Clinical relevance is associated with allergen-specific wheal size in skin prick testing.

Within a large prospective study, the Global Asthma and Allergy European Network (GA(2) LEN) has collected skin prick test (SPT) data throughout Europe to make recommendations for SPT in clinical settings. To improve clinical interpretation of SPT results for inhalant allergens by providing quantitative decision points. The GA(2) LEN SPT study with 3068 valid data sets was used to investigate the relationship between SPT results and patient-reported clinical relevance for each of the 18 inhalant allergens as well as SPT wheal size and physician-diagnosed allergy (rhinitis, asthma, atopic dermatitis, food allergy). The effects of age, gender, and geographical area on SPT results were assessed. For each allergen, the wheal size in mm with an 80% positive predictive value (PPV) for being clinically relevant was calculated. Depending on the allergen, from 40% (blatella) to 87-89% (grass, mites) of the positive SPT reactions (wheal size>= 3 mm) were associated with patient-reported clinical symptoms when exposed to the respective allergen. The risk of allergic
symptoms increased significantly with larger wheal sizes for 17 of the 18 allergens tested. Children with positive SPT reactions had a smaller risk of sensitizations being clinically relevant compared with adults. The 80% PPV varied from 3 to 10 mm depending on the allergen. These ‘reading keys’ for 18 inhalant allergens can help interpret SPT results with respect to their clinical significance. A SPT form with the standard allergens including mm decision points for each allergen is offered for clinical use.