

White Paper

REVOLUTIONIZING SKIN CONDITIONS: CULTIVATING EQUITY, INCLUSION AND ACCESS

Hong Kong, Singapore, and Taiwan



CONTENTS

- 1 Introduction
- 2 Summary of Recommendations
- 3 Methodology
- 4 Existing Landscape in Hong Kong, Singapore and Taiwan: Managing AD and AA
- 5 Financial System Challenges in Regional Medical Dermatology Care: Financing Approach
- 6 Policy Recommendations
- 7 Conclusion
- 8 Market Snapshots: Targeted Policy Strategies for Consideration
- 9 Appendix
- 10 References
- 11 Acknowledgements

Note: The insights, conclusions and recommendations made in this whitepaper are based solely on the opinions and experiences of interviewed medical dermatology experts, ex-payers, patients in the surveyed markets, as well as secondary data sources, and may not be fully representative of the wider market.

INTRODUCTION



Notably, prevalence of chronic skin conditions in Asian populations appears to be increasing, which may be related in part to rapid urbanization in many major metropolitan areas, improved standards of living, and climate change. As a result, it is important to understand the increasing burden of skin conditions in Asian markets and the differences in terms of epidemiology, diagnostic criteria, management, quality of life and economic burden in the region. As innovation and multi-sectoral collaboration facilitate a better understanding of complex conditions, this paper explores innovative approaches in managing chronic dermatology conditions, considering biopsychosocial factors. It also examines how health systems' shift to person-centered care impacts conditions like atopic dermatitis and alopecia areata in Hong Kong, Singapore and Taiwan, offering insights for policymakers and planners to enhance support.

This whitepaper embarks on a comprehensive exploration into the profound challenges and considerations within the sphere of medical dermatology, specifically focusing on atopic dermatitis (AD) in Hong Kong, Singapore and Taiwan and alopecia areata (AA) in Hong Kong and Taiwan. AD, an inflammatory skin disease, affects approximately 2.4% of the global population, with a pronounced prevalence in children and adults across Asia.¹ According to research, the prevalence of eczema in Asian adults is up to 11%.² Concurrently, AA,

an autoimmune ailment marked by patchy hair loss, impacts around 2% of people worldwide, intertwining with significant psychological distress, including depression and anxiety.^{3,4} These conditions add to the escalating disease burden in one of the largest and fastest aging populations, increasing economic strain due to both direct medical costs and indirect expenses related to caregiving and lost productivity.⁵ The quest for effective treatment is further complicated by disparities in healthcare access and the notable absence of patient voices in clinical guideline development, highlighting the need for a more inclusive and equitable healthcare approach.⁶

The societal and emotional toll of AA, coupled with the hurdles in accessing emerging treatments like Janus Kinase (JAK) inhibitors due to financial constraints, echoes the challenges seen in AD, challenging the misconception of AA as merely a cosmetic concern.^{7,8} This analysis delves into the multifaceted barriers to timely and effective care for individuals suffering from AD and AA, including limited disease awareness among healthcare professionals and the public, psychological impediments to seeking treatment, and systemic healthcare restrictions. The financial burdens posed by advanced therapies and a restrictive reimbursement environment further exacerbate the situation, demanding a detailed examination.

These dermatological conditions, despite their chronic nature, cast a significant shadow on the quality of life (QoL), psychological well-being, and financial stability of patients, underscoring a pressing healthcare dilemma in these regions. In response, the whitepaper aims to elucidate actionable insights and strategies to enhance disease awareness, diagnosis, treatment accessibility, and overall patient care in the domain of medical dermatology. It advocates for a unified approach, calling upon healthcare professionals, policymakers, patient advocacy groups, and the community at large to forge a path toward improved dermatological healthcare. Through collaboration and a commitment to addressing the broader societal impacts of these conditions, there is an opportunity to significantly elevate the well-being of individuals grappling with AD and AA, ultimately fostering a more supportive and inclusive healthcare environment.

SUMMARY OF RECOMMENDATIONS



A BIOPSYCHOSOCIAL APPROACH IMPROVES OUTCOMES FOR SKIN CONDITIONS.

As validated in our interviews with individuals living with skin conditions, patients treated with one standardized set of clinical guidelines can experience completely different outcomes due to the psychosomatic nature of dermatology conditions. Biopsychosocial stressors can create a loss of sense-of-self and isolation, affecting various aspects of their social, occupational, and emotional function and overall health-related QoL (HRQoL).

The finding argues that there is a need for more engagement and a formalized pathway that addresses the biopsychosocial nature of dermatology conditions and the support necessary across the full cycle of care.



INVEST IN CAPACITY FOR COORDINATED DERMATOLOGY CARE, ENHANCING HEALTHCARE COMPETENCY.

Despite the availability of validated diagnostic and monitoring psychosocial tools and assessments, not all physicians utilize them consistently.

Investments in program building and care coordination among health administrators and care teams provide an opportunity to explore the depth and breadth of the psychosocial

implications of skin disease and promote integrated care for a condition that have multifactorial triggers, with special awareness to broaden access in outpatient settings, and to those experiencing barriers in accessing care.



CHRONIC DERMATOLOGY CONDITIONS WARRANT QUALITY, AFFORDABLE CARE LIKE OTHER HEALTH NEEDS.

Stringent criteria for reimbursement eligibility present significant hurdles through current reimbursement frameworks in Hong Kong, Singapore and Taiwan. This can cause delays in getting the treatment option that the patient may feel works better and enable them to lead normal lives (thus improving productivity and QoL). Current reimbursement frameworks also do not include coverage for psychosomatic comorbidities that may require support from a psychologist or psychiatrist.

Health financing reform for skin conditions should facilitate the non-linear availability of treatment options, and comprehensive coverage of clinical and ancillary dermatology services and procedures so that individuals can have earlier access to advanced therapies that can help them, or to better manage their psychosomatic triggers and psychosocial comorbidities.



CONDITIONS THAT ARE BIOPSYCHOSOCIAL IN NATURE REQUIRE WHOLE-OF-SOCIETY SUPPORT.

Initiatives to promote better integration of care should start from an understanding of the patient's perspective, focusing on personalized care planning and care coordination rather than organizational integration. Patients should be invited to help redesign these systems.

Governments should look at integrating the views of patients living with dermatology conditions through patient groups and civil societies when reforming national approaches to provide equitable and quality access to care.

Most importantly, civil societies provide a platform to help collect valuable insights into patient experiences, which can drive quality improvement initiatives and innovations and lead to more effective and person-centered care plans.

METHODOLOGY





One-on-one interviews across the three markets

	HONG KONG		SINGAPORE	TAIWAN	
	AD	AA	AD	AD	AA
Patients	1	1	1	1	1
Dermatology KOLs	1	1	1	1	1
Ex/Current Payers	1		1	1	
Completed	5		3	5	

In order to comprehensively grasp the disease landscape and formulate awareness initiatives for AD and AA, a thorough research approach was employed, encompassing both in-depth one-on-one interviews and roundtable discussions across three markets in Asia, Hong Kong, Singapore and Taiwan. The in-depth one-on-one interviews spanned between August to September 2023.

For each disease and market, in-depth one-on-one interviews were conducted to elicit valuable insights and generate preliminary hypotheses. These interviews involved a diverse range of participants, including patients, local dermatology Key Opinion Leaders (KOLs), and individuals with payer experience.

to identify the primary obstacles hindering the integration of innovative treatments within healthcare institutions. The discussions culminated in the proposal of actionable strategies to (1) Improve the awareness and current treatment status quo of AD /AA; (2) Address gaps in treatment and management, patient experience and unmet needs; and (3) Address policy, access and reimbursement barriers and unmet needs.

Throughout this whitepaper, the excerpts presented stem from the one-on-one interviews and dialogues held during the roundtable sessions. Complementing these insights, a review of international, regional, and local literature was conducted to fortify the analysis.



