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A Simple Change To Medicare Part D's Low-Income Subsidy Program Could Save \$5 Billion

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Abstract

Medicare Part D provides low-income subsidy to beneficiaries below 150 percent of the Federal Poverty Level. In 2013, over 10 million beneficiaries receive low-income-subsidy and 75% of total Part D federal spending of \$60 billion is for low-income-subsidy enrollees. The government randomly assigns low-income-subsidy enrollees to stand-alone Part D plans. Random assignment is suboptimal because beneficiaries are often assigned to plans either not covering or charging higher costs for their medications. We propose an intelligent reassignment that matches beneficiaries to plans according to their medication needs. Using 2008-2009 Part D data, we estimated that the potential savings to the government from this simple change could be over \$5 billion, with the mean/median government saving at \$710 (\$368) per low-income-subsidy enrollee per year. Not only could reassignment lead to substantial savings, it could concurrently lower the proportion of prescriptions that require utilization review restrictions.

Keywords

Medicare Part D; low-income subsidy; potential savings; intelligent reassignment; random assignment

Medicare Part D provides low-income subsidy to beneficiaries below 150 percent of the Federal Poverty Level.¹ In 2011, over 10 million beneficiaries received low-income-subsidy, representing 40% of Medicare Part D enrollees.² The Congressional Budget Office estimates that Part D spending totals \$60 billion in 2013, 75% of which is to cover medications for low-income-subsidy enrollees.³ Unlike non-low-income-subsidy enrollees who pay for approximately 60% of drug spending through their own premiums and out-of-pocket payments, low-income-subsidy enrollees pay zero or a small fixed amount and effectively 95% of their total drug spending is paid by the federal government.³

In 2006, the majority of low-income-subsidy beneficiaries were randomly assigned to stand-alone Part D plans with premiums at or below the regional average.¹ Each year, random assignments occur for new low-income-subsidy enrollees, and those whose original plans

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are no longer available as benchmark plans. Random assignment has caused several problems: (1) disruptions in plan coverage for 5.9 million between 2007 and 2010;^{4, 5} (2) high beneficiary spending for those assigned to ill-fitting plans that did not cover many drugs enrollees took; the potential out-of-pocket costs could be as high as \$6000;⁶ and (3) high government spending for those assigned to plans requiring high copayments.⁷ This means that alternative assignment schemes based on patients' medication needs may substantially improve patient outcomes and/or reduce government spending, which we examine in this study.

In particular, we linked a 5% random sample of 2008-2009 Medicare Part D events data and Prescription Drug Plan Formulary and Pharmacy Network Files to quantify potential savings to beneficiaries and the government if low-income-subsidy enrollees were assigned to the least expensive plan in the region they resided.

Background

Medicare Part D Benefit and Low-income Subsidy Program

The low-income-subsidy program covers an low-income-subsidy enrollee's premium up to a "benchmark" amount, which is calculated for each of the 34 stand-alone Part D regions based on the average premium bid for the basic benefit offered by all Part D plans.⁴ The government pays the benchmark amount toward the premium. However, low-income-subsidy enrollees can choose to enroll in any Part D plan and pay the extra premium above the benchmark amount.

The standard Part D benefit includes a small deductible, an initial coverage period where the beneficiary paid 25% coinsurance for their drug spending between \$320 and \$2930 (2012 figures), a coverage gap where the beneficiary paid 100% out-of-pocket, and a catastrophic coverage period where the beneficiary paid 5% coinsurance after the beneficiary spent a total of \$4700. However, low-income-subsidy enrollees only pay zero or a small copayment or coinsurance throughout the year depending on their income (see copayment table in Exhibit A in the Appendix);⁸ and the government subsidizes the difference between the normal charge for a non-low-income-subsidy enrollee and what a low-income-subsidy enrollee pays. However, if a drug is not on a plan's formulary, the beneficiary has to pay full cost.

