

ECZEMA AND DERMATITIS

Introduction

Eczema is a chronic inflammatory skin condition, usually beginning in infancy or early childhood, that affects over 20 percent of children in New Zealand. It is characterized by itch, scratching and inflamed, dry, scaling and crusted areas of skin. Eczema is also known as atopic eczema or atopic dermatitis.¹ Eczema is typically an episodic condition with flares and remissions, although in some children it is continuous.¹⁻³

Eczema and its treatment can negatively affect quality of life for children and their families to an extent similar to that of other chronic conditions such as asthma or diabetes. Children with eczema can experience disturbed sleep and fatigue, restriction of activities, school absenteeism, bullying, poor self-esteem and poor peer relationships. Children with eczema have high rates of psychological problems compared with their peers. Direct medical, hospital and treatment costs and indirect costs such as time off work for caregivers can be substantial.⁴

There is a strong genetic component to eczema, and affected children often go on to develop co-morbidities of asthma and allergic rhinitis. The dry cracked skin that occurs in eczema can provide a portal of entry for bacterial and viral skin infections.³ Children and adolescents with eczema have an increased risk for attention deficit hyperactivity disorder, possibly affected by sleeping problems, and higher prevalence rates of depression, anxiety, conduct disorder, and autism compared with their peers.⁵ There is emerging evidence that eczema may be associated with an increased risk of rheumatoid arthritis and inflammatory bowel disease, and decreased risk of type 1 diabetes.⁶

The following section reviews eczema and other conditions of the skin and subcutaneous tissue in children and young people using information from the New Zealand Health Survey and National Minimum Dataset. The section concludes with a brief overview of evidence for good practice for these conditions.

Data sources and methods

Indicators

Prevalence of eczema

Rates of eczema and dermatitis among 0–24 year olds

Definition

Prevalence of eczema

Eczema diagnosed by doctor and using medicines, tablets, pills, cream or ointment (0–14 years)

Child respondents (aged 0–14 years) are defined as having eczema if the child's parents or caregivers had ever been told by a doctor that the child has eczema and if they now have treatments for eczema (cream, ointment, medicine, tablets or pills)

Rates of eczema and dermatitis among 0–24 year olds

Hospitalisations of 0–24 year olds with eczema and dermatitis per 100,000 population

Data sources

Prevalence of eczema

New Zealand Health Survey (2006/07–2014/15), see Error! Reference source not found.

Rates of eczema and dermatitis among 0–24 year olds

Numerator: National Minimum Dataset

Denominator: Statistics New Zealand Estimated Resident Population (with linear extrapolation being used to calculate denominators between Census years)

Additional information

Prevalence of eczema

The NZ Health Survey utilised adjusted rate ratios to account for the potential influence of other demographic factors when undertaking demographic comparisons. Gender comparisons are adjusted for age, ethnic comparisons are adjusted for age and gender, and deprivation comparisons are adjusted for age, sex and ethnicity.⁷

Rates of eczema and dermatitis among 0–24 year olds

This section presents analyses where the condition was the primary diagnosis or was documented within any of the first 15 diagnoses (all cases). The rationale for presenting all cases is to highlight the full spectrum of health issues experienced by those with this condition, and their consequent requirement for acute health services. Analyses are per hospital discharge event therefore events are only included if the condition is documented within either the primary diagnosis or within any of the first 15 diagnoses.

