



AUSTRALIA

Disease Burden

Prevalence, Diagnosis, and Comorbidities

Several studies have examined the prevalence of AD using the International Study of Allergy and Asthma in Childhood (ISAAC) protocol. A cross-sectional survey using the ISAAC protocol with Australian preschool-aged children found a 12-month AD prevalence of 18.8%.²³³

Another cross-sectional study performed using the ISAAC protocol with Australian children aged 4–6 found that the lifetime prevalence of AD increased each year between 2000 and 2005 (OR 1.05, $p < 0.001$).²³⁴ A questionnaire-based survey in Melbourne using the ISAAC protocol found that the 12-month prevalence of AD increased in children aged 6–7 from 11.1% in 1993 to 17.2% in 2002.²³⁵ Interestingly, among children living in Australia, Australian-born children had a higher prevalence of AD compared to non-UK European-born children and Asian-born children.²³⁴

AD is less prevalent among Australian adults than children, with an estimated adult prevalence of 7%.²³⁶ It is possible, however, that adults are underdiagnosed because of the perception that AD is a childhood disease. A cross-sectional study of 2.1 million patients attending 494 general practices in Australia found the lifetime (ever diagnosed) prevalence of AD in this general practice population was 16.4%.²³⁷

Correlations between AD, allergic rhinitis, and asthma are well-described. Burgess et al. found that AD in childhood was significantly associated with asthma initially presenting in preadolescence, adolescence, and adulthood. AD in childhood was also significantly associated with childhood asthma that persisted into adulthood.²³⁸

²³³Tai, A., Volkmer, R. & Burton, A. Prevalence of asthma symptoms and atopic disorders in preschool children and the trend over a decade. *J Asthma* 46, 343–346 (2009).

²³⁴Ponsonby, A.-L. et al. A temporal decline in asthma but not eczema prevalence from 2000 to 2005 at school entry in the Australian Capital Territory with further consideration of country of birth. *Int J Epidemiol* 37, 559–569 (2008).

²³⁵Robertson, C. F., Roberts, M. F. & Kappers, J. H. Asthma prevalence in Melbourne schoolchildren: have we reached the peak? *Med J Aust* 180, 273–276 (2004).

²³⁶Jenner, N., Campbell, J. & Marks, R. Morbidity and cost of atopic eczema in Australia. *Australasian Journal of Dermatology* 45, 16–22 (2004).

²³⁷Chidwick, K., et al. (2020). Prevalence, incidence and management of atopic dermatitis in Australian general practice using routinely collected data from MedicinesInsight. *Australas J Dermatol*, 61: e319–e327. <https://doi.org/10.1111/ajd.13268>

²³⁸Burgess, J. A. et al. Childhood eczema and asthma incidence and persistence: a cohort study from childhood to middle age. *J Allergy Clin Immunol* 122, 280–285 (2008).

*Chidwick, K., Busingye, D., et al. (2020). Prevalence, incidence and management of atopic dermatitis in Australian general practice using routinely collected data from MedicinesInsight. *Australas J Dermatol*, 61: e319–e327. <https://doi.org/10.1111/ajd.13268>

Physical and Psychosocial Consequences

In the Australia context, the consequences of AD are characterized better in adults than in children. Jenner et al. surveyed Australian adults aged 14–63 and found that over a 12-month period, 45% of patients responded either “a lot” or “very much” to questions asking whether their skin was itchy, sore, painful, or stinging; 77% of patients with severe AD answered “a lot” or “very much” to the same questions.²³⁶ In the same study, DLQI data revealed that 36% of patients spent over 10 minutes applying treatments; 28% of patients considered their AD lesions when choosing which clothes to wear; and 21% experienced embarrassment.²³⁶ In a smaller, interview-based study, female patients with AD were negatively impacted by societal depictions of “perfect skin”; this additional dimension of burden for female patients with AD may require further research and attention.²³⁹

