# An Evaluation of Costs Associated With Overall and Renal-Specific Organ Damage in Patients With Systemic Lupus Erythematosus in the USA

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*At the time of the study


## Conclusions

**In patients with systemic lupus erythematosus and renal-specific organ damage, annual healthcare resource utilization and costs increased after the diagnosis**

## Introduction

SLE is a chronic, multisystem, inflammatory, autoimmune disease associated with the presence of pathogenic self-reactive antibodies, which mediate tissue damage in multiple organs, including the kidneys[1,2]

Organ damage may also occur from toxicity resultant from long-term use of treatment such as corticosteroids and immunosuppressants[3–5]

Despite the high prevalence of organ damage and the associated poor disease prognosis,[6,7] real-world studies on the economic impact of organ damage, especially renal damage, in SLE are limited

## Objective

**To assess the burden of organ damage, in terms of HRU and costs, in adult patients with SLE from the perspective of third-party payers in real-world settings in the USA**

## Methods

This retrospective analysis (GSK Study 208380) used administrative health insurance claims data from the IQVIA PharMetrics Plus database to identify patients in the USA with SLE and organ damage

As organ damage represents a diverse collection of conditions and associated diagnoses, an algorithm was used to identify organ damage based on the previously validated SLICC/ACR Damage Index[8]

Renal organ damage includes low glomerular filtration rate, chronic nephritic syndrome, and end-stage renal disease

**Inclusion**

**SLE:**
≥1 inpatient visit or ≥2 outpatient visits for SLE prior to index date ≥18 years of age at the first SLE diagnosis

**Organ damage:**
Organ damage was proxied via the presence of ICD-9-CM or ICD-10-CM diagnosis codes corresponding to the 12 organ domains of the SLICC/ACR Damage Index, where the presence of organ damage was determined by:

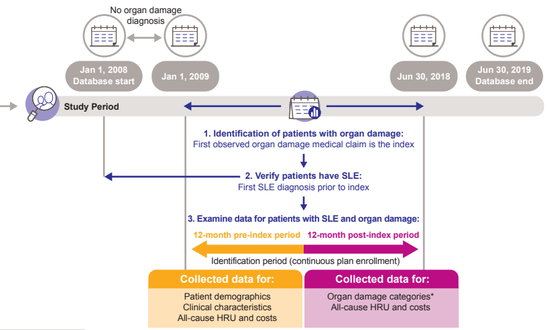
- ≥1 diagnosis on an inpatient claim

*or*

- ≥3 outpatient claims within a 6-month period within the same organ system

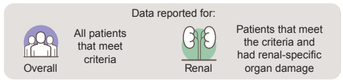
≥12 months continuous health plan enrollment before and after index date

Patients diagnosed with drug-induced SLE were excluded




**Analysis**

- All-cause healthcare resource utilization included all medical visits, regardless of the underlying diagnosis or medication
- Costs were adjusted to 2018 US dollars ($) using the Consumer Price Index
- Descriptive statistics were used




*Patients were assigned to only one organ damage domain category.

## Results

A total of 8,952 patients met organ damage criteria, 486 (5.4%) of whom had renal-specific organ damage

### Demographics and clinical characteristics

**Patients with SLE with organ damage (N=8,952)**

**Age at index, mean (SD)**
46.4 (12.2) years

**Female**
92.0% (n=8,236)

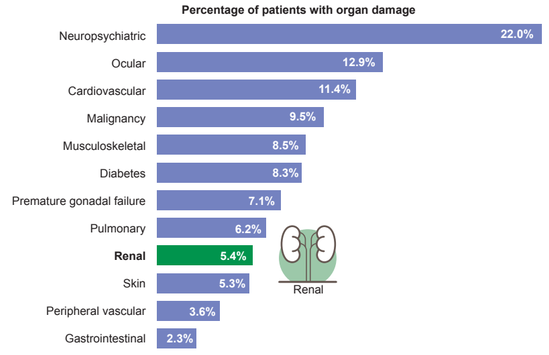
**US region**

| Northeast | South | Midwest | West | Missing |
|---|---|---|---|---|
| 23.5% (n=2,100) | 38.1% (n=3,415) | 24.4% (n=2,186) | 11.9% (n=1,067) | 2.1% (n=184) |

