Multiple sensitizations increases the risk for respiratory allergy, but studies investigating specific sensitization profiles are needed. We aimed to identify IgE-sensitization profiles to respiratory allergens and study their associations with lung function.

IgE reactivity to microarrays allergens were measured twice using the MeDALL chip, in childhood and 11-years later in adult life, in 291 participants of the EGEA study. Latent class analysis (LCA) was performed at each point in time on IgE reactivity to 38 respiratory allergens. Cross-sectional associations between sensitization profiles and the level of FEV$_1$ or FEF$_{25-75}$ were estimated using linear mixed effect model (for repeated data) adjusted on age, sex and asthma.

At baseline, the mean age of the population was 11 yrs, 52% ever had asthma and the mean(sd) of FEV$_1$%pred was 97.1(12.6). The LCA identified 4 sensitization profiles, which were similar at both time points (frequencies): A "no/few IgE responses" (48%, 39%), B "IgE responses to pollen and pets allergens" (18%, 21%), C "IgE responses to some house dust mite allergens" (22%, 27%) and D "IgE responses to many aero-allergens" (12%, 13%). Subjects belonging to profiles C and D had lower FEF$_{25-75}$ as compared to those belonging to profile A (p<.04). Similar patterns of association were observed for FEV$_1$ and in the analyses restricted to subjects with asthma. The sensitization profiles identified in childhood were not associated with change in lung function from childhood to adulthood.

Using high resolution specific-IgE data in a well characterized population, we identified different sensitization profiles associated with lung function level.