Caregiver Burden

Su et al. compared the caregiver burden for children with AD versus children with type 1 diabetes mellitus; the burden was significantly greater for AD with respect to the financial burden, social and family impact, personal burden, and disease management.²⁴⁰ In a similar comparison, Faught et al. found that mothers of children aged 5 years or younger with AD experienced greater stress than both mothers of children with insulin-dependent diabetes and mothers of children with deafness. Parental stress scores were similar between parents of children with AD, parents of children who required enteral feeding, and parents of children with Rett syndrome.²⁴¹

Mitchell et al. examined the relationship between parenting practices and child behavior in a cohort of children with AD. Increasing AD severity in children was associated with greater parental difficulty in managing behavioral problems. Additionally, decreased parental self-efficacy (i.e., the belief that parents could successfully manage their child’s AD) was significantly correlated with increased parental stress and depression, satisfaction with relationships, parenting conflicts, and the parent’s ability to manage their child’s behavior.²⁴² Taken together, these studies suggest that increasing the support of parents of children with AD may improve disease management and alleviate the parental burden.

Financial Burden

Jenner et al. found an average annual out-of-pocket cost per patient of \$425 for treatment products and \$120 for consultations; unsurprisingly, costs increased with disease severity.²³⁶ Su et al. found that when considering both direct and indirect costs, families spent an average of AUS \$480, \$1712, and \$2545 annually to care for children with mild, moderate, and severe AD, respectively.²⁴⁰ Of note, no studies were found on this topic since 2004. New studies on the personal cost experienced by Australian patients and their caregivers are needed to more accurately determine current financial burden.

Treatment

As in the other COI, the underutilization of TCS seems attributable to both inconsistent instructions from physicians and fears from patients and caregivers. On the physician side, a survey of 275 GPs in Australia found that 40.7% of GPs instructed patients to apply TCS for 2 weeks or less, 47.7% recommended applying TCS as little as possible, and 30.2% viewed skin thinning as the most common side effect of TCS use.²⁴³ A separate study of Australian pharmacists found that only 27% instructed patients to use TCS until lesions cleared; meanwhile, 54% recommended the sparing use of TCS. These cautious recommendations were rooted in



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²³⁹Magin, P., Adams, J., Heading, G. & Pond, D. ‘Perfect skin’, the media and patients with skin disease: a qualitative study of patients with acne, psoriasis and atopic eczema. *Aust. J. Prim. Health* 17, 181–185 (2011).

²⁴⁰Su, J. C., Kemp, A. S., Varigos, G. A. & Nolan, T. M. Atopic eczema: its impact on the family and financial cost. *Arch Dis Child* 76, 159–162 (1997).

²⁴¹Faught, J., Bierl, C., Barton, B. & Kemp, A. Stress in mothers of young children with eczema. *Arch Dis Child* 92, 683–686 (2007).

²⁴²Mitchell, A. E., Fraser, J. A., Morawska, A., Ramsbotham, J. & Yates, P. Parenting and childhood atopic dermatitis: A cross-sectional study of relationships between parenting behaviour, skin care management, and disease severity in young children. *Int J Nurs Stud* 64, 72–85 (2016).

²⁴³Smith, S. D., Harris, V., Lee, A., Blaszczyński, A. & Fischer, G. General practitioners knowledge about use of topical corticosteroids in paediatric atopic dermatitis in Australia. *Aust Fam Physician* 46, 335–340 (2017).

pharmacists' wariness of the treatment: 46% believed that cutaneous atrophy was the most common side effect, and 56% believed that side effects would occur in spite of proper use.²⁴⁴ An evidence-based information session proved effective; afterward, 92% of pharmacists recommended using TCS until the lesions cleared, only 8% recommended sparing use, 7% believed that cutaneous atrophy was the most common side effect, and 11% believed that side effects would occur in spite of proper use.²⁴⁴ The authors concluded that education efforts for healthcare personnel may indirectly enable patients to make optimal use of the available therapies and reduce their disease burden.

