Supplementary Online Content

Sumarsono A, Lalani HS, Vaduganathan M, et al. Trends in utilization and cost of low-density lipoprotein cholesterol–lowering therapies among Medicare beneficiaries: an analysis from the Medicare Part D database. *JAMA Cardiol*. Published online September 9, 2020. doi:10.1001/jamacardio.2020.3723

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

eMethods 1. Medicare Part D Prescription Drug Event Dataset

The Medicare Part D Prescription Drug Event Dataset contains drug expenditures for the approximately 70% of Medicare beneficiaries enrolled in a Part D plan between 2014 and 2018. The listed variables in this dataset are based on total spending for a prescription; this value is derived from total contributions from Medicare, Part D plan, and the beneficiary. Any drug with fewer than 11 claims in 2018 was redacted from the dataset to protect patient privacy. Because the Centers for Medicare and Medicaid Services is prohibited from releasing manufacturer individual drug rebates, all prices listed in the dataset do not account for rebates. Instead, CMS is permitted to release class-level summaries of Medicare Part D drug rebates. We describe this in additional detail in E-Methods II. A full description of this dataset is available on the Medicare Part D Drug Spending Dashboard & Data page, or https://www-cms-gov.foyer.swmed.edu/files/document/medicare-part-d-drug-spending-methodology-2018.pdf.

eMethods 2. Medicare Part D and manufacturer drug rebates

Medicare Part D is insurance specifically for prescription drugs that is administered by private insurance companies per state. Beneficiaries pay a monthly insurance premium to get Part D coverage and in return, they receive prescription drugs at a discounted price based on negotiated rates by the pharmacy benefit manager (PBM) that the insurance company uses.

Pharmaceutical companies offer PBMs rebates for certain prescription drugs (often those that are higher-tiered or expensive) in order to earn preferential formulary status. An undisclosed percentage of the rebate is passed on from the PBM to the private insurance company, which if passed onto the Medicare beneficiary can lower monthly Part D premiums. We used the reported 2014 Part D cardiovascular drug rebate percentage of 26.3% of the total brand-name drug cost as part of our calculations. These rebates fluctuate based on the prescription drug, part D insurance plan, and the year. CMS is prohibited from revealing manufacturer rebates for an individual drug and can only report average class-level rebates.

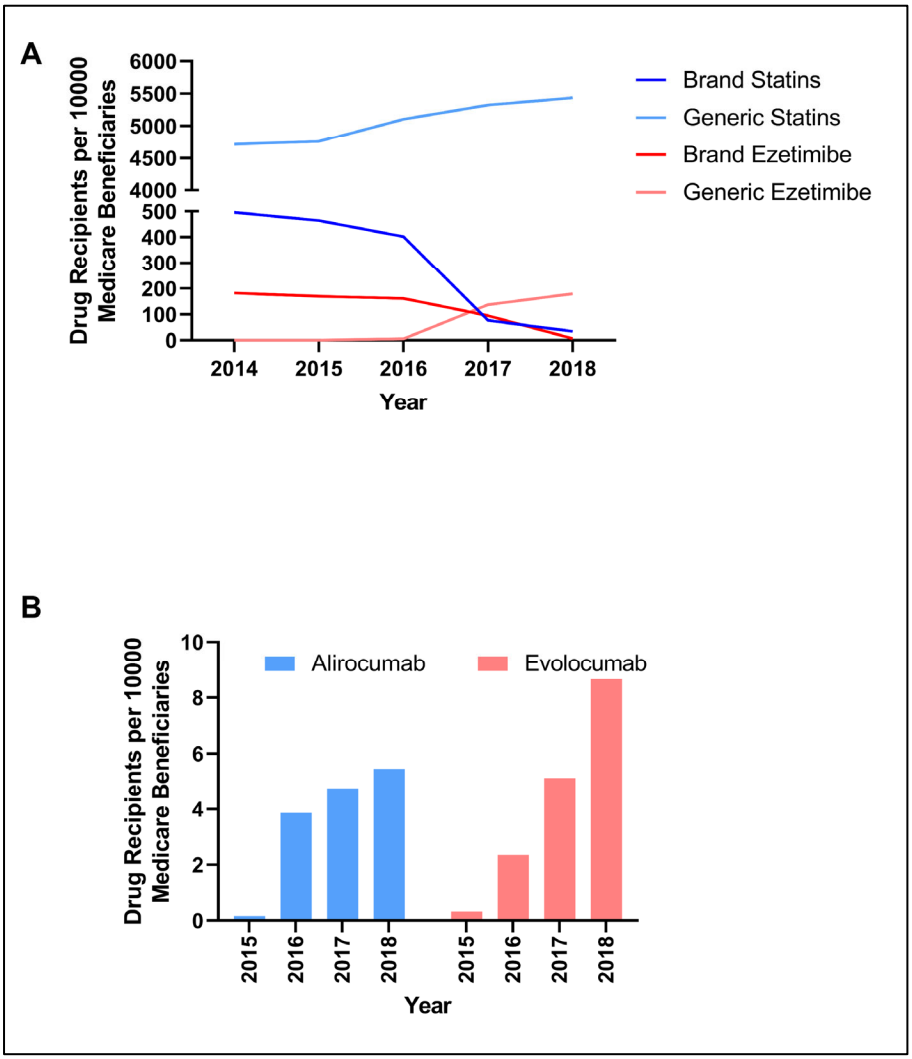
eMethods 3. Medicare Part D Prescriber National Summary report

