# MEASURING ADHERENCE TO AND PERSISTENCE WITH ADVANCED THERAPY IN US PATIENTS WITH LUPUS NEPHRITIS IN THE REAL-WORLD SETTING

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Jesse Sussell,[1] Anisha M. Patel,[1] Achal Patel,[1] Robert Schuldt,[1] William F. Pendergraft III[1]

*[1]Genentech, Inc., South San Francisco, CA, USA*

## BACKGROUND

- Lupus nephritis (LN) is a severe manifestation of systemic lupus erythematosus, marked by kidney inflammation and damage[1-3]
- While advanced therapies have transformed the management of LN, their real-world clinical benefit relies heavily on sustained patient adherence, which remains under-characterized

## OBJECTIVE

- To measure real-world adherence to, and persistence with, advanced therapies (belimumab [BEL] and voclosporin [VOC]) in patients with LN

## METHODS

- The IQVIA PharMetrics Plus closed claims database was used to identify adult US patients diagnosed with LN between January 1, 2020, and September 30, 2025 (study period)
- Adult participants with ≥2 outpatient claims ≥30 days apart or ≥1 inpatient claim for LN between January 1, 2020, and September 30, 2025, with continuous enrollment for a year of pre- and post-index, who were treated with intravenous belimumab (IVB), subcutaneous belimumab (SCB) or VOC, and had a 12-month washout period (no evidence of use of index therapy in the year prior to index date) were included; index date was the date of first index therapy
- Participants with a renal transplant, dialysis, or end-stage renal disease in the 12-month pre-index period were excluded
- The proportion of days covered (PDC) and medication possession ratio (MPR) were calculated over 1 year; measures of medication persistence over 1 year were also reported
  - MPR was defined as the total days' supply, divided by the number of days in the period; refills (including early refills) were summed
  - PDC was defined as the total number of days covered by prescription (i.e., patient had supply on hand), divided by the total number of days in the period. In PDC, early fills were shifted forward, rather than added to existing supply
- All endpoints were stratified by therapy and by payer type

## Figure 1. Cohort Definition

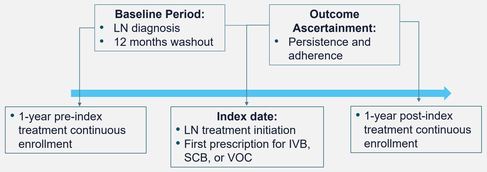



**Table 1. Patient Attrition**

| Description | N (%) | Change |
|---|---|---|
| LN diagnosis[a] with:<br>• 2 outpatient claims ≥30 days apart *or*<br>• 1 inpatient claim in the pre-index period between January 1, 2020, and September 30, 2025 | 31,855 (100.00) | NA |
| Claim for an advanced therapy[b] between January 1, 2021, and September 30, 2024, with a 12-month washout for specific treatment | 2,610 (8.19) | –29,245 |
| ≥18 years old at index date | 2,505 (7.86) | –105 |
| Continuous enrollment: 12 months pre- and post-index | 736 (2.31) | –1,769 |
| Exclude patients with renal transplant, dialysis, or end-stage renal disease in the 12-month pre-index period | 645 (2.02) | –91 |
| No malignancy, HIV/AIDS, HBV, HCV, or TB in the study period | 577 (1.81) | –68 |

[a]According to ICD-10:M3214; [b]First claim is the index date.

## CONCLUSIONS

- This real-world study showed that overall adherence to and persistence with advanced therapies (BEL and VOC) in patients with LN were poor
- Only 38–54% of patients treated with IVB, SCB, or VOC achieved the adherence benchmark of PDC ≥80%; adherence was poorer for more frequent SC and oral treatments compared with IV treatment
- Only 50–54% of patients across treatment types persisted with medication at 1 year
- Patients covered by Medicaid demonstrated poorer adherence and persistence compared with those with commercial insurance
- Method of administration appears to be a modulating factor, with better observed adherence and persistence in IV versus SC or oral medications
- Poor adherence and persistence are known drivers of reduced real-world effectiveness compared with efficacy measured in clinical trial populations; our findings suggest an urgent need to improve advanced therapy adherence and persistence in patients with LN

