



Benchmarking Duration of Injectable Medication Use: How Do Claim Intervals Compare With Days Supply in the Real World?

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Introduction

- ▶ Examining treatment patterns for injectable drugs can be challenging in real-world studies, particularly with regard to estimating duration of use and drug discontinuations
- ▶ Further complicating matters is that these products may be identified in real-world data sources through multiple coding types, namely drug (NDC) and procedure (HCPCS) codes, that require different approaches (days supply, fill intervals) for evaluating treatment patterns

Objective

- ▶ To assess the consistency between days supply and fill interval in pharmacy and procedure claims for selected injectable products (e.g., tocilizumab, vedolizumab) and provide insight about imputation methods for injectable products in real-world research

Methods

Study Design

- ▶ This observational, retrospective study assessed tocilizumab and vedolizumab fill patterns from January 1, 2016, through June 30, 2024, utilizing Komodo Research Dataset (KRD) and Komodo Race & Ethnicity (KRE)

Komodo Research Dataset (KRD): Composed of administrative data and claims, KRD captures routinely collected health services utilization records and expenditures for over 330 million de-identified unique individuals in the U.S. Native to HIPAA-compliant, privacy-preserving tokens, KRD offers extended patient-level observations of medical encounters and outpatient pharmacy dispensings via linkage across health and pharmacy insurance plans. Data availability is as early as 2016. Specialty datasets such as genomics, laboratory test results, and electronic medical records are readily accessible via additional linkage. KRD is the optimized schema of the underlying Healthcare Map® from Komodo Health for real world evidence (RWE) generation and health economics and outcomes research (HEOR).

Komodo Race & Ethnicity (KRE): Self-reported or health care provider/system-assigned race and ethnicity information for over 200 million unique individuals obtained from assorted categories of data sources including EHR, patient intake forms, payer enrollment files, and statistically reliable consumer reporting agencies. Value-standardized and pre-certified for dataset linkage via privacy-preserving tokens.

Inclusion Criteria

- ▶ Patients receiving at least one therapy of interest, identified via NDCs in dispensings from outpatient pharmacy claims (Rx) or HCPCS codes in professional administrations from medical claims (Px), from January 1, 2016, and June 30, 2024
- ▶ Patients with an additional treatment on the same therapy and ≥ 1 day apart between 2 treatments
- ▶ Patients who were age ≥ 18 years on the treatment date
- ▶ Patients who were continuously enrolled in both medical and pharmacy plans for 12 months after the earlier treatment date
 - ▶ The first claim that met the above criterion was assigned as index event

Main Analyses

- ▶ Distribution of days supply and fill interval between two consecutive claims, overall and stratified by treatment sequence (e.g. patients may receive the first treatment from Rx and second treatment from Px)

Results

- ▶ Of 148,298 tocilizumab patients and 202,728 vedolizumab patients, 40,864 (27.6%) tocilizumab patients and 73,183 (36.1%) vedolizumab patients met inclusion criteria
- ▶ Respectively, 1.7% of qualifying tocilizumab patients and 3.8% of qualifying vedolizumab patients had an injection observable from both Rx and Px claims on the same day
 - ▶ Among these patients, same-day fills on average accounted for 59.2% and 69.1%, respectively, of their separate-day tocilizumab and vedolizumab treatments
- ▶ Tocilizumab patients showed similar dosing schedule when comparing between days supply from outpatient pharmacy (individual Rx) vs. fill interval from any two consecutive Rx and/or Px encounters (same-day fills de-duplicated, median 28 days of days supply and fill interval). However, vedolizumab patients showed different dosing schedule (25 days longer median fill interval than days supply) (Figure 1)

