

Evaluating the Effect of Type of Insurance Coverage on Changes in Prescription Medication Utilization During the COVID-19 Pandemic

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BACKGROUND

- Medicare eligibility at 65 expands drug access.¹ Multiple evaluations of the Part D benefit show significant gains in affordability and utilization for newly eligible seniors.^{2,3,4}
- COVID-19 disrupted care nationwide. Forty-one percent of U.S. adults delayed or missed medical services, including prescription refills, during the first pandemic surge.⁵
- Even Medicare beneficiaries experienced reduced utilization during COVID-19. Traditional Medicare service volume and spending declined by nearly 6% in 2020 as patients deferred care.⁶
- It is unclear whether Medicare’s usual “protective effect” on prescription drug utilization persisted once the pandemic began.

OBJECTIVE

- To evaluate changes in the impact of Medicare eligibility at age 65 on prescription drug utilization during the COVID-19 pandemic.

METHODS

- Data Source:** Colorado All-Payer Claims Database (APCD)
 - Study Period:** January 2019 - December 2021
 - Study Cohort:** Adults aged 55 - 75 with ≥1 month of continuous commercial or Medicare coverage (N = 498,906)
 - Outcome:** Number of prescriptions filled per member-month
- We analyze the overall utilization of all drugs combined per member-month, as well as retail, physician-administered, and specific therapeutic classes including psychotropics, antibiotics, antivirals, cardiometabolic, and oncology drugs.
- Study Design:**
 - Quasi-experimental Regression Discontinuity (RD) centered at the Medicare-eligibility cutoff (65 years)
 - Used a two-stage least squares (2SLS) approach to address non-perfect compliance with Medicare enrollment at age 65.
 - Medicare eligibility (age ≥ 65) served as an instrumental variable for actual Medicare coverage.
 - Estimated the causal effect of Medicare coverage on prescription fills.
 - Assessed changes in this effect before and during the COVID-19 pandemic.
 - The QR code links to Table 1 comparing demographic and insurance characteristics across the Medicare eligibility threshold. Standardized differences greater than 10% were considered meaningful, and covariates with significant imbalance were adjusted for in the models.



- Model Specification:**

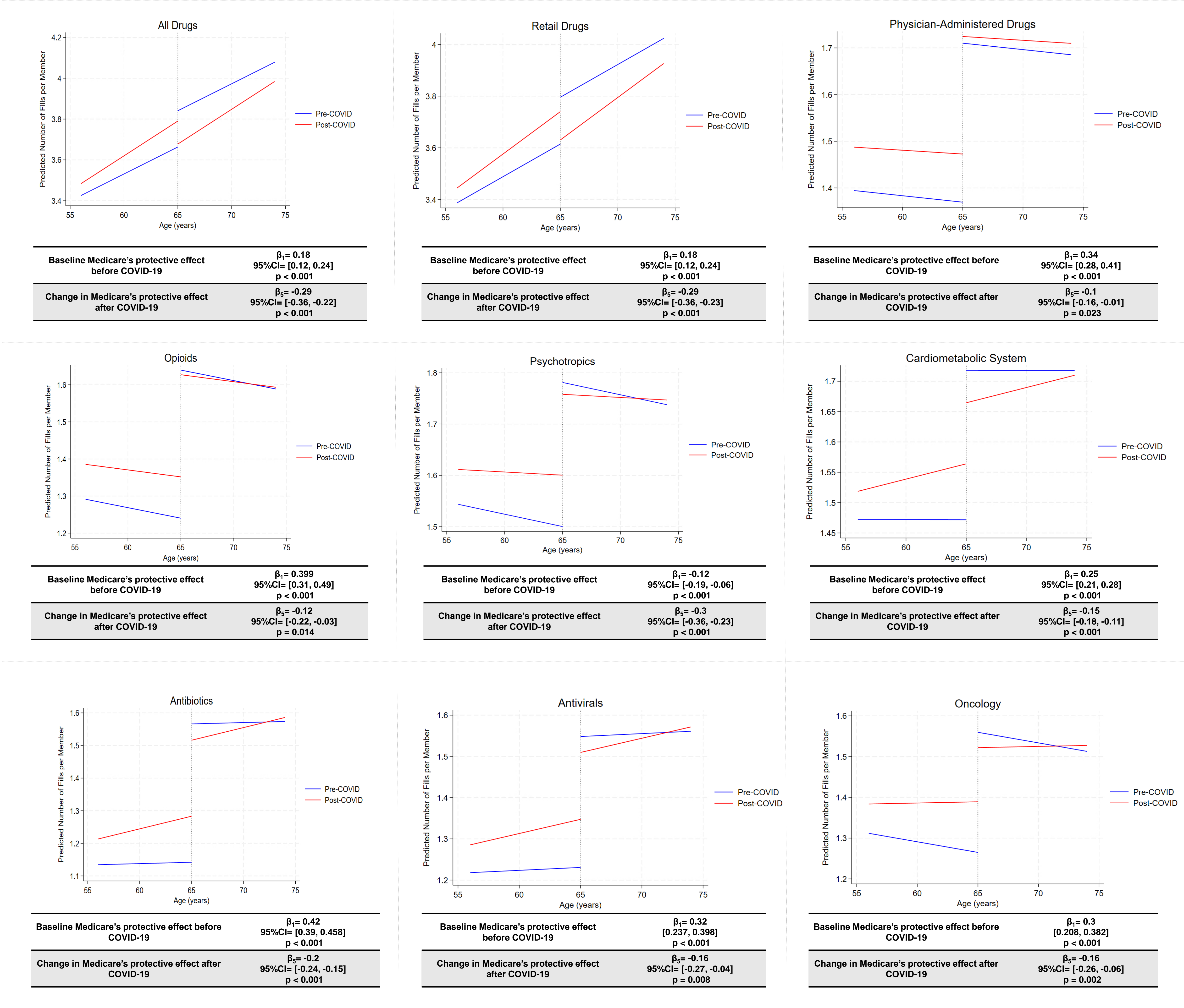
$$Y_{im} = \beta_0 + \beta_1 * Medicare_{im} + \beta_2 * COVID_{im} + \beta_3 (Medicare_{im} * COVID_{im}) + \beta_4 * RunningVar_{im} + \beta_5 (RunningVar_{im} * COVID_{im}) + \beta_6 * race_i + \epsilon_{im}$$