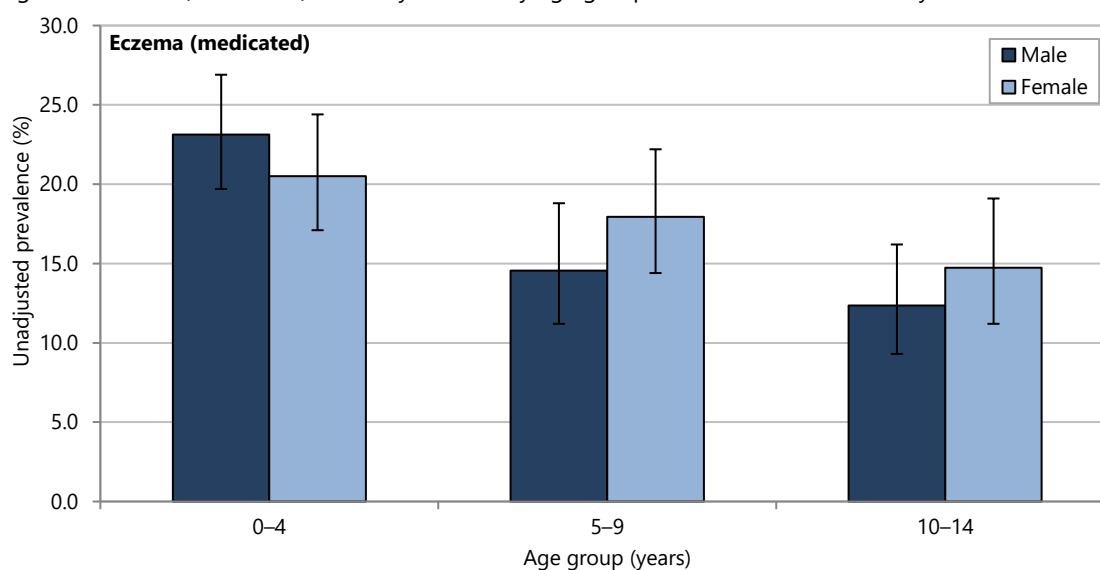
Codes used for identifying cases are documented in Error! Reference source not found..

National trends and distribution

From 2009 to 2013 there were less than five deaths of 0–24 year olds with a skin condition as an underlying cause, as documented within the National Mortality Collection.

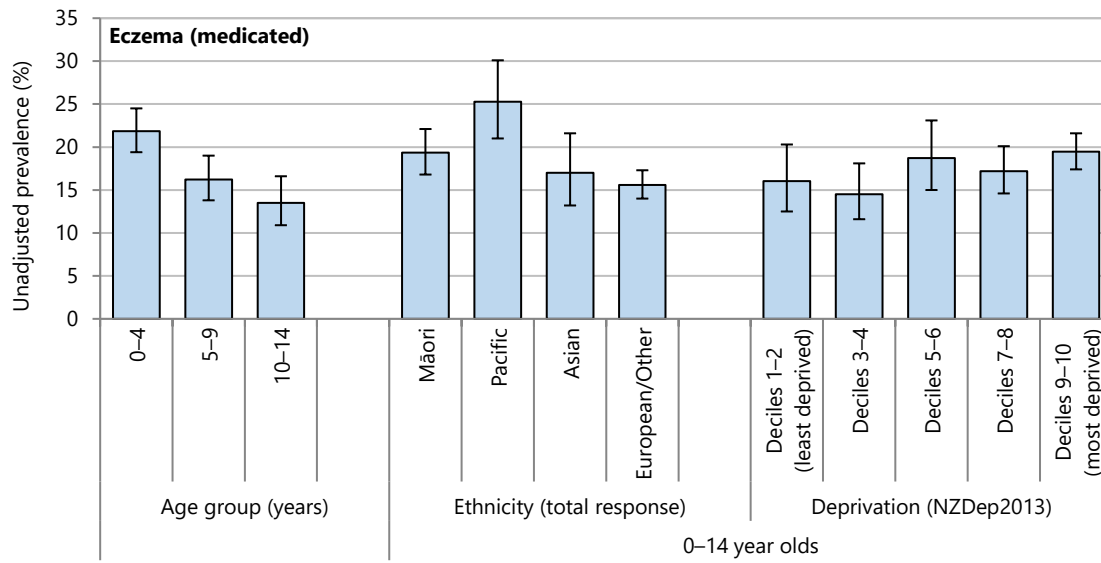
Children aged 0–4 had the greatest prevalence of eczema that required medication (**Figure 1, Figure 2**). Differences between male and female prevalences were not significant in any age group (**Figure 1**). The prevalence of eczema in children aged 0–14 years decreased with increasing age (**Figure 2**). Children of Pacific ethnicity had the highest prevalence of eczema, and the prevalence in Pacific children was significantly higher than that in European children (**Figure 2, Figure 3**). There was no significant difference between the NZDep index deciles (**Figure 2, Figure 3**). There has been some year to year variation amongst the sexes (**Figure 4**).

