and bacteria. Today, all these devices provide real time data but there are still some artefacts.

Conclusion: The information is not specific and needs to be constrained by the HIRST method. All these devices are, for the moment, complementary to the HIRST method and provide real time information. They can be easily connected to internet and send the data. Today the historical data obtained by the RNSA network combined with one these instruments is useful to get an alert of pollen burst every 1 h.

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Change of major allergens after large-scaled annual mowing of ragweed for twelve years

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Background: Ragweed pollen is an important aeroallergen in North American and Europe. Sensitization rate to ragweed pollen was reported to be as high as 60% in Hungary. Kinmen is an island outside of Taiwan. In 1997, Tsai and his colleagues reported that in Kinmen, sensitization rate to ragweed pollen in patients with allergic rhinitis and/or bronchial asthma was up to 78.9%, comparing to 6.8% in Taipei, the capital of Taiwan. At the same time, the sensitization rate to *Dermatophagoides pteronyssinus* were also different in Kinmen and Taipei (25.7% and 90.6%, respectively). This result let Kinmen government initiate massive ragweed mowing program since 1998. This study is aim to investigate any change of allergen sensitization in Kinmen after massive ragweed mowing for 12 years.

Method: This retrospective study was performed by chart reviews. From January to October in 2011, patients confirmed to have allergic diseases by physicians in Kinmen hospital were included. Serum levels of allergen-specific immunoglobulin E were measured by an automated microfluidic-based multiplexed immunoassay. We compared the sensitization class between patients older and younger than 12 years old by Mann-Whitney *U* test.

Results: One hundred and thirty eligible patients were included. Age ranged from 2 to 79 years old. Patients with allergic rhinitis, allergic conjunctivitis, asthma, and atopic dermatitis were 73.8%, 26.2%, 28.5%, and 26.9% respectively. There were only 13.1% patient sensitized to ragweed pollen. In study population born before massive mowing (older than 13 year-of-age), the sensitization class was significant higher than the younger population ($P < 0.05$). However, the sensitization class to *Dermatophagoides pteronyssinus* was significantly higher in younger population than the older one ($P < 0.05$).

Conclusion: After 12 years of large-scaled ragweed annual mowing program, major allergens in Kinmen changed. Ragweed pollen sensitization rate decreased. *Dermatophagoides pteronyssinus* became the major allergen.

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Development of a method to evaluate cat dander levels by light microscopy

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Background: The cat allergen challenge model using live cats housed in a challenge chamber creates levels of Fel d 1 that generate symptoms in allergic subjects. This model has the advantage that it replicates the exposure subjects receive in their homes and it has been used in several studies. However this approach is complicated by specific disadvantages. Fel d 1 levels can vary substantially over time so that subjects are not exposed to comparable allergen levels on different days and the delay in completing the ELISA assay for Fel d 1 means that the actual levels are only known after the fact. Our purpose in the proposed study is to determine whether it is possible to assess cat dander levels using light microscopy and correlate these levels to Fel d 1 measured by ELISA. This would allow more rapid measurements and tighter control on the allergen levels.

Method: Calibrated air sampling pumps (Gillian 5000, Sensidyne) with attached filters (25 mm, 0.4 μm pore size, Millipore) will be used to measure both Fel d 1 and dander levels. The pump draws air through the filter for a specified period of time at a known flow rate. Cat dander in the air impacts on the filter which is eluted and analysed for Fel d 1. Dander levels can also be measured directly from filters using light microscopy. Our aim is to determine whether parallel samples, one processed for ELISA and the other used for counting dander, can provide comparable information so that the visual count can be used for immediate results and validated by later ELISA measurements. To obtain an initial understanding of the feasibility of this method, measurements will be taken from several locations in a collaborating cat-only hospital. Sampling times will be varied to determine what the optimal duration is for counting dander. In addition, standard histopathological stains will be evaluated for better visualization and counting of dander. In parallel, samples taken in the same location under the same conditions will be sent for Fel d 1 analysis using commercial ELISA. The counts obtained from the microscopic analysis will be correlated with the ELISA results to see if there is a simple and predictable relation between the two.

Conclusion: The results of this study may prove useful in ensuring more stable allergen concentrations in cat challenge chambers.

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Differences in Der p 2 measurements by immunoassays that recognize different isoforms

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Background: The major dust mite allergens from Group 2 account for the largest proportion of IgE reactivity to mite. Fifteen Der p 2 isoforms are listed in the WHO/IUIS Allergen Nomenclature database, which differ in amino acids located in 9 positions. Five of the isoforms (including Der p 2.0101 and Der p 2.0105-0108), have the N114D substitution that impairs binding of mAb 1D8. The goal was to develop an assay that would detect most isoforms.

Methods: Recombinant Der p 2.0101 was expressed in *E. coli*, purified from inclusion bodies and refolded by dialysis. Der p 2.0103 was expressed in *P. pastoris* and purified from culture supernatant by affinity chromatography. Antibody reactivity and allergen content in commercially available extracts were measured by ELISA. Allergen content was measured using either 1D8 or DpX as coating monoclonal antibodies (mAb), and biotinylated 7A1 as detection mAb.

Results: Five anti-Der p 2 mAb were tested for binding to isoforms Der p 2.0101 and Der p 2.0103. Three mAb (5H7, 7A1 and DpX) detected both isoforms at similar levels, whereas two showed low detection of Der p 2.0101 (1D8 and 10E11). An assay that used 1D8 as a coating mAb measured 75% of the amount of natural Der p 2 measured by an assay that detects