Where:

- Y_{im}: Number of prescription fills for individual *i* in month *m*
- Medicare_{im}: Indicator of whether the member is covered by Medicare
- COVID_{im}: Indicator for post-COVID period (March 2020 or later)
- RunningVar_{im}: Age in months, centered at 65
- Race_i: Vector of categorical indicators for race/ethnicity
- β₃: Key term estimating the change in Medicare’s protective effect during COVID-19**
- β₅: Estimates the difference in the slope of the running variable (age) after the onset of COVID-19, relative to the pre-COVID period.
- ε_{im}: Error term, with standard errors clustered at the individual level

RESULTS

Figure: Change in Medicare’s Protective Effect on Prescription Medication Utilization During COVID-19



The protective effect of Medicare eligibility on prescription medication utilization declined significantly across all drug categories during the COVID-19 pandemic.

CONCLUSION

- Medicare eligibility at age 65 increases prescription medication utilization, but this protective effect declined significantly during the COVID-19 pandemic.
- These findings emphasize the need for policy measures that strengthen prescription medication access and ensure care continuity for Medicare-eligible populations during future public health emergencies.
- Additional efforts are needed to protect racially and ethnically diverse, primarily non-White, populations who may face greater vulnerabilities during system disruptions.

References

References: 1- Park Set al. Effects of Medicareeligibility and enrollment at age 65 years on the use of high-value and low-value care. Health Serv Res. 2023. 2- Aggarwal R, Yeh RW, Dahabreh IJ, Robertson SE, Wadhera RK (2022) Medicare eligibility and healthcare access, affordability, and financial strain for low- and higher-income adults in the United States: A regression discontinuity analysis. PLoS Med 19(10): e1004083. <https://doi.org/10.1371/journal.pmed.1004083> 3- Tipimeni R, Roberts ET, Levy HG, et al. Health Care Utilization and Costs for Older Adults Aging Into Medicare After the Affordable Care Act. JAMA Health Forum. 2025;6(1):e245025. doi:10.1001/jamahealthforum.2024.5025. 4- Olson, A.W., et al., Financial hardship from purchasing prescription drugs among older adults in the United States before, during, and after the Medicare Part D “Donut Hole”: Findings from 1998, 2001, 2015, and 2021. Journal of Managed Care & Specialty Pharmacy, 2022. 28(5): p. 508-517. 5- Anderson KE, McGinty EE, Presskreischer R, Barry CL. Reports of Forgone Medical Care Among US Adults During the Initial Phase of the COVID-19 Pandemic. JAMA Network Open. 2021; 4(1): e2034882. 6- KFF 2022:Traditional Medicare Spending Fell Almost 6% in 2020 as Service Use Declined Early in the COVID-19 Pandemic.