Comparing On-Label Treatment Persistence in Real-World Patients With Psoriatic Arthritis Receiving Guselkumab Versus Subcutaneous IL-17A Inhibitors

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Key Takeaways

- Using administrative claims data, this study presents the first real-world comparison of treatment persistence between pts with PsA newly initiated on GUS vs an initial SC IL-17Ai per US FDA-approved labeling
- Pts in the GUS vs SC IL-17Ai cohort were significantly (~2x) more likely to remain persistent on treatment at 12 months
  - Rates of on-label GUS vs SC IL-17Ai persistence at 12 months: 67% vs 50%
- The robust persistence seen in this claims data analysis supports high patient retention rates (up to 90% at year 2) observed in clinical trials[2,3]
- Findings are also consistent with previous real-world studies reporting higher persistence and remission rates for pts with psoriasis receiving GUS therapy[10] and for pts with PsA receiving GUS vs SC TNFi[5]

Background

- Guselkumab (GUS), a fully human interleukin (IL)-23p19-subunit inhibitor, was approved by the US Food and Drug Administration (FDA) for adults with active psoriatic arthritis (PsA) in July 2020[1]
- In the Phase 3 DISCOVER-1 and DISCOVER-2 clinical trials of patients (pts) with active PsA, 94% of GUS-randomized pts completed treatment through 1 year in DISCOVER-1; 90% did so through 2 years in DISCOVER-2[2,3]
- In a real-world registry, pts with treatment-resistant active PsA had high 6-month persistence with on-label GUS treatment (i.e., US FDA-approved dosing of subcutaneous [SC] injections of 100 mg at Week 0, Week 4, then every 8 weeks), with statistically significant clinical effectiveness[4]
- In a recent analysis of US health plan claims data from pts with PsA, pts in the GUS vs SC tumor necrosis factor inhibitor (TNFi) cohort were significantly (~3x) more likely to remain persistent on treatment at 12 months[5]