Figure 1. Eczema (medicated) in 0–14 year olds, by age group and sex, NZ Health Survey 2014/15



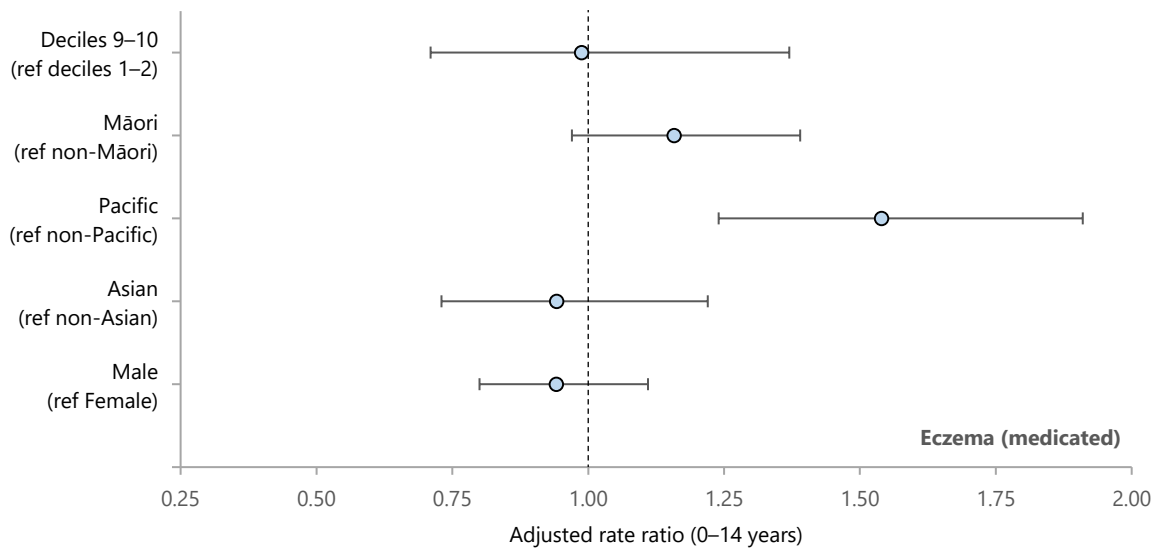
Source: NZ Health Survey

Figure 2. Eczema (medicated) in 0–14 year olds, by demographic factor, NZ Health Survey 2014/15



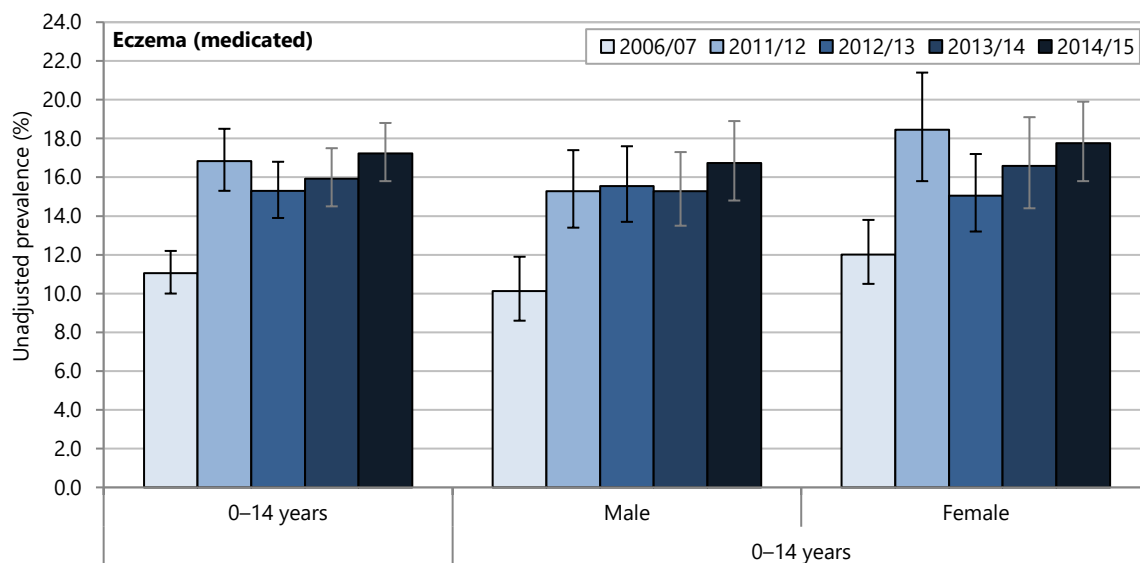
Source: NZ Health Survey

Figure 3. Comparisons for 2–14 year olds diagnosed with eczema, by sex, ethnic group, deprivation, NZ Health Survey 2014/15