2 Separate roundtable sessions for each disease and market

	HONG KONG		SINGAPORE	TAIWAN	
	AD	AA	AD	AD	AA
Patients and KOLs	1	1	1	1	1
Ex/Current payers and KOLs	1	1	1	1	1
Completed	4		2	4	

Following the interviews, two separate roundtable sessions were held for each disease and market in November and December 2023. The first roundtable brought together patients and local dermatology KOLs, while the second session included local KOLs and individuals with payer backgrounds.

The primary objectives of these roundtable discussions were to tap into the expertise of specialists and stakeholders, gaining insights into the current and projected landscape of the targeted conditions. Patient narratives were also a focal point, shedding light on the real-world impact of these diseases and the burdens they impose. Additionally, these sessions aimed

**Up to four respondents were engaged for each roundtable*

The COM-B framework, an evidence-based behavioral change model, was used to systematically understand and uncover specific stakeholder behavioral components that inhibit behavior.

Physical capability: Physical skills, strength or stamina.

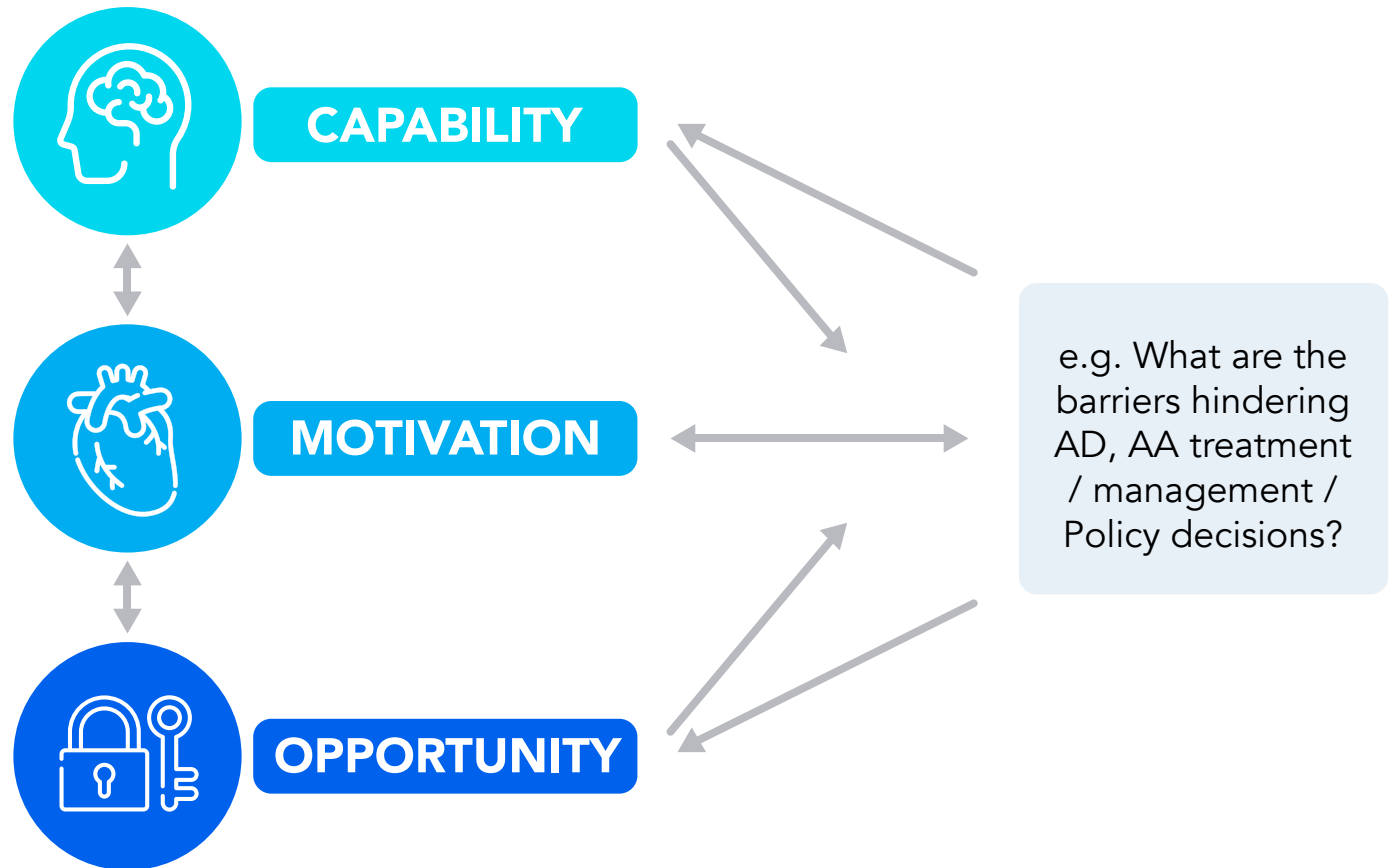
Psychological capability: Knowledge or psychological skills, strength or stamina to engage in the necessary mental processes

Automatic motivation: Habits, heuristics, emotions, impulses

Reflective motivation: Reflective process involving plans (self-conscious intentions) and evaluations (beliefs about what is good and bad)

Physical / environmental: Infrastructure, resources, time, schedule

Social: Socio cultural norms, network and relationships



Source: [COM-B Model](#)