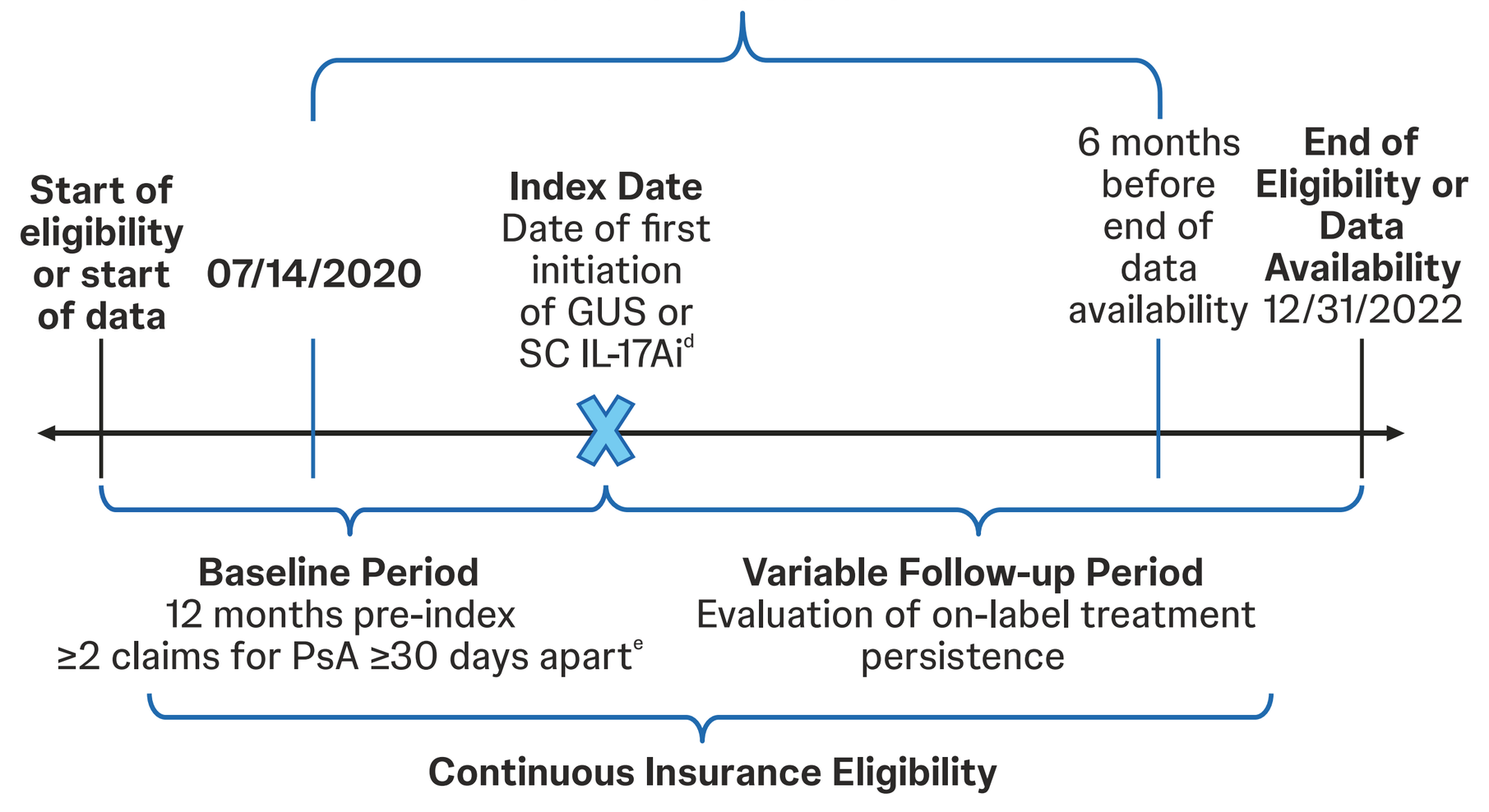
Objective

The current study utilized health plan claims data to compare treatment persistence between pts with PsA newly initiating the on-label GUS therapy regimen and those starting an initial SC IL-17A inhibitor (IL-17Ai)

Methods

Data Source and Study Design

IQVIA™ Health Plan Claims Data (07/14/2019-12/31/2022)[a] Study design[b,c]


Intake period (i.e., window for index date)
07/14/2020-06/30/2022
Start of eligibility or start of data
07/14/2020
Index Date
Date of first initiation of GUS or SC IL-17Ai[d]
6 months before end of data availability
End of Eligibility or Data Availability 12/31/2022
Baseline Period
12 months pre-index
≥2 claims for PsA ≥30 days apart[e]
Variable Follow-up Period
Evaluation of on-label treatment persistence
Continuous Insurance Eligibility

[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 pts with PsA in US claims data was used.[6] [c]Pts could be biologic-naïve or biologic-experienced during baseline but were naïve to treatment with GUS or SC IL-17Ai (i.e., ixekizumab or secukinumab). [d]Pts in the SC IL-17Ai cohort were newly initiated within the class. [e]Diagnoses for PsA include claims on the index date and were identified based on ≥2 PsA Dx (ICD-10-CM code L40.5x) ≥30 days apart and ≥1 prescription claim for a PsA-related medication (i.e., GUS or SC IL-17Ai). Dx=Diagnoses; GUS=Guselkumab; ICD-10-CM=International Classification of Disease, 10th Revision, Clinical Modification; IL-17Ai=Interleukin-17A inhibitor; PsA=Psoriatic arthritis; Pts=Patients; SC=Subcutaneous; US=United States.