Source: NZ Health Survey

Figure 4. Eczema (medicated) in 0–14 year olds, by sex and survey year, NZ Health Survey 2006/07–2014/15



Source: NZ Health Survey

The number of 0–24 year olds hospitalised between 2011 and 2015 with any diagnosis of eczema and dermatitis is presented by age group in **Table 1**, together with the total number of hospitalisations with eczema and dermatitis as a primary or any diagnosis. These diagnoses were characterised by high All:Primary ratios in 0–14 and 15–24 year olds which means that hospitalisations occurred more often when the primary diagnosis was a condition other than eczema and dermatitis. Surveillance using primary diagnoses only for these conditions would lead to a large undercount of hospitalisations.

Only about a quarter of hospitalisations of 0–24 year olds with eczema and dermatitis had these conditions as a primary diagnosis and the specific types of dermatitis are listed in **Table 2**. Other common primary diagnoses included respiratory and infectious diseases (**Table 2**).

Table 1. Individuals hospitalised with eczema and dermatitis by age group, 0–24 year olds New Zealand 2011–2015

Age group	Unique individuals (<i>n</i>)	Hospitalisations (<i>n</i>)		Ratio All:Primary
		Primary diagnosis	All cases	
Eczema and dermatitis				
Hospitalisation				
0–24 years	15,331	5,022	18,950	3.77
0–14 years	11,949	4,153	15,065	3.63
15–24 years	3,412	869	3,885	4.47

Source: National Minimum Dataset. Primary = hospitalisations where eczema and dermatitis was primary diagnosis; 'All cases' = eczema and dermatitis included in any of the first 15 diagnoses; The sum of the age groups may total to more than the 0–24 year old total

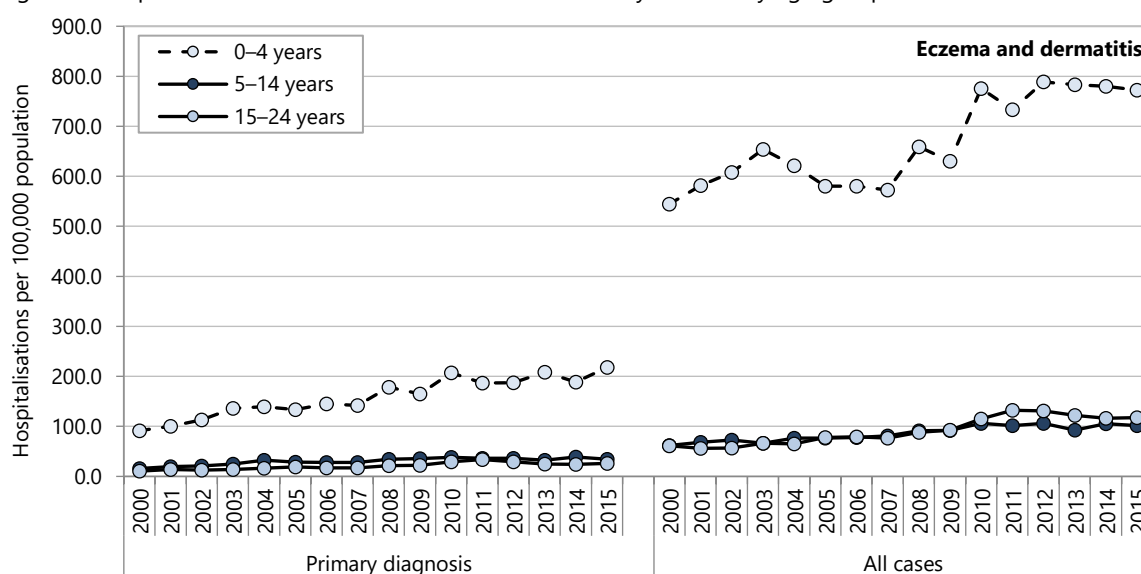
Table 2. Hospitalisations involving eczema and dermatitis* in 0–24 year olds, by primary diagnosis, New Zealand 2011–2015

