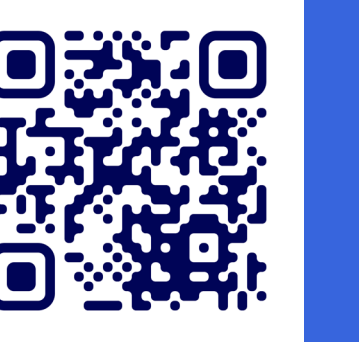


# Racial and Ethnic Disparities in Adoption of Novel CGRP Therapies for Migraine Prevention: A Retrospective Cohort Study Using the Komodo Research Dataset

Pathan F, PhD; Park C, MHI — Komodo Health, New York, NY, and San Francisco, CA



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## Introduction

- Migraine affects approximately 1 in 6 American adults, with an estimated age-adjusted prevalence of 15.9%, and ranks as the second leading cause of years lived with disability globally.<sup>1,2</sup>
- Migraine prevalence is roughly similar across racial/ethnic groups, yet substantial disparities exist in diagnosis, treatment, and access to care.<sup>3,4</sup>
- Calcitonin gene-related peptide (CGRP) inhibitors represent a transformative class of migraine-specific preventive therapies since erenumab's FDA approval in 2018. Multiple agents now exist, including monoclonal antibodies (eptinezumab, erenumab, fremanezumab, galcanezumab) and oral small-molecule antagonists (atogepant, rimegepant).
- Emerging evidence suggests that racial and ethnic disparities in CGRP prescribing patterns can exist and are potentially driven by insurance status, prior authorization requirements, socioeconomic factors, and systemic healthcare inequities.<sup>2,5</sup>
- Understanding patterns of CGRP initiation across racial and ethnic groups is critical for identifying barriers to equitable migraine care and informing interventions to improve health equity.

## Objective

- To evaluate racial and ethnic disparities in uptake of CGRP therapies (atogepant, eptinezumab, erenumab, fremanezumab, galcanezumab, or rimegepant) for migraine prevention among adults in the U.S.

## Methods

### Study Design and Data Source

- This retrospective cohort study was conducted using the Komodo Research Dataset (KRD), a de-identified patient-level 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 medical and pharmacy insurance plans; data as of 2016. Specialty datasets such as genomics, laboratory test results, and electronic health records (EHR) 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 healthcare 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 that are value-standardized and pre-certified for dataset linkage via privacy-preserving tokens.

**Study period:** January 1, 2021–October 31, 2025

**Patient identification window:** January 1, 2022–October 31, 2024

**Index date:** Date of patient's first migraine diagnosis (ICD-10-CM: G43.x)

### Study Population

#### Inclusion Criteria

- Adults age ≥18 years at index with ≥2 migraine diagnoses at least 30 days apart
- At least 12 months of continuous pre- and post-index enrollment in medical and pharmacy plans

#### Exclusion Criteria

- Missing race/ethnicity data
- Pregnancy during study period
- Cluster headache diagnosis during study period
- Prior CGRP use from January 1, 2016, to the day before index date
- Clinical trial participation during study period

### Exposure and Outcomes

- The primary exposure was race/ethnicity, categorized as (White [reference], Black or African American, Hispanic or Latino, Asian or Pacific Islander, Other)
- Outcomes included CGRP initiation rate and time to initiation

### Statistical Analysis

- Descriptive statistics were reported as means (SD), medians (Q1–Q3) for continuous variables and counts (percentages) for categorical variables
- Kaplan–Meier curves were used to estimate the time to CGRP initiation and cumulative incidence of CGRP initiation by race/ethnicity, with initiation rates reported at 12 and 24 months. Pairwise log-rank tests compared each minority group to the White reference group
- Patients without CGRP initiation were censored at the earliest of end of continuous enrollment, end of the study period, or death
- AI use: Preliminary attrition cohort generation was supported using Marmot™ (Komodo's AI assistant)

## Results

**Table 1. Patient Attrition**

Step	Criteria	Unique Patients	% Retained
1	≥2 migraine diagnoses (01/01/2022–10/31/2024)	6,831,582	—
2	No prior migraine diagnosis (washout)	2,583,970	37.8%
3	365-day baseline + follow-up continuous enrollment	527,857	20.4%
4	Age ≥18 years at index	453,688	85.9%
5	Non-missing race/ethnicity	346,177	76.3%
6	No pregnancy	311,300	89.9%
7	No cluster headache diagnosis	305,031	98.0%
8	No prior CGRP inhibitor use	299,929	98.3%
9	No previous clinical trial participation	298,041	99.4%