Patient Selection

- Index date: 1st GUS or SC IL-17Ai claim during intake period (July 14, 2020–June 30, 2022)[a]
- PsA patient identification: ≥2 PsA Dx (ICD-10-CM code L40.5x) ≥30 days apart and ≥1 prescription claim for a PsA-related medication, i.e., GUS or SC IL-17Ai (validated algorithm for identifying PsA[6])
- ≥12 months of continuous health insurance eligibility before index date
- ≥18 years of age
- No other potentially confounding rheumatic disease[b,c]

[a]Pts could not have claims for >1 index agent on index date. [b]Pts with PsA-related conditions, inflammatory bowel disease or uveitis, were not excluded, consistent with the patient selection criteria for DISCOVER-1 and DISCOVER-2. [c]Rheumatic diseases included ankylosing spondylitis, other inflammatory arthritides, other spondyloarthropathies, rheumatoid arthritis, systemic connective tissue disorders, relapsing polychondritis, or unclassified connective tissue disease occurring in the 12-month baseline period preceding the index date. Dx=Diagnoses; GUS=Guselkumab; ICD-10-CM=International Classification of Disease, 10th Revision, Clinical Modification; IL-17Ai=Interleukin-17A inhibitor; PsA=Psoriatic arthritis; Pts=Patients; SC=Subcutaneous.

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 rules:**

	GUS	SC IL-17Ai
Medical Claims[7-9]		
1st claim	28 days	N/A[b]
2nd + claims	56 days	N/A[b]
Pharmacy Claims		
1st claim	28 days	No imputation[c]
2nd + claims	Based on time to next claim[a]	No imputation[c]

[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. [b]There is no Healthcare Common Procedure Coding System code for SC IL-17Ai in medical claims. [c]Pharmacy claims for SC IL-17Ai are typically consistent with approved labeling; therefore, reported days supply was used for SC IL-17Ai and no imputation was performed. GUS=Guselkumab; IL-17Ai=Interleukin-17A inhibitor; N/A=Not applicable; SC=Subcutaneous.

Statistical Analyses

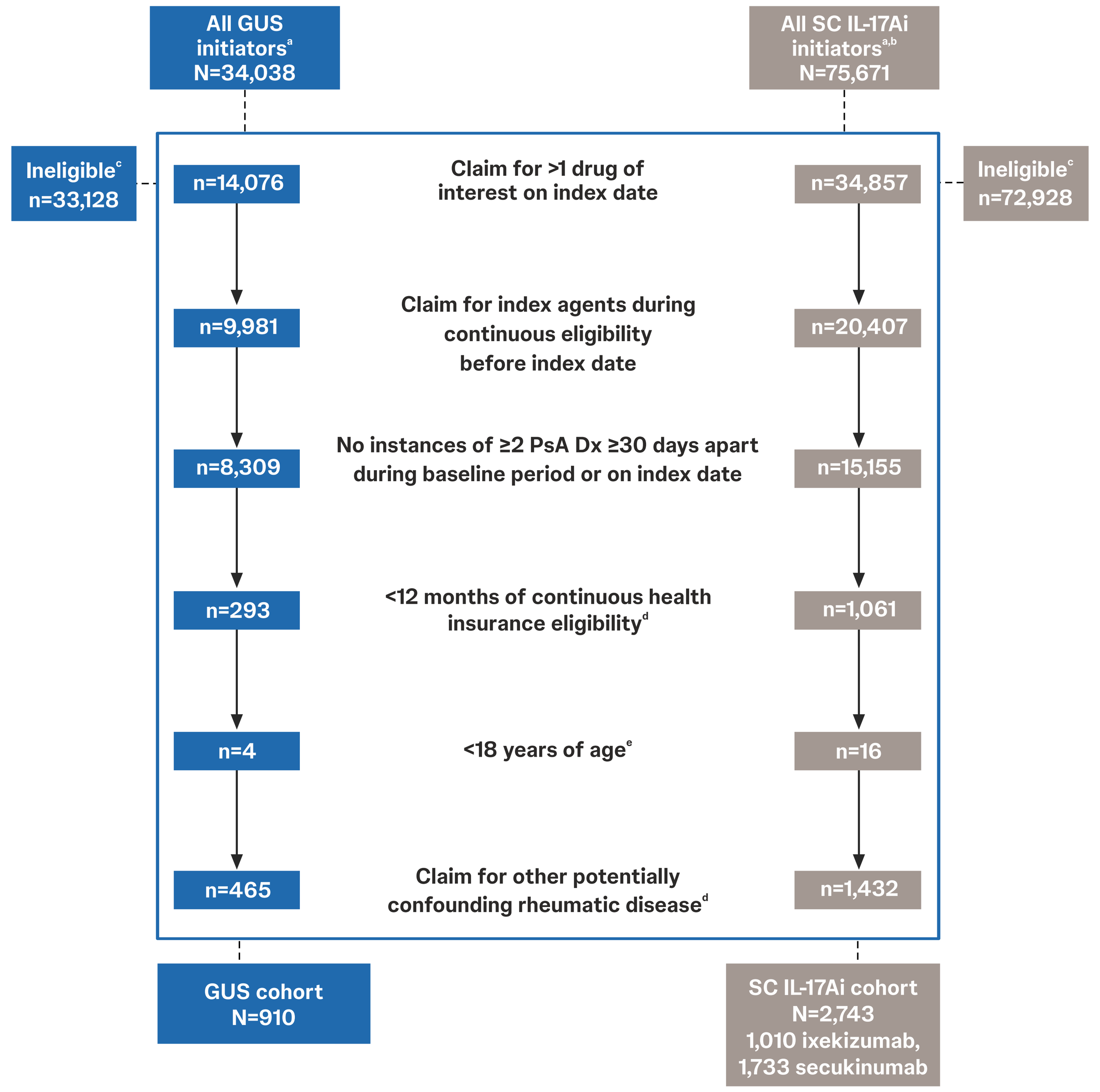
- **Baseline demographic and clinical characteristics:**
  - Balanced between the GUS and SC IL-17Ai cohorts using ***propensity score (standardized mortality ratio [SMR]) weighting***
- **On-label persistence up to 12 months post-index:**
  - No treatment discontinuation and no unapproved dosing regimen per FDA label
    - Secukinumab escalation from 150 mg to 300 mg was considered on-label if aligned with FDA prescribing information
  - Proportion of pts determined using ***weighted*** Kaplan-Meier (KM) analysis
  - GUS vs SC IL-17Ai compared using ***weighted*** Cox proportional hazard models
  - Primary and 2 sensitivity analyses were used to define discontinuation by days between administrations:

