

## For the Patient

The full report is titled “Meteorological and environmental factors that impact pollen counts, allergenicity, and thresholds: a scoping review” by Donald R. Brake, Reena N. Yaman, Alyssa R. Camargo, Lisa A. Marks, Jacob T. Maddux, Sergei I. Ochkur, Matthew A. Rank. The report appears in the Jul-Aug 2023 volume 44, issue 4 of *Allergy Asthma Proceedings* (volume 44, pages 229–236).

*For the Patient* is provided to physicians so that the patients can better understand the language of modern medicine.

*For the Patient* is written by the editors (Bellanti JA, and Settignano, RA) and provided to practitioners so that patients can better understand the usefulness of new information resulting from medical research.

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### Environmental Effects Of Pollen On Allergic Disease

Several epidemiologic studies have pointed out that environmental changes are leading to an increased global incidence of allergic disease and asthma, and are impacting vulnerable populations such as children. Pollen plays a major role as a key source of aeroallergens responsible for allergic rhinitis, conjunctivitis, and asthma. Analysis of epidemiologic data suggests that 10%–30% of adults and up to 40% of children in the United States have allergic rhinoconjunctivitis, and the prevalence of ARC has been increasing over the recent decades. The negative effects of poorly controlled ARC symptoms on quality of life are substantial and can lead to missed school, work, and general unproductivity. In a recent report, Blake and coworkers from the Department of Medicine, Mayo Clinic, Phoenix, Arizona, performed a study to evaluate the currently available literature on factors that affect pollen counts, allergenicity, and threshold levels of pollen that induce symptoms in individuals who are sensitized.

#### Why Did the Researchers Do This Particular Study?

The authors conducted this research to provide more comprehensive information on the many environmental factors that affect pollen distribution, including temperature, humidity, and precipitation, and the methods of pollen assessment that are best associated with allergic symptoms.

#### Who or What Was Studied?

A comprehensive search of several biomedical data bases was performed, which yielded 373 articles for assessment. These were then reviewed for relevance, and articles were selected to demonstrate the breadth of available data on pollen counts, allergenicity, and thresholds that induce symptoms in individuals who are sensitized. Additional articles were identified through the examination of bibliographies of search-identified articles.

#### What Did the Researchers Find?

Several environmental factors were identified, which assessed pollen counts and allergen load, including distance from the source, wind characteristics, pollen size, terrain, urban environments, air composition (particulate matter, CO<sub>2</sub> levels, ozone, NO<sub>2</sub>), and weather conditions (humidity, thunderstorms, precipitation). Pollen thresholds at which symptoms are induced were found to vary by study, pollen type, symptom, disease, and location.

#### What Were the Limitations of the Study?

Limitations of this study include findings from a single center and limitations of sample sizes.

#### What Are the Implications of the Study?

The results of this scoping review demonstrate the plethora of environmental variables that influence the relationship between pollen and the symptoms of allergic diseases. They reveal data that shed light on the complex interaction between environmental and biologic factors that affect pollen's role in allergic diseases and provide guidance on multiple areas for further investigation. □