On-label persistence through 24 months among patients with psoriatic arthritis initiating guselkumab or subcutaneous TNF inhibitors

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Background

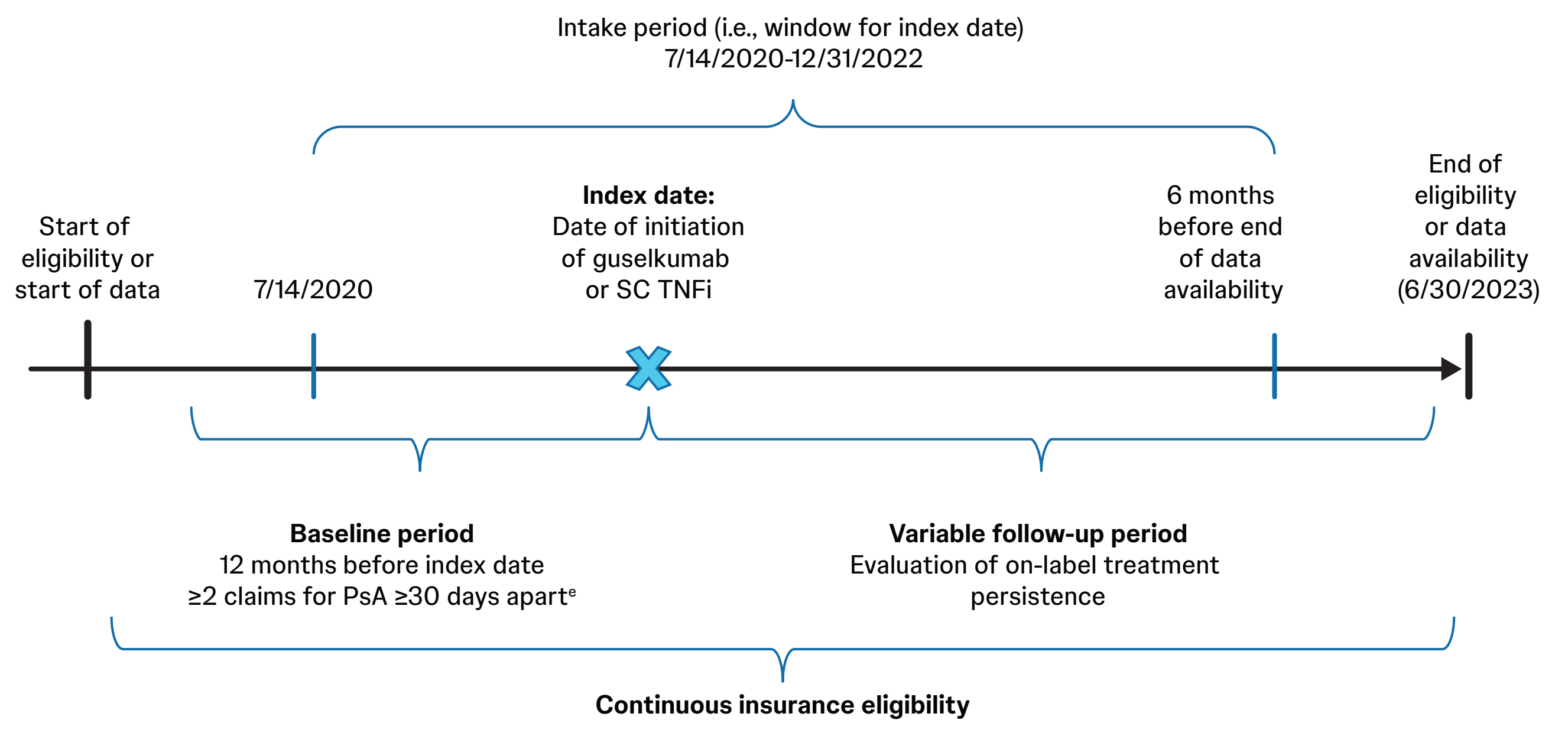
- Guselkumab (GUS), a fully human IL-23 p19-subunit inhibitor, was approved by the US Food and Drug Administration (FDA) for the treatment of active psoriatic arthritis (PsA) in July 2020
  - FDA-approved dosing regimen[1] (on-label): GUS 100 mg at week 0, week 4, then every 8 weeks
- A previous claims-based analysis compared on-label persistence for patients (pts) with PsA initiating treatment with on-label GUS or their first subcutaneous (SC) tumor necrosis factor inhibitor (TNFi)[2]
  - Pts receiving GUS were significantly (~3x) more likely to remain persistent through 12 months
- Long-term claims data comparing GUS and SC TNFi persistence beyond 12 months provide additional real-world evidence about treatment persistence in routine clinical care that may differ from stringently controlled clinical trial settings