Days Between Administrations[a]	GUS	SC IL-17Ai
Primary Analysis		
2x[7-9]	112 days	56 days
Sensitivity Analyses		
1x[7-9]	56 days	28 days
Fixed gap	84 days	84 days

[a]Primary analysis was conducted based on 2x the FDA maintenance interval between administration per label after induction. Sensitivity analyses were conducted based on 1x the FDA maintenance interval between administration per label after induction as well as a fixed discontinuation gap of 84 days. FDA=Food and Drug Administration; GUS=Guselkumab; IL-17Ai=Interleukin-17A inhibitor; SC=Subcutaneous.

Results

The GUS and SC IL-17Ai cohorts included 910 and 2,743 pts, respectively


All GUS initiators[a]
N=34,038
All SC IL-17Ai initiators[a,b]
N=75,671
Ineligible[c]
n=33,128
Ineligible[c]
n=72,928
n=14,076
Claim for >1 drug of interest on index date
n=34,857
n=9,981
Claim for index agents during continuous eligibility before index date
n=20,407
n=8,309
No instances of ≥2 PsA Dx ≥30 days apart during baseline period or on index date
n=15,155
n=293
<12 months of continuous health insurance eligibility[d]
n=1,061
n=4
<18 years of age[e]
n=16
n=465
Claim for other potentially confounding rheumatic disease[d]
n=1,432
GUS cohort
N=910
SC IL-17Ai cohort
N=2,743
1,010 ixekizumab,
1,733 secukinumab

[a]1st GUS or SC IL-17Ai claim during intake period (07/14/2020-06/30/2022). [b]The SC IL-17Ai cohort is defined as pts with an index claim for an SC IL-17Ai (i.e., ixekizumab or secukinumab). [c]Numbers of patients excluded sequentially among those remaining after the prior criterion was applied are reported. [d]Before index date. [e]On the index date. Dx=Diagnoses; GUS=Guselkumab; IL-17Ai=Interleukin-17A inhibitor; PsA=Psoriatic arthritis; SC=Subcutaneous.