Random Assignment of Low-income-subsidy Enrollees

Low-income-subsidy enrollees can choose to enroll in any Part D plan at any time. However, to ensure low-income-subsidy enrollees have continuous drug coverage, the government randomly assigns them to *benchmark* plans in the following three situations:

First, at the beginning of Part D program, the Centers of Medicare and Medicaid Services (CMS) randomly assigned about 8 million Medicare beneficiaries who were automatically eligible for the low-income subsidy. These beneficiaries included those qualifying for full Medicaid benefits (dual eligibles), those enrolled in Medicare Savings Programs, or receiving Supplemental Security Income.⁴ For the other 1.5 million enrollees who qualify

for the low-income subsidy but need to apply, if they did not choose on their own, the government randomly assigned them to stand-alone Part D benchmark plans.⁴

Second, CMS reassigns low-income-subsidy enrollees to new plans each year if their original plans are no longer qualifying under the benchmark plus a *de minimis* threshold (\$1-\$2). However, those low-income-subsidy enrollees who previously switched plans on their own are considered “choosers” and are not reassigned by the government.⁹

Third, for Medicaid beneficiaries who recently become eligible for Medicare and others who become newly eligible for Medicaid and Medicare, CMS randomly assigns them to benchmark plans on a monthly basis.⁹

Intelligent Reassignment Based on Medication Use

We simulated total drug spending under each stand-alone Part D plan available in the beneficiary's region in 2009 using the beneficiary's 2009 actual drug consumption. As a result, each beneficiary has one actual spending amount in his/her actual plan plus 44-56 simulated numbers, one for each alternative plan available in his/her region. We then compared the simulated and the actual amount to identify the least expensive total drug spending plan for the beneficiary based on the beneficiary's actual medication use. Potential savings were defined as the difference between the actual spending and the least expensive simulated amount.

Using 2009 actual drug use to simulate 2009 plans, we essentially assumed that the government can perfectly predict beneficiaries' drug use next year. This is unlikely. We therefore also simulated using 2008 drug consumption and 2009 available plans, assuming the government cannot predict the drug use next year at the time of reassignment and can only observe beneficiaries' actual drug consumption this year. We conducted the sensitivity analysis to evaluate how sensitive our simulated results would be under different assumptions.

Currently the government only randomly assigns low-income-subsidy beneficiaries to benchmark plans, but our reassignment approach simulates outcomes for all available stand-alone Part D plans (benchmark plans and enhanced plans), because it is possible that being assigned to an enhanced plan could save the total beneficiary and government spending more compared to being assigned to a benchmark plan.¹⁰

Besides spending, we also simulated plans' medication utilization review methods, including prior authorization, quantity limits, and step therapy. This allows us to compare plan convenience and total spending across plans.

Study Methods

Data Source and Study Population

We used 2008-2009 Medicare datasets for a 5 percent random sample of Medicare beneficiaries who qualified for the low-income-subsidy program. The datasets include Part D plan enrollment, Part D drug event, plan/prescriber/pharmacy characteristics files, and

Prescription Drug Plan Formulary and Pharmacy Network Files (Detailed information about datasets was described previously).¹¹

Our study population included beneficiaries who had continuous Medicare Part D coverage and low-income subsidy throughout the year or until they died for those who died in 2009. We excluded beneficiaries enrolled in Medicare Advantage plans because they obtain both prescription drug and medical care benefits from the same plan and the government does not assign low-income-subsidy enrollees to Medicare Advantage plans. Finally, we excluded those low-income subsidy enrollees if they switched plans in 2009, because the government currently does not assign low-income-subsidy enrollees if they ever switched plans. Our final study sample included 355,478 beneficiaries.

Outcomes

We first calculated the total spending, which includes the premium of a Part D plan and the copayments or coinsurance for the drugs filled under a Part D plan. This is what non-low-income-subsidy would pay under the same plan; that is, it includes both out-of-pocket payment plus government subsidy. We also broke-down the total spending into beneficiary spending (including the premium above the benchmark and copayments after subsidy) and government spending (including the benchmark premium and copayments required by plans minus copayments paid by low-income-subsidy enrollees).