EXISTING LANDSCAPE IN HONG KONG, SINGAPORE AND TAIWAN: MANAGING AD AND AA

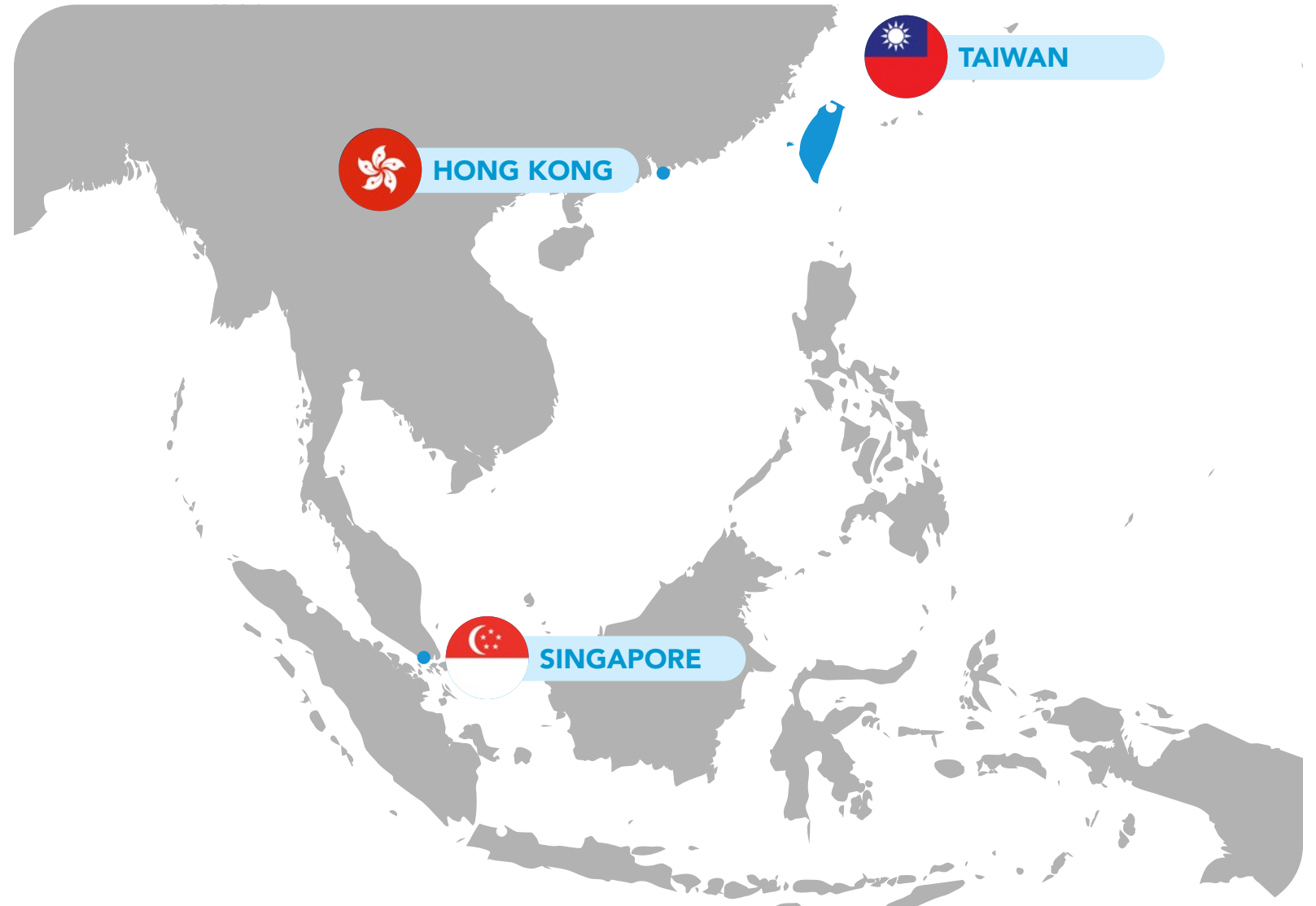


CURRENT TREATMENT PATHWAYS

ATOPIC DERMATITIS

AD is a prevalent and chronic inflammatory skin disease affecting approximately 2.4% of the global population. The prevalence of AD is notably high amongst children (up to 20%), and adults (up to 10%). Our secondary research indicated that the prevalence of AD is comparable in these three Asian markets, with some variation. In Singapore, the prevalence is around 6.7%, with a higher occurrence among children, adolescents, and individuals under age 20 (9.6%). In Hong Kong, the prevalence is notably higher with rates of 5.6% among the general population and up to 30% among children under 12. Hong Kong exhibits significantly higher rates of AD compared to other Asia-Pacific and Western markets.⁹ In Taiwan, the prevalence of AD stands at 1.28%.¹⁰

When considering the management of AD in Hong Kong, Singapore and Taiwan, a common thread in the treatment guidelines reflects a blend of international best practices tailored to meet the specific healthcare infrastructures and cultural nuances of each region. Emollient therapy, coupled with varying strengths of topical steroids and topical calcineurin inhibitors, form the backbone of mild AD treatment across all three markets. In instances of moderate-to-severe AD, a more intensive regimen is often necessitated, encompassing a broader spectrum of systemic treatments and phototherapy,





always with a strong advisement for dermatological consultation to tailor individual patient care.^{11,12,13}

Among skin diseases, dermatitis ranks first in terms of its contribution to the Global Disease Burden (GBD), with AD being the most burdensome.¹⁴

Individuals with AD often experience a diminished QoL, including sleep disturbances due to itching and scratching, skin pain, psychological distress, social limitations, time-consuming treatments, and reduced productivity at school or work. These aspects can also have financial implications.¹⁴

A systematic review of AD guidelines found that fewer than 25% of the 40 existing guidelines acknowledged patient involvement. In response, 12 patient advocates made an appeal, emphasizing the importance of including the patient's perspective in the development of clinical practice guidelines for AD. This prompted a plea by 12 patient advocates to include the patient's voice in developing clinical practice guidelines for AD.¹⁵

Treatment Guidelines			
	1 st line treatment	2 nd line treatment	3 rd line treatment
Hong Kong	<p>Treatment algorithm for managing moderate-to-severe AD proposed by experts in Hong Kong</p> <pre> graph TD A[Moderate-to-severe] --> B{Topical treatment} B -- "if loss of efficacy or inadequate response after >3 months" --> C[Phototherapy] C --> D[Systemic immunosuppressant] D --> E[Biologic therapy] B -- "Phototherapy is not accessible" --> F[Systemic immunosuppressant] F --> G[Biologic therapy] </pre>		
	<p>(Moderate to Severe)</p> <ul style="list-style-type: none"> • Topical treatment (e.g., TCS, TCI/wet-wrap therapy) • Phototherapy if loss of efficacy or inadequate response after >3 months • Systemic immunosuppressant if phototherapy is not accessible, or treatment of phototherapy failure after 3-6 months or if treatment relapse • Biologic therapy if treatment of systemic immunosuppressant failure after >3 months <p>» Experts from Hong Kong indicated that up to 50 percent of their AD patients had moderate-to-severe disease and <50 percent of those patients achieved optimal disease control before anti-interleukin (IL)-4/-13 treatments became available.</p>		
Singapore	<ul style="list-style-type: none"> • Emollients • Mild potency corticosteroids • Topical Calcineurin Inhibitors including tacrolimus and pimecrolimus cream. • Therapeuting patient education • PDE4-inhibitors may be considered for mild to moderate AD in patients ≥3 months old. 	<ul style="list-style-type: none"> • Moderate potent topical steroids • Systemic antibiotics • Wet wrap therapy 	<ul style="list-style-type: none"> • Super potent topical corticosteroids • Phototherapy and topical and systemic psoralen plus UVA (PUVA) • Systemic corticosteroids for acute, severe flares or when bridging to other non-steroidal agents or phototherapy, such as cyclosporine, azathioprine, or methotrexate.
	<p>» For moderate-to-severe AD, a comprehensive treatment may include emollients, potent topical steroids, calcineurin inhibitors, wet dressings, antimicrobials for skin infections, phototherapy and systemic treatments like prednisolone, cyclosporine, azathioprine, or methotrexate.</p> <p>» Based on recent systematic reviews of the efficacy and safety of systemic treatments for moderate-to-severe AD, cyclosporine, azathioprine, or methotrexate have been recommended as first-, second-, and third-line treatment options.</p> <p>» There are several biologic and systemic agents—Dupilumab, Tralokimumab, Upadacitinib, and Abrocitinib—that have been approved for the treatment of moderate-to-severe AD. These treatments are typically considered when topical treatments and other less intensive therapies fail to adequately control the disease.</p>		
Taiwan	<ul style="list-style-type: none"> • Emollients • Topical corticosteroids • Antihistamines • Therapeuting patient education 	<ul style="list-style-type: none"> • Topical Calcineurin Inhibitors • Burst use of systemic corticosteroids • Phototherapy • Topical and systemic antibiotics 	<ul style="list-style-type: none"> • Systemic immunomodulatory agents • Antiseptics • Alternative medicine
	<p>» Topical glucocorticoids were the most prescribed drug (38.8%) followed by antihistamines (35.4%) and antibiotics (15%)</p> <p>» TFDA approved advanced systemic agents-Dupilumab, Upadacitinib, Abrocitinib- for moderate-to-severe AD. It is recommended for patients whose topical treatment is not sufficient and other systemic treatments are not advisable.</p>		

ALOPECIA AREATA

AA is a prevalent chronic autoimmune disease that explicitly affects tissues leading to patchy hair loss, impacting approximately 2% of the general population globally. In Taiwan, the prevalence of AA is estimated at 0.22%, which is lower compared to that in mainland China, reported at 0.27%.¹⁶

Our research found that psychiatric disorders show a high comorbidity rate with AA in Taiwan, with a notable presence of conditions such as major depressive disorder, anxiety, obsessive-compulsive disorder (OCD), social phobia, paranoid disorder, and sleep disorders. Interestingly, it has been suggested that in 50% of cases, psychiatric disorders manifest before the diagnosis of AA.¹⁷ Similar to the effects of severe itching associated with AD, a recent comparative study revealed that individuals with AA experience poorer quality of sleep compared to healthy individuals, and this is associated with higher levels of anxiety, depression, and lower QoL overall.¹⁸ These observations align with the global association between psychiatric conditions or stress and hair loss, as there exists a biochemical interaction between hair follicles and the brain when the body copes with psychological stress.

