## AB004. Clinically amyopathic dermatomyositis geospatially correlates with fixed sources of airborne pollution

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**Abstract:** Dermatomyositis (DM) may result from exogenous triggers in genetically susceptible individuals. The EPA's 2011 National Air Toxics Assessment (NATA) models health risks associated with airborne emissions, available by ZIP code tabulation area (ZCTA). Important contributors include point (fixed), on-road, and secondary sources. The objective was to investigate the geospatial distributions of DM and subtypes, classic DM (CDM) and clinically amyopathic DM (CADM), and their associations with airborne pollutants. This retrospective cohort study identified 642 adult DM patients from 336 unique ZCTAs. GeoDa v.1.10 was used to calculate global and local Moran's indices and generate local indicator of spatial autocorrelation (LISA) maps. All Moran's indices and LISA maps were permuted 999 times. Univariate global Moran's indices for DM, CDM, and CADM prevalence were not significant, but LISA maps demonstrated differential local spatial clustering and outliers. CADM prevalence correlated with point sources, with a bivariate global Moran's index of 0.071 (pseudo P=0.018), in contrast to CDM (-0.0053, pseudo P=0.46). Bivariate global Moran's indices for DM, CDM, and CADM prevalence did not correlate with other airborne toxics, but bivariate LISA maps revealed differential local spatial clustering and outliers. Thus prevalence of CADM, but not CDM, is geospatially correlated with fixed sources of airborne emissions. This effect is small but significant and may support the hypothesis that triggering exposures influence disease phenotype. Important limitations are NATA data and ZCTA population estimates were collected from 2011 datasets and ZCTA of residence may not have been where patients had greatest airborne pollutant exposure.

Keywords: Clinically-amyopathic dermatomyositis; air pollution

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