On the patient and caregiver side, the risk-framing of TCS may influence parents to underuse TCS and subsequently lead to poor treatment adherence, worse disease burden, and increased QoL burden in children and caregivers.²⁴³ A panel of Australian and New Zealand physicians agreed that TCS were underused in Australia and New Zealand due to fear of perceived side effects.²⁴⁵ More generally, a survey by Jenner et al. found that 15% of patients with AD reported problems with their treatment as assessed by the DLQI, with 30.8% of patients with severe AD reporting that their treatment had been a “problem”.²³⁶

Healthcare

Healthcare Utilization

As observed in other countries, unmet treatment needs often drive patients with moderate-to-severe AD to higher levels of care. In a three-year study of patients who presented with a dermatologic problem to a tertiary-care emergency department in Melbourne, 27% of the 108 patients admitted to the inpatient dermatology unit were determined to have AD at time of discharge—a higher proportion than any other single diagnosis.²⁴⁶ Similarly, in a year-long study at a tertiary care hospital in New South Wales, 37% of the 97 patients admitted for dermatologic conditions had AD.²⁴⁷

Satisfaction with Care

A small, interview-based study of Australian patients with acne, psoriasis, and AD identified several common concerns regarding their GPs and dermatologists. Many patients felt that their providers did not understand the psychosocial effects of their disease, did not give enough emotional support, and did not take the condition seriously. Patients acknowledged the time restrictions faced by providers but felt that the limited time would be best spent addressing a balance of physical and psychological symptoms instead of the more typical narrow focus on physical manifestations of disease.²³⁹

Patient-Centered Interventions

Moore et al. evaluated a nurse-led workshop that promoted emollient use among caregivers and children with AD. In the workshop group, the mean weekly emollient use increased from 54.5g at baseline to 426g at week 4, and SCORAD values were better than among patients treated at a dermatologist-led clinic. Moore et al. concluded that interdisciplinary management strategies may increase patients' and caregivers' abilities to manage AD.²⁴⁸ The literature search did not yield any other existing studies of interventions to improve patients' understanding of the disease, treatment adherence, or satisfaction.

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²⁴⁴Smith, S. D., Lee, A., Blaszczyński, A. & Fischer, G. Pharmacists' knowledge about use of topical corticosteroids in atopic dermatitis: Pre and post continuing professional development education. *Australas J Dermatol* 57, 199–204 (2016).

²⁴⁵Mooney, E. et al. Adverse effects of topical corticosteroids in paediatric eczema. *Australasian consensus statement. Australasian Journal of Dermatology* 56, 241–251 (2015).

²⁴⁶Lai-Kwon, J. E., Weiland, T. J., Jelinek, G. A. & Chong, A. H. Which patients with dermatological conditions are admitted via the emergency department? *Australasian Journal of Dermatology* 55, 255–259 (2014).

²⁴⁷Bale, J. & Chee, P. Inpatient dermatology: Pattern of admissions and patients' characteristics in an Australian hospital. *Australasian Journal of Dermatology* 55, 191–195 (2014).

²⁴⁸Moore, E. J., Williams, A., Manias, E., Varigos, G. & Donath, S. Eczema workshops reduce severity of childhood atopic eczema. *Australasian Journal of Dermatology* 50, 100–106 (2009).

KEY FINDINGS

Multiple studies noted that the prevalence of AD appears to be increasing in Australian children with AD, but trends among Australian adults are less studied. Additionally, there are few large-scale studies of comorbidities; the existing studies are smaller and interview-based. These findings provide a reasonable starting point, but population-wide studies may give a better picture of the scope of the burden of AD in Australia and may also reveal yet unknown associations.

Unmet treatment needs were most common among Australian patients with moderate-to-severe AD. As in other countries, part of the problem is rooted in the underutilization of TCS, which stems from both inconsistent prescribing practices and fears among patients and caregivers. Small interventions demonstrated preliminary success on both fronts, but much more work is needed in Australia to achieve a coherent approach to treatment.