Primary diagnosis	2011–2015 (n)	Annual average	Rate per 100,000 0–24 year olds	95% CI	%
Eczema and dermatitis* in 0–24 year olds					
New Zealand					
Dermatitis due to substances taken internally	480	96	6.25	5.71–6.83	2.5
Atopic dermatitis	279	56	3.63	3.23–4.08	1.5
Diaper [napkin] dermatitis	144	29	1.87	1.59–2.21	0.8
Allergic contact dermatitis	143	29	1.86	1.58–2.19	0.8
Seborrhoeic dermatitis	118	24	1.54	1.28–1.84	0.6
Herpesviral infections†	389	78	5.06	4.59–5.59	2.1
Other dermatitis‡	3,469	694	45.16	43.69–46.69	18.3
Eczema and dermatitis total	5,022	1,004	65.38	63.60–67.22	26.5
Other skin and subcutaneous tissue diseases	1,126	225	14.66	13.83–15.54	5.9
Infectious and parasitic diseases§	1,441	288	18.76	17.82–19.75	7.6
Diseases of the respiratory system	3,623	725	47.17	45.66–48.73	19.1
Certain conditions originating in the perinatal period	1,467	293	19.10	18.15–20.10	7.7
Injury and/or poisoning	1,148	230	14.95	14.11–15.84	6.1
Symptoms and/or abnormal clinical findings NEC	1,082	216	14.09	13.27–14.95	5.7
Other diagnoses	4,041	808	52.61	51.01–54.26	21.3
Total	18,950	3,790	246.72	243.23–250.25	100.0

Numerator: National Minimum Dataset; Denominator: Statistics NZ Estimated Resident Population; * Eczema and dermatitis in any of the first 15 diagnoses; † Herpes viral infections encompasses: Eczema herpeticum, Herpesviral vesicular dermatitis; ‡ Other dermatitis includes: Irritant contact dermatitis, Unspecified contact dermatitis, Exfoliative dermatitis, Lichen simplex chronicus and prurigo, Pruritus, Other dermatitis; § Infectious and parasitic diseases excludes herpesviral infections; NEC = not elsewhere classified

Since 2000 hospitalisation rates for eczema and dermatitis have risen markedly for 0–4 year olds and slightly for 5–14 and 15–24 year olds. The highest hospitalisation rates were for 0–4 years olds when all cases were included (**Figure 5**). Similar increases in hospitalisation rates over time were seen in all ethnic groups. Hospitalisation rates for 0–24 year olds were consistently higher for Pacific and Māori 0–24 year olds compared with their European/Other and Asian/Indian peers. This ethnic disparity was most marked when all cases were included in the analysis (**Table 3**).

Figure 5. Hospitalisations for eczema and dermatitis in 0–24 year olds, by age group, New Zealand 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' = inclusion in any of the first 15 diagnoses

Demographic distribution

Table 3 presents the demographic distribution of individuals hospitalised with eczema and dermatitis in New Zealand between 2011 and 2015. There was a strong social gradient among these individuals, with statistically significant increases in prevalence in each NZDep 2013 quintile (NZDep2013 deciles 3–4 to 9–10) compared with those living in areas with the lowest NZDep2013 deprivation scores (deciles 1–2). Prevalence rates were significantly higher for Māori, Pacific, Asian/Indian and MELAA 0–24 year olds than for European/Other. The majority of 0–24 year olds hospitalised with eczema and dermatitis were 0–4 year olds.

