A RESEARCH REVIEW™
SPEAKER SERIES

Dermatological conditions: a dermatologist's approach

Making Education Easy 2021

About the speaker

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Dr Elizabeth Baird is a dermatologist in private practice in Auckland. She obtained her medical degree in the UK and then completed her dermatology training in the UK and New Zealand. Liz has been practicing clinical dermatology in Auckland for the last 20 years and her special interests are in female dermatology as well as the treatment of acne, eczema, skin cancer and in dermatological surgery.

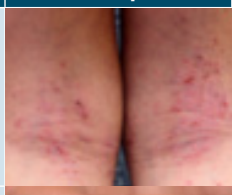
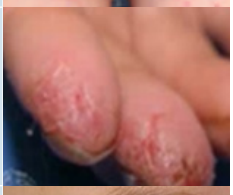
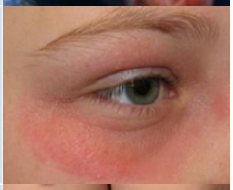
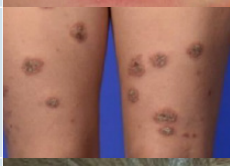
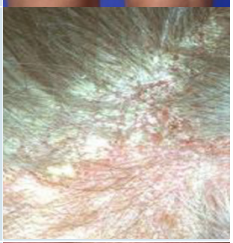
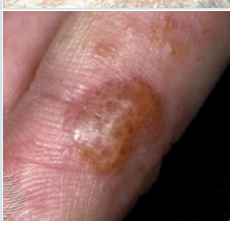
Abbreviations used in this review
BCC = basal cell carcinoma
MPA = methylprednisolone acetate
PDT = photodynamic therapy
QoL = quality of life
RCT = randomised controlled trial
Th0 = naïve T cells

This review summarises a webinar sponsored by Leo that was presented by Dr Elizabeth Baird from Remuera Dermatology to GPs and other health professionals, on the diagnosis and management of dermatological conditions in primary care. This practical session included case studies as well as the evidence for recent topical psoriasis products.

An overview of eczema

Eczema is a group of conditions that cause the skin to become red, itchy and inflamed. The term eczema is often used interchangeably with the term dermatitis. It is important to diagnose the type of eczema correctly as management may differ between the types (**Table 1**). Patients can also have more than one type of eczema concurrently.

Table 1: Types of eczema[1,2]

Condition	Description	Management	Example
Atopic dermatitis (atopic eczema)	A common, chronic inflammatory disease affecting up to one-third of children in NZ. Often has a flexural distribution and severity can vary widely.	Treatments include creams, phototherapy and systemic immunosuppressants.	
Chronic hand dermatitis	A chronic, inflammatory disease localised to the hands and distinct from atopic dermatitis. Generally, occurs in people performing wet, manual work.	Treatment is behavioural with the key being keeping hands dry. Emollients are second-line and topical steroids may not be required.	
Contact dermatitis	Caused by irritants or allergens touching the skin.	The precipitant needs to be identified and avoided. Ask the patient to keep the suspected product for patch testing if referred to a dermatologist.	
Nummular dermatitis	Coin-shaped spots with itchy open sores.	A swab should be taken. Treatment involves an antibiotic, e.g. doxycycline which is anti-inflammatory, and a potent steroid.	
Seborrhoeic dermatitis	Very common and occurs in areas with high sebum production, e.g. nose, scalp and upper back.	Treatment may involve an antifungal, e.g. Nizoral®, and a mild topical steroid. Steroid-free ointments, e.g. Elidel® and Protopic® (tacrolimus), are often effective but can be expensive.	
Dyshidrotic dermatitis	Small, itchy blisters often on the hands or feet due to stress, allergies or exposure to chemicals.	Remove the precipitant. Lesions often require ultra-potent steroids or a course of oral prednisone.	

The inflammatory cascade and the itch-scratch cycle

The key to managing eczema is to break the patient's itch-scratch cycle. The cycle begins when keratinocytes are damaged and secrete cytokines, thereby activating antigen-presenting cells and causing differentiation of Th0 cells, which causes additional cytokine production and exacerbation of itchiness. The ensuing cascade stimulates sensory neurons, resulting in chronic itching.

