

What's in the journals

(Ones you might have missed and latest trends)

JoAnn See, Dermatologist at Central Sydney Dermatology

Dr See is a dermatologist in private practice in Sydney. She lectures internationally on acne and skincare, and is a member of the International Global Alliance to Improve Outcomes in Acne. Dr See has curated a list of some of the most interesting or notable research recently published internationally on acne.



The optimal approach to laboratory monitoring for patients being treated with isotretinoin for acne

A consensus of 22 international dermatologist experts in acne collaborated to reach a consensus on key isotretinoin laboratory monitoring parameters.

Various rare but serious adverse effects have been reported related to isotretinoin treatment, such as pancreatitis and teratogenicity.

These concerns have led to frequent monitoring of patients' laboratory values. However, recent findings suggest there may be little evidence of routine testing.

As a result, there can be significant variability in what dermatologists order from an investigation point of view. Sometimes physicians may order tests that have low clinical value or are clinically unimportant.

The Delphi Consensus Study, published in *JAMA Dermatology*, hoped to reach a consensus ($\geq 70\%$ agreement) on a core set of laboratory tests for patients being treated with isotretinoin.

"Consensus was achieved for the following:

- check alanine aminotransferase within a month prior to initiation (89.5%) and at peak dose (89.5%) but not monthly (76.2%) or after treatment completion (73.7%)
- check triglycerides within a month prior to initiation (89.5%) and at peak dose (78.9%) but not monthly (84.2%) or after treatment completion (73.7%)
- do not check complete blood cell count or basic metabolic panel parameters at any point during isotretinoin treatment (all $>70\%$)
- do not check gamma-glutamyl transferase (78.9%), bilirubin (81.0%), albumin (72.7%), total protein (72.7%), low-density lipoprotein (73.7%), high-density lipoprotein (73.7%), or C-reactive protein (77.3%)," the authors reported.

Reference 1

Low vitamin D levels associated with more severe acne

There are many severe medical conditions associated with vitamin D deficiency however it's not frequently included in dermatology investigations. This meta analysis, published in *Dermatology*, looked at thirteen articles with a total of 1,362 acne patients and 1,081 healthy controls.

It found that the circulating serum/plasma 25-hydroxy-vitamin D levels were significantly lower in patients with acne than in the healthy control group.

It also found that vitamin D levels were negatively correlated with acne severity.

"This meta-analysis demonstrated the significantly low vitamin D levels in acne patients. Also, there was evidence of an inverse association between vitamin D levels and acne severity. Therefore, vitamin D might be involved in the pathogenesis of acne," the authors concluded.

Reference 2



Review of methods to improve acne scars

Atrophic scarring is a common concern for patients with severe acne vulgaris. A recent review examined the current knowledge of treatments used in dermatology and cosmetology to improve acne scars.

"If acne scars are located on the face, they can reduce the patient's quality of life, leading to isolation and depression," the authors explained in the *Journal of Clinical Medicine* review.

However, there are many effective procedures that can treat these scars.

"Ablative lasers, radiofrequency, micro-needling, and pilings with trichloroacetic acid have very good treatment results. Contemporary dermatology and cosmetology use treatments that cause minimal side effects, so the patient can return to daily functioning shortly after treatment. Proper dermatological treatment and skincare, as well as the rapid implementation of cosmetological treatments, will certainly achieve satisfactory results in reducing atrophic scars," the authors concluded.

Reference 3

How vehicle choice affects acne and rosacea treatment

An article in the *Clinical and Aesthetic Dermatology* has evaluated the latest drug delivery systems developed for acne or rosacea treatment.

Agents used to treat acne and rosacea can be affected by poor stability during storage, limited residence time in the skin and follicular unit, and high potential for skin irritation.

However, there have been many vehicle technologies developed over the past 20 years. They have improved stability, tolerability, and possibly efficacy of acne and rosacea treatments.

"One of the latest vehicle technologies in acne and rosacea to enhance efficacy, stability, and tolerability is microencapsulation of benzoyl peroxide and tretinoin, which resulted in significant efficacy and good tolerability in patients with each of these two diseases. Other new vehicle technologies include a polymeric form of tretinoin and a microsphere product that combines tretinoin plus clindamycin," the authors wrote.

Where possible, this review focused on formulations that had been evaluated in clinical studies.

Reference 4



Low dose oral isotretinoin preferable compared to conventional dose for acne vulgaris

A systematic review of randomised controlled comparative studies has compared low and conventional doses for oral isotretinoin. The research, published in *Current Drug Safety Journal*, found that a low-dose regime was preferable as the efficacy was similar to a conventional dose.

Oral isotretinoin is prescribed to patients who have severe cystic acne and haven't responded adequately to other therapies. It is an effective therapy, however there have been rare adverse effects reported such as pancreatitis, teratogenicity and hepatitis. There are no current guidelines for Australia, however there is an Australasian College of Dermatologists' position statement on isotretinoin from 2018.

