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

1V Torrente-Segarra, 7TC Salman-Monte, 1Rua-Figueroa, 5Calvo-Alén, 6FJ López-Longo, 6M Galindo, 8A Olivé, 5JL Pego-Reigosa. 1Hospital General Hospital-HSJDMoisès Broggi, Universitat de Barcelona (UB), Hospitalet Llobregat, Spain; 2Parc de Salut Mar-IMIM, Department of Medicine, Universitat Autònoma de Barcelona (UAB), Barcelona, Spain; 3Hospital Universitario Dr Negrín, Las Palmas de Gran Canaria, Spain; 4Hospital Cruces, Bilbao, Spain; 5Hospital Gregorio Marañón, Madrid, Spain; 6Instituto de Investigación Hospital 12 de Octubre (I+12), Madrid, Spain; 7Hospital Germans Trias i Pujol, Badalona, Spain; 8Hospital do Meixoeiro, Vigo, Spain

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

V Majithia, T Nasir, S Lirette, S Kishore. University of Mississippi School of Medicine, Jackson, USA

Objectives To evaluate the demographics and outcomes of patients presenting with pulmonary embolism (PE) admitted to the hospital with systemic lupus erythematosus (SLE) from 2002-2015 and compare to the general population.

Methods Multicenter, retrospective cohort study of patients with SLE presenting to the hospital with PE identified from the Nationwide Inpatient Sample database between 2002 and 2015. The study population included patients with SLE and PE, those with PE only, and non-SLE controls. Demographics, comorbid conditions, and outcomes were abstracted from inpatient hospital discharge datasets.

Results Mean age at diagnosis 44.2 ± 15.3 years, 90.6% female, 89.9% Caucasian, 19.2% of patients died, mean SLICC/ACR DI 1.99 ± 1.75. Compared to the general population, patients with SLE and PE were younger (44.2 ± 15.3 vs. 52.4 ± 19.7 years; p < 0.001), more likely to be female (90.6% vs. 71.0%; p < 0.001), and had a higher rate of mortality (19.2% vs. 10.9%; p < 0.001). A total of 11 variables were significantly associated with mortality in the SLE cohort: Inpatient Mortality, Moderate to severe disability at discharge, Inpatient LOS, Total Charges, Median IQR, Co-efficient, and Median IQR. A total of 11 variables were significantly associated with mortality in the SLE cohort: Inpatient Mortality, Moderate to severe disability at discharge, Inpatient LOS, Total Charges, Median IQR, Co-efficient, and Median IQR.