Choosing the right moisturiser

Patient acceptability is the most important factor when selecting a moisturiser as compliance is likely to be low if the patient does not like the product. Petroleum-based products are used for dry skin and creams are appropriate for wet rashes. Occlusion folliculitis is a sign that sufficient moisturiser is being used, but this is generally only seen in babies. In general:[3,4]

- Lotions are preferred for infant skin and in warmer climates and are easy to apply to large areas of skin.
- Creams are preferred for acute and sub-acute eczema, and moist areas or areas where the skin is folded.
- Ointments are preferred for lichenified lesions requiring penetration and hydration of the stratum corneum; typically more potent than creams.
- Fatty ointments are occlusive and penetrate dry skin effectively.

Dr Baird recommends for eczema
E45® moisturiser is effective and popular with patients as is Cetaphil®, Dermasoft® and Aveeno®, although all of these are unfunded. Sorbolene is recommended if a moisturiser is prescribed. Emulsifying ointment for washing has a low success rate as patients prefer not to use it in the shower. Trying multiple products, that have been recommended by a clinician, is recommended to select an optimal treatment; offering samples is a good way to do this.

Eczema case studies

Case study 1: Atopic dermatitis and sleep disturbance[5]

Patient: A nine-month-old male diagnosed with chronic atopic dermatitis

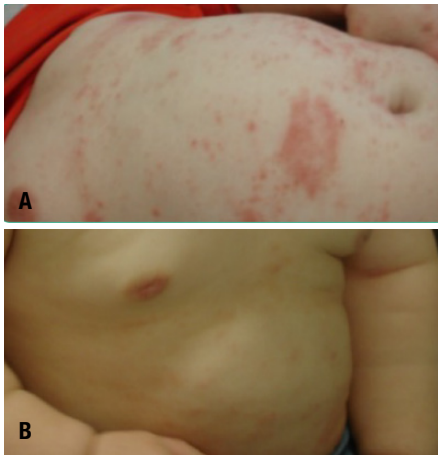
History:

- Erythematous and itchy plaques causing sleep disturbance for three months
- Previous treatment with emollients and topical hydrocortisone (1%) with little improvement
- No family history of atopy

Treatment and outcome:

- MPA (Advantan®) cream once daily for 14 days as well as emollients and an antihistamine
- After 14 days: significantly improved dermatitis (almost clear – **Figure 1**) and sleep quality

Figure 1: Panel A – prior to initiation of MPA and an antihistamine, Panel B – 14 days after initiation of treatment



Dr Baird recommends: It is important that patients are "weaned off" strong topical steroids to prevent a relapse. Hydrocortisone after 14 days would be appropriate for this patient or in older patients Elidel® might be suitable along with liberal use of a moisturiser.

Case study 2: Severe atopic dermatitis of the face

Patient: A 4-year-old male diagnosed with severe atopic dermatitis of the face (Dr Baird suspects this may be allergic contact dermatitis)

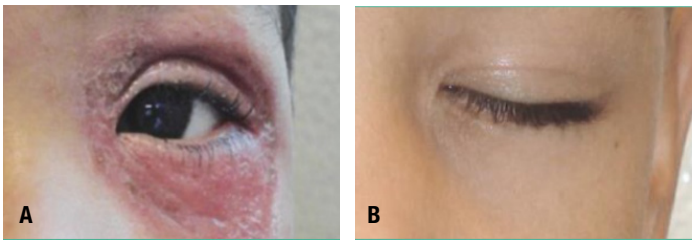
History:

- Erythema, xerosis, scaling, and some lichenification of the eyelids, periorbital and perinasal skin, and on the retroauricular folds where fissuration was also present.
- Previous treatment with low potency topical steroids, antibiotics and antifungals had failed.

