flare included Delaware, Delaware Bay area, and Chesapeake Bay area between 2003 and 2014. Maps were generated highlighting the study area, flares, and identified clusters from all analyses. The space-time effects of environmental and demographic variables on the identified clusters will be considered in subsequent analysis.

Conclusions We describe the first space-time clusters of lupus organ-specific disease activity strongly supporting the role of environmental factors as drivers of lupus activity.

**PS3:46 RELATIONSHIP BETWEEN DAMAGE CLUSTERING AND MORTALITY IN JUVENILE SYSTEMIC LUPUS ERYTHEMATOSUS: CLUSTER ANALYSES IN A LARGE COHORT FROM THE SPANISH SOCIETY OF RHEUMATOLOGY LUPUS REGISTRY**

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Objectives To identify patterns (clusters) of damage manifestations within a large cohort of juvenile SLE (jSLE) patients and evaluate the potential association of these clusters with a higher risk of mortality.

Methods This is a multicentre, descriptive, cross-sectional study of a cohort of 345 jSLE patients from the Spanish Society of Rheumatology Lupus Registry. Organ damage was ascertained using the Systemic Lupus International Collaborating Clinics Damage Index. Using cluster analysis, groups of patients with similar patterns of damage manifestations were identified.

Results Mean age at diagnosis 14.2±2.89, 88.7% were female and 93.4% were Caucasian. A total of 12 (3.5%) patients died, mean SLICC/ACR DI 1.27±1.63. Three damage clusters were identified:

Cluster 1 (72.7% of patients) showed damage in only 22.3% of patient, but no significant domain was involved.

Cluster 2 (14.5%) was featured by renal damage in 60% of patients, ocular damage in 54%, cardiovascular damage in 20% and gonadal failure in 14%, all significantly higher than clusters 1 and 3 (p<0.001). All patients scored for some damage in SLICC/ACR DI index, with a mean of 2.90±1.54 and mean affected domains of 1.86±0.93.

Cluster 3 (12.7%) was the only group with musculoskeletal damage (100%), clearly higher than clusters 1 and 2. All patients scored for some damage in SLICC/ACR DI index, with a mean of 2.66±1.87 and mean affected domains of 1.89±1.18.

The overall mortality rate of patients in clusters 2 and 3 was higher than in cluster 1 (p<0.05) and significantly higher in cluster 2 (2.2x times than cluster 3 and 5x times than cluster 1) (See table 1).

Conclusion In a large cohort of jSLE patients, we found one cluster with several damage domains involved that we consider clinically meaningful. Another cluster with important musculoskeletal damage manifestations and another cluster with no clinically significant damage at all were also found. These two clusters of jSLE with important clinical damage were found to be associated to higher rates of mortality, specially for the cluster involving renal, ocular, cardiovascular and gonadal domains. Physicians should pay special attention to the early prevention of damage in these particular subsets of patients.

**PS3:47 MULTI-YEAR ANALYSIS OF PREVALENCE/OUTCOMES OF PULMONARY EMBOLISM IN SYSTEMIC LUPUS ERYTHEMATOSUS DISCHARGES FROM NATIONWIDE INPATIENT SAMPLE DATABASE & COMPARISON TO NATIONAL HOSPITAL DISCHARGE SURVEY**

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Objectives To determine the prevalence and outcomes of pulmonary embolism (PE) in systemic lupus erythematosus (SLE) patients admitted to hospitals in the United States.

Methods This is a retrospective analysis of inpatient hospitalization records from the Nationwide Inpatient Sample Database for the years 2010 to 2015. Patients with SLE were identified using International Classification of Diseases, Ninth Revision (ICD-9) codes. The prevalence of PE was calculated as the number of SLE patients who had a diagnosis of PE divided by the total number of SLE hospitalizations. The outcomes of PE were assessed using the Charlson comorbidity index (CCI) and length of stay (LOS).

Results A total of 132,637 SLE patients were identified, of which 2,015 had a diagnosis of PE. The prevalence of PE was 1.53% (95% CI 1.46-1.60). The mean CCI for PE patients was 3.4 (95% CI 3.2-3.6) and the mean LOS was 19.4 days (95% CI 18.9-19.9).

Conclusion Our study highlights the association between SLE and the risk of PE, which is associated with increased hospitalization costs and LOS. Early recognition and management of PE in SLE patients can lead to improved outcomes.