Table 3. 0–24 year olds hospitalised for eczema and dermatitis, by demographic factor, New Zealand 2011–2015

Variable	Unique individuals 2011–2015 (<i>n</i>)	Rate per 100,000 population	Rate ratio	95% CI
Eczema and dermatitis* in 0–24 year olds				
New Zealand				
NZ Deprivation Index quintile				
Deciles 1–2	1,606	113.17	1.00	
Deciles 3–4	1,876	140.30	1.24	1.16–1.33
Deciles 5–6	2,343	162.54	1.44	1.35–1.53
Deciles 7–8	3,617	222.65	1.97	1.86–2.09
Deciles 9–10	6,234	335.51	2.96	2.81–3.13
Prioritised ethnicity				
Māori	5,197	288.12	2.07	2.00–2.15
Pacific	2,800	395.12	2.84	2.72–2.97
Asian/Indian	1,421	148.24	1.07	1.01–1.13
MELAA	199	197.32	1.42	1.23–1.63
European/Other	5,714	139.07	1.00	
Gender				
Female	7,643	203.57	1.00	
Male	7,687	195.78	0.96	0.93–0.99
Age group (years)				
0–4	9,501	609.16	5.60	5.39–5.82
5–14	2,531	84.81	0.78	0.74–0.82
15–24	3,412	108.76	1.00	

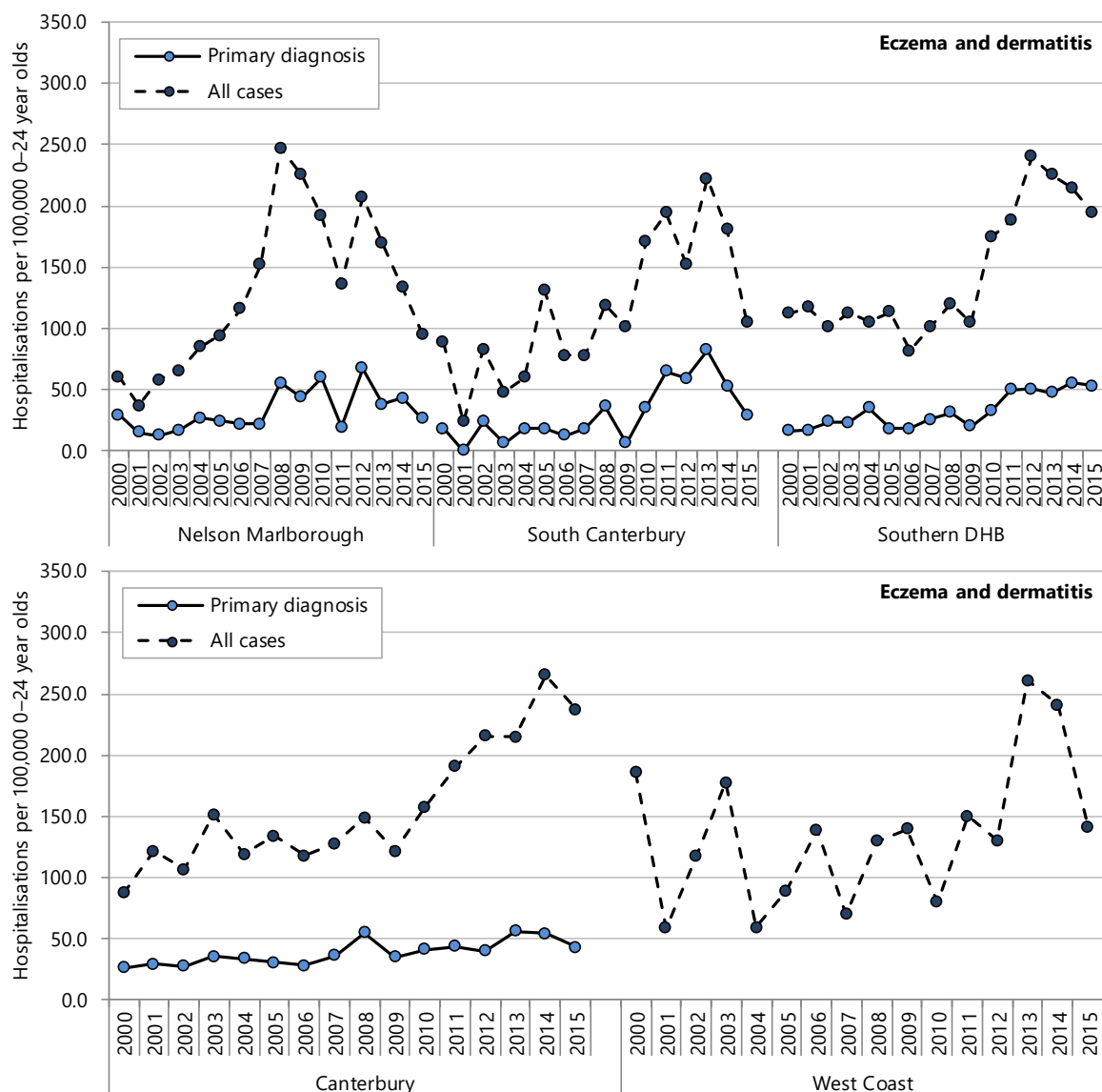
Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population; * eczema and dermatitis in any of the first 15 diagnoses; Rate ratios are unadjusted; Ethnicity is Level 1 prioritised; Decile is NZDep2013