## Results

**Table 2. Baseline Characteristics**

Characteristic	Overall N=298,041	Asian/PI N=11,911	Black/AA N=35,941	Hispanic/Latino N=46,662	White N=190,284	Other N=13,243
<b>Age</b>						
Mean (SD)	45.9 (16.7)	45.1 (15.3)	44.4 (15.4)	44.1 (15.3)	46.8 (17.4)	44.5 (14.9)
<b>Sex, n (%)</b>						
Female	228,385 (76.6%)	9,048 (76.0%)	27,974 (77.8%)	37,287 (79.9%)	144,263 (75.8%)	9,813 (74.1%)
Male	66,202 (22.2%)	2,693 (22.6%)	7,497 (20.9%)	8,847 (19.0%)	43,901 (23.1%)	3,264 (24.6%)
Unknown	3,454 (1.2%)	170 (1.4%)	470 (1.3%)	528 (1.1%)	2,120 (1.1%)	166 (1.3%)
<b>Geographic Region, n (%)</b>						
Midwest	73,389 (24.6%)	2,029 (17.0%)	9,078 (25.3%)	6,064 (13.0%)	53,575 (28.2%)	2,643 (20.0%)
Northeast	83,923 (28.2%)	3,290 (27.6%)	8,692 (24.2%)	12,772 (27.4%)	55,505 (29.2%)	3,664 (27.7%)
West	58,214 (19.5%)	3,654 (30.7%)	2,653 (7.4%)	14,500 (31.1%)	33,972 (17.9%)	3,435 (25.9%)
South	82,346 (27.6%)	2,938 (24.7%)	15,504 (43.1%)	13,188 (28.3%)	47,219 (24.8%)	3,497 (26.4%)
Unknown	169 (0.1%)	0 (0.0%)	14 (0.0%)	138 (0.3%)	13 (0.0%)	4 (0.0%)
<b>Community Setting, n (%)</b>						
Rural	26,579 (8.9%)	364 (3.1%)	1,236 (3.4%)	2,051 (4.4%)	21,572 (11.3%)	1,356 (10.2%)
Urban/Suburban	271,427 (91.1%)	11,547 (96.9%)	34,691 (96.5%)	44,607 (95.6%)	168,699 (88.7%)	11,883 (89.7%)
Unknown	35 (0.0%)	0 (0.0%)	14 (0.0%)	4 (0.0%)	13 (0.0%)	4 (0.0%)
<b>Index Year, n (%)</b>						
2022	157,434 (52.8%)	6,492 (54.5%)	19,456 (54.1%)	26,266 (56.3%)	97,671 (51.3%)	7,549 (57.0%)
2023	93,252 (31.3%)	3,602 (30.2%)	11,081 (30.8%)	13,462 (28.9%)	61,313 (32.2%)	3,794 (28.6%)
2024	47,355 (15.9%)	1,817 (15.3%)	5,404 (15.0%)	6,934 (14.9%)	31,300 (16.4%)	1,900 (14.3%)
<b>Duration of CE follow-up (years)</b>						
Mean (SD)	2.1 (0.8)	2.0 (0.8)	2.0 (0.8)	2.0 (0.8)	2.1 (0.8)	2.0 (0.8)
<b>Insurance Type, n (%)</b>						
Commercial	158,773 (53.3%)	7,214 (60.6%)	15,611 (43.4%)	22,509 (48.2%)	104,804 (55.1%)	8,635 (65.2%)
Medicaid	83,435 (28.0%)	3,153 (26.5%)	14,322 (39.8%)	17,773 (38.1%)	45,127 (23.7%)	3,060 (23.1%)
Medicare	54,976 (18.4%)	1,501 (12.6%)	5,924 (16.5%)	6,248 (13.4%)	39,801 (20.9%)	1,502 (11.3%)
Other/Unknown	857 (0.3%)	43 (0.4%)	84 (0.2%)	132 (0.3%)	552 (0.3%)	46 (0.3%)
<b>CCI Score, Mean (SD)</b>						
	0.7 (1.3)	0.5 (1.1)	0.8 (1.5)	0.7 (1.3)	0.7 (1.3)	0.6 (1.2)
<b>Key Comorbidities, n (%)</b>						
Depression	61,948 (20.8%)	1,663 (14.0%)	6,781 (18.9%)	9,224 (19.8%)	41,645 (21.9%)	2,635 (19.9%)
Anxiety	98,536 (33.1%)	2,591 (21.8%)	9,840 (27.4%)	13,819 (29.6%)	67,878 (35.7%)	4,408 (33.3%)
Obesity	87,675 (29.4%)	2,068 (17.4%)	14,642 (40.7%)	16,043 (34.4%)	51,602 (27.1%)	3,320 (25.1%)
CVD	30,555 (10.3%)	919 (7.7%)	4,204 (11.7%)	4,214 (9.0%)	20,192 (10.6%)	1,026 (7.7%)