In addition, we calculated the proportion of prescriptions filled by the beneficiary that required any utilization review method, including prior authorization, quantity limits, or step therapy. We reported the consolidated measure for any utilization review as well as each individual measure.

Simulation and Sensitivity Analysis

We simulated each outcome under each available stand-alone Part D plan using the beneficiary's 2008 and 2009 actual drug consumption. We described the simulation process in detail in Exhibit C in the online Appendix.⁸ Potential savings were calculated as the difference in total spending between the actual plan the low-income subsidy enrollee was in and the least expensive plan based on our intelligent reassignment schemes. In addition, we separated savings to beneficiaries and the government and reported them by quintile of total savings.

We conducted two main types of sensitivity analyses. First, we examined whether the simulated potential savings would vary substantially if we used beneficiaries' actual drug use observed in 2008 versus 2009 Part D data. Second, we simulated potential savings for all available stand-alone Part D plans versus only benchmark plans.

Limitations

Our study has a few limitations. First, our data do not include plan quality measures, such as customer service, so we could not include this information in the simulation model. However, CMS has these data and can easily include them in the model to reassign beneficiaries based on both plan quality and potential savings. Second, our model assumes

that beneficiaries' drug consumption does not change under an alternative plan. This is unlikely true, but it is not a major concern, because low-income-subsidy enrollees face zero or a small copayment and our sensitivity analysis confirms that potential savings would not vary much by the beneficiary's drug consumption. Third, there may be some drugs missing in the Part D data. For example, if a drug is not covered in the plan's formulary and the beneficiary pays its full costs, then the drug claim would not be in the Part D data. Fourth, our study sample only included beneficiaries with full-year low-income-subsidy stand-alone Part D coverage and who did not switch plans in 2009. Beneficiaries with partial-year low-income-subsidy or switching plans could benefit from the reassignment, because even though beneficiaries chose plans themselves (instead of being randomly assigned), previous studies have shown that individuals are not capable to choose the cheapest plans based on their medication needs.¹¹ The potential total savings could be even larger if the government decides to reassign for those with partial-year low-income subsidy, partially enrolled in Medicare Advantage plans or switched plans themselves. Our simulation model could be easily applied to these individuals.

A small proportion of our study population could have switched plans prior to 2009, so their 2009 plan choice is due to their own selection, instead of random assignment by the government. We did not attempt to identify who were randomly assigned; we simply propose to reassign low-income-subsidy enrollees based on their medication use and quantify potential savings using real-world national data.

Study Results

Characteristics of the study population

Low-income-subsidy enrollees consist of a higher proportion of minority beneficiaries compared to the general Medicare enrollees, for example, over 18% and 12% of our study population were Blacks and Hispanics, respectively (see Exhibit C in the online Appendix.)⁸ Over 87% of low-income-subsidy enrollees were dually eligible for both Medicare and Medicaid coverage. The mean total beneficiary drug spending (including beneficiary out-of-pocket payment and government subsidy amount, but excluding plan payment) among low-income-subsidy enrollees in 2009 was \$2082. The mean proportion of all prescriptions filled per low-income-subsidy enrollee in 2009 that required any utilization review was 28.7%.

Potential savings from intelligent reassignment

If beneficiaries were reassigned to the least expensive plans in the region based on their actual drug use in 2008, the mean/median total saving would be \$743 (\$420) per low-income-subsidy enrollee a year, of which the savings to the government would be \$710 (\$368) per low-income-subsidy enrollee. The first to fifth quintiles of the total savings per low-income-subsidy enrollee would be \$96, \$256, \$427, \$826, and \$2111 (Exhibit 1). The majority of the total savings would be to the government, with the 1st to 5th quintiles of \$90, \$228, \$378, \$778, and \$2075 per person. The savings to beneficiaries were minimal overall. The mean/median total savings would be \$738 (\$395) and government savings would be \$716 (\$362), if we used 2009 data to simulate savings. The first to fifth quintiles of the total

savings per low-income-subsidy enrollee would be \$94, \$236, \$402, \$808, and \$2148 (see Exhibit D in the online Appendix),⁸ very similar to the results using 2008 data.

