European Respiratory Society
Annual Congress 2012

Abstract Number: 5067
Publication Number: 1372

Abstract Group: 6.1. Epidemiology
Keyword 1: Allergy **Keyword 2:** Epidemiology **Keyword 3:** Children

Title: IgE-associated phenotypes in 8-year old children. Cluster analysis of European birth cohorts

Marta 12431 Benet mbenet@creal.cat [1], Jean 12432 Bousquet jean.bousquet@inserm.fr MD [2], Josep M. 12433 Antó jmanto@creal.cat MD [1], Joachim 18730 Heinrich joachim.heinrich@helmholtz-muenchen.de MD [3], Thomas 18726 Keil thomas.keil@charite.de MD [4], Henriette A. 18731 Smit H.A.Smit@umcutrecht.nl MD [5], Jordi 18729 Sunyer jsunyer@creal.cat MD [1], Magnus 18727 Wickman Magnus.Wickman@ki.se MD [6], Judith 12434 Garcia-Aymerich jgarcia@creal.cat MD [1] and 12435 on behalf of the MeDALL Consortium jgarcia@creal.cat . [1] Center for Research in Environmental Epidemiology, (CREAL), Barcelona, Spain ; [2] Respiratory and Environmental Epidemiology team, INSERM, Villejuif, France ; [3] Epidemiology, Institute of Epidemiology, Munchen, Germany ; [4] Epidemiology, Charité University Medical Center, Berlin, Germany ; [5] Epidemiology, Institute for Public Health and the Environment, Bilthoven, Netherlands and [6] Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden .

Body: MeDALL (Mechanisms of the Development of ALLergy) is a FP7 project that aims to generate novel knowledge on the mechanisms of initiation of allergy. We aimed to identify phenotypes of allergic diseases in children using hypothesis-free statistical analyses. A total of 14,625 children (50% female) aged 8 years from 5 European birth cohorts (MAS, BAMSE, PIAMA, LISA, and GINI) were included in a common database with 83 variables obtained through harmonization of standardized questionnaires. Children were grouped, using partitioning cluster analysis (k-means), according to the distribution of 21 variables (phenotypic traits), covering asthma, rhinitis, dermatitis, food allergy, specific IgE levels, and child characteristics. Two groups emerged as the best separation maximizing between- and minimizing within-groups distances. The prevalence of most allergic diseases was different between groups (see Table): 5% vs 54% for ever asthma, 6% vs 54% for ever allergic rhinitis, and 26% vs 69% for ever eczema, in Groups 1 and 2, respectively. Specific IgE positivity was observed in 28% and 64% of children, respectively.

Thus, Group 1 could correspond to healthy children from the general population, while Group 2 puts together children with the different allergic diseases. These data suggest that allergic diseases could be better approached as one single entity rather than as independent, solely organ-related diseases.