Regional trends and distribution

From 2000 to 2015 hospitalisation rates for eczema and dermatitis increased all South Island DHBs except on the West Coast where numbers of hospitalisations for eczema and dermatitis were too small to discern a pattern over time (**Figure 6**).

Table 4 presents the number of individual 0–24 year olds hospitalised with any diagnosis of eczema and dermatitis in the South Island DHBs between 2011–2015, together with hospitalisations with eczema and dermatitis documented as the primary diagnosis or within any of the first 15 diagnoses. The All:Primary diagnosis ratio was generally high for eczema and dermatitis, reflecting a sizeable potential undercount if only primary diagnoses were included in analysis of discharge data. The All:Primary diagnosis ratio was lower than the national ratio in South Canterbury and higher in the other South Island DHBs.

Figure 6. Hospitalisations for eczema and dermatitis in 0–24 year olds, South Island DHBs 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' corresponds to hospitalisations with eczema and dermatitis listed in any of the first 15 diagnoses; Caution rates for South Canterbury are based on small numbers; Primary diagnosis rates for West Coast suppressed due to small numbers

Table 4. Hospitalisations for eczema and dermatitis in 0–24 year olds, South Island DHBs vs New Zealand 2011– 2015

DHB	Unique individuals (n)	Hospitalisations (n)		Ratio All : Primary
		Primary diagnosis	All cases	
Eczema and dermatitis in 0–24 year olds				
Nelson Marlborough	253	81	311	3.84
South Canterbury	115	49	146	2.98
Canterbury	1,598	393	1,865	4.75
West Coast	80	6	92	15.33
Southern	903	264	1,100	4.17
New Zealand	15,331	5,022	18,950	3.77

Source: National Minimum Dataset. 'All cases' corresponds to hospitalisations with eczema and dermatitis listed in any of the first 15 diagnoses

Evidence for good practice

Possibilities for prevention

No primary prevention strategy has been established for eczema and there is no clear evidence for effectiveness of measures such as maternal dietary antigen avoidance during pregnancy and breastfeeding, long-term breastfeeding, hydrolysed protein formulas, soy formulas, omega-3 or omega-6 fatty acid supplementation or delayed introduction of solid foods.⁵ There is some emerging but weak evidence about possible preventive effects of probiotics administered in pregnancy where there is a high risk of eczema in the fetus.^{8,9} Prevention approaches aiming to enhance skin barrier function, such as daily full-body emollient therapy from birth may reduce the cumulative incidence of eczema in infants.⁵ Secondary prevention through prevention and control of flares is a key goal of evidence-based management of eczema.³

Evidence-based health care for children and young people with eczema

Topical corticosteroids are the mainstay of the management of active eczema in combination with the regular use of emollients, the management of triggers and the treatment of concurrent infection. It is important for all healthcare professionals to be aware of the robust safety profile of topical corticosteroids so as to facilitate optimal treatment and counteract prevalent misinformation which raises unwarranted concerns about adverse effects.⁴ Treatment for eczema should be tailored to the individual child, with treatments stepped up and down according to the recorded severity of symptoms.^{2,3}

Eczema can usually be managed in primary care.¹⁰ Specialist referral is recommended if: symptoms are severe and persist despite optimum topical treatment, flares are occurring frequently or eczema is associated with repeated infections, there are serious social or psychological problems for the child or caregiver or if a child has severe food allergy or fails to grow at the expected growth trajectory.^{2,3} Engagement with a multidisciplinary team and nurse-led clinics may improve outcomes for children with eczema and their families.¹¹

