To: Third Way

From: Avalere Health

Date: December 16, 2014

Re: Estimated Federal Impact of Improving Medication Adherence in Medicare Part D

Summary

Third Way asked Avalere Health to estimate the cost or savings on the Federal budget of a proposal to increase medication adherence among Medicare beneficiaries. The proposal would strengthen and expand Medication Therapy Management (MTM) programs in Part D to require Part D plans to target adherence improvements for specific conditions where improved medication adherence is shown to decrease medical spending. The proposal would require all Part D plans to participate and allow plans to share in medical spending savings.

We estimate this proposal would reduce federal spending by $4.7 billion over the 2015-2024 federal budget window. This amount reflects a combination of an estimated $1.8 billion in new Part D costs and an estimated $1 billion in shared savings with Part D plans. This spending is offset by an estimated $7.5 billion in Medicare Parts A and B spending for medical services.

Estimated Change in Federal Spending due to Improved Medication Adherence in Part D

$ in millions, by fiscal year

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	**2015-2024**
Part D Costs	89	128	141	157	171	188	202	219	244	265	1,806
A/B Offsets	-420	-600	-642	-688	-730	-777	-823	-873	-925	-976	-7,455
Shared Savings to Part D Plans	0	0	76	108	115	123	129	136	144	152	983
Net change in spending	**-331**	**-472**	**-425**	**-422**	**-444**	**-466**	**-492**	**-518**	**-537**	**-559**	**-4,666**

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Background

Medication non-adherence leads to increased medical costs and poor health outcomes. Non-adherence encompasses not taking a medication as prescribed and includes not filling prescriptions, not taking the full course of medications, not re-filling medications, taking too low or high a dose or otherwise not complying with the required course of treatment.[1] The New England Healthcare Institute (NEHI) estimates that medication non-adherence results in $290 billion in wasteful spending or 13% of total healthcare costs annually.[2]

This is particularly relevant in the Medicare program where many beneficiaries have multiple chronic conditions and are taking multiple medications regularly.[3] Nearly 92% of older adults have at least one chronic condition, and 77% have at least two. On average, individuals 65 to 69 years old take nearly 14 prescriptions per year, individuals aged 80 to 84 take an average of 18 prescriptions per year.

Although many seniors have access to prescription drug coverage through Medicare Part D, there are still significant levels of non-adherence especially for chronic conditions. For 2013 CMS reported adherence rates of 77% and 75% for diabetes medications and hypertension medications respectively for Medicare beneficiaries.[4]

There is a growing body of evidence that improving drug adherence will lower medical costs particularly for some chronic conditions.[5] The Congressional Budget Office (CBO) has recently started to recognize a medical spending offset for increased prescription drug use.[6]

Part D MTM Programs and Medication Adherence

Medicare Part D includes a medication therapy management component. The Centers for Medicare & Medicaid Services (CMS) requires Part D plans to offer medication therapy management (MTM) programs that:

- Are designed to ensure that covered Part D drugs prescribed to targeted beneficiaries are appropriately used to optimize therapeutic outcomes through improved medication use;
- Are designed to reduce the risk of adverse events, including adverse drug interactions, for targeted beneficiaries;
- May be furnished by a pharmacist or other qualified provider;
- May distinguish between services in ambulatory and institutional settings; and

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[1] New England Health Institute. Thinking outside the pillbox: a system-wide approach to improving patient medication adherence for chronic disease. August 2009.
[2] See for example Gloria Nichols-English and Sylvie Poirier, "Optimizing Adherence to Pharmaceutical Care Plans", J Am Pharm Assoc. 2000;40(4); and Hugtenburg et. al., "Definitions, variants, and causes of nonadherence with medication: a challenge for tailored interventions", Patient Preference and Adherence, July 2013 available at file:///C:/Users/jennifer.rak/Downloads/PPA-29549-definitions--variants-and-causes-of-non-adherence--a-challen_070913%20(1).pdf
[3] See https://www.ascp.com/articles/about-ascp/ascp-fact-sheet
[4] CMS Data on Plan Performance on Part D Adherence Measures for 2013 available at http://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html
[5] See for example, Roebuck, M.C., et. al. "Medication Adherence Leads To Lower Health Care Use And Costs Despite Increased Drug Spending", Health Aff January 2011 vol. 30 no. 1 91-9; and Lopert R. et. al., "Medication Adherence and Medicare Expenditure Among Beneficiaries with Heart Failure", Am J Manag Care. 2012;18(9):556-563.
[6] CBO Report, "Offsetting Effects of Prescription Drug Use on Medicare's Spending for Medical Services", November 29, 2012 available at http://www.cbo.gov/publication/43741

- Must be developed in cooperation with licensed and practicing pharmacists and physicians[7]

