

# DERMA

DEDICATED TO EXCELLENCE IN DERMATOLOGY AND VENEREOLOGY **DIGEST**

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## ECZEMA: FROM BENCH TO BEDSIDE

TOWARDS HOLISTIC MANAGEMENT OF ATOPIC DERMATITIS

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# Itching for Novel Eczema Treatment? Research Paves the Way

Treatment of atopic dermatitis may be on the cusp of transformation as novel research into skin imaging and microbiomes bring about promising new findings about the prevalent yet elusive disease.

Despite the disease afflicting millions worldwide, atopic dermatitis therapies have not veered far from symptomatic treatments often involving the use of topical steroids. It was only in recent years when options such as dupilumab, small molecule therapy, and JAK inhibitors emerged.

## Mystery itch

Also known as eczema, atopic dermatitis is the most common skin disease among Singaporeans. It has been estimated that the condition affects 20% of children and 10% of adults. Eczema is by a wide margin the leading disease seen at the National Skin Centre (NSC). NSC attended to 15,506 new eczema cases in FY2022, making up 30% of all new cases.

Yet, the exact cause of eczema remains elusive, being a complex interplay between genetic susceptibility, immune dysregulation, impaired skin barrier function and environmental triggers. To better understand the underlying cause of eczema and work on developing new therapies, the Atopic Dermatitis Research Programme was established as part of the Skin Research Institute of Singapore (SRIS) in 2021. In 2019, NSC was named the main site in Singapore for studying emerging atopic dermatitis therapies, including various targeted biologics and oral small molecule therapies. In addition, the NSC Atopic Dermatitis Database was set up to collect biological materials and clinical data essential for the understanding of atopic dermatitis, especially in a multi-ethnic Asian population.

NSC is continuing this foray, with recent novel research into skin imaging and microbiomes.

## Scratching Beneath the Surface

Affected skin is typically examined visually by expert clinicians. A patient's skin may seem healthy to the eye, yet still bear skin barrier defects and immune response, which can develop into atopic dermatitis at a later stage.

Now with novel skin imaging research, there are promising new potentials to improve both quality of prognosis, and precision of monitoring with the ability to quantitatively measure response to treatment, a study published in 2022 shows. In the study, the team comprising NSC researchers used a skin imaging device (multispectral raster-scanning optoacoustic mesoscopy) to examine affected and non-affected skin in eczema patients.

For the first time, changes in oxygen saturation in skin microvasculature was presented as a biomarker to assess severity of eczema, and quantitatively measure response to treatment, according to the study titled *Multispectral raster-scanning optoacoustic mesoscopy differentiate lesional from non-lesional atopic dermatitis skin using structural and functional imaging markers*. This opens new avenues for understanding inflammatory skin conditions and formulating new therapies.



**“Eczema is a common skin condition with a huge disease burden that impacts both patients and their families. Having a pipeline of emerging diagnostics and therapeutics for eczema in the horizon will bring hope for many.”**



**Dr Yew Yik Weng,**  
NSC Consultant-in-Charge,  
Eczema Clinic

## Microbiome Research

The human microbiome is a diverse community of microorganisms that reside in the human body – including on skin. Research has revealed that eczema patients tend to have a reduced diversity of beneficial bacteria and an overgrowth of harmful bacteria on their skin.

In collaboration with NSC as the Singapore's main study site, SRIS recently conducted a similar study by obtaining skin swabs from subjects, half of whom had eczema skin, and the other half without. Through examining the microbes present, the abundance of harmful bacteria was apparent.

Such research can inform new treatment approaches by replacing microbes or provide nutrients to encourage beneficial bacteria to flourish on the skin.

## The Call is Coming from Inside the House

Microbiome research has led to yet more eye-opening discoveries, tracing the potential cause of recurring eczema not only to what happens on the skin of the patient, but also that of their healthy caregivers.

While current treatment approaches focus solely on patients, they fail to break the “chain of transmission” shared with their close contacts, according to a joint statement released by A\*Star and the National University of Singapore late last year. Skin samples collected from patients and their primary caregivers revealed similarities in microbial signatures despite the absence of skin disease in the latter group, found the study led by researchers from the Yong Loo Lin School of Medicine and A\*Star's Genome Institute of Singapore. A higher proportion of *S.aureus* abundances compared to the *Staphylococcus hominis* could serve as a marker of affiliation to an eczema household, and sharing of microbes with healthy caregivers could subject the child to recolonisation.