CE, continuous enrollment; CCI, Charlson Comorbidity Index; CVD, cardiovascular disease. SD, standard deviation

**Table 3. Time to CGRP Initiation**

Group	Initiators (N)	Initiation Rate	Mean (SD)	Median (Q1–Q3)
<b>Overall</b>	<b>43,685</b>	<b>14.7%</b>	<b>313.5 (318.0)</b>	<b>206 (49–493)</b>
Asian/PI	1,471	12.3%	320.8 (331.0)	206 (41–521)
Black/AA	4,571	12.7%	323.0 (325.2)	216 (49–518)
Hispanic	6,464	13.8%	308.5 (314.2)	199 (48–484)
White	28,946	15.2%	313.0 (316.5)	207 (49–490)
Other	2,233	16.9%	311.1 (323.8)	198 (43–491)

AA, African-American; PI, Pacific Islander; Q1, first quartile; Q3, third quartile; SD, standard deviation

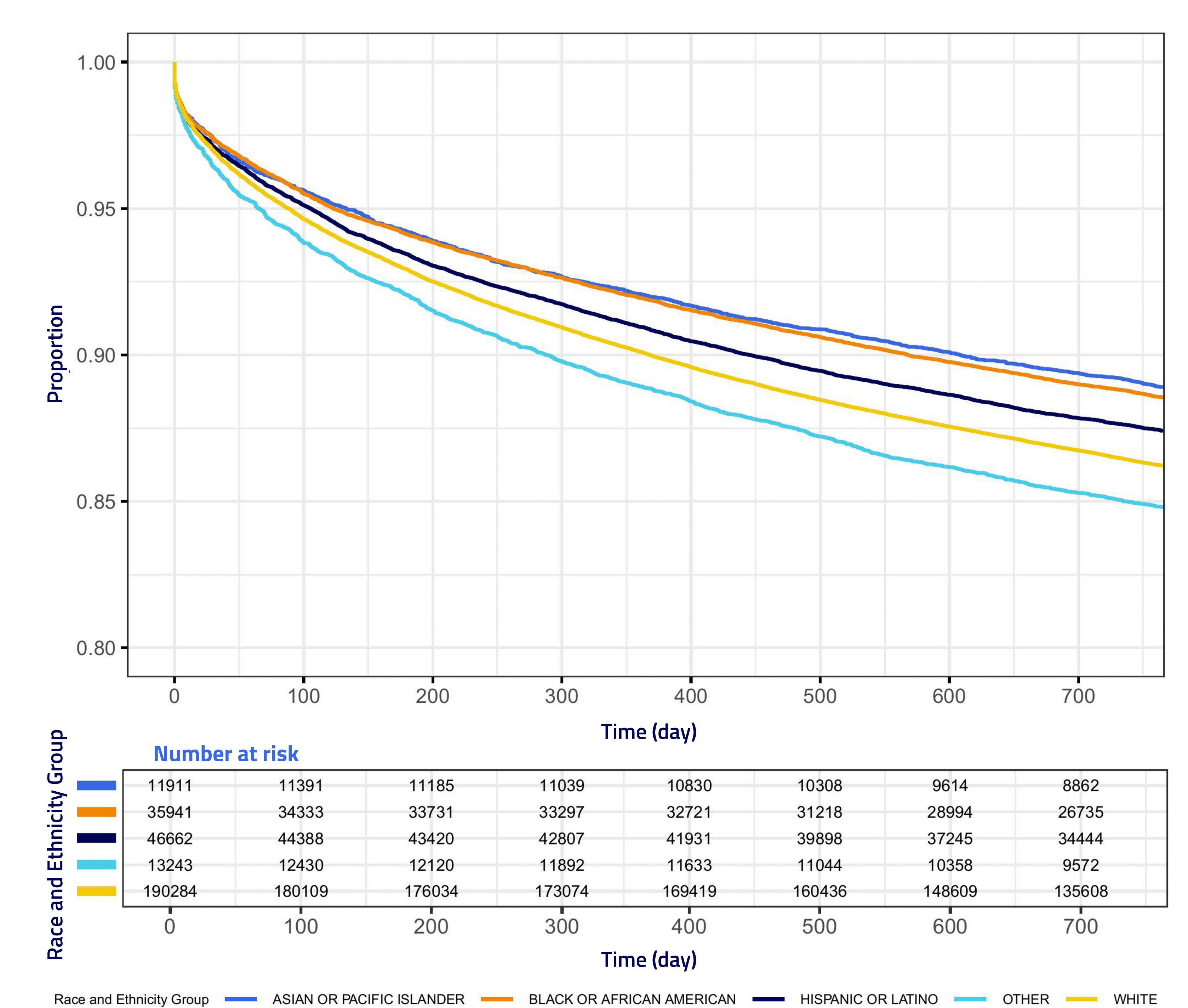
**Table 4. Kaplan–Meier 12- and 24-month Cumulative Incidence Rates of CGRP Initiation (95% CI)**