If beneficiaries were assigned to the least expensive plans only among all *benchmark* plans, the total savings would be smaller, compared to if beneficiaries were assigned to the cheapest all stand-alone Part D plans (Exhibit 2). In the simulated results using 2008 Part D data, the total saving quintiles were \$42, \$208, \$338, \$608, and \$1700 for total savings, and \$24, \$174, \$268, \$512, and \$1573 to the government. The numbers using 2009 Part D are similar (see Exhibit E in the online Appendix).⁸

Improvement in utilization review requirements from the intelligent reassignment

Exhibit 3 compares the proportions of prescriptions filled that required any utilization review method. In their actual plans in 2008, 29% of all prescriptions filled per person required any form of utilization review; 27% of filled prescriptions required quantity limits. If beneficiaries were assigned to the least expensive plans based on total spending, only 20% of all prescriptions filled required any utilization review and 19% of the filled prescriptions required quantity limit. The results are essentially same from 2009 simulation (see Exhibit F in the online Appendix).⁸

Discussion

Summary of results and comparison with previous studies

We found that the mean/median government saving could be \$710 (\$368) per low-income-subsidy enrollee per year if each enrollee was assigned to the least expensive plan that covered his/her drugs. The total savings to Medicare could add up to \$5.05 billion (= savings per person \$710* the number of beneficiaries in our study sample 355,478 *20 because our data is a 5% random sample). The savings are robust after we conducted sensitivity analysis by using current or prior year drug consumption. In addition to substantial savings, the intelligent reassignment also improves the plan convenience to beneficiaries, because it lowers the proportions of their total filled prescriptions that required any utilization review method.

Previous studies have shown that Medicare beneficiaries had difficulty choosing the optimal plans to fulfill their medication needs, but these studies have been focusing on non-low-income-subsidy beneficiaries.^{11, 12} Compared to non-low-income-subsidy enrollees, low-income-subsidy enrollees are poorer, less educated, and more likely to have mental disorders or disabilities.¹³ Thus, low-income-subsidy enrollees may be less likely to make rational plan choice.¹⁴ This is partially why the government randomly assigns them to a plan to ensure they have a drug plan. However, our study notes that random assignment is suboptimal and over \$5 billion could be saved through a simple change of assignment algorithm. The potential total savings (government and beneficiaries) among low-income-subsidy enrollees (\$743 per person per year) are substantially larger than the savings previously found for non-low-income-subsidy enrollees (\$368 per person per year).¹¹

Potential downsides and feasibility of the reassignment

Plans can and perhaps would adjust their formularies to avoid costly low-income-subsidy enrollees under intelligent assignment. But this could happen regardless of which assignment mechanism is used. In addition, plans generally cannot make midyear formulary changes, and cannot vary copays for low-income-subsidy enrollees because the copays are set by statute. There is also some protection from the requirement to cover drugs in every class, so it is unclear how much gain plans may have from modifying formularies every year.

The government has all Part D event data and has already used them to monitor adverse drug events. The government also has access to other plan information such as customer service rating, which can be included in the assignment algorithm. We have developed an algorithm that can be easily implemented in standard statistical program or software without substantial extra costs each year, to adjust for changes in beneficiaries' medication needs and plan features each year. The savings from the reassignment in the first year would be the largest, because this fixes the problems associated with ill-matched plans accumulated over multiple years. The savings from each subsequent year could be much smaller but the cost associated with reassignment is also small once the new assignment mechanism is built. So it is the government's decision how often and how broadly this reassignment should be carried out.

For a small proportion of beneficiaries, the least expensive plan regarding total drug spending might not be the least expensive plan regarding the beneficiary spending. The government cannot, and should not, force beneficiaries to switch to more expensive plans. Nevertheless, as long as there are savings to the sum of beneficiary and government spending, the government can share part of the savings with beneficiaries to induce them to switch plans. This can still lead to net societal gains. Or alternatively, the government could choose the lowest cost option among the plans that do not raise the beneficiary's total costs. This would be simpler administratively.

