

# All-Cause Mortality, Hospitalization, and Systemic Lupus Erythematosus (SLE)-Related Complications in 2011-2015 Medicare Beneficiaries with SLE

Suying Li, Tingting Gong, Yi Peng, Kimberly M. Nieman, and David T. Gilbertson  
Chronic Disease Research Group, Hennepin Healthcare Research Institute, Minneapolis, MN

## Introduction

- Systemic lupus erythematosus (SLE) is an autoimmune disease that can affect the joints, kidneys, blood vessels, etc., and therefore reduce quality of life.
- Patients with SLE are at higher risk of complications such as heart attack and renal disease, and resulting increased healthcare utilization.

## Objective

- To estimate all-cause mortality, all-cause hospitalization, and SLE-related complications in US Medicare patients with SLE, 2011-2015.

## Methods

- We identified SLE patients during 2011-2015 in the 20% Medicare sample. We required Medicare Parts A/B coverage, no Medicare Advantage, and being alive for the entire preceding year and through the SLE index date.
- Using ICD-9-CM diagnosis code 710.0 and ICD-10 codes M32.1, M32.8, and M32.9 (for 2015), we defined SLE by presence of a diagnosis code on  $\geq 1$  inpatient or  $\geq 2$  outpatient claims separated by  $\geq 30$  days. The first SLE claim date was defined as the SLE index date.
- Chronic kidney disease (CKD) or end-stage renal disease (ESRD) before the SLE index date was identified.
- Follow-up was from the SLE index date until death, end of Medicare coverage, or December 31, 2015.
- Outcomes included all-cause death, all-cause first hospitalization, hospitalization due to myocardial infarction (MI) or stroke, CKD defined from all claim sources, or ESRD.
- Unadjusted mortality and event rates are reported as number of deaths or events per 100 patient-years.
- Healthcare utilization pre-/post-SLE was calculated as number of hospital outpatient claims or physician visits (including both hospital and office visits) per 100 patient-years.

## Results

Table 1. Baseline Characteristics for SLE patients

	N	Percent, %
Overall	38,669	100.0
Age (mean years, SD)	63.6 (14.8)	
Age, years		
<45	4869	12.6
45-64	12,527	32.4
65-74	12,605	32.6
75-84	6752	17.5
85+	1916	5.0
Sex		
Male	4817	12.5
Female	33,852	87.5
Race		
White	28,032	72.5
Black	7891	20.4
Other	2746	7.1

Figure 1. Prevalence of outcomes in 1 year after SLE (%), by age

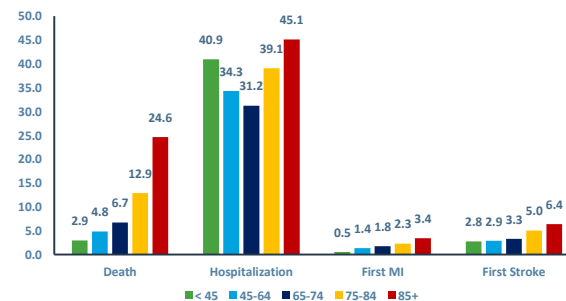
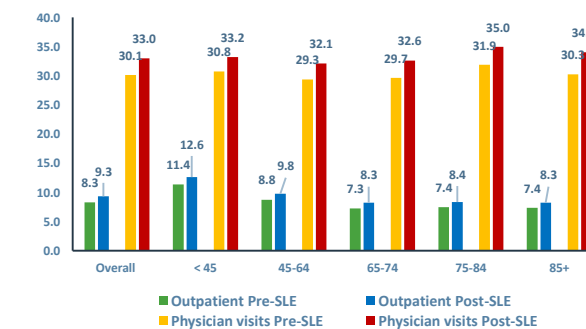