Figure 1. Days supply and fill interval comparison

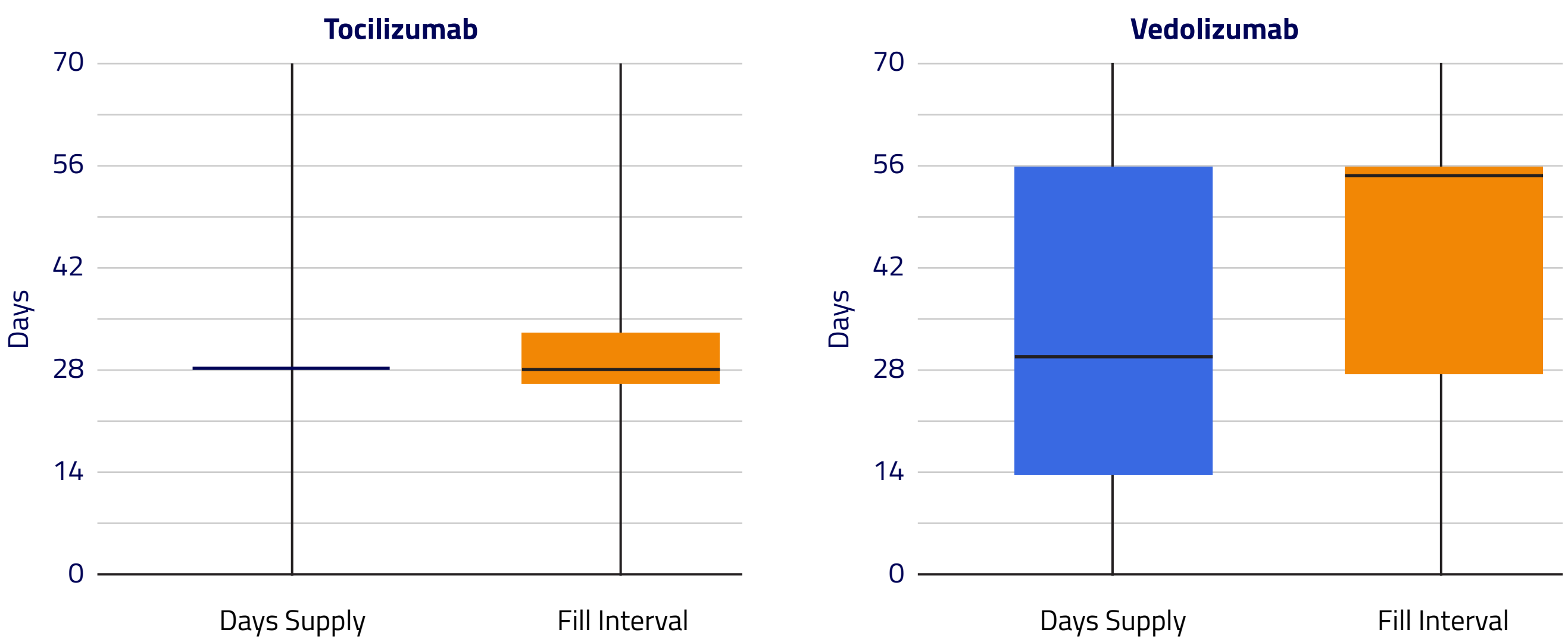


Figure 2. Fill interval by treatment sequence, same-day Rx-Px fills de-duplicated as Rx