The implication is that therapeutic methods may have to go beyond existing approaches of skin hydration, inflammation-targeted treatments and pathogenic bacteria eradication, to also develop precautionary measures to break the chain of transmission within households.

As the national tertiary academic centre for dermatological disease in Singapore, NSC is committed to research to advance dermatological knowledge and improve patient outcomes and clinical services. We welcome volunteers to take part in our research. Your participation may or may not directly benefit you, but it will certainly contribute to medical knowledge and guide a more informed approach to treatment and prevention, benefitting the population at large.

**Contact our Research Department to find out more!**

**EMAIL:** [research@nsc.com.sg](mailto:research@nsc.com.sg)

# NSC's Eczema Clinic Adopts Team-Based Care Model

Recognising the disease burden and complexity of atopic eczema, a team-based care model was formally adopted by NSC's Eczema Clinic in September 2021 to provide better and more co-ordinated care for patients with moderate to severe eczema.



(From left) Germaine Chua, Pharmacist Eczema Clinic Lead; Sophia Xu, Senior Medical Social Worker; Wang Yu Yan, Advanced Practice Nurse; Cindy Choi, Nurse Clinician; and Dr Yew Yik Weng, Consultant-in-Charge, Eczema Clinic

The team comprises physicians, advanced nurse practitioner (APN), nurse clinicians, clinical pharmacists and medical social workers. By tapping on the expertise and strengths of each professional and allied health group, this model ensures different aspects of the disease are well taken care of throughout the patient journey.

The APN helps to provide assessment and consultation to eczema patients on immunosuppressant therapies. She also identifies issues and complications related to treatment and disease. By collaborating with physicians and allied healthcare professionals in the team, any red flags or treatment gaps can be identified early.

Meanwhile, at the Pharmacist Eczema Clinic, clinical pharmacists co-manage chronic patients to help to achieve safe and efficacious medication therapy for stable eczema patients, by enabling the early detection, monitoring and resolution of drug-related problems associated with the biologic dupilumab.

# Efficiency, Innovation Prop Up Singapore's Dermatology: Duke Visiting Expert

For the first time since the pandemic period, NSC hosted a visiting expert as part of the Ministry of Health's (MOH) Health Manpower Development Programme (HMDP) in May 2023. HMDP provides funds for overseas medical and healthcare experts to visit Singapore, in hopes that knowledge exchange may improve Singapore's expertise in respective disciplines.

The most recent HMDP visiting expert posted to NSC was Professor Suephy Chen, Professor of Dermatology and Chair of the Department of Dermatology at Duke University.

Speaking to Derma Digest, Prof Chen lauded the Centre's efficiency, which she attributed to clinical workflows and team-based models. NSC's teledermatology service is another strength, according to Prof Chen. She was also impressed by an initiative designed to reduce dermatological patients' preventable readmission to acute care hospitals. NSC's Skin Aid for the Vulnerable and Elderly programme supports patients who respond well to topical treatment, but are unable to comply to treatment adequately whether due to physical impairment, or lack of social support. The programme also includes goal setting sessions to encourage independence in self-care.

When it came to research, Prof Chen commended NSC's biospecimen analysis, microbiome studies, data registry components, and translational research. She added that "the ability to partner with pharmaceutical companies in such a symbiotic manner is to be emulated".

A key challenge is Singapore's ageing population. Prof Chen stressed: "Singapore is in danger of not having enough skin expertise. The support structure for the elderly will be an increasing challenge as skin care can be time consuming when the patient cannot do it themselves."

It is hence advantageous to have an advance practice provider programme (where physician assistants and nurse practitioners act as "extenders for physicians") and embrace the palliative care paradigm. "Training doctors to have conversations about treating only if symptomatic is not only patient-centric, but also can save on resources that do not need to be spent," she stressed.

Prof Chen commended the way dermatology is taught in Singapore. Students spend three years in internal medicine and three years in dermatology, which fosters an emphasis on "medical dermatology" rather than just cosmetics. Rotational training further reinforces this "since each hospital has a population or disease focus".

It was an honour for NSC to receive Prof Chen. Her praises are a testament to the country's continuous efforts in providing exemplary dermatological services, and serve as encouragement for healthcare professionals in Singapore to continue striving for excellence.



NSC Director Professor Tan Suat Hoon (left) with Professor Suephy Chen

## WHAT HAS SOCIAL MEDIA GOT TO DO WITH IT?

Love it or hate it, social media has been an unequivocal driving force behind a new information era. During her visit to NSC, Prof Chen gave an insightful and timely lecture on the role of social media in primary prevention efforts. Here, she continues the conversation with Derma Digest, sharing her take on the opportunities and challenges of social media use within the medical community.