Objectives

This study utilized health plan claims data to compare treatment persistence through 24 months between pts with active PsA newly initiating the on-label GUS dosing regimen and those starting an initial SC TNFi

Methods

IQVIA™ Health Plan Claims Data (1/1/2011-6/30/2023)[a] Study design[b-d]



[a]The IQVIA™ Health Plan Claims Data is comprised of fully adjudicated claims for inpatient and outpatient services, and outpatient prescription drugs, offering a diverse representation of geographic zones, employers, payers, providers, and therapy areas. [b]A validated algorithm for identifying patients with PsA in US claims data was used: ≥2 claims with a PsA diagnosis (ICD-10-CM: L40.5x) ≥30 days apart and ≥1 prescription claim for a PsA-related medications (i.e., guselkumab or SC TNFi). [c]Patients could be bio-naïve or bio-experienced during baseline but were naïve to treatment with guselkumab or SC TNFi agents. [d]Patients in the SC TNFi cohort were newly initiated within the class. [e]Diagnoses for PsA include claims on the index date.

Patient Selection

- Index date: 1st GUS or SC TNFi claim during intake period (7/14/2020-12/31/2022)[a]
- PsA pt identification: ≥2 PsA Dx (ICD-10-CM code L40.5x) ≥30 days apart within 12 months prior to the first study drug claim (baseline or on index date), and ≥1 claim for either GUS or SC TNFi[3]
- ≥12 months of continuous health insurance eligibility before index date
- ≥18 years of age
- No claims for other conditions for which GUS or TNFi are approved or other potentially confounding diseases[b]

Dx=Diagnoses; ICD-10-CM=International Classification of Disease, 10th revision, Clinical Modification. [a]Pts could not have claims for >1 index agent on index date. [b]Pts were excluded if they had a claim for ankylosing spondylitis, other inflammatory arthritides, other spondylopathies, rheumatoid arthritis, systemic connective tissue disorders, relapsing polychondritis, unclassified connective tissue disease, hidradenitis suppurativa, inflammatory bowel disease, or uveitis in the 12-month baseline period preceding the index date.

Censoring and Imputations

Censoring: On earliest of first off-label claim or last day of index agent supply preceding end of follow-up period if discontinuation was not observed

Days of supply imputation rule	GUS	SC TNFi
Medical Claims,[1,4-7]		
1st claim	28 days	28 days
2nd + claims	56 days	28 days
Pharmacy Claims		
1st claim	28 days	No imputation[b]
2nd + claims	Based on time to next claim[a]	No imputation[b]

[a]28 days if time to next claim <42 days; 56 days if time to next claim 42-70 days; 84 days if time to next claim >70 days; if there is no next claim, days of supply of the previous claim was carried forward or imputed as 56 days if the original value was missing or if this was the second claim; no imputation for claims with days supply 56-60 or >60. [b]Pharmacy claims for SC TNFi are typically consistent with approved labeling; therefore, reported days supply was used for SC TNFi and no imputation was performed.