Table 2. Outcomes of SLE patients in 2011-2015 20% Medicare Sample

Outcomes		Total Patients	In 1-year follow-up			In 5-year follow-up		
			N of Event	% of Event	Rate per 100 patient-year	N of Event	% of Event	Rate per 100 patient-year
All-cause death	All	38,669	2941	7.61	8.17	7091	18.34	6.41
	Male	4817	577	11.98	13.21	1240	25.74	9.80
	Female	33,852	2364	6.98	7.48	5851	17.28	5.97
All-cause hospitalization	All	38,669	13,727	35.50	48.81	22,224	57.47	33.56
	Male	4817	1898	39.40	57.22	2879	59.77	38.38
	Female	33,852	11,829	34.94	47.68	19,345	57.15	32.95
MI hospitalization	All	38,669	638	1.65	1.79	1517	3.92	1.40
	Male	4817	120	2.49	2.78	262	5.44	2.12
	Female	33,852	518	1.53	1.65	1255	3.71	1.30
Stroke hospitalization	All	38,669	1369	3.54	3.88	2970	7.68	2.80
	Male	4817	234	4.86	5.50	434	9.01	3.63
	Female	33,852	1,135	3.35	3.65	2536	7.49	2.70
CKD <sup>^</sup>	All	27,573	2923	10.60	11.93	5736	20.80	8.12
	Male	2897	418	14.43	16.85	753	25.99	11.23
	Female	24,676	2505	10.15	11.37	4983	20.19	7.80
Incidence of ESRD <sup>^</sup>	All	36,336	272	0.75	0.81	627	1.73	0.61
	Male	4386	50	1.14	1.26	105	2.39	0.92
	Female	31,950	222	0.69	0.75	522	1.63	0.57
Shingles	All	38,669	533	1.38	1.49	1038	2.68	0.96
	Male	4817	61	1.27	1.41	110	2.28	0.88
	Female	33,852	472	1.39	1.51	928	2.74	0.97

<sup>^</sup> Excluded those with the same conditions before SLE index date

Figure 2. Annual healthcare utilization (visits per year) pre-/post-SLE



## Summary

- We identified 38,669 Medicare beneficiaries with SLE during 2011-2015. Mean age was 63.6 ( $\pm 14.8$ ) years, 87.5% were female, 72.5% were white, and 20.4% were black (Table 1).
- The mean (median) follow-up was 2.86 (2.93) years and the maximum was 5 years after the SLE index date.
- Unadjusted results overall and by sex (Table 2).
  - Overall all-cause mortality was 8.2 per 100 patient-years (7.6%) in the first year and 6.4 (18.3%) in 5 years.
  - In the first year, the overall all-cause hospitalization rate was 48.8 per 100 patient-years; rates were 1.8 due to MI and 3.9 due to stroke.
  - Incidence of CKD and ESRD was 11.9 and 0.8 per 100 patient-years in one year. Within 5 years, 1.7% of SLE patients developed ESRD and 2.7% developed shingles.
  - Compared with women with SLE in 5-year follow-up, men were more likely to die (25.7% vs. 17.3%), be admitted for MI (5.4% vs. 3.7%) or stroke (9.0% vs. 7.5%), and develop CKD (26.0% vs. 20.2%) or ESRD (2.4% vs. 1.6%).
- Annual healthcare utilization (number of visits per year) was increased from pre- to post-SLE: e.g., outpatient, 8.3 vs. 9.3; physicians, 30.1 vs. 33.0.

## Conclusions

- Compared with general Medicare beneficiaries, those with SLE experienced higher mortality and SLE-related complications, including MI, stroke, renal disease, and shingles. For example, 1-year mortality was 8.2 vs. 4.5 for SLE and general Medicare patients and the first MI rate in 1 year was 1.8 vs. 0.6. The incidence of ESRD in the SLE cohort in 1 year was 0.75%, but 0.04% in the general population in 2015.
- Effective SLE treatment and prevention of SLE-related complications is needed in the aging Medicare population.
- Results are limited to the Medicare population and may not be generalizable to the US population.