

# UC Davis

## Dermatology Online Journal

### Title

Association of atopic dermatitis with tobacco smoke exposure: a systematic review and meta- analysis

### Permalink

<https://escholarship.org/uc/item/8pb2b2bz>

### Journal

Dermatology Online Journal, 22(9)

### Authors

Kantor, Robert  
Kim, Ashley  
Thyssen, Jacob  
et al.

### Publication Date

2016

### DOI

10.5070/D3229032519

### Copyright Information

Copyright 2016 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

**Abstract**

**Association of atopic dermatitis with tobacco smoke exposure: a systematic review and meta- analysis**

**Robert Kantor, BS<sup>1</sup>, Ashley Kim, BS<sup>1</sup>, Jacob Thyssen, MD, PhD<sup>2</sup> and Jonathan I. Silverberg, MD, PhD, MPH<sup>3,4</sup>**

**Dermatology Online Journal 22 (9)**

<sup>1</sup>**Department of Dermatology, Northwestern University Feinberg School of Medicine, Chicago**

<sup>2</sup>**Department of Dermato-Allergology, Herlev and Gentofte University Hospital, Hellerup, Denmark.**

<sup>3</sup>**Departments of Dermatology, Preventive Medicine and Medical Social Sciences, Northwestern**

**University Feinberg School of Medicine, Chicago**

<sup>4</sup>**Northwestern Multidisciplinary Eczema Center, Chicago**

---

Previous studies found conflicting results about whether exposure to tobacco smoke is associated with increased atopic dermatitis (AD). We examined this association by systematic review and meta-analysis of MEDLINE, EMBASE, Scopus, and Cochrane Library and identified 86 studies, including 680,176 patients from 39 countries. A meta-analysis was performed using random-effects models to estimate pooled odds ratios (OR). Subset analyses were performed for different ages (children or adult), regions, study designs (cross-sectional vs. longitudinal), sizes (<5,000 or ≥5,000) and quality (Newcastle-Ottawa Score [NOS] <6 or ≥6), and amount of smoking (mild or extensive). Overall, 17,969 (12.9% [range 1.2–50.0%]) were active smokers, 33,200 (15.3% [range 0.9–56.8%]) were passively exposed to tobacco smoke in the home and 14,004 (15.4% [range 2.3–34.4%]) of children born to mothers who smoked during pregnancy, respectively, had a previous and/or current history of AD. Atopic dermatitis was associated with higher odds of active smoking (random-effects OR [95% CI]: 1.87 [1.32–2.63]) and exposure to passive smoke (1.18 [1.01–1.38]), but not maternal smoking during pregnancy (1.06 [0.80–1.40]). In sensitivity analyses, the association between active smoking and AD remained significant in children and adults, in all continents studied and study sizes, but all studies were cross-sectional designs and had a NOS score ≥6. Exposure to passive smoke was associated with AD in children and adults, cross-sectional studies, South/Central American and African studies, study size <5,000 and NOS <6. This study demonstrates that active smoking and passive exposure to smoke are associated with increased AD prevalence.