

Association and Impact of Atopic Dermatitis Out-Of-Pocket Healthcare Expenses with Disease Severity and Control

W Smith Begolka¹, Isabelle Thibau¹, J Silverberg²

¹National Eczema Association, Novato, CA

²George Washington University School of Medicine and Health Sciences, Washington, DC

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease that can cause significant physical, quality of life and psychosocial impact. As available treatment options have limited long-term effectiveness, many individuals with AD require additional supportive care measures, and utilize complementary and adjunctive approaches to attempt better disease management. While increased healthcare utilization by affected individuals has been reported, few studies investigated the out-of-pocket (OOP) economic burden of AD on patients and their caregivers.

Objective: To characterize and quantify OOP healthcare and related expenses associated with AD management overall and stratified by disease severity, and to assess patient/primary caregiver-reported burden of these costs.

Methods: Between November 14, 2019 and December 21, 2019, the National Eczema Association (NEA) administered a 25-question online survey assessing specific OOP expenses over the past 30 days, estimated annual expenses, self-reported disease severity and control, and household demographics. Healthcare and related expense categories included a) current medical and therapeutic approaches (e.g. healthcare provider, individual prescription drugs, and care coordination expenses), b) non-prescription over the counter medications and other health-related personal products (e.g. bandages and bathing/hygiene products), and c) adjunctive approaches (e.g. traditional Chinese medicine or similar, specialized clothing, bedding, or cleaning products). The survey was emailed to all NEA members, which includes individuals with AD and non-affected family members worldwide. Screening questions limited the survey to all self-reported U.S. resident adult (≥18 years) eczema patients or primary caregivers.

Results: Overall, 1,160 eligible individuals completed the survey, including 890 adult AD patients and 228 primary caregiver responses for pediatric AD patients (age 0-17 years). At the time of the survey, 2.6% rated their AD severity as clear, 21.3% mild, 47.5% moderate, or 26.5% severe. All categories of therapy were associated with OOP costs. Reported annual OOP expenses from AD across all ages and severities ranged from \$0-200,000 with 41.9% of respondents spending at least \$1,000, and 8.5% exceeding \$5,000 per year. Median annual OOP costs increased with disease severity (Kruskal-Wallis test, $p < 0.0001$), number of flare days in the past month ($p < 0.0001$), increased number of healthcare provider visits ($p < 0.0001$), use of polypharmacy (≥3 treatments; $p < 0.0001$), and use of step-up therapy (oral, injectable, or phototherapy; $p < 0.0001$). The presence of comorbid conditions such as asthma (Chi-square test, $p = 0.002$), allergic rhinitis ($p = 0.0005$), food allergy ($p < 0.0001$), frequent/persistent skin infections ($p < 0.0001$), and anxiety and/or depression ($p = 0.002$) were associated with higher proportions of annual OOP costs exceeding \$1,000 compared to those with less than \$1,000 per year. Poorer ratings of self-assessed disease control were associated with higher rates of OOP costs in the past 30 days exceeding both \$100 ($p = 0.0002$) and \$200 ($P = 0.002$), yet this association did not

translate to higher median annual OOP expenses (Kruskal-Wallis test, $p=0.16$) or annual OOP costs exceeding \$1,000 (Chi-square test, $p=0.66$). Collectively, 93.7% of respondents indicated that ongoing management of AD impacted their finances, with the majority of respondents rating this burden as moderate (40.1%), significant (20.8%), or devastating (3.7%).

Conclusions: This large survey of U.S. AD patients and caregivers demonstrates the substantial economic impact of AD on personal and family finances, especially for those with moderate and severe disease. This burden includes OOP expenses in a broad array of medical, non-medical, and supportive healthcare categories that has been previously unreported. The wide OOP expense range, and willingness to pay of this surveyed cohort reflect the real-life considerations and efforts of these affected individuals to better manage their disease. Numerous factors were found to be associated with higher monthly and/or annual OOP costs that largely relate to challenging nature of AD management and its associated comorbidities, with the use of multiple treatments or more potent treatment strategies in an effort to improve short-and long-term disease control with limited success. These results highlight the importance of healthcare providers and patients/caregivers discussing potential financial impacts of therapeutic choices as part of treatment decision-making.