For the management of AA in Hong Kong and Taiwan, the treatment landscape reflects a pragmatic blend of localized and systemic therapies, underpinned by a consideration for

each market's unique healthcare system and cultural context. Initial treatment typically involves intralesional corticosteroids or topical steroids, targeting hair regrowth at the site of the loss. In more severe cases, therapies scale to include topical immunotherapy, aiming to induce an immunogenic response to stimulate hair growth. Systemic options like oral corticosteroids and immunosuppressants are also utilized for extensive AA.^{19,20,21}

Taiwan recognizes the potential of JAK inhibitors within its therapeutic options, noting their observed efficacy in promoting hair regrowth. However, it is important to mention that uses such as these often involve off-label applications where safety, side effects, and the limited evidence from formal clinical trials should be carefully considered. Although Hong Kong does not have an official treatment guideline or specialized reimbursement for AA, standard treatments persist alongside off-label use of medications.

Collectively, these markets display a dedication to integrating both evidence-based and experimental therapies within their treatment paradigms. This approach is in alignment with their broader healthcare missions—ensuring patient-centric care that harmonizes with international standards while being flexible enough to include innovative treatments as they become validated and accessible. The strategies across these markets are a testament to their commitment to offering diverse

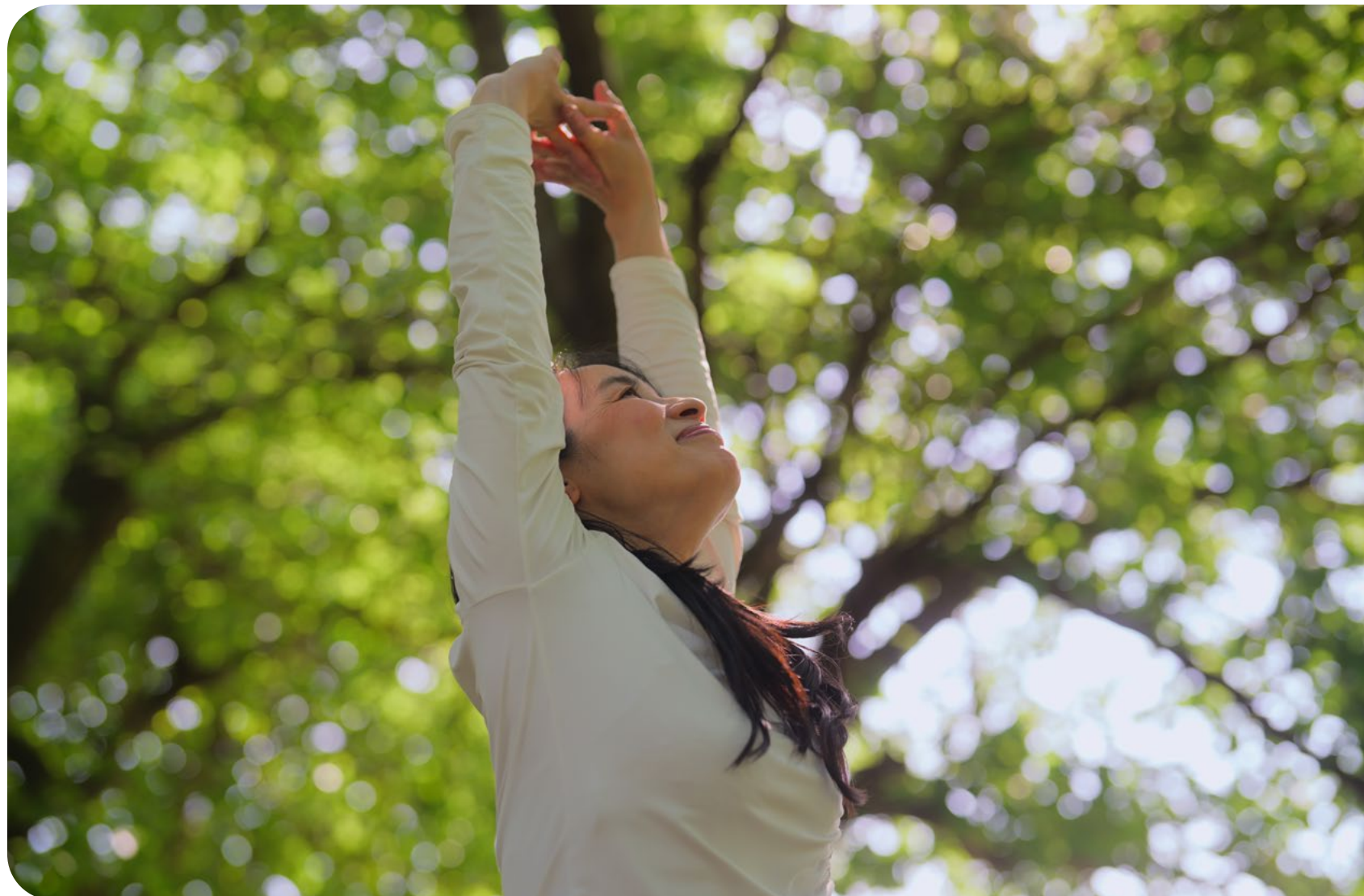
treatment avenues to patients, addressing not only the clinical aspects of AA but also its psychosocial impacts.

	General Treatment Practices
Hong Kong	<ul style="list-style-type: none"> • Corticosteroid cream or injection, topical Minoxidil or Anthralin, phototherapy • Intralesional corticosteroids • Oral pulsed or continuous corticosteroids may be used in severe progressive cases • DPCP could be considered in case patients failed the conventional therapy or those who do not want to be subjected to systemic treatment or phototherapy
Taiwan	<ul style="list-style-type: none"> • Oral Minoxidil (also used in Rogane) or Corticosteroids • High-dose (cortico)steroid pulse therapy (PCT), involving large infusions of prednisolone • Contact immunotherapy • Immunomodulatory drugs such as janus kinase inhibitors (JAK inhibitors or jakinibs) are being explored as a treatment option for AA

