Appendix 1 Baseline characteristics of the simulation sample

The majority of the individual-level characteristics needed for the simulation, including age, gender, diabetes duration, race/ethnicity, education, smoking status, history of cardiovascular diseases, and microvascular diseases, were extracted from the self-reported data in 2018 MEPS. We imputed biomarkers, including A1c, SBP, LDL, and BMI, using the average values from the 2017-2018 National Health and Nutrition Examination Survey (NHANES, 2017-2018) by age, gender, race/ethnicity, and diabetes duration subgroups.

Grouping was based on the policy of a standard Medicare Part D plan in 2018.

Subgroup #1: Patients whose last prescriptions landed in deductible or initial coverage stage. The total expenditure on prescriptions under Medicare Part D did not exceed $3750.

Subgroup #2: Patients whose last prescription landed in the coverage gap. The total expenditure on prescription under Medicare part D was higher than $3750 and the true out-of-pocket payment (TrOOP) did not exceed $5000 (TrOOP: total prescription expenditure under Medicare minus payment by Medicare).

Subgroup #3: Patients whose last prescription landed in catastrophic stage, with the annual TrOOP on prescriptions higher than $5000.

Appendix 2. OOP payment, change of insulin adherence, and A1c reduction.

Demand elasticity equations measuring the association between OOP payment and insulin adherence was fitted using the ordinary least square (OLS) model for Subgroup #1-#3, respectively. Through a backward selection process, the model searched through different forms of OOP payment measurements (total annual OOP payment, monthly OOP payment in the coverage gap, and average monthly OOP payment), and demographic characteristics of the patients (age, gender, and race/ethnicity), to determine the final model specification.

The annual OOP payment for each individual without SSM was estimated directly using the 2018 MEPS data. The SSM-related improvement of insulin adherence was then estimated using the demand elasticity equation and the SSM-related OOP payment reduction, which is estimated by replacing the observed OOP insulin payment with a monthly OOP payment of $35 for each individual. The OOP payment under SSM enrollment was estimated based on the new insulin adherence under SSM and the $35 monthly OOP payment rate.

In all three subgroups, SSM switchers all had significantly higher OOP payments on insulin than non-switchers (subgroup No.1: $462 vs. $93; subgroup No.2: $675 vs. $78; subgroup No.3: $1,303 vs $91, all $p<0.05$). However, we only observed lower insulin adherence in SSM enrollees compared with non-switchers in subgroup No.2 (57.8% vs. 70.9%, $p<0.05$) (See main text). Thus, the demand elasticity equation was only fitted for this population (eTable 1). We found that a $100 increase in the monthly OOP payment was associated with 36 fewer days of insulin coverage for the white population, and 47 fewer days of insulin coverage in the non-white population.

eTable 1. Regression results for patients with the last prescription in the Coverage Gap

Parameter	**Estimate**	**P Value**	**95% CI***
Intercept	269.30	<.01	(263.85, 274.76)
Monthly OOP[†]	-0.36	<.01	(-0.37, -0.34)
RACE			
NON-WHITE	-6.53	0.51	(-26.18, 13.12)
WHITE	[Ref]		
Interaction			
Monthly OOP* NON-WHITE	-0.47 (0.10)	<.01	(-0.67, -0.28)
Monthly OOP * WHITE	[Ref]		

* CI: confidence interval

† Monthly OOP: Monthly out-of-pocket payment in the coverage gap.

Appendix 3. Parameter Distributions In the Probabilistic Sensitivity Analysis.

eTable 2. Source of parameter distributions used in the PSA

Parameter Category	Source of Variation	Reference
Cost Parameters	Published cost estimaties from multiple articles	Shao et al. [1]
Utility Parameters	The HUI diabetes complication equation	Shao et al. [2]
Risk of Complications	The BRAVO risk equations	Shao et al. [3]

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