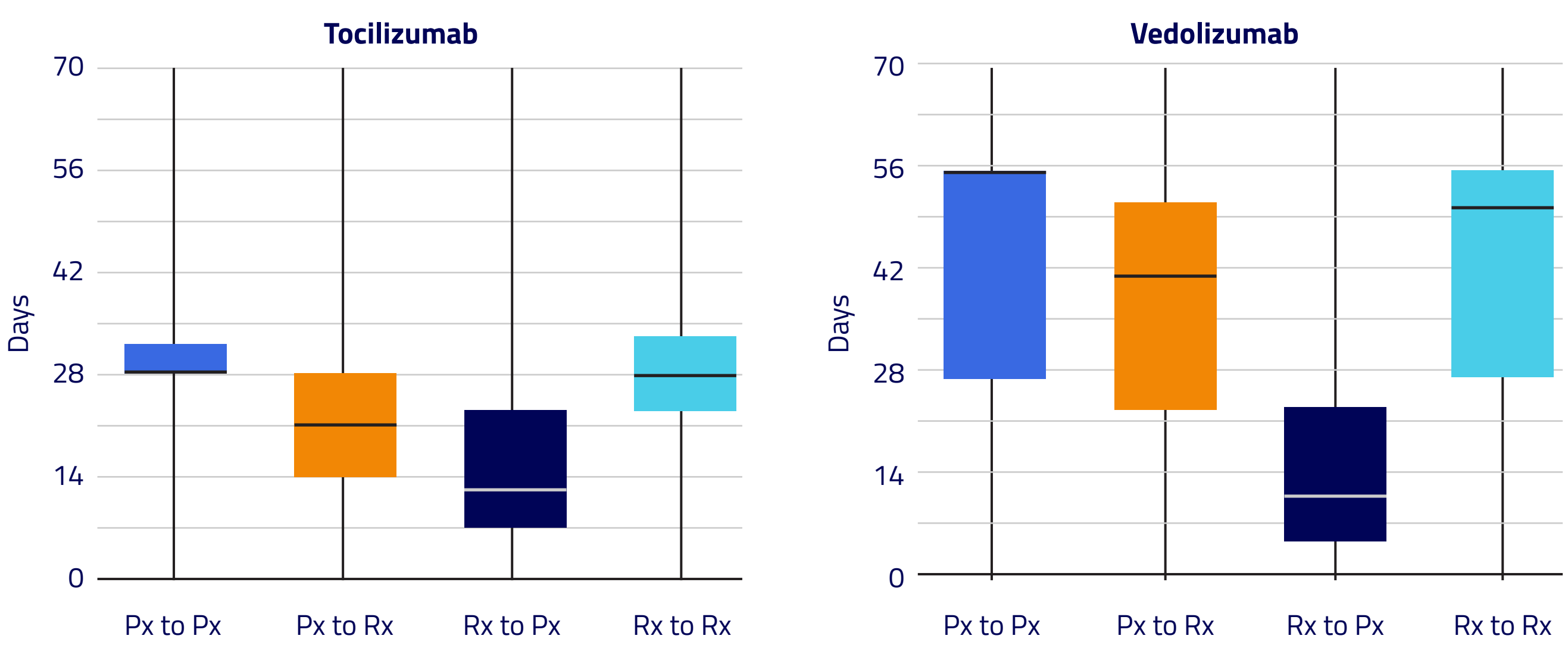
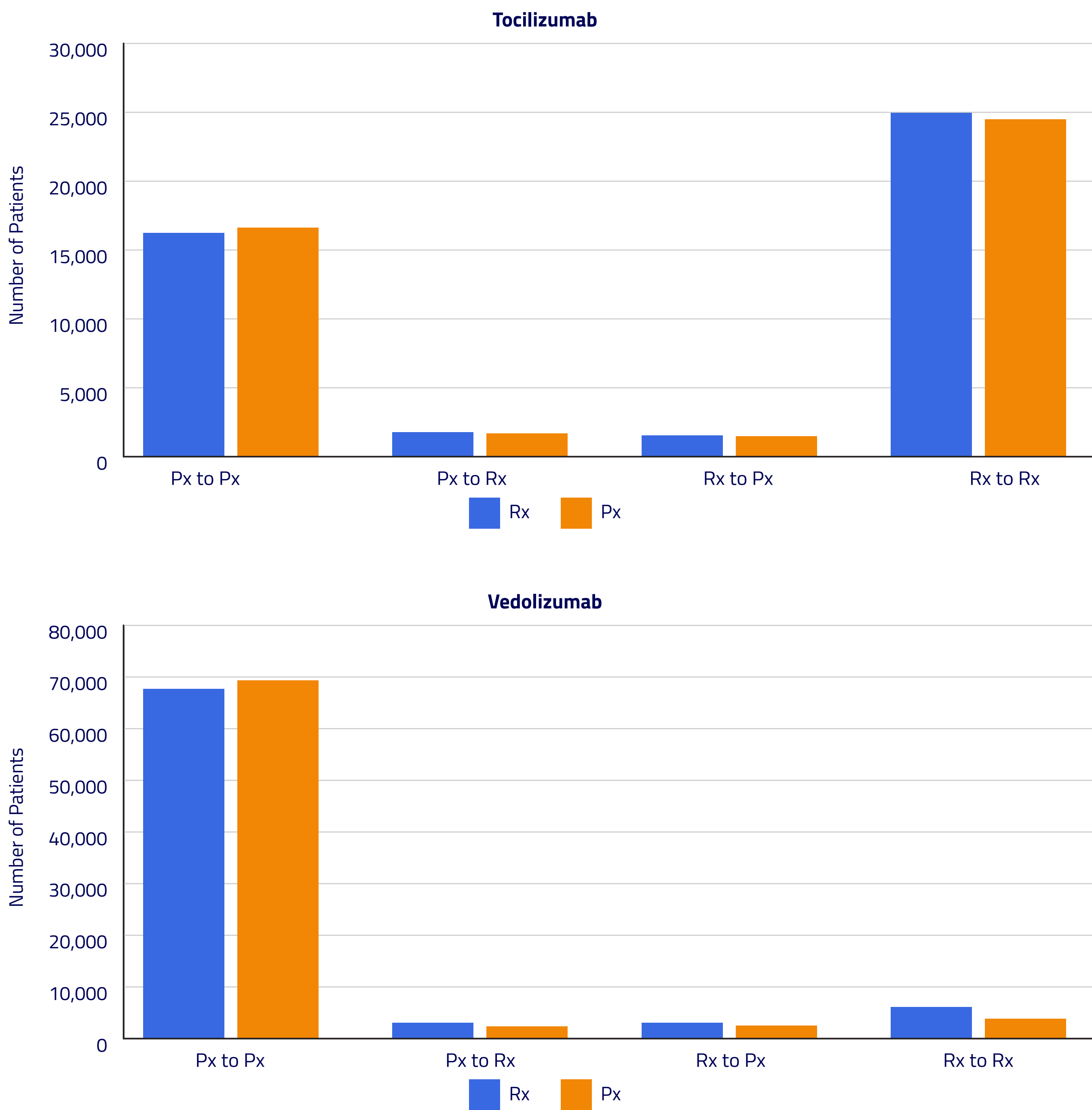


