







RESEARCH LETTER

Trends in Anticoagulation Prescription Spending Among Medicare Part D and Medicaid Beneficiaries Between 2014 and 2019

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Since the introduction of direct oral anticoagulants (DOACs), multiple large studies have demonstrated that DOACs are more effective, have fewer bleeding risks, and require less monitoring when compared with warfarin.¹ Given the rising use of DOACs, the many anticoagulation indications that require life-long therapy and the current lack of generic DOAC formulations, we examine contemporary DOAC spending patterns within Medicare Part D and Medicaid between 2014 and 2019.

All three data sets used are publicly available and are readily accessible at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Information-on-Prescription-Drugs/MedicarePartD>, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Information-on-Prescription-Drugs/MedicarePartD>, and <https://data.cms.gov/provider-summary-by-type-of-service/medicare-part-d-prescribers/medicare-part-d-prescribers-by-geography-and-drug/data/2019>. The analyses will not be made publicly available but can be replicated using Microsoft Excel.

We used the 2014 to 2019 Medicare Part D Prescription Drug Event and the 2014 to 2019 Medicaid Drug Spending data sets for this study. We identified all formulations of anticoagulation agents

in these databases, including apixaban, edoxaban, rivaroxaban, dabigatran, warfarin, fondaparinux, low-molecular-weight heparins (dalteparin and enoxaparin). Total spending (defined as total amounts paid by beneficiary and Medicare/Medicaid plan), number of claims, and average spending per claim were extracted. Medicare Part D brand spending was adjusted for a 38% rebate as previously estimated by the Governmental Accountability Office. Medicaid spending was adjusted using estimated brand (23.1%) and generic rebates (13.0%) per the Medicaid Drug Rebate Program. Using the 2014 to 2018 Medicare Prescriber Use Files, national aggregate out-of-pocket spending was extracted. All data are adjusted for inflation using the US Consumer Price Index for Medical Care found on the Federal Reserve Economic Database and reported in 2019 US dollars. We used Microsoft Excel for analysis and GraphPad Prism for figures. The UT Southwestern Human Research Protection Program determined that this study did not require institutional review board approval.

Between 2014 and 2019, total anticoagulation claims increased from 23.5 to 30.6 million (+30%), driven primarily by sharp increases in apixaban (0.9–12.1 million) and rivaroxaban (3.2–6.3 million) (Figure). Conversely, warfarin use declined substantially (17.2–10.4 million).

Key Words: anticoagulation ■ cost ■ medicaid ■ medicare

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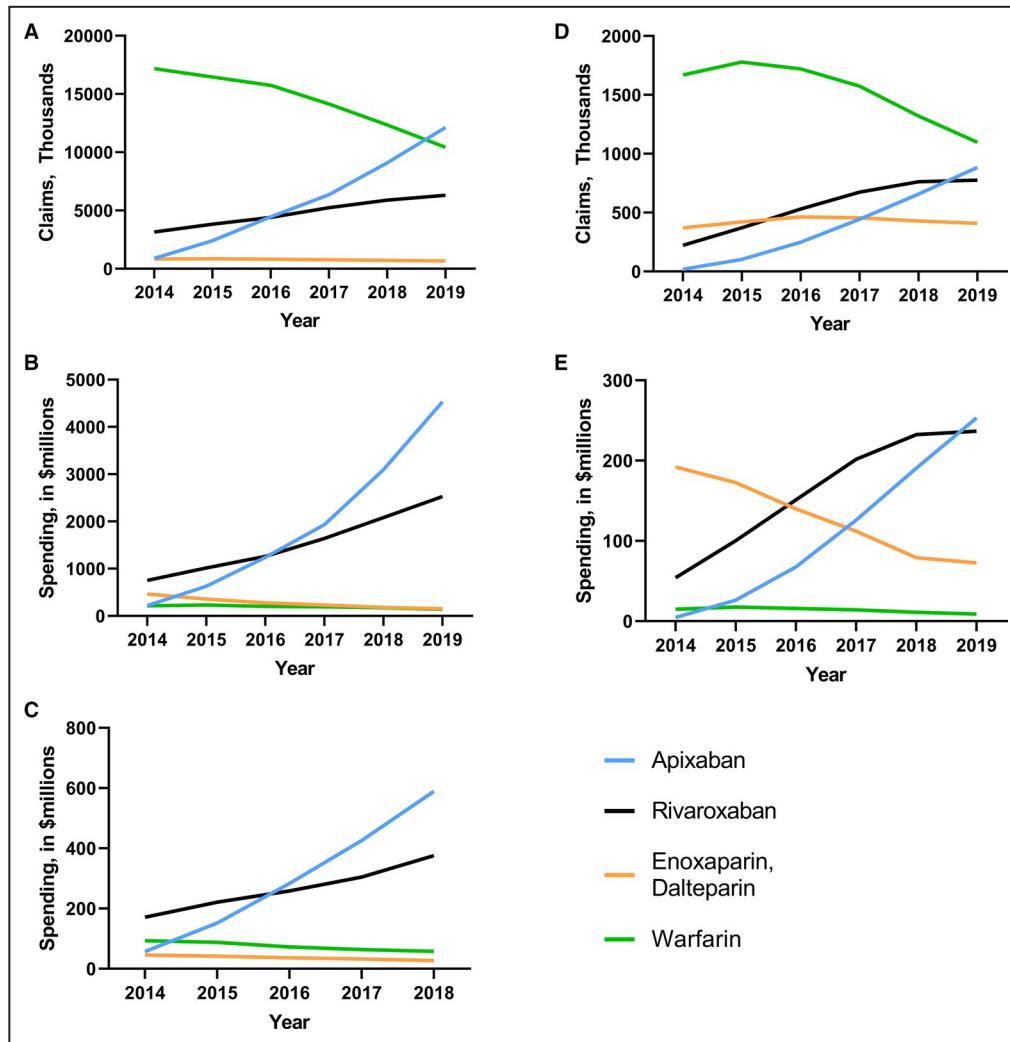