Statistical Analyses

- **Baseline demographic and disease characteristics (12 months pre-index):**
  - Balanced between the GUS and SC TNFi cohorts using propensity score-weighting (overlap weights)
- **On-label persistence up to 24 months post-index:**
  - No treatment discontinuation or dose modification relative to US FDA-approved labeling
  - Proportion of pts determined using ***weighted*** KM curves
  - GUS vs SC TNFi cohort comparison using ***weighted*** Cox proportional hazard models further adjusted for bDMARD and csDMARD use

Days between administrations[a]	GUS	SC TNFi
Primary analysis		
2x[1,4-7]	112 days	56 days
Sensitivity analyses		
1x[1,4-7]	56 days	28 days
Fixed gap	112 days	112 days

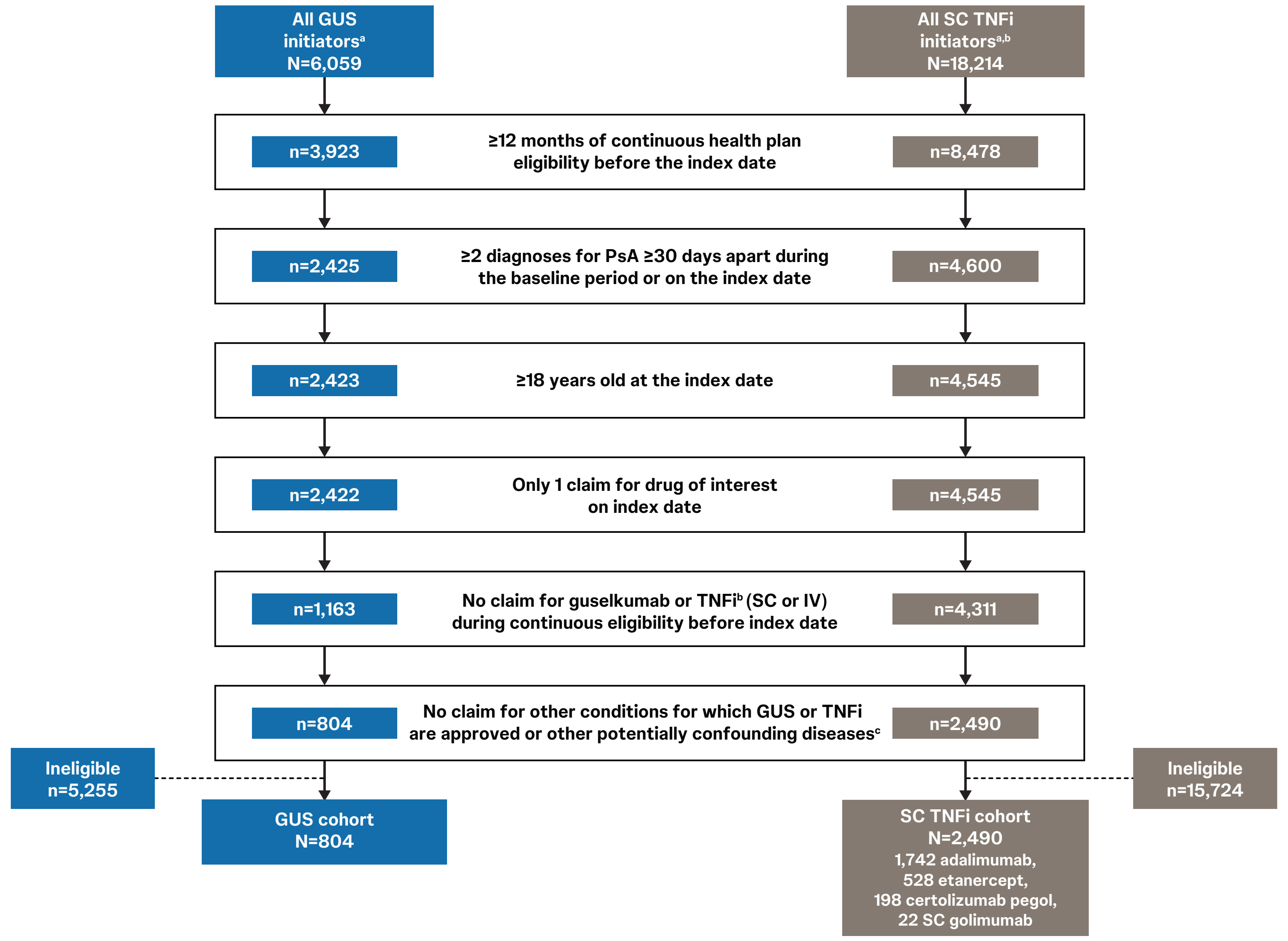
bDMARD=biologic disease-modifying antirheumatic drug; csDMARD=conventional synthetic disease-modifying antirheumatic drug; KM=Kaplan-Meier. [a]Primary analysis was conducted based on 2x duration of time between administration per label. Sensitivity analyses were conducted based on 1x duration of time between administration per label as well as a fixed discontinuation gap of 112 days.