EXAMINING ACCESSIBILITY AND QUALITY OF CARE FOR SKIN CONDITIONS FROM A HEALTH SYSTEMS AND PATIENT PERSPECTIVE

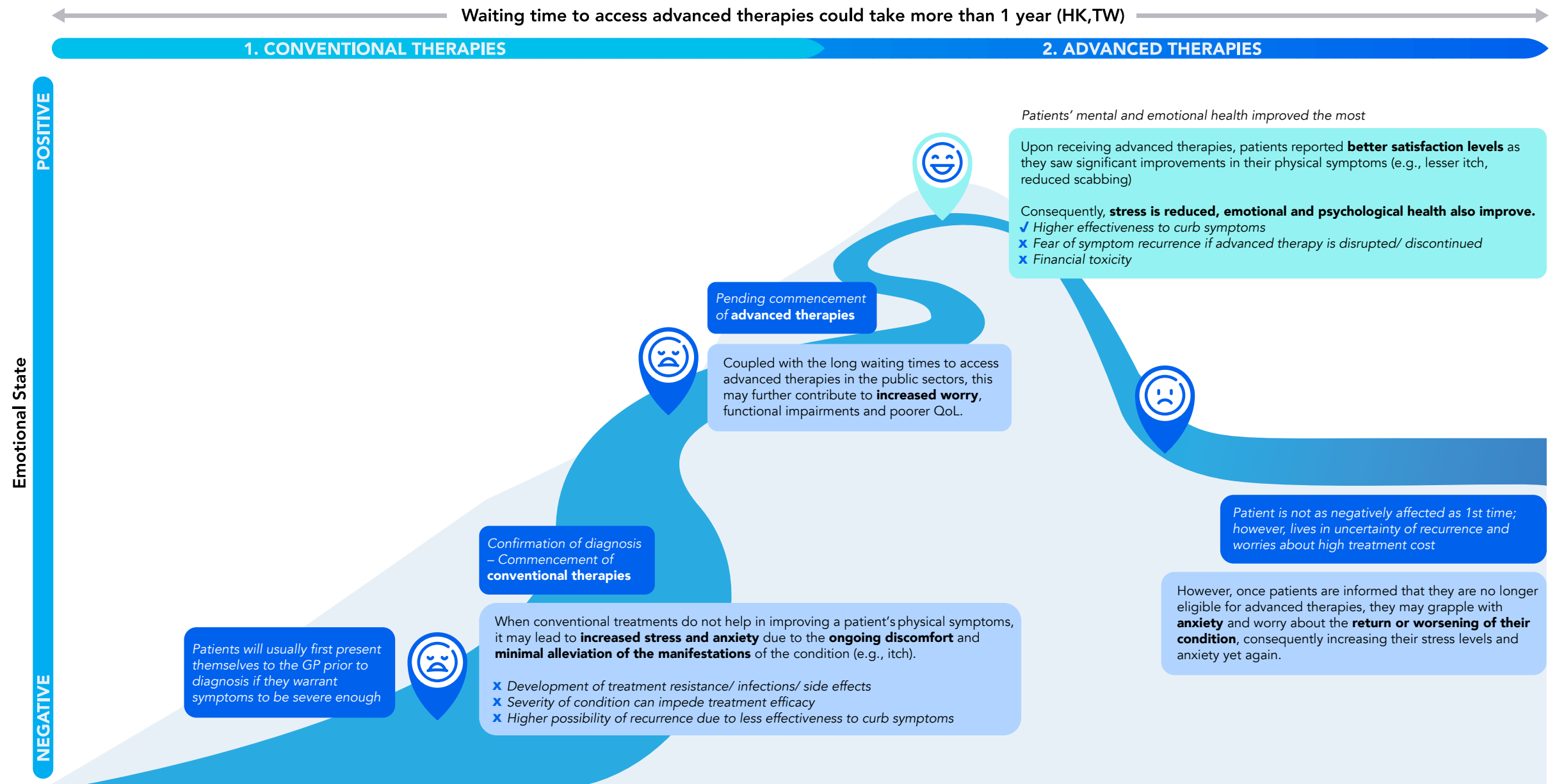
Understanding the patient perspective is paramount in enhancing the quality of care for dermatology conditions. Beyond the clinical manifestations, these conditions often carry significant psychosocial impacts on individuals' lives. By delving into patients' experiences, challenges, and preferences, healthcare providers can tailor treatment plans that not only address the physical symptoms but also promote holistic well-being. Additionally, incorporating patient perspectives fosters a collaborative healthcare approach, empowering individuals to actively participate in their care journey. This patient-centered approach not only helps to improve treatment adherence and outcomes but also fosters trust and satisfaction in the healthcare system. Therefore, recognizing and valuing the patient's voice is essential in delivering comprehensive and effective dermatological care.

In the following section, we delve into recurring themes gleaned from our interviews with physicians, payers, and patients. These insights illuminate systemic challenges that could impede care and highlight crucial unmet needs for patients with AD and AA.



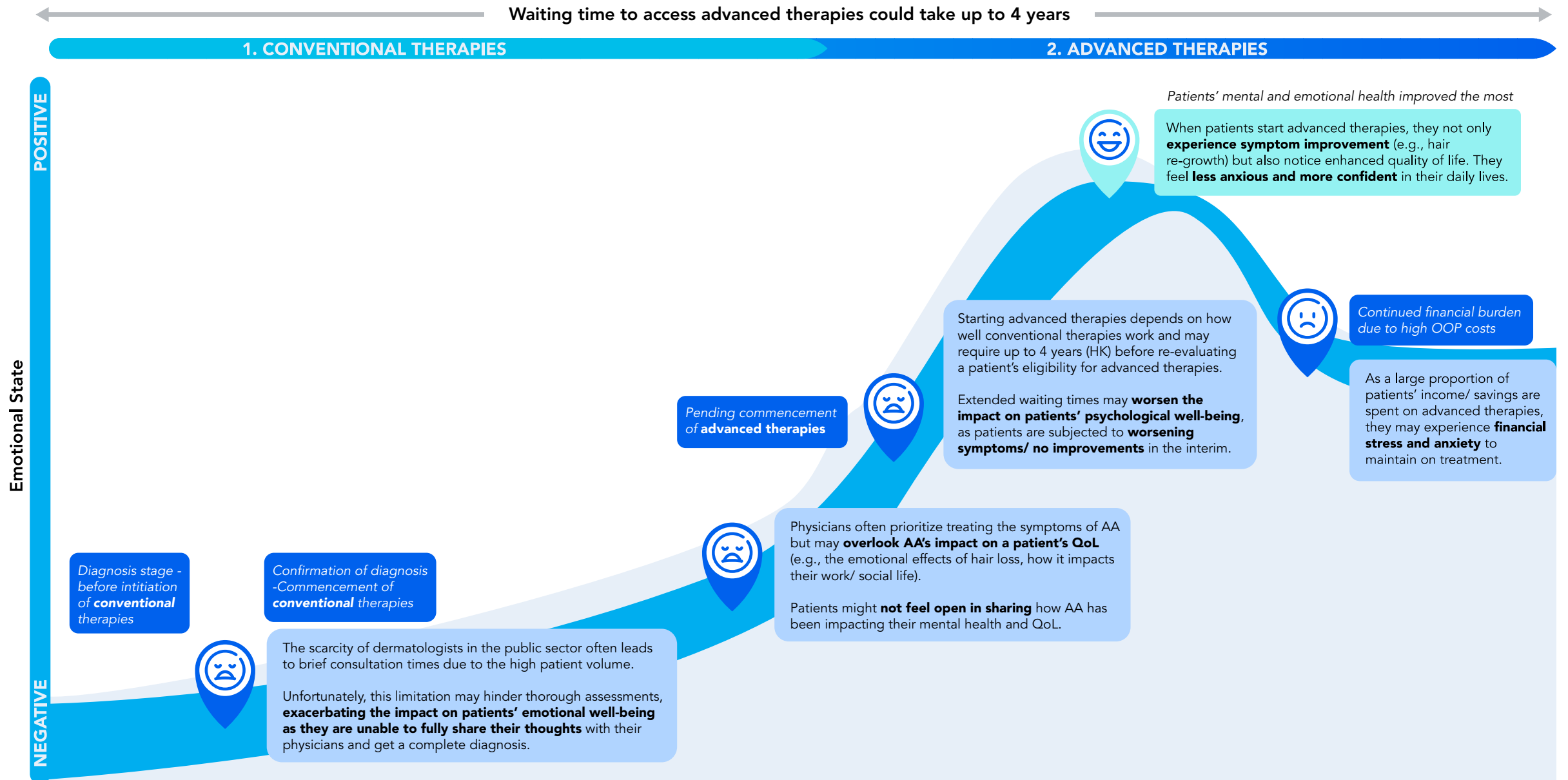
PATIENT JOURNEY - NEEDS AND IMPACT

ATOPIC DERMATITIS



PATIENT JOURNEY - NEEDS AND IMPACT

ALOPECIA AREATA





TREATMENT APPROACHES

Physicians often perceive AD and AA as non-life-threatening conditions, leading to treatment focused mainly on symptom management rather than addressing its autoimmune nature. Typically, patients are initiated on conventional treatments, as both physicians and payers may not view AD and AA as urgent or life-threatening. Treatment decisions prioritize symptom control to reduce physical symptoms, such as targeting hair loss and itch relief, rather than targeting the root cause of the autoimmune disease, perpetuating the perception of AD and AA as a cosmetic concern rather than a medical condition requiring advanced therapies.