The intelligent reassignment is plausible and has been used by some states. For example, Maine used a beneficiary-centered assignment to reassign dual beneficiaries after CMS assigned them randomly, and Florida's Medicaid program provided personalized Medicare Part D reports for beneficiaries based on beneficiaries' drug use and formulary of the plan they were assigned to.⁶ For non-dual beneficiaries with low and modest income who were enrolled in state pharmaceutical assistant programs, Connecticut, Maine, New Jersey, New York, Nevada, and Pennsylvania provided assistance in choosing plans by using a beneficiary-centered assignment for some of their enrollees in 2006.

Broader policy implications and conclusions

Recently there are some proposals to transform Medicare into a premium support program because it could slow the future growth in Medicare spending, compared to the current program.^{15, 16} Under the specifications adopted for the recent Congressional Budget Office report, beneficiaries who did not make a choice would be assigned randomly to a plan with a bid at or below the benchmark.^{15, 16} Our proposed reassignment mechanism could be applied

to broader policy contexts such as Medicare in general or plan choices under Health Insurance Exchanges.

In conclusion, we developed an intelligent reassignment algorithm that matches beneficiaries to plans based on their medication needs. The reassignment can be easily implemented, but the potential savings could be over \$5 billion a year. In addition, it would also lower the proportion of prescriptions filled requiring utilization review restrictions.

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Appendix

Exhibit A Low-income Subsidy Copayments in 2006-2012

Year	2006	2007	2008	2009	2010	2011	2012
Total drug spending reaching catastrophic coverage, \$	5100	5451.25	5726.25	6153.75	6440	6447.5	6657.5
Copays/coinsurance before reaching catastrophic coverage, by low-income subsidy status, (generic copayment/brand-name copayment)							
Dual *	\$1/3	\$1/3.1	\$1.05/3.1	\$1.1/3.2	\$1.1/3.3	\$1.1/3.3	\$1.1/3.3
Dual in nursing homes *	\$0/0	\$0/0	\$0/0	\$0/0	\$0/0	\$0/0	\$0/0
Income < 135% FPL *	\$2/5	\$2.15/5.35	\$2.25/5.6	\$2.4/6	\$2.5/6.3	\$2.5/6.3	\$2.6/6.5
Income 135 - 150% FPL †	15%	15%	15%	15%	15%	15%	15%

* No copays in the catastrophic coverage period;

† copays started with \$2/5 in 2006 and increased slightly each year up to \$2.6/6.5 in 2012 in the catastrophic coverage period.

Abbreviation: FPL= federal poverty line.

Exhibit B: Simulation Approach

We described the simulation process below assuming the government could not predict next year drug use and could only observe current year drug use; but the process was the same under the alternative assumption. First, we merged 2008 Part D event data with the 2009 Pharmacy Network Files (PHARM)'s basic formulary file by NDC to determine which drugs were covered by each plan. If a NDC in the Part D data cannot be matched in the formulary file, we allowed substitution of drugs as long as they belong to the same Generic Code Number (GCN). GCN grouped all drugs with the same ingredients, strength, and dosage form. For example, if a generic and a brand-name drug had the same ingredient and strength, they had the same GCN but different NDCs; if two generic drugs with the same ingredient and strength were produced or labeled by two different manufacturers, they had the same GCN but different NDCs. Thus, our simulation allowed substitution between generics produced by different manufactures and between generic and brand-name drugs in different tiers as long as drugs had the same ingredients and strengths.

Second, we crosswalked the data generated above with the beneficiary cost file and plan characteristics file to obtain copayment/coinsurance structures of each plan for each drug filled in Part D data. The copayment/coinsurance structures varied by the tier of drugs and benefit phase (initiate coverage, coverage gap, and catastrophic coverage). The copayment/coinsurance set up by the plan was the amount that one had to pay if one had not had the low-income subsidy. It was the total amount combining what low-income-subsidy enrollees paid and the amount subsidized from the government. We calculated beneficiary spending based on the fixed copayment/coinsurance structure under the low-income-subsidy program (Exhibit A) and subtracted it from the total spending to obtain the government spending. In addition, the basic formulary file contained information regarding prior authorization, step therapy, and quantity limits and we used these variables to construct the proportion of drugs requiring utilization review.