To meet minimum MTM eligibility criteria for 2014, beneficiaries must have projected annual drug spending of at least $3,017, 2 or 3 specific chronic conditions, and be taking a minimum of 2 to 8 different Part D drugs.[8]

CMS reports that the percentage of Part D enrollees receiving MTM nationwide actually declined from 11% in 2008 to 9.1% in 2010. A recent Avalere analysis found that MTM enrollment for 2012 was 11% and that few enrollees received comprehensive medication reviews.[9] Finally, recent studies suggest that MTM programs do not target beneficiaries with adherence issues. One study found that MTM programs do not optimally target poor adherence to evidence-based medications.[10]

Policy Proposal

Third Way is interested in advancing a proposal to increase medication adherence among Part D beneficiaries. The proposal would strengthen and expand the current MTM program to have greater focus on adherence by requiring Part D plans' MTM programs to, among other things, target and address adherence issues for specified conditions.

The current Part D MTM would be expanded to require plans to target enrollment of beneficiaries with adherence issues for specific conditions. The program would be mandatory for all Part D sponsors. Plans would be required to make additional payments to pharmacists or create incentive payments for pharmacists to work with targeted beneficiaries to achieve higher levels of medication adherence. Plans that meet the requirements and achieve savings would be eligible to share in any Medicare Part A/B savings.

The expanded program would require plans to have MTM adherence specific programs for the following conditions:

- Diabetes
- Congestive Heart Failure (CHF)
- Psoriasis
- Osteoporosis
- Asthma
- Inflammatory bowel disease (IBD)

Plans would also be required to report on adherence and increase efforts to promote adherence among eligible MTM enrollees. Plans would be required to submit data on adherence rates for beneficiaries with the targeted conditions. Plans would be required to demonstrate completion of CMRs with all beneficiaries with identified adherence issues. The plan would be required to notify all plan enrollees of the opportunity to participate in MTM programs and the benefits of the program.

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[7] Part D MTM program requirements at §423.153(d)
[8] CMS April 5, 2013 Memorandum, "CY 2014 Medication Therapy Management Program Guidance and Submission Instructions" available at http://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovContra/MTM.html
[9] Stuart, B. et. al. "Should Eligibility for Medication Therapy Management Be Based on Drug Adherence?", J Manag Care Pharm. 2014;20(1):66-75
[10] Avalere analysis of CMS Public Use File for 2012 data

Data Sources

We used the following data sources to develop our estimate:

Condition Prevalence Estimates:

- Prevalence estimates for diabetes and congestive heart failure (CHF) for 2012 from Health Indicators Warehouse.
- Prevalence estimates for osteoporosis and asthma from "Chronic Conditions Among Medicare Beneficiaries Chartbook", 2012 edition available at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf
- Prevalence estimates for psoriasis from Helmick, C.G., et al., "Prevalence of Psoriasis Among Adults in the U.S.", American Journal of Preventive Medicine, Volume 47, Issue 1, Pages 37–45, July 2014.
- Prevalence estimates for inflammatory bowel syndrome based on incidence rates from Molodecky, NA, et al., "Increasing Incidence and Prevalence of the Inflammatory Bowel Diseases with Time, Based on Systematic Review", Gastroenterology. 2012; 142(1):46-54.

Non-Adherence Rates:

- Osterberg L, and Blaschke T. "Adherence to Medication", N Engl J Med, 2005;353:487-497.
- CMS Data on Plan Performance on Part D Adherence Measures for 2013 available at http://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html
- J Yeuw, et al., "Comparing Adherence and Persistence across 6 Chronic Medication Classes", J Manag Care Pharm. 2009 Nov-Dec;15(9):728-40.
- Zhang Y and Baik SH, "Race/Ethnicity, Disability, and Medication Adherence among Medicare Beneficiaries with Heart Failure", J Gen Intern Med. 2014 Apr;29(4):602-7.
- Thorneloe RJ, et al., "Adherence to Medication in Patients with Psoriasis: a Systematic Literature Review", Br J Dermatol. 2013 Jan;168(1):20-31.
- Ediger, JP, et al., "Predictors of Medication Adherence in Inflammatory Bowel Disease", Am J Gastroenterol., 2007 Jul;102(7):1417-26.
- Solomon, DH, et al., "Compliance with Osteoporosis Medications", Arch Intern Med. 2005 Nov 14;165(20):2414-9.
- Rand CS and Wise RA, "Measuring Adherence to Asthma Medication Regimens", Am J Respir Crit Care Med. 1994 Feb;149(2 Pt 2):S69-76; discussion S77-8.

Enrollment and Spending Estimates

- Congressional Budget Office. "April 2014 Medicare Baseline". Available at http://www.cbo.gov/sites/default/files/cbofiles/attachments/44205-2014-04-Medicare.pdf Total spending is adjusted to account for 65% of FFS enrollees with Part D coverage.
- Centers for Medicare & Medicaid Services. "Announcement of Calendar Year (CY) 2014 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter". April 1, 2013. Available at http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2014.pdf.