After propensity score weighting, demographic and clinical characteristics were well balanced across the GUS and SC IL-17Ai cohorts

Table 1. Baseline Demographics and Clinical Characteristics: Propensity Score Weighted*

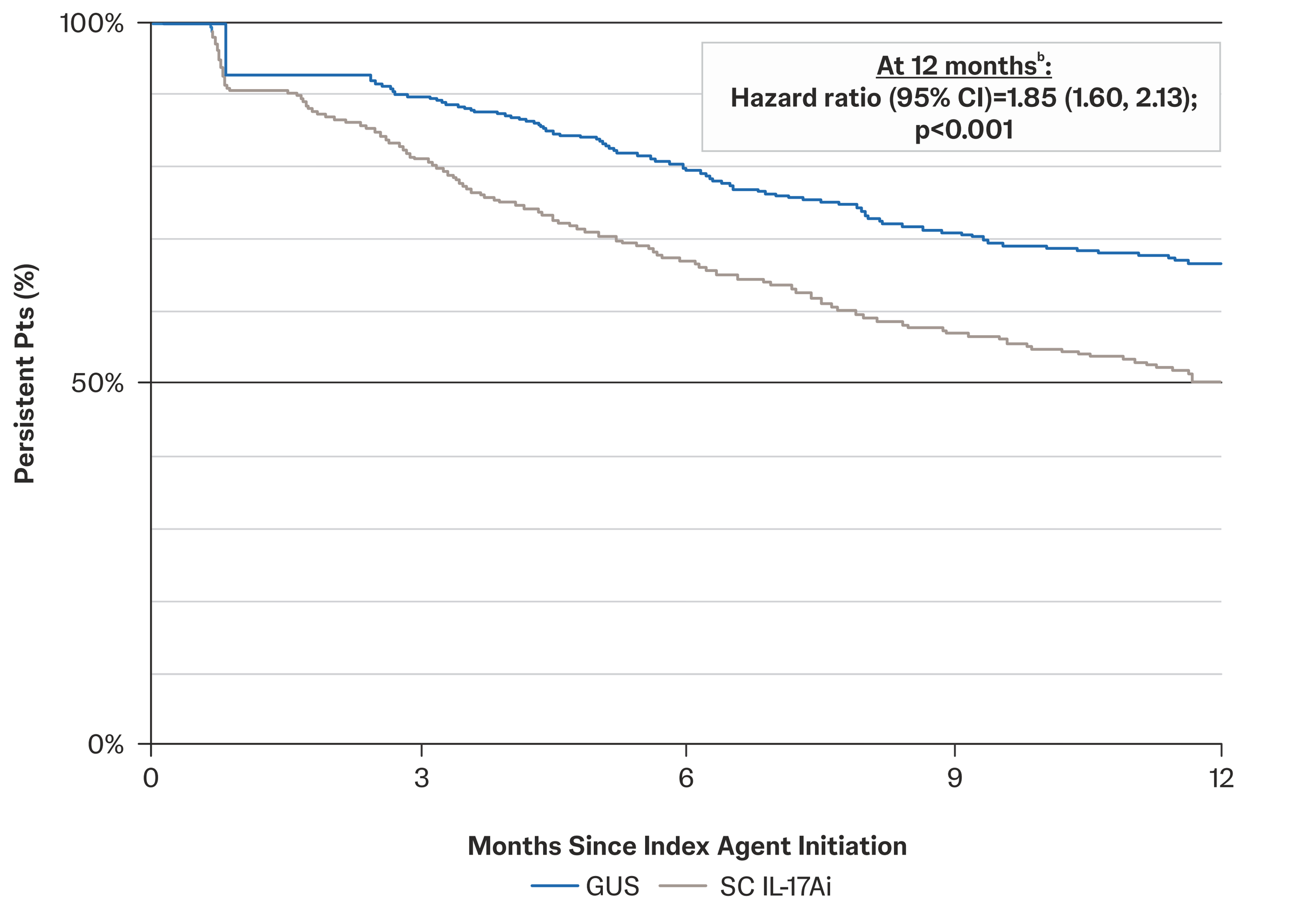
	GUS N=910	SC IL-17Ai N=2,740
Age at index date (years), mean ± SD [median]	50.4 ± 11.1 [52.0]	50.2 ± 11.3 [51.0]
Female	60.4	59.4
Insurance type at index date		
Preferred provider organization	77.8	75.3
Health maintenance organization	10.4	14.8
Other[a]	11.8	9.9
Year of index date		
2020	13.2	12.9
2021	53.6	52.7
2022	33.2	34.4
Months between latest observed PsA diagnosis and index date, mean ± SD [median]	1.3 ± 1.6 [1.0]	1.3 ± 1.5 [1.0]
Quan-CCI, mean ± SD [median]	0.6 ± 1.2 [0]	0.6 ± 1.3 [0]
Comorbidities		
Hyperlipidemia	34.7	34.8
Osteoarthritis	29.7	29.1
Diabetes	16.4	16.6
IBD[b]	1.4	1.1
Peripheral vascular disease	2.5	2.7
Uveitis	0	0
Psoriasis	86.5	87.6
Smoking	9.9	9.2
Any prior PsA treatment	75.9	52.5
bDMARDs[c]	51.9	52.5
0	48.1	47.5
1	43.6	44.0
≥2	8.2	8.5
csDMARDs[d]	30.0	31.0
tsDMARDs[e]	22.5	18.1
Corticosteroids	43.1	44.2