Group	12-Month Rate (95% CI)	24-Month Rate (95% CI)
Asian/PI	8.0% (7.5%–8.5%)	10.8% (10.2%–11.3%)
Black/AA	8.1% (7.8%–8.4%)	11.2% (10.9%–11.5%)
Hispanic	9.1% (8.8%–9.3%)	12.4% (12.1%–12.7%)
White	10.0% (9.8%–10.1%)	13.5% (13.4%–13.7%)
Other	11.1% (10.6%–11.7%)	14.9% (14.3%–15.5%)

AA, African-American; CI, Confidence Interval; PI, Pacific Islander

## Results

**Figure 1. Kaplan–Meier Cumulative Incidence of CGRP Initiation by Race/Ethnicity**



- After application of inclusion/exclusion criteria, 298,041 adults with newly diagnosed migraine comprised the final cohort; the population was predominantly female (76.6%), mean age 45.9 years, and racially diverse (63.8% White, 15.7% Hispanic, 12.1% Black/AA, 4.4% Asian/PI, 4.4% Other) (Tables 1 and 2)
- Black (39.8%) and Hispanic (38.1%) patients had substantially higher Medicaid enrollment compared to White patients (23.7%), while commercial insurance was most prevalent among Asian/PI (60.6%) and White (55.1%) groups
- Only 14.7% of patients overall initiated CGRP therapy, with the lowest rates among Asian/PI (12.3%) and Black/AA (12.7%) patients versus White (15.2%) patients — an approximately 20% relative difference in treatment uptake (Table 3)
- Kaplan–Meier cumulative incidence at 12 months was lowest for Asian/PI (8.0%) and Black/AA (8.1%) patients compared to White patients (10.0%); disparities widened at 24 months (Asian/PI 10.8%, Black/AA 11.2% vs. White 13.5%) (Table 4)
- Pairwise log-rank tests confirmed statistically significant differences for all minority groups versus White (all  $P < .001$ ), with the strongest disparity observed for Black/AA patients

## Conclusions

- CGRP therapy initiation was low across all groups (14.7%), with Asian/PI and Black/AA patients exhibiting significantly lower cumulative incidence at both 12 and 24 months compared to White patients (all  $p < 0.001$ ), highlighting a meaningful treatment gap in migraine preventive care
- Similar median time to initiation across groups suggests that disparities may be driven by barriers to initial access, potential formulary restrictions, or prior authorization requirements. Future studies should assess factors affecting differential uptake among racial groups

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## Disclosures

- The authors are employees of Komodo Health and receive employment-based compensation from Komodo Health.
- Preliminary attrition cohort generation was supported using Marmot.