New Zealand guidelines

- New Zealand Child and Youth Clinical Networks. 2014. Guidelines for the diagnosis and assessment of childhood eczema. <https://www.starship.org.nz/for-health-professionals/new-zealand-child-and-youth-clinical-networks/child-and-youth-eczema-clinical-network/diagnosis-and-assessment-of-eczema/>
- New Zealand Child and Youth Clinical Networks. 2014. Guidelines for the outpatient/primary care management of childhood eczema. <https://www.starship.org.nz/for-health-professionals/new-zealand-child-and-youth-clinical-networks/child-and-youth-eczema-clinical-network/guidelines-for-the-outpatient-primary-care-managment-of-childhood-eczema/>
- Purvis D & Stewart D. 2016. Starship clinical guidelines: Eczema. <https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/e/eczema/>

International guidelines

- National Institute for Health and Care Excellence. 2016. Eczema pathway. <https://pathways.nice.org.uk/pathways/eczema>
- Galli E, et al. 2016. Consensus conference on clinical management of pediatric atopic dermatitis. *Italian Journal of Pediatrics*, 42, 26 <http://dx.doi.org/10.1186/s13052-016-0229-8>
- Eichenfield LF, et al. 2015. Translating atopic dermatitis management guidelines into practice for primary care providers. *Pediatrics*, 136(3), 554-65. <http://dx.doi.org/10.1542/peds.2014-3678>
- Ring J, et al. 2012. Guidelines for treatment of atopic eczema (atopic dermatitis) part I. *Journal of the European Academy of Dermatology and Venereology*, 26(8), 1045–60. <http://dx.doi.org/10.1111/j.1468-3083.2012.04635.x>
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Evidence-based medicine reviews

- Cuello-Garcia CA, et al. 2015. Probiotics for the prevention of allergy: A systematic review and meta-analysis of randomized controlled trials. *Journal of Allergy and Clinical Immunology*, 136(4), 952-61. <http://dx.doi.org/10.1016/j.jaci.2015.04.031>
- Ersser SJ, et al. 2014. Psychological and educational interventions for atopic eczema in children. *Cochrane Database of Systematic Reviews*, 1. <http://dx.doi.org/10.1002/14651858.CD004054.pub3>

- Tam H, et al. 2016. Specific allergen immunotherapy for the treatment of atopic eczema. *Cochrane Database of Systematic Reviews*, 2. <http://dx.doi.org/10.1002/14651858.CD008774.pub2>
- Zuccotti G, et al. 2015. Probiotics for prevention of atopic diseases in infants: Systematic review and meta-analysis. *Allergy*, 70(11), 1356-71. <http://dx.doi.org/10.1111/all.12700>

Other relevant publications

- Lodge CJ, et al. 2015. Breastfeeding and asthma and allergies: A systematic review and meta-analysis. *Acta Paediatrica*, 104, 38-53. <http://dx.doi.org/10.1111/apa.13132>
- Mooney E, et al. 2015. Adverse effects of topical corticosteroids in paediatric eczema: Australasian consensus statement. *Australasian Journal of Dermatology*, 56(4), 241-51. <http://dx.doi.org/10.1111/ajd.12313>
- Weidinger S & Novak N. 2016. Atopic dermatitis. *Lancet*, 387(10023), 1109-22. [http://dx.doi.org/10.1016/s0140-6736\(15\)00149-x](http://dx.doi.org/10.1016/s0140-6736(15)00149-x)

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- Kidshealth. 2016. <http://www.kidshealth.org.nz/eczema>

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4. Mooney E, Rademaker M, Dailey R, et al. 2015. Adverse effects of topical corticosteroids in paediatric eczema: Australasian consensus statement. *Australasian journal of Dermatology*, 56(4) 241-51. <http://dx.doi.org/10.1111/ajd.12313>
5. Weidinger S, Novak N. 2016. Atopic dermatitis. *The Lancet*, 387(10023) 1109-22. [http://dx.doi.org/10.1016/s0140-6736\(15\)00149-x](http://dx.doi.org/10.1016/s0140-6736(15)00149-x)
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9. Zuccotti G, Meneghin F, Aceti A, et al. 2015. Probiotics for prevention of atopic diseases in infants: systematic review and meta-analysis. *Allergy*, 70(11) 1356-71. <http://dx.doi.org/10.1111/all.12700>
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