Treatment and outcome:

- MPA, oral antihistamine and petroleum ointment for 14 days
- After 14 days: complete resolution of periorbital erythema (**Figure 2**)

Figure 2: Panel A prior to initiation of MPA an oral antihistamine and petroleum ointment, panel B – 14 days after initiation of treatment



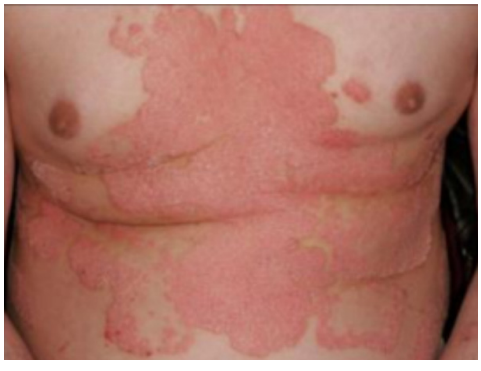
Dr Baird recommends: To distinguish between atopic dermatitis and contact dermatitis the clinician needs to determine exactly what the potential precipitant is, which may involve careful questioning. Removing all products that could be causing contact dermatitis should result in resolution. Contact dermatitis may be more likely in this case, given the rapid resolution. The patient should be weaned off Advantan® with hydrocortisone and liberal application of Elidel® around the eyelid.

Overview of psoriasis

Psoriasis is an immune-mediated dermatological condition that is difficult to manage and cannot be cured. It is characterised by red, scaly, sharply demarcated plaques.[6] The plaques are raised and irregular to oval in shape, ranging in size from one to several centimetres (**Figure 3**).

Psoriasis is caused by proliferating keratinocytes that divide seven times faster than in normal skin.[6] There are several differential diagnoses that need to be considered when diagnosing psoriasis (see below).

Figure 3: An example of plaque psoriasis



The epidemiology of psoriasis

Psoriasis is common in New Zealand and affects 2.6% of Caucasians in Australia.[7] The prevalence of psoriasis is the same in males and females and it can appear at any age with peak onset in 20-30 year olds and 50-60 year olds.[6,8] The condition is driven by genetic predisposition and environmental triggers.[6,8] People with metabolic syndrome have a higher incidence and severity of psoriasis and management may be more difficult; weight loss often improves treatment.

The majority of psoriasis (up to 90%) is plaque psoriasis and this will be mild to moderate in > 80% of patients.[9,10] The common sites of plaque psoriasis are the scalp, elbows, knees, pre-sacrum, hands, feet, and genitalia.

Treating scalp psoriasis

Dr Baird recommends a four-step approach to the treatment of scalp psoriasis:

1. Use an effective shampoo, e.g. Dr Gould's coal tar shampoo. It is critical that the shampoo is in contact with the scalp for multiple minutes before rinsing, e.g. applied to dry hair ten minutes before showering. The contact time can be decreased once the condition is controlled.
2. Apply a topical steroid lotion at bedtime and wash off in the morning, although application can occur at any time of the day.
3. "Gunky goo" is a coal tar, salicylic acid and betamethasone mixture that patients do not find pleasant. The goo needs considerable contact time to be effective. Dr Baird encourages patients to apply it every night for ten nights and advises that symptoms are highly likely to improve.
4. Enstilar® is a recent product that is a foaming mixture of calcipotriol and betamethasone. Dr Baird finds that patients generally prefer Enstilar® to gunky goo.

Steps 3 or 4 can be used to maintain control of scalp psoriasis, e.g. once a month or for a week at a time, depending on the severity and pattern of the patient's symptoms.

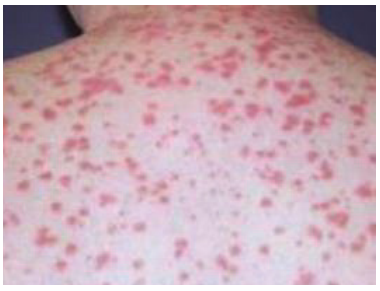
N.B. Some pharmacists may be reluctant to make coal tar formulations.

Clinical variants of psoriasis

Guttate psoriasis (Figure 4):[8]

- Small, drop-like, red papules
- Often emerges following a streptococcal infection; a throat swab should be performed as the underlying infection needs to be treated.
- Management involves a topical steroid or topical tar and phototherapy.