“Priority is given to skin cancer patients and those with severe, life-threatening skin diseases.

Hair definitely ranks last on the list, even for AA.”

- HK AA KOL

Diagnosis and assessment of AD and AA severity primarily rely on the extent of physical symptoms visible to the naked eye, with physicians feeling confident in their ability to diagnose without additional tests. This diagnosis process is subjective and depends on the experience of the physician. Despite the availability of validated diagnostic and monitoring assessments like the Eczema Area and Severity Index (EASI) in Hong Kong and Taiwan, not all physicians utilize them consistently. Some may view these assessments

as too formal, while others may be concerned about patients providing inaccurate information. However, for junior physicians or in specific scenarios where formal assessments are deemed necessary, guidelines and diagnostic tools may be more frequently utilized.

One notable habit among physicians is a preference for low-dose regimens in conventional treatments for AD and prescribing topical injections and steroids as first-line treatments for AA. Only if these treatments prove ineffective over a period ranging from three months to four years, then more specific assessments such as thyroid imbalance tests may be conducted to determine the severity of the condition and eligibility for advanced therapies is then considered based on these assessments. Some physicians believe that lower dosages are effective, leading them to prescribe suboptimal doses to patients. However, this practice inadvertently prevents patients from meeting the requirements for reimbursement of advanced therapies, which often necessitate a history of failed conventional treatments.

The transition from conventional to advanced therapies is further hindered by the necessity for physicians to clinically confirm disease progression before considering alternative treatments. This delay exacerbates patients’ suffering, both physically and emotionally. Addressing these barriers,

including reducing appointment intervals and streamlining the process for accessing advanced therapies, is crucial to improving outcomes and QoL for individuals with AD and AA. This approach could result in delayed access to more effective treatments, leading to a worsening of physical symptoms and increased emotional distress for patients.

If the condition worsens, particularly when the balding area becomes larger, consideration for so-called advanced therapies might come into play. These advanced therapies are relatively new and, indeed, come with higher costs. As far as I know, in Taiwan, there isn't medical insurance that covers AA advanced therapies.

- TW AA KOL

DELAYED DIAGNOSIS AND TREATMENT

Healthcare services, including access to healthcare providers and affordable medication, are also not universally available for AD and AA in Hong Kong, Singapore and Taiwan. Barriers within the health system, primarily resource constraints, hinder prompt diagnosis and the initiation of patients on conventional treatment. One significant challenge is a shortage of trained specialists in the public sector to accommodate the patient load. In Singapore, there is approximately one dermatologist working in the public sector for every 516 individuals suffering

from skin conditions.²² This ratio is disproportionately higher in Hong Kong, where the dermatologist-patient ratio is 1: 1,932 and in Taiwan, where there are approximately 4.27 dermatologists per 100,000 persons.^{23,24} Furthermore, there is a shortage of public dermatologists to handle the volume of dermatology patients, adding to the strain on the healthcare system. The scarcity of resources and qualified dermatologists in the public sector has been criticized, resulting in patients waiting for over three years to see a doctor.

"I have seen the dermatologist there and the waiting time at first was about 4 to 5 years and that's the time when I finally got prescriptions from the physician."

- HK AD Patient

In Taiwan, the number of board-certified dermatologists increased significantly, from 125 in 1985 to 1002 in 2015²⁴, ensuring better availability of specialized care with a relatively favorable dermatologist-to-population ratio. Taiwan's National Health Insurance (NHI) extended coverage to include medications, including biologic injections, for moderate-to-severe AD patients starting from 2022.²⁴ The application process for biologic injections was streamlined for patients whose condition recurs, making it easier for eligible patients to access advanced treatments. Overall, these advancements demonstrate Taiwan's commitment to improving access to dermatologic care and offering effective treatments for various skin conditions.



In some regions, such as Hong Kong, patients face extensive waiting times, with reports of up to four years before they can consult with their physician again for consideration of advanced therapies in the public sector. This prolonged wait often prompts patients to seek care in the private sector to gain earlier access to advanced treatments. This consequently means that physicians often have only between 5 to 15 minutes for consultations, leaving little room for in-depth discussions. The limited number of dermatologists working in public health institutions also means that the waiting time to get a consultation can stretch up to a few years. Even upon securing an appointment, patients face difficulties in addressing their concerns during consultations due to the brief duration of each visit and the practice of consulting with different physicians during each visit.

“The first time I found out about my AA condition, I just had my regular follow-up in the public hospital, it meant I could only meet with the public hospital doctor again in another 4 months.”

– HK AA Patient

A primary factor contributing to this shortage is the slow career progression from trainee to consultant in the public sector. Consequently, many dermatologists opt to join the private sector instead of pursuing careers in public healthcare, exacerbating the scarcity of specialists available to address the needs of patients in the public sector.

Furthermore, the continued reliance on conventional treatments, which are considered to be less effective in improving both clinical outcomes and QoL, perpetuates the cycle of suffering for patients, affecting aspects such as itch relief, mental health, sleep quality, and social/work relationships. This lack of accessibility contributes to global health inequity for individuals with AD, resulting in personal and societal losses. Addressing these systemic barriers is crucial to ensuring timely access to advanced therapies and improving overall patient outcomes and QoL.

HEALTH SEEKING BEHAVIORS INFLUENCED BY ACCESS

The consequences of these delays and complexities extend beyond bureaucratic hurdles; they impact patients’ well-being. The physical symptoms associated with AD and AA have a profound impact on various aspects of patients’ lives, affecting their social, occupational, and emotional functioning. Patients often endure chronic, intense physical symptoms such as severe itching, inflamed skin, lesions, bleeding, scabs, and discomfort. The unpredictable onset and severity of these symptoms can lead to feelings of anxiety, low self-esteem, and stress, often resulting in social isolation and depression. Sleep quality is also significantly affected by flare-ups and itchiness, resulting in changes in appearance and declines in emotional and cognitive functioning. This cycle of symptoms and emotional distress can further exacerbate the physical



manifestations of AD and increase the risk of other illnesses, trapping patients in a vicious cycle.

Limited relief from corticosteroids or topical creams results in cyclical flareups. Extended frustration with recurring symptoms often leads to a tendency among patients to resort to self-medication or traditional remedies, further delaying the initiation of appropriate treatments. Patients may initially attempt to address symptoms, such as dry or cracked skin on their hands, through self-medication practices, including traditional Chinese medicine, only to find these efforts ineffective.

“They may have already tried various traditional treatments for an extended period before being referred or escalated to see a specialist.”

– HK AD Payer

Unfortunately, the failure of self-medication or alternative therapies not only prolongs the physical symptoms but also inflicts a negative toll on patients' emotional well-being, social interactions, and occupational functioning. After exhausting conventional treatment options and experiencing continued setbacks, patients may once again turn to alternative therapies. This pattern not only perpetuates the delay in initiating advanced therapies but also exacerbates the deterioration of their mental health.

“I personally know people with eczema, at the same time they spent a lot of money kind of outside the medical, buying a lot other ‘creams’ from the shelves. If you total up the total cost, it is sometimes same or even more than the high-cost therapies or biologics.”
– SG AD Patient

Patients' behavior and emotions also pose challenges to effective communication and empathy. Some patients may not feel comfortable openly discussing their well-being, while others may become frustrated or unreasonable due to various factors such as long waiting times or perceived lack of treatment efficacy. They also desire access to centralized and credible sources of information on AD and treatment options, patient experiences, financial support, emotional and mental support, and links to patient advocacy groups (PAGs).

“I’ve actually inquired about new medications and procedures during my visits to doctors and asked for evaluations. Some doctors seem hesitant to use new medications... I feel that I want to get better and not go through repeated relapses.”