Key Takeaways

- ✓ **First real-world claims data analysis of on-label treatment persistence over 24 months in active PsA pts newly initiated on GUS vs initial SC TNFi**
- ✓ **Pts in the GUS vs SC TNFi cohort were significantly (~2x) more likely to remain persistent on treatment through 24 months**
- ✓ **Higher long-term on-label persistence may improve disease management outcomes, including functional status and quality of life, in pts with active PsA initiating GUS[8]**

Results

The GUS and SC TNFi cohorts included 804 and 2,490 pts, respectively



All GUS initiators[a] N=6,059		All SC TNFi initiators[a,b] N=18,214
n=3,923	≥12 months of continuous health plan eligibility before the index date	n=8,478
n=2,425	≥2 diagnoses for PsA ≥30 days apart during the baseline period or on the index date	n=4,600
n=2,423	≥18 years old at the index date	n=4,545
n=2,422	Only 1 claim for drug of interest on index date	n=4,545
n=1,163	No claim for guselkumab or TNFi[b] (SC or IV) during continuous eligibility before index date	n=4,311
n=804	No claim for other conditions for which GUS or TNFi are approved or other potentially confounding diseases[c]	n=2,490
Ineligible n=5,255		Ineligible n=15,724
GUS cohort N=804		SC TNFi cohort N=2,490 1,742 adalimumab, 528 etanercept, 198 certolizumab pegol, 22 SC golimumab

[a]1st GUS or SC TNFi claim during intake period (7/14/2020-12/31/2022). [b]The SC TNFi cohort is defined as pts with an index claim for an SC TNFi (i.e., adalimumab, certolizumab pegol, etanercept, or SC golimumab). [c]Assessed during the 12-month baseline period.

Weighted baseline demographic and clinical characteristics were similar between cohorts, except for prior bDMARD and csDMARD use

- 55.1% in the GUS cohort and 12.8% in the SC TNFi cohort had received ≥1 bDMARD at any time before the index date[a]

Table 1. Weighted Baseline Demographics and Clinical Characteristics[b]