The Part D Prescriber National Summary provides information on drugs prescribed by individual providers under the Medicare Part D Prescription Drug Program. The primary data source for these data is the CMS Chronic Conditions Data Warehouse. Similar to the Medicare Part D Prescription Drug Event Dataset, any drug with fewer than 11 claims were redacted to protect patient privacy. This dataset reports annual aggregate cost-share paid by the beneficiaries with and without low-income subsidies for the included drugs. In our analysis, we used these data to identify annual trends in aggregate out-of-pocket cost-share paid by all Medicare beneficiaries who were prescribed statin therapy. A full description of this dataset is available on Part D Prescriber CY 2017 dataset or https://www-cms-gov.foyer.swmed.edu/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Downloads/Prescriber_Methods.pdf

eFigure 1. Temporal trends in prescription rates (per 10 000 Medicare beneficiaries) for LDL-lowering therapies between 2014 and 2018

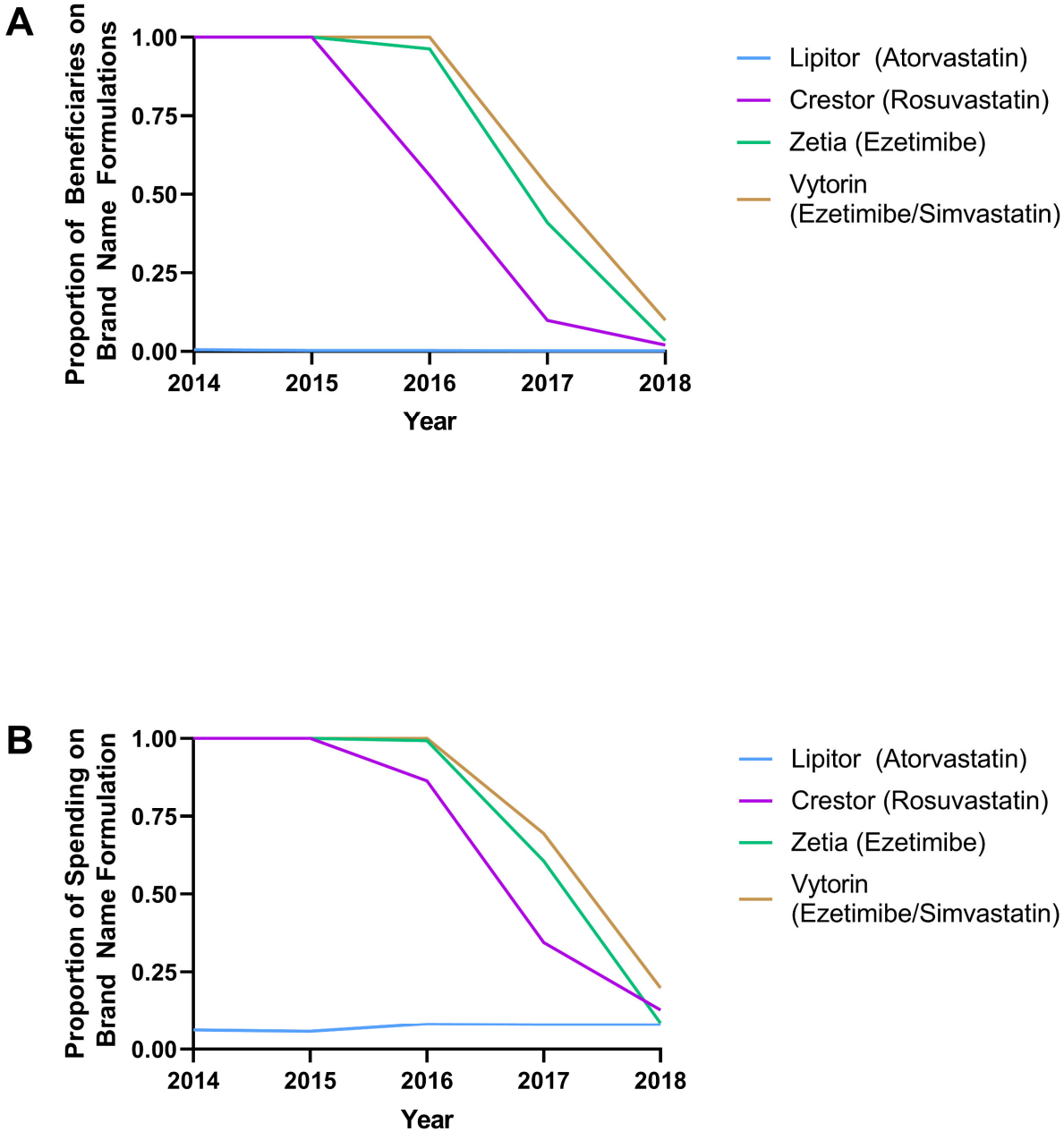
(**1A)** Trends in brand and generic statins and ezetimibe. **(1B)** Trends in prescription rates of PCSK9 inhibitors: alirocumab and evolocumab.

Over the study period, brand statin prescription rate decreased from 496 to 35 per 10,000 Medicare beneficiaries. Generic statin prescription rate increased from 4713 to 5435 per 10,000 beneficiaries. Brand ezetimibe prescription rate decreased from 182 to 6.5 per 10,000 beneficiaries and generic ezetimibe prescriptions increased from 6.2 in 2016 to 181 per 10,000 beneficiaries in 2018. Between 2016 and 2018, overall PCSK9 inhibitor prescription rate increased from 6.2 to 14.1 per 10,000.



eFigure 2. Proportion of beneficiaries or spending on brand-name formulations relative to combined brand-name and generic formulations

Generic atorvastatin was released in 2011, prior to our study period. Generics for rosuvastatin, ezetimibe, and ezetimibe/simvastatin became available 2016, 2017, and 2017, respectively.



eFigure 3. Trends in annual aggregate cost sharing of Medicare Part D beneficiaries for statin prescriptions with and without the low-income subsidy

The Part D low-income subsidy (LIS) provides additional financial assistance to help cover the cost of drugs for eligible individuals with limited incomes. Data are from Medicare Part D Prescriber Dataset from 2014 to 2018. Data are adjusted for inflation and presented in 2018 US dollars.