– TW AD patient

In some cases, patients are unable to consult the same physicians during their follow-up sessions, potentially disrupting continuity of care. As patients get increasingly frustrated with physical symptoms such as itching, skin inflammation and

insomnia due to discomfort, it influences a patient's tendency to switch between treatment options that are readily available to them to find symptomatic relief. This is significant as failure to control their condition will impact their return to a daily routine or to go back to work. This is particularly concerning as low treatment compliance may also hinder their access to advanced therapies as current treatment pathways require that each patient stays on conventional treatment for three to six months, and they can only get access to subsidized advanced therapies if conventional therapy has failed for them.

Differing beliefs regarding the efficacy of conventional treatment versus advanced therapies contribute to these delays. A lack of awareness regarding the importance of seeking prompt diagnosis may exacerbate delays in patients' initiation of advanced therapies. Delays in initiating advanced therapies may also be influenced by physicians' beliefs about conventional treatment, embedded by current guidelines and established data. Physicians interviewed also mentioned that some physicians may display hesitancy in prescribing advanced therapies due to concerns such as lack of long-term data and unknown or under-reported side effects, particularly in Hong Kong and Taiwan.

PSYCHOSOCIAL IMPACT ON QoL

Systemic barriers in turn can cause prolonged adverse impact on patients' QoL as they continue conventional treatments which are considered to be less effective in improving both clinical outcomes and QoL (e.g., itch relief, mental health/ self-esteem, sleep quality, social/ work relationships). These delays could lead to a worsening of patients' physical symptoms (e.g., broken skin in more areas), emotional and psychosocial well-being as they are anxious about their condition. Across these markets, QoL remains a pivotal concern, with various validated instruments employed to measure the disease's impact on daily activities and overall health status. This aspect is integral to treatment decisions, highlighting the need for a holistic approach that considers both physical symptoms and psychosocial well-being.

The impact of skin conditions on QoL is evident across four main pillars.

"...some medications might not need a full three months; if they haven't shown efficacy within one month, entering advanced therapies is something I fully agree with."

– TW AD Payer



ATOPIC DERMATITIS



SOCIAL

The visible nature of AD may result in patients facing social stigma and prejudice.

Patients may avoid social situations due to fear of judgment or discomfort, hindering their ability to form relationships. They also tend to be more self-conscious on their appearance.

WORK

Itchiness and discomfort can hinder their focus at work, leading to reduced productivity and concerns on how colleagues might perceive their condition impact workplace interactions.

Some patients may face difficulties in seeking employment requiring physical interactions with customers (e.g., retail staff).

SLEEP

Quality of sleep is also affected with the flares and itchiness, resulting in:

- Change in appearance (puffy eyes, dark eye circles)
- Decline in emotional and cognitive functioning (difficulty concentrating, decline in mood, impaired memory)

EMOTIONAL AND PSYCHOLOGICAL

The chronic nature of AD and unpredictability of skin flare-ups can cause a sense of loss of control leading to negative thoughts, anxiety and depression.

Having to cope with this chronically worsens stress, self-esteem and mental health.

ALOPECIA AREATA



SOCIAL

The visible nature of AA may result in patients facing social stigma and prejudice.

Patients may avoid social situations due to fear of judgment or discomfort, hindering their ability to form relationships. They also tend to be more self-conscious about their appearance.

WORK

The need to wear wigs to cover bald patches can distract patients at work, reducing their productivity. Concerns about how their colleagues perceive their condition can affect social interactions at work.

There is also fear and anxiety that should they lose their jobs, they will be unable to pay for their treatment.

EMOTIONAL AND PSYCHOLOGICAL

Not only does AA affects one's physical appearance, but it also has an impact on their psychological health.

This in turn impacts a patient's confidence and consequently, might lead to a slower rate of recovery - resulting in a worsening of QoL.

Socially, patients may face stigma and prejudice due to the visible nature of their condition, leading to avoidance of social situations and hindering the formation of relationships. They may also experience self-consciousness about their appearance. In the workplace, itchiness and discomfort can affect focus and productivity, while concerns about colleagues' perceptions may impact interactions. Some patients may even encounter difficulties in finding employment that requires physical interactions with customers, such as in retail. Additionally, there is anxiety about potential job loss, which would jeopardize their ability to afford treatment, adding to their emotional burden.

"I worry if this disease will affect me at work or affect me from getting a promotion. Due to my self-consciousness, I will attend (work) meetings online to avoid attending physically."

- HK AA Patient

Coping with these challenges chronically exacerbates stress, self-esteem issues, and mental health concerns, further impacting patients' overall well-being. Recognizing and addressing the multifaceted impact on patients' lives is essential for providing comprehensive care and support to individuals managing this chronic condition. The rapid progression of symptoms can trigger anxiety and stress, compounded by the discomfort and unpredictability of

the condition, leading to heightened emotional distress, including depression, low self-esteem, and social isolation. The chronic nature and unpredictability of flare-ups can contribute to a loss of control, leading to negative thoughts, anxiety, and depression.

Patients often do not express the full extent of how skin conditions affect their mental health and overall QoL unless prompted by their physicians. However, they do communicate their dissatisfaction with treatment effects, seeking more effective solutions when conventional treatments fail to improve their condition. This highlights the importance of proactive communication between physicians and patients to address both physical symptoms and the broader impact of AA on QoL.

Patients express a strong desire for their questions and concerns regarding treatment goals and effects to be addressed by physicians, emphasizing the importance of itch relief, emotional well-being, and overall QoL improvement. They also seek information on the potential effects of treatments, such as drug resistance, withdrawal symptoms, and side effects. However, some patients report that physicians may dismiss their inquiries about side effects. Additionally, patients expect prompt recommendations for more effective treatment options if conventional treatments fail to adequately control their condition. Specifically, patients with AA expect physicians





to provide information about upcoming clinical trials to explore new treatment approaches for the condition.

“I wish for the doctor to be attentive towards this matter if possible... so that the specialist can have a better understanding towards the impact this disease has brought me. Then the doctor might be able to come up with a better treatment plan that is suited towards my needs.”

– HK AD Patient

Limited time and communication present significant barriers to fully assessing patients’ needs and QoL and discussing more effective treatment options. Due to the short consultation times in the public sector, patients tend to keep their emotions private during consultations, only disclosing them when explicitly prompted. The prolonged waiting time to get follow-up consultations also exacerbates physical symptoms, such as worsening skin conditions, while also affecting patients’ emotional and psychosocial health as they are anxious about their condition.

“I don’t often discuss this (QoL) with the doctor because, in Taiwan, doctors don’t have much time during appointments. The focus is usually on the current treatment progress, any discomfort or unusual conditions.”

– TW AA Patient

Moreover, physicians may lack training in psychological assessment and counseling, necessitating referrals for patients with mental health needs. Physicians often rely on established habits and clinical observations as heuristics to guide their treatment decisions and monitor the effects of treatments. Experienced physicians, in particular, tend to lean on these habits and heuristics, such as clinical experience, visual judgment, and routine questioning, as anchoring tools for diagnosing and managing AD rather than strictly following guidelines and diagnostic tools. Patients feel that physicians in the public sector often prioritize treating physical symptoms over addressing patients’ overall well-being due to constraints such as limited time, skills, and experience.

In their routine assessments, physicians ask questions related to patients’ medical and treatment history, side effects, allergies, physical abnormalities, and QoL to gain a comprehensive understanding of the patient’s condition.

While guidelines such as Fitzpatrick’s Dermatology are available and useful, some physicians may not regularly consult them due to perceived limitations or because they believe their clinical experience suffices. While physicians in the public sector do guide patients towards appropriate resources, such as counseling, when emotional difficulties are expressed, patients feel that their QoL concerns are not adequately recognized.

In Hong Kong, if they identify a need for psychological counseling, they may refer patients to a psychologist, psychiatrist, or social worker, provided the patients are receptive to such referrals.