Figure 4: Guttate psoriasis

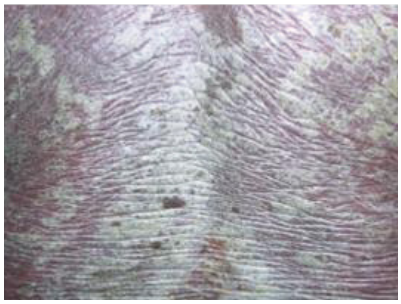


Erythrodermic psoriasis (Figure 5):[8]

- Generalised erythema and scaling
- Onset may be gradual or acute
- Patients lose significant quantities of fluid through their skin and may need to be hospitalised
- Treatment may involve methotrexate, acitretin, cyclosporin or biologicals.

N.B. Acitretin is a severe teratogen that is stored for long periods in body fat and should not be prescribed to any woman aged under 45 years unless they have had a hysterectomy.

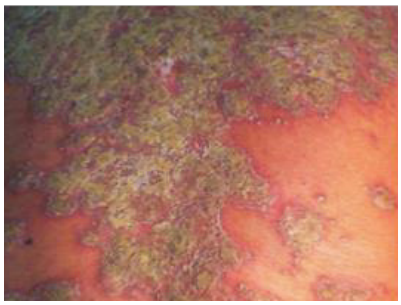
Figure 5: Erythrodermic psoriasis



Pustular psoriasis (Figure 6):[8]

- A rare form of psoriasis
- White, non-infectious pustules
- Triggers include pregnancy and corticosteroid withdrawal
- When localised to the hands and feet it can be successfully managed with ultra-potent steroids; generalised pustular psoriasis can be fatal.

Figure 6: Pustular psoriasis

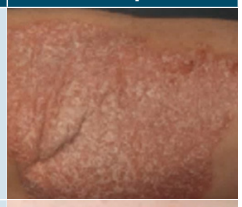
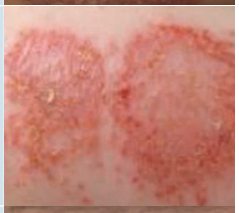
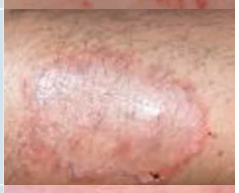
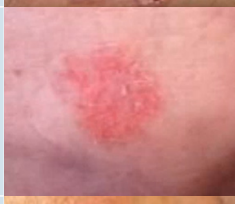
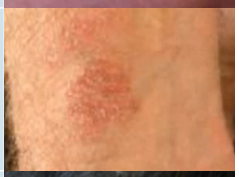
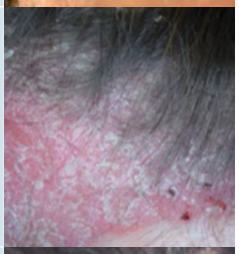
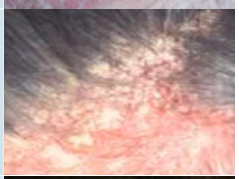
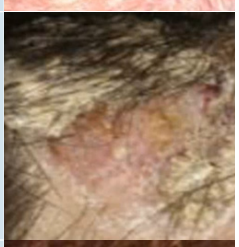
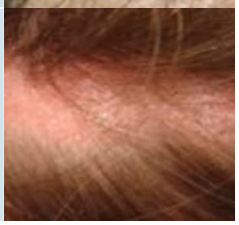


The differential diagnosis of plaque psoriasis

The key to the differential diagnosis of plaque psoriasis is to be open to alternative diagnoses, if initial management is not satisfactory (**Table 2**). When patients have been using multiple treatments it can be difficult to form a clear picture of their condition.

Dr Baird recommends having a low threshold for performing a skin biopsy where there is diagnostic uncertainty. Swabbing the skin may also provide useful information.

Table 2: The differential diagnosis of plaque psoriasis

Condition	Description	Example
Plaque psoriasis[11]	• Well demarcated • White/silvery scales • Symmetrical	
Discoid eczema[12]	• Pruritic • White/silvery scales are absent • Moist/weeping • Secondary impetiginisation with a yellow crust	
Tinea corporis[12]	• Annular lesions • Active scaling edge • Central clearing • Tinea elsewhere • Asymmetric	
Neoplasms[12]	• Bowen's disease and superficial BCCs • Single or few lesions • Biopsy may be helpful	
Contact dermatitis[12]	• Pruritic • Seldom symmetrical	
Scalp psoriasis[13,14]	• Sharply demarcated, erythematous plaques • Silvery/white scale • Hair loss may be caused by scratching • Auspitz sign, i.e. bleeding spots when scales are scraped off	
Seborrhoeic dermatitis[13,15]	• Erythema and scaling • Poorly defined • Softer, yellow scale • Treatment is similar to scalp psoriasis	
Tinea capitis[16]	• More common in children • Confirmed with skin scrapping and hair pluck for culture • Wood's light may show yellow-green fluorescence	
Lichen psoriasis[17]	• Erythema and scaling • Scarring and alopecia is generally seen • Biopsy is helpful	