### Q: What are the top trends in social media use by doctors/medical professionals?

**A:** Medical professionals currently use social media to advertise their own practice, and also to put out information about skin cancer prevention (sun protection). Dermatologists should become more engaged in social media as a way to provide evidence-based information directly to patients. The doctors themselves may not have time to do the posting, but they can provide the content.

### Q: What are the biggest challenges for both patients and doctors when it comes to navigating social media?

**A:** The biggest challenge in social media is accuracy of information. Many people online post either incorrect or misleading dermatology content. Dermatologists may not be able to track down all incorrect postings, but if they have their own social media presence, patients may look more to them as reliable sources of information.

## 5 Practical Tips for Eczema Care



### 1 Moisturise! Moisturise! Moisturise!

We may sound like a naggy old grandmother, but we mean it! Moisturising is the best way to lock in moisture and create an effective barrier against external irritants and allergens.

Opt for a thick cream or ointment over lotions and apply liberally to all areas at least twice a day.

### 2 Read the labels

Read the labels carefully when choosing your skin-care products (including moisturisers, sunscreens, body washes and even detergents used to wash your clothes). Many products contain additives and fragrances which may potentially irritate the skin.

Only choose products that are "fragrance-free". Avoid products with "unscented" on their product labels- this implies the presence of masked fragrances.

If in doubt, check with your dermatologist!

### 3 Test your products

Make it a habit to test any new skin products before use.

Dab a pea sized amount of any new product onto your inner arm every day for seven to 10 days and wait to see if any rashes appear before using it on the rest of your body.

### 4 Keep it loose

Avoid wearing tight occlusive clothing that predisposes to heat and perspiration which can irritate your skin. Choose loose fitting clothing made of 100% cotton over wool products!

### 5 Steroids aren't always harmful

We understand and recognise the potential long-term side effects of topical steroid (TCS), and the increasing concerns regarding TCS withdrawal.

Following a review by the UK Medicines and Healthcare products Regulatory Agency of published literature on cases of TCS withdrawal associated with TCS, the agency concluded that TCS remain a safe and effective treatment for skin disorders when used correctly (lowest potency needed over short periods of time, or intermittently over extended periods).

Always discuss your concerns with your dermatologist so that we can tailor a treatment plan that is suited for you. We are trained to look out for side effects from prolonged use of topical steroids, and non-steroidal topical treatment may also be considered as alternatives.



By **Dr Ho Wen Yang Benjamin**, Associate Consultant, National Skin Centre

# Badminton Camp with a Heart



▲ Yes, eczema and exercise can go hand in hand. Young eczema patients discover useful tips in a friendly and supportive environment

Eczema affects one in five children and those suffering from it may find themselves avoiding exercise for fear of worsening their condition. This may lead to a sedentary lifestyle and have a negative impact on health.

NSC's Active Living – Healthy Skin Badminton Camp for Kids dispels this misconception and shows that eczema and exercise can go hand in hand – given the right skin care practices. Spearheaded by NSC Consultant Dr Benson Yeo, the very first camp took place on 10 September 2022. On the back of encouraging response from participants, the camp returned in expanded format, spanning three days each for the second and third editions. The most recent edition was held on 8 April, 12 April, and 15 April 2023. In addition to being an initiative of the NSC Health Fund, the camp has garnered support from partners such as the Singapore Badminton Association, Sanofi and Good Pharma.

Since its launch, the camp has gone beyond promoting an active lifestyle. Participants say the camp has also benefitted them socially, offering an avenue akin to that of a support group.

Among the various psychosocial effects associated with eczema, patients – particularly the younger ones – could sometimes suffer from social isolation due to perceived discrimination from peers. This was once the experience of Nuraulia Arissa Mohd Hamsani, a badminton camp participant who recounted times when her confidence would take a hit from peers staring at her lesioned skin.

Speaking to reporters, the 11-year-old said: "I feel happy to have the opportunity to hang out with new friends I made at the badminton camp." Masrena Binte Ismail, mother and caregiver to the patient, added: "Thanks to programmes like this, children like Nuraulia Arissa do not feel alone. They are more confident knowing that they have friends who are going through similar situations."

## Derma Digest Goes Green



NSC's Derma Digest is now digital! To join the mailing list and receive updates on dermatology news, drop us a line at [pr@nsc.com.sg](mailto:pr@nsc.com.sg).

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