Data are % unless otherwise noted. *Using standardized mortality ratio (SMR) weighing. [a]Includes point-of-service, consumer-directed health care, indemnity/traditional, and unknown plan type. [b]Includes unclassified IBD, Crohn's disease, and ulcerative colitis. [c]Includes IL-12/23i (i.e., ustekinumab), anti-CTLA-4 (cytotoxic T lymphocyte-associated antigen, [i.e., abatacept]), IL-23i (i.e., risankizumab), SC TNFi (i.e., adalimumab, certolizumab pegol, etanercept, golimumab), and IV TNFi (i.e., infliximab, infliximab biosimilars, and IV golimumab). [d]Includes methotrexate, leflunomide, cyclosporine, mycophenolate, and azathioprine. [e]Includes apremilast, deucravacitinib, and Janus kinase inhibitors (i.e., upadacitinib, baricitinib, and tofacitinib). bDMARD=Biologic DMARD; CCI=Charlson Comorbidity Index; csDMARD=Conventional synthetic DMARD; CTLA=Cytotoxic T lymphocyte-associated antigen; DMARD=Disease-modifying anti-rheumatic drug; GUS=Guselkumab; IBD=Inflammatory bowel disease; IL=Interleukin; IL-12/23i=IL-12/23 inhibitor; IL-17Ai=Interleukin-17A inhibitor; IL-23i=IL-23 inhibitor; IV=Intravenous; PsA=Psoriatic arthritis; SC=Subcutaneous; SD=Standard deviation; TNFi=Tumor necrosis factor inhibitor; tsDMARD=Targeted synthetic DMARD.

Pts in the GUS vs SC IL-17Ai cohort were significantly (~2x) more likely to remain persistent on treatment at 12 months

- **% pts with on-label persistence at 12 months:** GUS (67%) vs SC IL-17Ai (50%)
- **Median time to discontinuation:** GUS (not reached) vs SC IL-17Ai (12.3 months)
- In the sensitivity analysis with a gap of 1x duration, pts in the GUS cohort were ~1.7 more likely to remain persistent with on-label treatment at 12 months vs the SC IL-17Ai cohort (1x: hazard ratio [HR]=1.72; p<0.001)
- In the sensitivity analysis with a fixed gap of 84 days, pts in the GUS cohort were ~1.2 more likely to remain persistent with on-label treatment at 12 months vs the SC IL-17Ai cohort (fixed gap: HR=1.21; p=0.0113)