Treating psoriasis

Psoriasis is a relapsing condition that often worsens in winter and improves with summer phototherapy. The course of psoriasis can be unpredictable and flare-ups lasting weeks or months may occur. Management plans for psoriasis need to be individualised to allow patients to intensify their treatment as required.

The aims for psoriasis treatment are to:[12]

- Relieve symptoms
- Induce remission
- Prevent complications
- Minimise adverse psychosocial effects
- Prevent reoccurrence
- Improve QoL.

Treatments need to be easy for patients to use, otherwise compliance is likely to be poor.

Enstilar® and Daivobet®

Enstilar® and Daivobet® both contain 50 µg/g calcipotriol and 500 µg/g betamethasone dipropionate. The calcipotriol reduces the thickness of psoriasis scale and the corticosteroid reduces the erythema and itch.

In Daivobet®, the active components are undissolved crystals, resulting in limited skin penetration.[18] Enstilar®, in contrast, is a foaming spray where the active components are dissolved by propellants (supersaturation), thereby improving skin penetration.[18]

In Dr Baird's opinion, both products are effective, however, Enstilar® is superior. In her experience patients generally prefer Enstilar® to Daivobet® because it is a cleaner product that is easy to rub into the skin.

Trials comparing effectiveness

A four-week RCT of 376 patients with psoriasis vulgaris was conducted with calcipotriene (0.005%) plus betamethasone dipropionate (0.064%) in either an aerosol foam or an ointment.[19] At week four, 54.6% of patients using the foam achieved almost clear or clear skin, compared to 43.0% of patients using the ointment (p=0.025).[19]

The PSO-ABLE 12-week trial assessed the response of patients with moderate-to-severe psoriasis to treatment with either calcipotriol (50 µg/g) plus betamethasone (0.5 mg/g) foam (77 patients) or gel (82 patients).[20] Treatment success rates were higher in patients using the foam (**Figure 7**) and a greater proportion of patients achieved significant improvements in QoL with the foam at weeks 4 (p=0.004) and 12 (p=0.001).[20] The PSO-ABLE trial showed that some patients with psoriasis who normally require systemic treatment with a biological medicine may be successfully treated with Enstilar®.

The PSO-LONG trial compared proactive, twice-weekly treatment (i.e. weekend maintenance) of controlled psoriasis over 52 weeks with calcipotriene (0.005%)/betamethasone dipropionate (0.064%) foam versus reactive (rescue), twice-weekly treatment following a relapse.[21] The proactive maintenance treatment was more effective in prolonging time to relapse, increasing remission time and reducing the number of relapses ($p < 0.001$), without an increased risk of adverse events.[21]

Dr Baird believes that a weekend maintenance approach to psoriasis using Enstilar® may be appropriate for some patients in primary care.

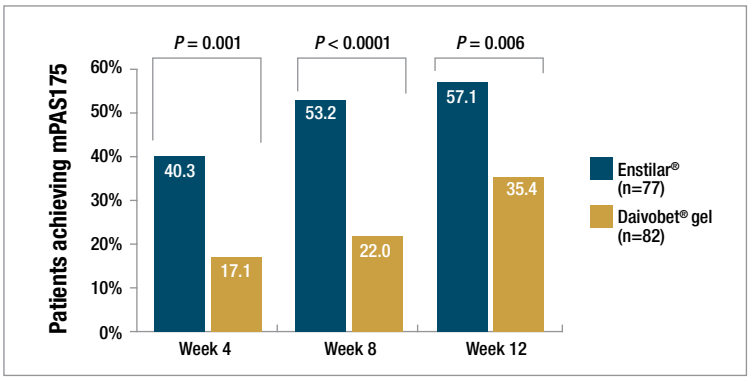


Figure 7: Proportion of patients achieving mPASI75 after 4, 8 and 12 weeks treatment with Enstilar® or Daivobet®,[20] mPASI = modified Psoriasis Area Severity Index