We observed whether the drug was filled via mail order or retail, and preferred or non-preferred pharmacies by merging pharmacy identifiers between Part D event data and pharmacy characteristics file. We assumed that if patients purchased the drug through the mail in the actual plan, they would continue to use the mail in alternative plans as long as these plans provided mail service.

To measure the accuracy of our simulated costs, we compared the simulated beneficiary and government spending under the beneficiary's actual plan with the spending directly observed in the actual Part D data. The correlation coefficient between the actual and simulated spending was 0.95, indicating high accuracy of our simulation model.

Exhibit C
Summary of Characteristics of Study Population in 2009

Female, %		64.95
Race, %	White	61.86
	Black	18.49
	Hispanic	12.45
	Asian	5.19
	Native American	0.92
	Other	0.93
Age, %	<35	4.78
	35-64	34.36
	65-74	23.46
	75+	37.4
Having Medicaid coverage, %		87.51
Disabled, %		38.95
Death in 2009, %		6.67

Proportion of prescriptions requiring any utilization review, %	Mean (SD)	28.72±25.67
Total Drug Spending, \$	Mean (SD)	2082±1537

NOTE

The number of observations is 355,478. The study population includes beneficiaries: (1) who had full Medicaid coverage (duals) or full-year low-income subsidies in 2009 or until they died; (2) who did not switch plans in 2009; and (3) who were continuously enrolled in stand-alone Part D plans in 2009 or until they died.

SOURCE Authors' analysis using study data.

Exhibit D.

Potential Savings If Beneficiaries Were Assigned to the Least Expensive Plans Based on Total Beneficiary and Government spending Using 2009 Data, by Quintile of Total Savings.
SOURCE Authors' analysis using study data.

Exhibit E.

Potential Savings If Beneficiaries Were Assigned to the Least Expensive *Benchmark* Plans Based on Total Beneficiary and Government spending Using 2009 Data, by Quintile of Total Savings.

SOURCE Authors' analysis using study data.

Exhibit F
Proportions of Prescriptions Filled Requiring
Utilization Review Using 2009 Data

	Actual Plan (%)		Least Expensive Plan (%)	
	Mean ± SD	Median	Mean ± SD	Median
Any Utilization Review	29±26	25	21±23	14
Quantity Limit	27±26	22	19±23	12
Prior Authorization	2±6	0	3±8	0
Step Therapy	3±8	0	1±5	0

Note

The Least Expensive Plans are identified based on Total Beneficiary and Government Spending

SOURCE Authors' analysis using study data.

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Exhibit 1.

Potential Savings If Beneficiaries Were Assigned to the Least Expensive Plans Based on Total Beneficiary and Government spending Using 2008 Data, by Quintile of Total Savings
 SOURCE Authors' analysis using study data.

Exhibit 2.

Potential Savings If Beneficiaries Were Assigned to the Least Expensive *Benchmark* Plans Based on Total Beneficiary and Government spending Using 2008 Data, by Quintile of Total Savings SOURCE Authors' analysis using study data.

Exhibit 3
Proportions of Prescriptions Filled Requiring Utilization Review Using 2008 Data

	Actual Plan (%)		Least Expensive Plan (%)	
	Mean $\pm$ SD	Median	Mean $\pm$ SD	Median
Any Utilization Review	29 $\pm$ 25	25	20 $\pm$ 23	14
Quantity Limit	27 $\pm$ 26	22	19 $\pm$ 23	11
Prior Authorization	2 $\pm$ 6	0	2 $\pm$ 8	0
Step Therapy	3 $\pm$ 8	0	1 $\pm$ 5	0

Note

The Least Expensive Plans are identified based on Total Beneficiary and Government Spending

SOURCE Authors' analysis using study data.