

P080**PATIENT RESPONSES TO RAGWEED CHALLENGE
VALIDATE THE ALLERGEN CHALLENGE THEATRE™**

J. Falbo, W. Yang*, S. Kelly, J. Karsh, J. Yang, J. Marcelo, Ottawa, ON, Canada.

Introduction: Seasonal pollen concentration variability can confound results of field studies for allergy medications. Allergen exposure facilities provide stable pollen concentrations and offer alternatives to field studies. We validated our Allergen Challenge Theatre (ACT) by assessing subject responses to ragweed (*Ambrosia artemisiifolia*) pollen.

Methods: Pollen injected into the air supply entered the ACT through ducts across the top of the front wall. Pollen concentration was measured using laser particle counters (LPC) and impact samplers (IS). Long-term stability of pollen levels; and pollen uniformity at 15 locations in the room were evaluated. Thirty ragweed allergic subjects were exposed to pollen for 4 hours on two days to assess reproducibility of rhinitis symptoms. Pollen was monitored by 3 IS in the patient area.

Results: Three-hour stability results were comparable for LPC ($5107 \pm 244 \text{g/m}^3$) and IS ($4858 \pm 414 \text{g/m}^3$). Uniformity testing gave average ragweed concentrations of $4,622 \text{g/m}^3$; with a front-to-back SD of $\pm 544 \text{g/m}^3$ and a side-to-side SD of $\pm 333 \text{g/m}^3$. For the subject challenges, the mean 4-hour pollen concentration was $3,929 \text{g/m}^3$ for Day 1 and $4,099 \text{g/m}^3$ for Day 2. Nasal, ocular and total rhinoconjunctivitis symptom scores for two days were not significantly different. Plateau (2–4 hour) nasal symptom scores (mean \pm SD) were 6.28 ± 1.49 and 6.19 ± 2.14 , $p=0.74$, respectively. Ocular symptom scores were 2.82 ± 1.4 and 2.93 ± 1.82 , $p=0.59$, respectively. Total symptom score was 9.09 ± 2.27 and 9.1 ± 3.26 , $p=0.93$.

Conclusion: Stable ragweed pollen concentrations maintained over 4 hours induced reproducible rhinitis symptoms.

P081**EFFECTS OF TIME AND TEMPERATURE ON POLLEN
COUNTING IN THE US**

J. Jones, Clinton, NJ.

Introduction: High granularity of pollen counting sites is essential to document accurate data. We examined the fluctuations in the number and longevity of pollen counting sites in the United States over a 52-year period.

Methods: Locations/activity of pollen counting sites were collected from independent and member sites from the National Allergy Bureau for years 1963–2016. Average annual temperature of the contiguous US was collected from NOAA's Climate at a Glance Time Series. Hardiness zone assignments were given based on data from the USDA's Agricultural Research Service.

Results: A total of 565 sites across 42 states including Hawaii and Puerto Rico were actively recorded from 1963 - 2016. Average duration = 4.3 years with the longest duration being 35 years; average annual active stations $n=65$; 1971 was the most active year ($n=132$); 1988 was lowest station activity ($n=18$) stations. 1971 had the most newly activated sites $n=48$ and 1972 with most deactivated sites $n=67$. On average, 20 new stations became active/year, and 17 were lost. There was strong correlation between the number of sites active/year (NSAY) and the number of newly active sites/year (correlation coefficient 0.25710). The correlation between NSAY with sites lost/year was much weaker (corr coeff 0.06081). There exists a weak correlation between NSAPY and the average annual temperature of the contiguous US (corr coeff = 0.0388).

Conclusions: Granularity of pollen counting sites has a direct impact on our ability to use pollen data in tandem with other measurements to assess the effects of macro and micro environmental changes on allergens and plants at large.



This figure shows density of pollen counting sites across the US, as well as the temperature range for each site, as described by the USDA's 2012 updated hardiness zones. ???????

P082**POLLEN COUNTING AT DIFFERENT HEIGHTS:
QUESTION: DOES HEIGHT OF POLLEN DETECTION
REALLY MATTER?**

L. Bielory*¹, P. Wagle², 1. Springfield, NJ; 2. Branchburg, NJ.

Introduction: Pollen counts vary depending on location. The recommendation for the pollen collection unit be 3 to 6 stories off the ground, far enough away from other structures so airflow is not blocked. We assessed the impact on grass pollen counts through one season on 2 different heights of the placement.

Methods: Pollen was collected using Rotorod pollen counters in Springfield, NJ, in 2017 (April 19 - June 14) at 68.5 in (1.74 m), height A, and 210.5 in (5.35 m), height B. Pollen was then microscopically examined at 40x and recorded.