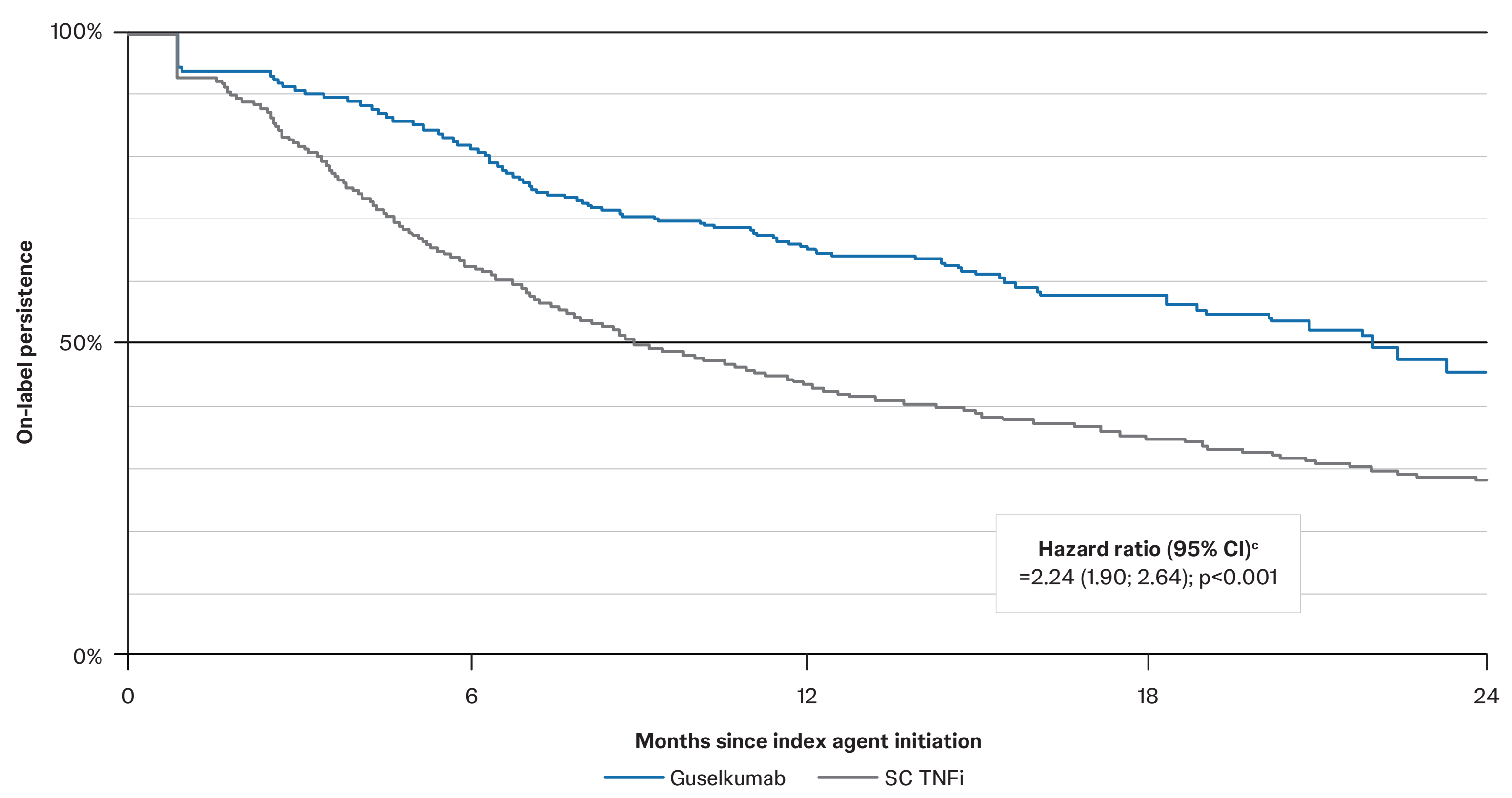
	GUS (N=804)	SC TNFi (N=2,490)
Demographics		
Age at index date (years), Mean ± SD [median]	49.4 ± 11.2 [50.3]	49.5 ± 11.2 [51.0]
Female	60.3	60.3
Insurance type at index date		
Preferred provider organization	76.2	76.2
Health maintenance organization	12.4	13.1
Other[c]	11.6	10.7
Year of index date		
2020	11.7	11.7
2021	43.4	43.4
2022	44.9	44.9
Characteristics		
Months between latest observed PsA diagnosis and index date, Mean ± SD [median]	1.2 ± 1.4 [0.7]	1.2 ± 1.6 [0.7]
Quan-CCI, Mean ± SD [median]	0.6 ± 1.3 [0.0]	0.6 ± 1.2 [0.0]
Comorbidities		
Hyperlipidemia	34.7	34.7
Osteoarthritis	30.3	30.3
Diabetes	15.3	15.5
Peripheral vascular disease	1.4	2.3
Psoriasis	86.3	86.3
Smoking	11.6	11.2
Medication Use[d], %		
bDMARDs[e]	47.6	14.0
0	52.4	86.0
1	41.2	12.6
≥2	6.4	1.4
csDMARDs[f]	22.4	48.3
tsDMARDs[g]	21.1	23.4
Corticosteroids	68.9	67.9

Data are % unless otherwise noted. Quan-CCI=Quan Charlson Comorbidity Index; SD=standard deviation; tsDMARD=targeted synthetic DMARD. [a]Unweighted values. [b]Propensity score using overlap weighting. [c]Includes point-of-service, consumer directed health care, indemnity/traditional, and unknown plan type. [d]During 12 months before index date. [e]Includes anti-IL-17A (i.e., secukinumab and ixekizumab), anti-IL-12/23 (i.e., ustekinumab), anti-CTLA-4 (i.e., abatacept), and anti-IL-23 (i.e., risankizumab). [f]Includes methotrexate, leflunomide, cyclosporine, mycophenolate, and azathioprine. [g]Includes apremilast, deucravacitinib, and JAKi (i.e., upadacitinib, baricitinib, and tofacitinib).