**Charlson comorbidity index score, mean (SD)**
2.0 (1.1)

**SLE Charlson comorbidities at index**
Renal disease 5.7% (n=506) Nephritis 8.6% (n=772)

### Percentage of patients with organ damage, by SLICC/ACR Damage Index domains

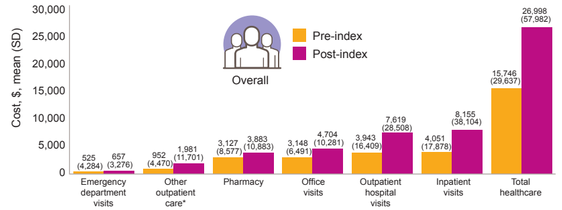



### HRU

| | Overall Pre-index | Overall Post-index | Renal Pre-index | Renal Post-index |
|---|---|---|---|---|
| **Inpatient claims** | | | | |
| Length of stay,* days, mean (SD) | 1.2 (4.3) | 2.7 (13.6) | 2.1 (6.7) | 4.8 (13.2) |
| Number of claims, mean (SD) | 0.3 (0.6) | 0.4 (1.1) | 0.4 (0.9) | 0.7 (1.3) |
| **Outpatient hospital claims** | | | | |
| Number of claims, mean (SD) | 26.3 (37.7) | 39.1 (59.0) | 28.5 (39.2) | 58.9 (98.2) |
| **Office claims** | | | | |
| Number of claims, mean (SD) | 38.4 (37.5) | 48.7 (49.4) | 36.1 (42.0) | 46.7 (50.7) |
| **Pharmacy claims** | | | | |
| Number of claims, mean (SD) | 34.7 (32.9) | 39.4 (36.0) | 30.6 (32.3) | 40.2 (35.2) |
| **Other outpatient care†** | | | | |
| Number of claims, mean (SD) | 16.5 (40.2) | 22.7 (52.5) | 18.9 (31.8) | 39.4 (84.1) |
| **Emergency department claims** | | | | |
| Number of claims, mean (SD) | 4.0 (18.7) | 5.0 (19.3) | 3.6 (15.2) | 4.9 (25.8) |

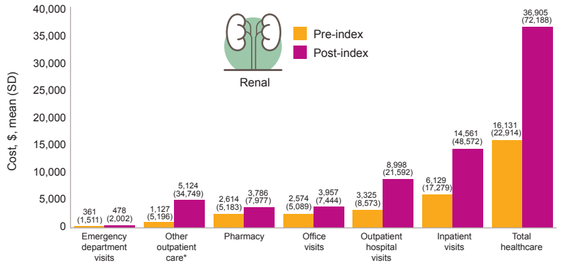
*Among patients with at least one visit.
†Other outpatient care included visits in other care settings (e.g. home healthcare), and lab services, among others.

### Pre-index and post-index healthcare costs (overall; N=8,952)




*Other outpatient care included visits in other care settings (e.g. home healthcare), and lab services, among others.

### Pre-index and post-index healthcare costs (renal-specific; n=486)




*Other outpatient care included visits in other care settings (e.g. home healthcare), and lab services, among others.

## Limitations

Administrative claims data and retrospective analyses are subject to a number of limitations, including (but not limited to): inaccurate diagnosis coding/misclassification bias, limited socioeconomic information, lack of mortality data and clinical information (e.g. laboratory tests or imaging procedures)

Patients were assigned to only one organ damage domain category based on the first occurrence of organ damage, which may not reflect clinical practice where patients may have evidence of damage in multiple organ domains

The study population included patients with commercial insurance coverage only, as such study results may not be generalizable to the broader USA population (e.g. uninsured patients and Medicaid enrollees)

### Abbreviations

ACR, American College of Rheumatology; HRU, healthcare resource utilization; ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification; SD, standard deviation; SLE, systemic lupus erythematosus; SLICC, Systemic Lupus International Collaborating Clinics; USA, United States of America.

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### Disclosures

**JM** and **MA** are employees of RTI Health Solutions. **CFB** is an employee of GSK and holds stocks and shares in the company. **BW** and **JVF** are former employees of GSK and hold stocks and shares in the company.




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