Actinic keratosis

Actinic keratosis are precancerous lesions that are predominantly found on the faces or sun-exposed areas of older patients. An audit of New Zealand dermatologists reported that the average age of affected patients was 68 years, 57% were males, and 88% of lesions were on the face and 56% were on a limb. Multiple actinic keratosis lesions are the norm with 39% of patients having 5-20 lesions and 23% having > 20.

The treatment modalities that are preferred by New Zealand dermatologists for actinic keratosis are liquid nitrogen (74% of cases), Efudix® (42% of cases), combination Daivonex®/Efudix® (8% of cases), PDT (5% of cases) and surgery (4% of cases).

Dr Baird reports from the literature that the combination of Daivonex® and Efudix® is more effective than either product alone. Efudix® may also be used once weekly as a preventative treatment for actinic keratosis, which is often preferred by patients as less frequent application reduces skin irritation and damage. Dr Baird varies her prescribing of Efudix® according to the patient's response. Sometimes she prescribes Efudix® twice daily, one day a week, or occasionally she prescribes it once daily for three to four months during winter to minimise photosensitivity. Particular care and frequent follow-up are necessary when Efudix® is prescribed to patients that are immunosuppressed, e.g. following an organ transplant.

Treating warts

Wart paint, e.g. a salicylic acid/lactic acid combination, is often the first-line treatment for warts. First, the wart needs to be softened with an abrasive material such as pumice and Vaseline® applied around the margin of the wart and wart paint applied. The wart then needs to be occluded and the patient should repeat this process for several days before allowing the wart to dry out and repeating the treatment cycle, if required. Using wart paint is time consuming and not always effective.

Liquid nitrogen is often an unpopular treatment for patients with warts as it requires daily attendance at a practice for multiple days. Curettage and cautery may be appropriate for large, single warts. Imiquimod is unlikely to be effective for heavily keratinised warts, as the penetration will be poor, however, imiquimod may be beneficial if the wart has been softened. Bleomycin is a highly effective but expensive treatment for calcitrant warts. A drop of bleomycin is placed on the wart and a needle used to "prick" the medicine into the wart. Warts can also be treated with PDT, although this is expensive and may be time-consuming. Diphenylcyclopropenone is used effectively overseas to treat warts, but it is not readily available in New Zealand.

In Dr Baird's experience, Efudix® formulated with 25% salicylic acid under occlusion is an effective treatment for warts. Tagamet (cimetidine) can produce rapid results for approximately half of patients with warts and is useful for children with multiple warts, however, it is an expensive treatment.

Eliminating scabies from fomites

A recent field study established guidance for the elimination of viable scabies mites and eggs from fomites. In situations when electricity is available to households, clothing or bedding can be placed in a clothes dryer for at least 10 minutes at ≥ 50°C, or frozen < -10°C for at least five hours.[22] Alternatively, the fomites can be placed in a sealed plastic bag for at least 3 days in a temperate dry climate or 8 days in a warm or cold climate.[22]

TAKE-HOME MESSAGES

- Management differs between the subtypes of eczema, therefore the correct diagnosis is important.
- Patient preference is critical when selecting a moisturiser; they won't use it if they don't like it. Encourage patients to try multiple products.
- Patients using strong or potent topical steroids should be 'weaned off' treatment with a weaker steroid, e.g. hydrocortisone, to prevent a relapse.
- Be open to alternative diagnoses if suspected psoriasis is not responding to treatment; don't get stuck on the wrong diagnosis too long. Skin biopsies are often helpful where there is diagnostic uncertainty.
- The management of psoriasis needs to be individualised and allow for treatment to be intensified as required.
- Scalp psoriasis requires extended contact on the scalp with the treating product, e.g. overnight.
- Enstilar® is a foaming product that contains calcipotriol and betamethasone dipropionate with improved skin penetration. It is effective for treating both plaque and scalp psoriasis and can also be used as a maintenance treatment in primary care.

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