## RESULTS

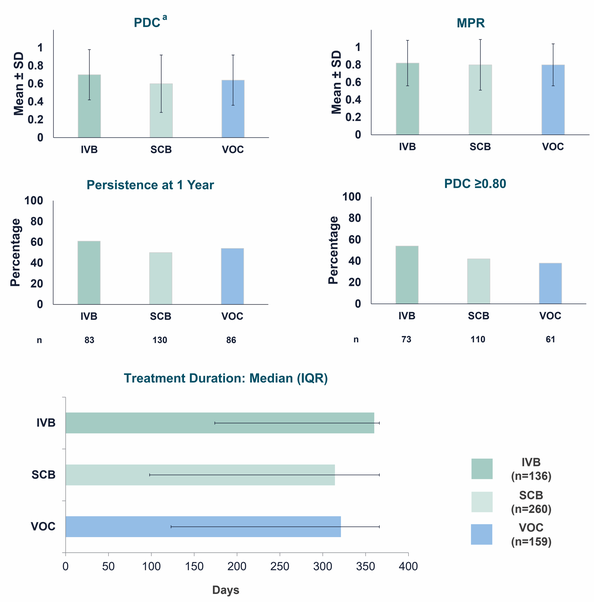
### Table 2. Baseline Characteristics

| | BEL[a] (N=418) | VOC (N=159) |
|---|---|---|
| **Age, years** | | |
| Mean (SD) | 37 (14) | 34 (11) |
| Median (Q1, Q3) | 35 (25, 46) | 34 (25, 42) |
| Min, Max | 18, 85 | 18, 70 |
| **Age category, years, n (%)** | | |
| 18–30 | 159 (38) | 63 (40) |
| 31–50 | 183 (44) | 87 (55) |
| >50 | 76 (18) | <11[b] |
| **Sex, n (%)** | | |
| Male | 44 (11) | 24 (15) |
| Female | 374 (89) | 135 (85) |
| **Region, n (%)** | | |
| South | 146 (35) | 69 (43) |
| Midwest | 82 (20) | 30 (19) |
| East | 13 (3.1) | <11[b] |
| West | 121 (29) | 30 (19) |
| Northeast | 54 (13) | 26 (16) |
| Unknown | <11[b] | <11[b] |
| **Payor type, n (%)[c]** | | |
| Commercial/self-insured | 226 (54) | 85 (53) |
| Medicare Advantage | 23 (5.5) | <11[b] |
| Medicaid | 166 (40) | 72 (45) |
| **Insurance product** | | |
| PPO | 152 (36) | 52 (33) |
| HMO | 227 (54) | 98 (62) |
| Other | 39 (9.3) | <11[b] |
| **CCI score** | | |
| Mean (SD) | 2 (2) | 2 (2) |
| Median (Q1, Q3) | 2 (1, 3) | 1 (1, 3) |
| Min, max | 1, 9 | 1, 10 |

- Of 577 identified patients, 45%, 24%, and 28% were treated with SCB, IVB, and VOC, respectively; the remainder received both SCB and IVB
- Baseline patient characteristics were similar between treatment cohorts
- Median CCI score was higher for BEL vs VOC

[a]BEL includes IVB and SCB; [b]Numeric value masked due to confidentiality requirement; [c]In total, 54% of patients had commercial insurance and 41% had Medicaid; the remainder had Medicare Advantage or an unknown insurance type.