Figure. Medicare and Medicaid trends in use and spending on outpatient anticoagulation therapies. **A**, Medicare Part D claims; **B**, Medicare Part D total spending; **C**, Medicare Part D out-of-pocket spending; **D**, Medicaid total claims; **E**, Medicaid total spending. All dollar values are represented in 2019 US dollars.

Total anticoagulation spending increased by 277% (\$2.1–\$7.8 billion), fueled mostly by increased use of DOACs (\$1.4 billion in 2014 to \$7.5 billion in 2019). Between 2014 and 2019, the average spending per claim decreased for low-molecular-weight heparins (\$554–\$226), increased for apixaban (\$243–\$374), dabigatran (\$267–\$376), and rivaroxaban (\$237–\$400), and remained stable for warfarin (\$12–\$14). The aggregate Medicare out-of-pocket costs for anticoagulation increased by 151% (\$463 million–\$1.16 billion). Between 2014 and 2018, the number of beneficiaries increased by 706% (0.2–1.6 million) for apixaban and 61.5% (0.65–1.05 million) for rivaroxaban with a decrease of 25.2% (2.35 million to 1.75 million) for warfarin. In 2018, total out-of-pocket cost for apixaban, rivaroxaban, and warfarin was \$589 million, \$375 million, and \$58 million, respectively.

Similarly, total anticoagulation claims increased by 38% (2.3 million in 2014 to 3.2 million in 2019). Over the study period, claims increased for apixaban (+4401%, 19 662–884 900), edoxaban (+228%, 719–2357), and rivaroxaban (+248%, 223 079–776 364), but decreased for warfarin (–34%, 1.7 million to 1.1 million) and fondaparinux (–54%, 13 584 to 6228). Total anticoagulation spending increased by 101% (\$294–\$592 million), with the largest increases noted in apixaban (\$4.7–\$253 million), edoxaban (\$166 709–\$576 915), and rivaroxaban (\$54–\$237 million). Between 2014 and 2019, changes in Medicaid per-claim spending for rivaroxaban (\$242 to \$345), apixaban (\$234 to \$324), and warfarin (\$9 to \$8) were similar to Medicare.

Between 2014 and 2019, combined Medicare and Medicaid anticoagulation claims increased from 25.9 to 33.8 million, while total spending increased

from \$2.4 to \$8.4 billion. Further, we observe that increases in DOAC claims exceeded decreases in warfarin claims, likely driven by a transition to DOACs from warfarin, expanding indications of DOACs, and increased initiation of DOACs for anticoagulation-naïve patients.² Additionally, we note that in 2018, Medicare beneficiaries still paid over \$964 million in out-of-pocket costs.

Though overall DOAC spending is increasing, DOAC use may be associated with lower downstream medical expenditures compared with warfarin stemming from decreased risk of major bleeding and stroke and reduced drug monitoring.³ There is strong evidence supporting DOAC superiority to warfarin, but it is striking that, in 2019, a DOAC prescription is >25 times more expensive than warfarin in both Medicare and Medicaid. This cost gap will likely narrow with the release of generic formulations; however, the timeline for release remains unclear. Though the US Food and Drug Administration approved generic formulations of apixaban in 2019 and rivaroxaban in 2020, patent lawsuits have delayed their release.^{4,5} Once generic DOAC formulations become available, it is imperative that clinicians promptly switch to generics to curtail rising health system costs.

Our study has several limitations. Because these data sets do not contain patient-level information, we cannot comment on the indication, duration, or appropriateness of individual anticoagulation therapy. We were unable to estimate Part D average per-beneficiary out-of-pocket spending. Our Medicaid spending estimates are likely slightly overestimated because we could not account for the additional quarterly inflation rebate or state-specific negotiated drug rebates. Finally, we could not account for the reduction in spending from less frequent lab and clinician visits granted by DOACs over warfarin.

This study suggests that Medicare and Medicaid populations are transitioning to more effective and safer yet more expensive forms of anticoagulation. These rising costs may lead to financial burden for Medicare, Medicaid, and patients and require further effort to ensure that access is not limited by cost.

ARTICLE INFORMATION

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Disclosures

Dr Pandey has served on the advisory board of Roche Diagnostics. Dr Vaduganathan has received research grant support or served on advisory boards for American Regent, Amgen, AstraZeneca, Bayer AG, Baxter Healthcare, Boehringer Ingelheim, Cytokinetics, Lexicon Pharmaceuticals, Relypsa, and Roche Diagnostics, speaker engagements with Novartis and Roche Diagnostics, and participates on clinical endpoint committees for studies sponsored by Galmed and Novartis. Dr Fonarow reports consulting for Abbott, Amgen, AstraZeneca, Bayer, Edwards, Janssen, Medtronic, Merck, and Novartis. The remaining authors have no disclosures to report.

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