- Centers for Medicare and Medicaid Services, Office of the Actuary, "2014 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds", available at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/downloads/tr2014.pdf
- Congressional Budget Office, "Offsetting Effects of Prescription Drug Use on Medicare's Spending for Medical Services", November 2012, available at http://www.cbo.gov/sites/default/files/cbofiles/attachments/43741-MedicalOffsets-11-29-12.pdf

Assumptions and Methodology

Estimates of Beneficiaries Impacted by Expanded MTM Program

We first estimated the number of Part D enrollees in both stand-alone Part D plans (PDPs) and Medicare Advantage prescription drug plans (MA-PDs) over the next 10 years. We used the 2014 Medicare Trustees Report to estimate the number of lives in PDPs, excluding employer group plan lives.[11] We extrapolated the 2024 enrollment estimate using the 2023 growth rate. For MA-PD lives, we used the CBO Medicare baseline projections for health plan enrollment.

In order to determine the number of beneficiaries with each condition, we researched prevalence rates for the conditions included in the proposal. For each condition, we held the prevalence rate constant over the scoring window and only increased by increases in Part D enrollment. The table below shows the prevalence rates used for each of the conditions.

Table 1: Prevalence Rates for Conditions Included in Expanded MTM Program

Condition	Estimated Prevalence Rate	Source
Diabetes	27%	Health Indicators Warehouse Data
CHF	15%	Health Indicators Warehouse Data
Psoriasis	3%	Helmick, C.G., et al., American Journal of Preventive Medicine, Volume 47, Issue 1, Pages 37–45, July 2014
Osteoporosis	7%	Chronic Conditions Among Medicare Beneficiaries Chartbook, 2012 edition
Asthma	5%	Chronic Conditions Among Medicare Beneficiaries Chartbook, 2012 edition
IBD	0.6%[12]	Molodecky, NA, et al., Gastroenterology. 2012; 142(1):46-54.

We assumed that enrollees would be targeted for adherence to each condition separately, so that beneficiaries with multiple of the targeted conditions could be included in the eligible population more than one time. We assume that while there may be some overlap in administrative efforts to improve adherence for an enrollee with multiple conditions these would not be meaningful and there would be increased costs for improved adherence for medications for each of the conditions separately.

We assume that all PDPs and MA-PDs will participate, as the program will be mandatory.

[11] Centers for Medicare and Medicaid Services, Office of the Actuary, "2014 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds", see table Table IV.B7. on page 148.
[12] This represents the combined prevalence of ulcerative colitis (UC) and Crohn's disease (CD).

However, we assume that only a portion of beneficiaries with the targeted conditions will be non-adherent. We researched estimated non-adherence rates for each condition and applied a specific non-adherent rate for each to determine the number of beneficiaries impacted.

Table 2: Estimated Non-Adherence Rates and Source Ranges

Condition	Avalere Estimated Condition Specific Non-Adherence Rate	Estimated Non-Adherence Rate Ranges	Sources
Diabetes	25%	23-34%	J Yeuw, et al., "Comparing Adherence and Persistence across 6 Chronic Medication Classes", J Manag Care Pharm. 2009 Nov-Dec;15(9):728-40 and 2013 CMS Star Ratings Data
CHF	40%	37-48%	Zhang Y and Baik SH, "Race/Ethnicity, Disability, and Medication Adherence among Medicare Beneficiaries with Heart Failure", J Gen Intern Med. 2014 Apr;29(4):602-7
Psoriasis	40%	21.6-66.6%	Thorneloe RJ, et al., "Adherence to Medication in Patients with Psoriasis: a Systematic Literature Review", Br J Dermatol. 2013 Jan;168(1):20-31
Osteoporosis	45%	45-52%	Solomon, DH, et al., "Compliance with Osteoporosis Medications", Arch Intern Med. 2005 Nov 14;165(20):2414-9
Asthma	50%	30-70%	Rand CS and Wise RA, "Measuring Adherence to Asthma Medication Regimens", Am J Respir Crit Care Med. 1994 Feb;149(2 Pt 2):S69-76; discussion S77-8
IBD	33%	27-37%	Ediger, JP, et al., "Predictors of Medication Adherence in Inflammatory Bowel Disease", Am J Gastroenterol., 2007 Jul;102(7):1417-26

Estimated Impacts on Adherence

We accounted for both primary and secondary non-adherence in estimating the impact of the proposal. We assumed some portion of the targeted beneficiaries had primary non-adherence i.e. never filled their prescriptions. We assumed another portion of beneficiaries had secondary non-adherence, including taking some medications but less than the full course of prescribed medication.