Pts in the GUS vs SC TNFi cohort were significantly (2.2x) more likely to remain persistent with on-label treatment through 24 months

- **% pts with on-label persistence at 24 months:** GUS (45.5%) vs SC TNFi (28.5%), despite a higher prevalence of biologic-experienced pts in the GUS cohort (47.6% vs 14.0% during 12-month baseline period)
- **Median time to discontinuation**: GUS (22.0 months) vs SC TNFi (9.2 months)
- In both sensitivity analyses, pts in the GUS cohort were significantly (~2x) more likely to remain persistent with on-label treatment at 24 months vs the SC TNFi cohort (1x: HR=1.90; fixed gap: HR=1.80; p<0.001 for both)

Primary KM Analysis (2x duration) of On-Label Persistence in Weighted GUS and SC TNFi Cohorts[a,b]



CI=confidence interval. [a]Discontinuation was defined as a gap in treatment of > twice the duration of days of supply for a claim (i.e., 2 x 56 = 112 days for guselkumab or 2 x 28 = 56 days for SC TNFi). [b]Patients with dose changes inconsistent with the FDA-approved dosing were censored as of the first dose change. [c]A weighted Cox proportional hazards model, further adjusted for baseline bDMARD and csDMARD use, was used to compare on-label persistence between cohorts.

GUS was associated with significantly higher on-label persistence vs SC TNFi at each time point assessed (6/12/18/24 months)

Table 2. On-label persistence through 24 months in weighted GUS and SC TNFi cohorts[a]

Primary analysis (2x duration)

Cox proportional hazards model[b]	6 months	12 months	18 months	24 months
Pts at risk, n (%)[c]				
GUS (N=804)	420 (52.2)	166 (20.6)	74 (9.2)	25 (3.1)
SC TNFi (N=2,490)	1,068 (42.9)	479 (19.3)	234 (9.4)	114 (4.6)
Hazard ratios (95% CI)	2.61 (2.10; 3.24)	2.34 (1.96; 2.79)	2.29 (1.94; 2.71)	2.24 (1.90; 2.64)
Chi-square p-value	<0.001	<0.001	<0.001	<0.001
KM Persistence, % (95% CI)				
GUS	82.1 (76.3; 86.6)	65.9 (59.2; 71.8)	58.1 (49.5; 65.7)	45.5 (26.9; 62.1)
SC TNFi	63.8 (60.1; 67.3)	43.8 (39.3; 48.2)	35.4 (30.0; 40.8)	28.5 (21.5; 35.9)
Log-rank test p-value	<0.001	<0.001	<0.001	<0.001

[a]Propensity score weights were used to obtain a balanced sample. Weights were estimated using a multivariable logistic regression model. Baseline covariates included several demographic and clinical characteristics. [b]Weighted Cox proportional hazard models were used to compare risk of discontinuation between the GUS and SC TNFi cohorts. Models further adjusted for baseline use of bDMARDs and csDMARDs. [c]Pts at risk of having the event are pts who have not had the event and have not been lost to follow-up at that point in time.

Strengths and Limitations

- Strengths:
  - PsA pts were identified using a case finding algorithm validated in US claims data[3]
  - After propensity score-weighting based on overlap weights, the GUS and SC TNFi cohorts were balanced for baseline demographic and disease characteristics, except for prior bDMARD or csDMARD use
  - Given the claims database included a large sample of commercially insured PsA pts in the US, results are likely to be highly generalizable to that population
- Limitations:
  - Results may not be generalizable to non-commercially insured US pts or pts outside of the US
  - Claims data do not ensure treatments are taken as prescribed
  - Treatment effectiveness and reasons for discontinuation could not be assessed using claims data
  - Days of supply in pharmacy claims data can be inaccurate due to coverage restrictions. Imputation is a valid approach commonly used for claims-based persistence analysis; however, it may occasionally lead to misclassifications

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