A project analysing the occurrence, self-reported severity and sensitization of allergic diseases in a population based cohort

Background
Allergic diseases are the most frequent chronic diseases in childhood worldwide, and considered a burden for the affected children and their families. The diseases impose an economic burden on society if not diagnosed and treated properly and management of these diseases are challenging for healthcare professionals. There are clear association between IgE-sensitization and asthma, eczema, rhinoconjunctivitis and food allergy.

Aim
The aim of the study of this unselected cohort is to assess the prevalence of allergic diseases, analysing the sensitization profile and associations with sociodemographic factors and impact on daily life.

Methods
This cross-sectional study was based on a cohort of $n = 1 530$ school children, aged 13 to 14, from 13 municipalities in southern Sweden. Data were collected through web-based questionnaires (ISAAC). 195 children was participating in the clinical part of the study.

Results
Of all children 32% reported at least one allergic disease. Current asthma was reported by 10% and current rhino-conjunctivitis was reported by 13%. The prevalence of food hypersensitivity was 12% and the prevalence of eczema was 11%. One to three wheezing attacks were reported from 55% and 40% reported more than four attacks of wheezing in the preceding year. The sensitization to airborne allergens was significantly more common than to food allergens, 43% vs. 14% respectively. IgE was significantly higher to airborne allergens in both the children reporting rhinitis ($p<0.001$) and in eczema ($p<0.01$). Out of 53 children with allergic disease, 40% were not sensitized. Food allergen sensitization were found among those with rhinitis but only to PR-10 proteins.

Conclusions
A high number of affected children were identified. Many children have symptoms without satisfactory treatment. The main sensitization was to grass pollen and rarely to specific food allergens. The major grass pollen Phl p 1 was the main allergen
sensitizer followed by Cyn d 1 and Phl p 2. Sixty-one percent reporting any allergic disease were sensitized and the allergen component associated with allergic asthma and rhinoconjunctivitis were cat (Fel d 4), mite (Der f 2) and dog (Can f 5). Additional studies in order to improve healthcare for allergic children are warranted.

Keywords
Adolescents; allergy; allergen components; asthma; component-resolved diagnosis

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