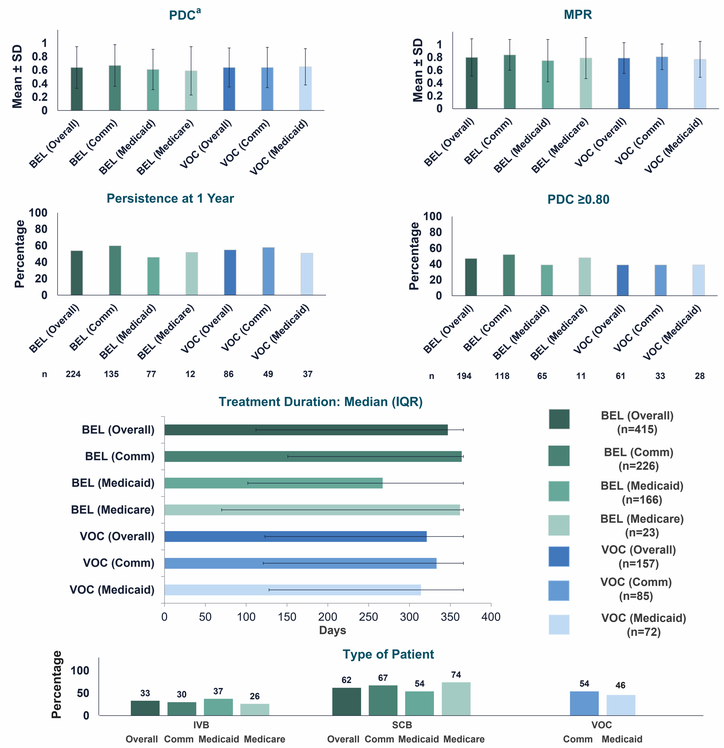
### Figure 2. Persistence and Adherence




- PDC for the IVB, SCB, and VOC cohorts was 0.70, 0.60, and 0.64, respectively; MPR was 0.82, 0.80, and 0.80, respectively
- The percentage of patients persistent with medication at 1 year was 61%, 50%, and 54% for the IVB, SCB, and VOC cohorts, respectively
- The benchmark of ≥0.80 PDC was achieved by 54% of patients receiving IVB, 42% of patients receiving SCB, and 38% of patients receiving VOC

*1-year follow-up.

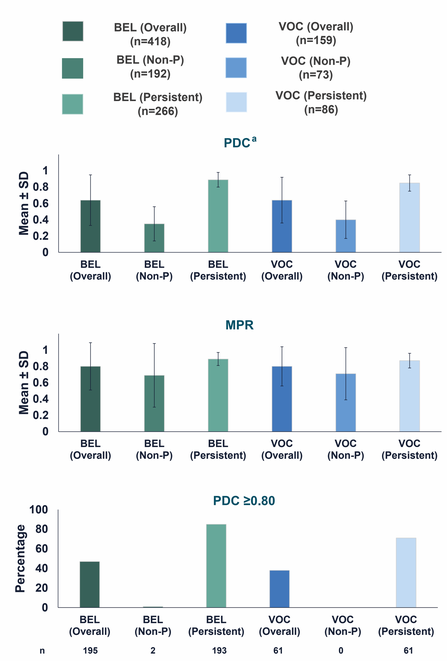
### Figure 3. Results by Insurance Type




In general, patients with Medicaid had poorer adherence and persistence relative to patients with commercial insurance

Comm denotes commercial insurance, including self-insurance. *1-year follow-up.

### Figure 4. Results by Persistence




Patients who remained on therapy demonstrated higher rates of persistence, meeting the ≥80% PDC threshold, suggesting that further research is needed to understand the drivers of therapy discontinuation

*1-year follow-up.

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## ABBREVIATIONS

AIDS, acquired immune deficiency syndrome; BEL, belimumab; CCI, Charlson Comorbidity Index; Comm, commercial insurance (including self-insurance); HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; HMO, Health Maintenance Organization; ICD-10, International Classification of Diseases, Tenth Revision; IQR, interquartile range; IV, intravenous; IVB, intravenous belimumab; LN, lupus nephritis; MPR, medication possession ratio; NA, not available; P, persistent; PDC, proportion of days covered; PPO, Preferred Provider Organization; Q, quartile; SC, subcutaneous; SCB, subcutaneous belimumab; SD, standard deviation; TB, tuberculosis; VOC, voclosporin.

## DISCLOSURES

All authors are employees of Genentech, Inc. and shareholders of F. Hoffmann-La Roche Ltd.

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