost-sharing is not sustainable, and should be replaced with clinically nuanced designs that emphasize patient-centered outcomes, as well as efficiency in care delivery.

Expert interviews and quantitative modeling reveal that the **implementation of V-BID programs which reduce consumer cost-sharing for high-value services and providers for select chronic conditions is a viable and fiscally feasible option for the Medicare program.** Moreover, the alignment of consumer engagement initiatives with ongoing provider-facing, value-based payment initiatives is a critical step to improve quality of care, enhance patient experience, and contain cost growth.

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