Primary KM Analysis (2x Duration) of On-Label Persistence in Weighted GUS and SC IL-17Ai Cohorts[a]



[a]Propensity score (SMR) weighting was 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 model was used to compare risk of discontinuation between the GUS and SC IL-17Ai cohorts. CI=Confidence interval; GUS=Guselkumab; IL-17Ai=Interleukin-17A inhibitor; KM=Kaplan-Meier; Pts=Patients; SC=Subcutaneous; SMR=Standardized mortality ratio.

GUS was associated with significantly higher on-label persistence vs SC IL-17Ai at each timepoint assessed (3/6/9/12 months)

Table 2. On-Label Persistence Through 12 Months in Weighted GUS and SC IL-17Ai Cohorts[a]

Primary analysis (2x duration)

Cox proportional hazards model[b]	3 months	6 months	9 months	12 months
Pts at risk, n (%)[c]				
GUS (N=910)	665 (73.1)	484 (53.2)	333 (36.6)	201 (22.1)
SC IL-17Ai (N=2,740)	1,065 (38.9)	807 (29.5)	599 (21.9)	358 (13.1)
Hazard ratios (95% CI)	1.36 (1.18, 1.58)	1.62 (1.41, 1.88)	1.75 (1.52, 2.02)	1.85 (1.60, 2.13)
Chi-square p-value	<0.001	<0.001	<0.001	<0.001
KM persistence, % (95% CI)				
GUS	89.8 (84.2, 93.5)	80.0 (74.9, 84.3)	71.3 (65.9, 76.0)	66.8 (61.1, 71.8)
SC IL-17Ai	81.2 (76.7, 84.8)	67.1 (61.5, 72.0)	57.5 (51.0, 63.4)	50.1 (42.6, 57.2)
Log-rank test p-value	<0.001	<0.001	<0.001	<0.001

[a]Propensity score (SMR) weighting was 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 IL-17Ai cohorts. [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. CI=Confidence interval; GUS=Guselkumab; IL-17Ai=Interleukin-17A inhibitor; KM=Kaplan-Meier; Pts=Patients; SC=Subcutaneous; SMR=Standardized mortality ratio.

Strengths and Limitations

- Strengths:
  - A case-finding algorithm validated in US claims data was used to identify pts with PsA[6]
  - Propensity score weighted GUS and SC IL-17Ai cohorts were well balanced for demographics and baseline clinical characteristics, minimizing risk of potential confounding due to differences at baseline
  - The claims database assessed 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
  - Claims data do not provide treatment effectiveness nor reasons for discontinuation
  - Days of supply in pharmacy claims data can be inaccurate due to coverage restrictions. Imputation is a valid approach that is often utilized in claims-based analyses, but may lead to misclassifications

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REFERENCES: 1. TREMFYA® (guselkumab) Approved by U.S. Food and Drug Administration as the First Selective Interleukin (IL)-23 Inhibitor for Active Psoriatic Arthritis [press release]. July 14, 2020. **2.** Ritchlin CT. *RMD Open.* 2021;7:e001457. **3.** McInnes IB. *Arthritis Rheumatol.* 2022;74:475-85. **4.** Mease PJ. *Rheumatol Ther.* Accepted June 2023. **5.** Walsh J. Poster presented at: CCR-W 2023; San Diego, CA. **6.** Lee H. *Pharmacoepidemiol Drug Saf.* 2020;29:404-8. **7.** Janssen Biotech Inc. TREMFYA (guselkumab) injection, for subcutaneous use. [Package insert] 2019. **8.** Novartis. COSENTYX (secukinumab) injection, for subcutaneous or intravenous use. [Package insert] 2023. **9.** Eli Lilly. TALTZ (ixekizumab) injection, for subcutaneous use. [Package insert] 2022. **10.** Fitzgerald T. *Dermatol Ther.* 2023;13:1053-68.
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