Supplemental Online Content

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eMethods

This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods

1. Data and Sample

Data Source: The data source was IQVIA's National Prescription Audit (NPA) database. These data are representative of all retail, mail-order, and long-term care pharmacies in the United States. IQVIA receives monthly counts of prescriptions dispensed from 92% of retail pharmacies, 70% of mail-order pharmacies, and 70% of pharmacies in long-term care facilities in the United States. Among retail pharmacies, coverage of chain pharmacies and food stores with pharmacies is more complete than coverage of independent pharmacies. IQVIA compares dispensing totals from included pharmacies with national sales data to project the former in order to provide representative data. Fills data are complete when first reported.

Study Sample: Because Medicare provides nearly universal health insurance coverage starting at age 65, most people just younger than age 65 gain Medicare coverage on their 65th birthday. Thus, we compared changes in insulin fills for Medicare enrollees aged 65-74 years with Part D insurance with changes in a comparison group, people about to age into Medicare (aged 60-64 years without Part D insurance). We extracted monthly data on insulin prescription fills for people in these two groups from September 2021 through April 2023. Insulin fills were identified using the ATC4 code associated with the prescription fill.

2. Calculation of Key Variables

Cost-Sharing: The NPA data provide the patient's out-of-pocket cost amount in categories, which we aggregated to calculate the outcomes of interest. Fills with out-of-pocket cost less than or equal to $35 included fills with no out-of-pocket costs and fills with a non-zero out-of-pocket cost less than or equal to $35. Fills with unspecified out-of-pocket cost accounted for 8.5% of fills in the sample and were included in the count of total insulin fills.

Because the NPA data do not include information on days supplied by the prescription, we could not ascertain whether insulin fills with Medicare Part D insurance with out-of-pocket cost over $35 were in violation of the out-of-pocket cap. The NPA data also do not include information about the size of deductibles in a patient's insurance plan or whether the deductible has been met.

Age and Payer: The NPA data include information on the age of the person filling the prescription, as well as the payer affiliated with the prescription fill. Age is reported in predefined bands (e.g., 65 to 74 years). Payer type is categorized as cash, Medicaid fee for service, Medicare Part D, or third party, a category that includes Medicaid managed care and commercial insurance. The study sample included data from two available age bands, age 60-64 and age 65-74, and payer data were separated into two categories: Medicare Part D, and all payers other than Medicare Part D including cash.

3. Statistical Analysis

We conducted the differences-in-differences analysis using the following specification:

$$Y = \beta_0 + \beta_1(Medicare)X(Year_{2023}) + \beta_2(Medicare) + \beta_3(Year_{2023}) + \sum_{i=2}^{12} \mu_i(Month_i) + \epsilon$$

Y indicates the outcome variable - for example, total insulin prescriptions filled in the current month. *Medicare* is an indicator variable that takes the value 1 for people aged 65-74 with Medicare Part D insurance, and takes the value 0 for people age 60-64 without Medicare Part D insurance. $Year_{2023}$ is an indicator variable that takes the value 1 in

2023 and 0 otherwise. $Month_i$ represents calendar month. Thus, the model adjusts for trends in insulin fills by year and calendar month. Models used heteroscedasticity-robust standard errors.

The coefficient of interest is β_1; in a linear model, this coefficient would capture the additional number of insulin fills associated with the cap to out-of-pocket spending in 2023 among Medicare beneficiaries. We used negative binomial models and calculated marginal effects that represented the changes in absolute number of insulin fills.

Pre-Trends Analysis: The key assumption underlying our analysis is the parallel trends assumption, i.e., the assumption that trends in insulin fills in the two groups compared would have been identical had the insulin cost-sharing cap for Medicare Part D beneficiaries not been implemented.

While this assumption is untestable, a lack of differential trends prior to the cost-sharing cap across the two groups enhances the credibility that trends would have remained parallel in the absence of the policy change. Thus, we tested for differences in adjusted linear trends across the two groups prior to the cost-sharing cap. We included data from September 2021 through December 2022 and estimated the following model:

$$Y = \delta_0 + \delta_1(Medicare)X(Time) + \delta_2(Medicare) + \delta_3(Year_{2022}) + \delta_4(Time) + \sum_{i=2}^{12} \gamma_i(Month_i) + \varepsilon$$

Y and *Medicare* are defined as in the previous model. *Time* indicates calendar time measured as months since the start of the observation period. Like the previous model, this model adjusts for trends in insulin fills by year and calendar month. The $(Medicare)X(Time)$ term allows linear trends in fills over time to vary for people with versus without Medicare insurance.

δ_1 is the coefficient of interest in this model. If outcomes evolved similarly for the two groups compared prior to 2023, δ_1 should not be statistically significantly different from zero; this was the case for all outcomes of interest.