Estimates are that 25% of beneficiaries have primary non-adherence and that 50% stop taking medications within a year.[13] We assumed that for the 75% of patients that might have some form of non-adherence, approximately one-third (33%) had primary non-adherence and two-thirds (67%) had secondary non-adherence. We used these proportions to make adjustments in drug spending and as the basis for estimating prescription changes.

For both types of non-adherence, we assumed that plans would improve adherence rates by 10%. We assume that plans would be required to specifically target non-adherent beneficiaries, would have to report on adherence rates, and would only be eligible for shared savings if they meet these improvement levels.

For changes in prescriptions, Avalere assumed that beneficiaries with primary non-adherence would have an equivalent 10% change in scripts. However, for secondary non-adherence where

[13] Osterberg L, and Blaschke T. "Adherence to Medication", N Engl J Med, 2005;353:487-497.

beneficiaries would have gaps in coverage or not take a full course of a medication, there would only be a 5% increase in scripts.

For changes in Part D spending, we assumed that although there would be a 10% improvement in adherence that plans would simultaneously encourage the use of generics (especially if some of the non-adherence was due to costs), such that spending would increase by 8% for primary non-adherence and 5% for secondary non-adherence.

Table 3: Assumptions on Impact of Improvements in Adherence

Type of Non-Adherence	Estimated Rate of Non-Adherence	Estimated Improvement in Adherence	Estimated Script Change	Estimated Change in Part D Spending
Primary	33%	10%	10%	8%
Secondary	66%	10%	5%	5%

Estimating Condition-Specific Drug Spending

Estimates of drug expenditures for diabetes, CHF, psoriasis, osteoporosis, asthma, and IBD were calculated using estimates of per capita Part D spending and then adjusting by the relative expenditures for each condition using the CMS risk adjustment model values for each condition.[14]

We estimated annual per capita Part D costs using the CBO April 2014 baseline. We adjusted the annual per capita average Part D costs to determine the expected Part D costs for each condition using the prescription drug risk adjustment values for each of the conditions used in the analysis. We used the 2014 CMS RxHCC risk adjustment model values for diabetes, CHF, psoriasis, osteoporosis, asthma, and IBD, using the RxHCC values for the over 65 non-LIS population.[15] For diabetes, we accounted for both complicated diabetes and uncomplicated diabetes by using both RxHCC values and attributing 10% of the costs to complicated diabetes and 20% of the costs to uncomplicated diabetes.

Table 4: Estimating Condition Specific Drug Spending

	Value	Dollars (2015)
2015 Average D Spending per Person (CBO)		**$1,684**
Risk Scores		
RxHCC14--Diabetes with complications	0.276	$465
RxHCC15--Diabetes without complications	0.184	$310
RxHCC87--CHF	0.152	$256
RxHCC147--Psoriasis	0.111	$187
RxHCC45--Osteoporosis	0.042	$71
RxHCC104--Asthma	0.237	$399
RxHCC32--IBD	0.289	$487

[14] Centers for Medicare & Medicaid Services. "Announcement of Calendar Year (CY) 2014 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter". April 1, 2013. Available at http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2014.pdf.

[15] We used the estimates for the over 65 non-LIS population to determine average expected costs for beneficiaries with these conditions. While the risk factors for the LIS population may be higher, we could find no evidence that the increased level of complexity for duals is directly attributable to a specific condition.

Avalere also estimated plans would spend an additional 10% of expected drug costs on expanded program expenses and pharmacist payment and incentives.

Estimated Impact on Parts A and B Spending

In order to estimate the savings to the Medicare Parts A and B programs for the improvements in adherence, Avalere followed CBO's standard for calculating offsets.[16] CBO estimates that for every 1% increase in prescriptions filled, there is a corresponding 0.2% decrease in medical spending.

We calculated total expected Medicare Part A and B spending using average per capita FFS spending using the CBO April 2014 Medicare baseline. We then calculated the estimated Medicare Part A and B spending for the target FFS populations (PDP enrollees) and estimated the offset amount by applying our estimates of script changes for both the primary and secondary adherence changes (see Table 3). Finally, once we determined the total spending and savings due to the proposal, we adjusted for the interaction effects with Medicare Advantage.

Estimated Payments to Part D Plans from Shared Savings Approach

Under the proposal, Part D plans are eligible to receive 25% of estimated Medicare Part A and B savings for expanded MTM programs if they achieve improvements in adherence for the targeted populations. We assumed that plans are eligible for savings three years following the year that they offer the expanded services. Avalere estimates that plans will receive the full amount back in shared savings.

[16] CBO Report, "Offsetting Effects of Prescription Drug Use on Medicare's Spending for Medical Services", November 29, 2012 available at http://www.cbo.gov/publication/43741