The researchers wrote: "Across all trials, low-dose regimens were preferable in all types of acne owing to its similar efficacy to conventional dose but with fewer occurrences of side effects as well as better patient satisfaction and compliance. Furthermore, a continuous low-dose regimen had the best efficacy in comparison to other regimens of low-dose treatment."

The review recommends further evaluation regarding the relapse rate of a low dose compared with a conventional one.

Reference 5

Non-prescription acne treatment for babies, children and teenagers

An expert panel of paediatric dermatologists has reviewed and discussed the literature on non-prescription acne treatment and skincare for paediatric acne. They reviewed 16 patient profiles in the *Journal of Drugs in Dermatology*. Ages ranged from neonatal (birth to 8 weeks), infantile acne (8 weeks to 1 year), mid-childhood acne (1 year to under 7 years), preadolescent acne (7 to 12 years) and adolescent acne (12 to 19 years or after menarche for girls).

"The pathogenesis of paediatric acne is thought to be similar to acne at all ages, although the approach to treatment may differ due to the state of skin maturity and concerns about the safety and efficacy of various therapies in young age groups," the authors wrote.

The panel reviewed each patient profile and agreed on prevention, treatment, and maintenance of the condition using non prescription acne treatment and skincare.

"Non-prescription acne treatment and skincare products containing lipids such as ceramides play an important role in monotherapy, adjunctive, and maintenance treatment; however, their role in paediatric acne is not well defined and requires more studies," they wrote.

Cleansers and moisturisers should play a necessary part in acne treatment however, the authors noted there is a knowledge gap in paediatric acne.

They hope that by educating and tailoring non-prescription treatments, it will improve paediatric acne outcomes.

"Paediatric acne deserves more attention from healthcare providers treating children regarding differential diagnosis, treatment, and maintenance using non-prescription acne treatment and skincare," the authors concluded.

Reference 6



What it's like to live with acne

A US study published in *JAMA Dermatology* has assessed the lived experience of 56 people with facial and truncal acne, and acne scars.

Acne can persist for over one-third of people into young adulthood and beyond. Despite this, the participants told dermatologists at Brigham and Women's Hospital, Boston, of the social stigma, emotional impairment and poor self esteem they experience.

"Although acne is not directly associated with mortality, it is associated with scarring and substantial psychosocial burden, including increased risk of suicide," the authors wrote.

The participants also explained how their physical symptoms affect them, including pain and irritation and the burden of treatments such as medication, creams, and lotions.

Reference 7



Acne and its impacts

Acne is a common disease that mostly affects teenagers and young adults.⁹ Up to 80% of people aged 18 to 25 years old suffer from acne in some form.⁹ This is one of the most important stages of life where identity is formed and social relationships are created.⁹ It is for this reason that it is most important for adequate treatment of acne to occur in those stages before it has permanent negative psychological and physical effects.

Read this expert authored article which reviews the various impacts of acne on an individual's body image, mental wellbeing and finances, along with the impact of treatment itself.

Written by Dr L Zang and Assoc Prof Kurt Gebauer and sponsored by Oraderm, this article can be accessed at: <https://acne.org.au/health-professionals/features/articles>.

Reference 8 & 9

Skin care in acne

Acne is a common chronic inflammatory condition which can affect people across different ages. Skin care is an important part of acne treatment. It can be utilised as monotherapy, in combination with prescription acne treatment, or to maintain periods of remission.

In acne there is a disruption in the barrier function of the skin as well as a reduction in ceramide production.^{1,2} This can lead to sensitive but acne prone skin. Acne treatments can further contribute to this barrier function impairment.³ Balancing the needs of maintaining skin integrity and not exacerbating acne with skin care can be challenging.

The basic skin care regime should include a soap free wash, oil-free and un-fragranced moisturiser, and a broad-spectrum oil free sunscreen. Avoidance of any products that may aggravate acne is important such as occlusive creams and oil containing products. This includes facial products and hair care products.⁴

At different stages of acne treatment the patients skin care regime should be re-evaluated and adjusted as needed. In the initial stages of acne, a targeted skin care regime may be all that is required. The ingredients should focus on the patients main concerns such as oil production, inflammation, and blackhead formation. When someone has started prescription treatment for their acne the skin care regime can help manage the medication side effects, such as dryness.^{5,6} This may also improve patient compliance with their acne management plan.^{7,8}

Topical therapies are often readily available in over the counter preparations including washes, serums, and creams. These can target the main pathways of acne development:

Inflammation

Topical retinoids have long been the mainstay of acne treatment due to their effect on the different targeted pathways in acne development. C acnes induced inflammation is regulated by vitamin A.⁹ Over the counter vitamin A derivatives include retinol and retinaldehyde. Topical 4-5% niacinamide has anti-inflammatory action for acne and has been reported to be as effective at improving inflammatory acne as topical 1% clindamycin¹⁰. Combination of 5% niacinamide with 2.5% benzyl peroxide can be effective in treating mild inflammatory acne.¹¹ 20% azeleic acid lotion can reduce inflammatory and non inflammatory lesions when used twice

daily for at least 4 weeks.^{12,13} In vitro studies have found that topical zinc had anti-inflammatory properties on acne lesions.¹⁴

Abnormal keratinisation

In acne prone skin there is an increase in keratin with reduction of turn over of skin cells. This leads to blockage of the pilosebaceous glands. There is also increased cohesion between corneocytes. Alpha hydroxy acids (lactic acid and glycolic acid) and beta hydroxy acids (salicylic acid) both have comedolytic activity and promote skin peeling^{15,16}. This results in decreased corneocyte cohesion and increased desquamation. Low concentrations will target their effects on the superficial layers of the skin. These include 2% salicylic acid and 5-10% glycolic or lactic acid. These are more efficacious in acne treatment when combined with other therapies, such as topical vitamin A derivatives, compared to being used as monotherapy.^{17,18}

Excess sebum production

Most skin care aims to reduce the appearance of oiliness on the skin rather than reduce the oil production. There are a couple of key ingredients that may reduce oil production. Benzyl peroxide is lipophilic which allows it to concentrate in the sebaceous glands and exert it's sebum-regulatory properties.¹⁵ Topical 2% niacinamide may decrease both oil production rate with regular use over 4 week period.¹⁹

Colonisation of Cutibacterium acnes (C. acnes)

Concern regarding development of antibacterial resistance has redirected the approach to management of C. acnes colonisation. Lauric acid has antimicrobial action against C. acnes without being sebotoxic.²⁰ Zinc and niacinamide have also demonstrated antimicrobial activity against C. acnes.²¹ When topical or oral antibiotics are required for treatment the addition of topical benzoyl peroxide or topical zinc helps reduce the risk of developing antibacterial resistance.^{22,23}

Once the patient has their acne controlled it is important to continue a maintenance skin care regime.

This article was written by Dr Lisa Byrom from All About Acne.

The article is sponsored by La Roche Posay, which has developed the Effaclar skin care range to provide dermatological solutions to suit the concerns of individuals with oily, acne prone skin.

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EFFACLAR DUO (+) ANTI-ACNE MOISTURISER

A CORRECTIVE MOISTURISER AND SPOT TREATMENT THAT HYDRATES THE SKIN AND TARGETS BLEMISHES, IMPERFECTIONS AND MARKS.

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31st EADV Conference | Milan | Stop Press Update

Thought leaders Brigitte Dréno from France, Jo-Ann See from Australia and Alberto Mota from Portugal have recently presented at the Acne Session Spotlight at the European Academy of Dermatology and Venereology conference. The conference was held in Milan and online from 7-10 September 2022.

Brigitte Dréno provided an update on the pathophysiology of acne. Recent research has shed some new light on the involvement of the sebaceous gland in acne and the pro-inflammatory activity of the cutaneous microbiome.

"The future of treatment is firstly based on probiotics, prebiotics, antimicrobial peptides and phages. Rebalancing the natural microbiome of the skin by restoring the natural skin barrier is also crucial. In severe acne, the field of biologics is still to be explored. Finally, regulating quantity and quality of sebum is also a challenge," Professor Dréno wrote.

Jo-Ann See discussed low dose versus standard doses of isotretinoin in moderate-to-severe acne and why a lower dose can still be effective and possibly limit side effects.

"Lower doses may also be used with concurrent physical therapy modalities such as light chemical peel, IPL and fractionated laser. The initiation of treatment with a lower dose may also minimise the risk of an acute acne flare up. Using lower dosages gives the prescriber flexibility to individualise dosage as side effects can be balanced with response to the medication," Dr See explained.

Alberto Mota spoke about acneiform drug eruptions, including their clinical features and common manifestations.

"One of the most common manifestations of drug-induced acneiform eruption is the steroid acne, with drugs like anticonvulsants, antidepressants, antituberculosis, antibiotics and chemotherapy compounds being the most common culprits. The withdrawal of the drug implied is not always possible and treatment attempts with conventional anti-acne drugs provide variable results," he explained.

Dr Mota also discussed potential preventative and treatment options.

Reference 10

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- <https://eadvcongress2022.org/acne/>

Meet the team

Spot On is a quarterly news and research publication produced by All About Acne for healthcare professionals interested in the latest research in the treatment and management of acne.

Our team curates what we consider to be some of the more interesting or notable research papers published globally on acne.

Some of this new research is also published in the gated HCP section of our website (www.acne.org.au).



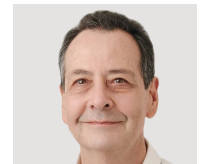
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