Table 1. Demographics

	Tocilizumab		Vedolizumab	
Number of Patients	40,864	100.0%	73,183	100.0%
Age at index (years)				
Mean (SD)	54	14.9	43	15.6
Median	56		41	
Min, max	18	88	18	88
Age (years), categories, n (%)				
18-34	4,384	10.7%	25,602	35.0%
35-44	4,768	11.7%	15,423	21.1%
45-54	9,083	22.2%	13,115	17.9%
55-64	13,349	32.7%	12,075	16.5%
65+	9,280	22.7%	6,968	9.5%
Patient gender, n (%)				
Female	32,345	79.2%	38,508	52.6%
Male	7,960	19.5%	33,742	46.1%
Unknown	559	1.4%	933	1.3%
Patient region, n (%)				
Midwest	8,602	21.1%	19,101	26.1%
Northeast	10,187	24.9%	19,072	26.1%
South	13,761	33.7%	23,403	32.0%
West	8,164	20.0%	11,466	15.7%
Unknown	150	0.4%	141	0.2%
Payer channel, n (%)				
Commercial	23,005	56.3%	52,547	71.8%
Medicaid	6,180	15.1%	10,814	14.8%
Medicare	11,492	28.1%	9,525	13.0%
Unknown	187	0.5%	297	0.4%
Race/Ethnicity, n (%)				
White	24,190	59.2%	43,010	58.8%
Black	4,057	9.9%	5,069	6.9%
Asian	1,405	3.4%	2,127	2.9%
Other/Unknown	11,212	27.5%	22,977	31.4%

Figure 3. Patient count by treatment sequence, varying same-day de-duplication rule



Note: "Px to Px", "Px to Rx", "Rx to Px", and "Rx to Rx" indicates the sequence of two consecutive claims; e.g., "Px to Rx" means the patient received the previous treatment from Px and the next treatment from Rx.

- ▶ Same day-claims were further deduplicated by prioritizing Rx or Px claim. The results above showed the dosing schedule by prioritizing Rx, by sequence (Figure 2). Patient count by sequence was shown in Figure 3
- ▶ Overall, a majority of patients consistently used the single refill approach to Tocilizumab and Vedolizumab utilization; and a small proportion of patients switched from Px to Rx OR Rx to Px during the 1-year follow-up

Conclusion

- ▶ Concordance between claim intervals and days supply varies by injectable products. To estimate duration of injectable drug use, assessments based on multiple claims types are strongly recommended in order to comprehensively capture exposures.
- ▶ This study provides valuable insights into the real-world usage patterns for injectable products. Findings contribute to the understanding of the treatment dynamics and may inform future research. Future studies focusing on injectable medications should optimize exposed time definitions by exploring distribution of claim type and frequency of records in advance of full-scale drug utilization evaluations.

Reference

Xu C, Ferrante S, Fitzgerald T, Pericone D, Wu B. Inconsistencies in the days supply values reported in pharmacy claims databases for biologics with long maintenance intervals. *J Manag Care Spec Pharm*. Jan 2023. doi: 10.18553/jmcp.2023.29.1.90



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