Limited communication and patient engagement regarding treatment goals also means that patients have low awareness and literacy of treatment options (e.g., comparison and benefits of conventional and advanced therapies, side effects, dosing frequency), impact of treatment-related behaviors (treatment compliance, time taken for treatment application, or length of

treatment session to assess level of impact on their QoL). This perceived lack of focus on QoL by physicians contributes to patients feeling that their emotional and psychological well-being needs are overlooked. Consequently, a discrepancy in expectations arises between physicians and patients.

As a result, patients often choose to seek treatment in the private sector. Private sector physicians are perceived to be more empathetic, taking more initiative in inquiring about patients' well-being. With longer consultation times, patients feel more comfortable discussing QoL concerns beyond

treatment effects. While there are perceptions of increased empathy from physicians and patients may feel more confident in managing their condition, there is still a desire for greater empathy during consultations.

"The consultation with private doctors is more interactive, I can express my thoughts and they will provide response. The acknowledgment of negative emotions in AA patients by the doctors makes me feel understood. They are willing to take the time to talk about my feelings with me."

- HK AA Patient



FINANCIAL SYSTEM CHALLENGES IN REGIONAL MEDICAL DERMATOLOGY CARE: FINANCING APPROACH





HONG KONG

A dual-track healthcare system wherein the HK Government provides all public healthcare services free of charge or for a minimal fee. The public sector is the predominant provider of secondary and tertiary healthcare services. To access referrals to subsidized specialist dermatology treatment, AD and AA patients must attend and receive referrals from a general practitioner before they can get an appointment at public clinics such as the Social Hygiene Service, which is responsible for public dermatology treatment.



SINGAPORE

A multi-payer healthcare financing framework, with overlapping schemes and payers to potentially cover one treatment episode. Administered by the Central Provident Fund (CPF), MediSave is the primary method of paying for healthcare in Singapore. As all users of Singapore's Health Care System effectively pay OOP for healthcare (using subsidized accounts), no reimbursement for treatment is provided to AD or AA patients directly.

For patients with moderate to severe AD, Abrocitinib tablets are recommended for inclusion in the MOH Medication Assistance Fund (MAF) starting March 1, 2024. However, MAF assistance does not cover baricitinib, upadacitinib, or dupilumab for treating AD.

The Singapore Government partly funds the subsidized National Skin Center (NSC) through an annual grant, and to qualify for subsidized conventional treatment, patients must be referred to the NSC or public hospitals with a dermatology department for a medical condition from a public health institution. JAK inhibitors have been included under the MAF scheme, but are not subsidized under the Subsidized Drug List (SDL), which can unlock access of JAK inhibitors at public clinics.



TAIWAN

A single-payer compulsory social insurance system. Although the public sector dominates Taiwan's National Health Insurance (NHI) system, hospitals adopt the closed-staff model, and physicians are primarily paid by hospitals. The National Health Insurance Administration (NHIA) collects premiums from the insured, employers, and the government. Co-payments for outpatient specialist care and medication are capped, with no annual limits. Biologic injections for moderate-to-severe AD are covered for patients aged six and older.

REIMBURSEMENT DECISION-MAKING DRIVERS AND BARRIERS

Although advanced therapies could offer significant improvements in clinical outcomes and QoL, the condition is often not prioritized in decision-making processes because it is not considered life-threatening. Life-threatening conditions are typically those perceived to have a risk of death (Hong Kong) or lead to conditions with a significant impact on mortality, such as cancer or cardiac/metabolic diseases (Singapore).

“Life-threatening conditions refer to situations where the patients are at risk of dying. Therefore, the examples that pertain to life-threatening conditions cannot be directly applied to skin diseases since they are not life-threatening.”

– HK AD KOL

For patients with skin conditions in the region, reimbursement challenges present significant hurdles due to stringent criteria for reimbursement eligibility, causing delays in patients being able to access advanced therapies. Several criteria must be satisfied for patients to qualify for reimbursement, including specific AD severity scores and/or a track record of unsuccessful conventional treatments within predetermined timeframes in both regions (three months per treatment in Taiwan and nine months in Hong Kong). In Hong Kong, patients must have unsuccessfully tried at least two conventional treatment agents

before advanced therapies are considered. Similarly, in Taiwan, patients are required to undergo phototherapy twice a week and complete two consecutive systemic immunosuppressant treatments for at least 12 weeks each. In Singapore, patients will need to see a general practitioner to get an appointment with a dermatologist for subsidized treatment. However, these critical referrals (average wait time of three months) to specialists are often extended due to long waiting times, leading to delays in prompt diagnosis and the initiation of patients on conventional treatment.

“...usually try a standard dosage for 3 months and would increase the dosage if the patient shows no progress at their follow-up consultation. For one type of immunosuppressant, this process would take at least 9 months, so it would take 1.5 - 2 years to try two types.”

– HK AD Payer

These requirements are implemented to help ensure the cost-effectiveness of reimbursing advanced therapies within the healthcare system. For instance, junior physicians must seek approval from seniors to initiate patients on advanced therapies, extending the process. Moreover, the evaluation by senior physicians may prolong patient wait times, particularly if they do not directly consult the same patients. The extensive reimbursement administration process stands as a significant



barrier to patients' access to advanced therapies, leading to delays in treatment initiation. This process, which can take up to two years for evaluation and approval, may force patients to persist with ineffective conventional treatments during the waiting period.

In the case of AD, stringent reimbursement criteria in Hong Kong and Taiwan (patients in Hong Kong must fail at least two conventional treatment agents; patients in Taiwan have to undergo phototherapy twice a week and take two consecutive systemic immunosuppressants for at least 12 weeks each) curtail initial accessibility to advanced therapies, necessitating patients to bear the cost themselves for earlier access, leading to prolonged suffering and stress for those unable to afford it. This further leads to the deterioration of patients' mental and emotional health. In Singapore, starting in March 2024, Abrocitinib tablets will be funded for patients with moderate to severe AD, but baricitinib, upadacitinib, and dupilumab will not be covered. Since AD is a long-term chronic condition, patients also grapple with miscellaneous and recurring expenses, from alternative treatments to over-the-counter skincare products. Similarly for AA, no reimbursement is provided in Hong Kong and Taiwan.

Reimbursement decisions for medical dermatology treatments are influenced by several key factors, including regulatory

approval, clinical evidence, unmet clinical needs, and cost considerations. Both physicians and payers play crucial roles in these decisions, with factors such as FDA approval, clinical evidence regarding efficacy and safety, comparison with existing drugs, unmet clinical needs, cost of treatment, projected usage, and impact on healthcare budgets being considered.

"... depends on cost, efficacy, ease of use, contribution to healthcare insurance and reimbursement system. What's the most important is expected proportion of drug use."
- TW Payer

Various stakeholders also have significant influence in the decision-making process. Government officials, leading physicians specializing in dermatology and other medical fields within professional associations, pharmacists, and medical researchers all contribute to shaping reimbursement decisions. PAGs play a role as well, though their involvement tends to be limited. However, there is growing recognition of the importance of greater involvement from PAGs to provide insights from the patient's perspective and support payers in making more informed decisions.

"The Drug Advisory Committee is responsible for the drug budget in public hospitals. This committee usually consists (of) all the different specialties, but not dermatologists. So, it's very under-represented."
- HK AA Payer

Physicians in the region face challenges navigating the reimbursement approval process, due to multiple factors including limited financial resources, and unclear instructions on the necessary steps for reimbursement application. The intricate procedures necessitate careful coordination among health ministries, national procurement agencies, and physicians, further complicating matters. Gathering requisite paperwork, such as patients' medical records and treatment plans, to support subsidized treatment requests also consumes valuable physician time, exacerbating the strain of managing the current patient volume. In instances where patients' applications are unsuccessful, reapplication is needed.

Even after successfully getting the necessary approval for reimbursement of advanced therapies, patients must undergo a re-assessment of their condition every one to two years to continue advanced therapies. This entails stopping the advanced therapies that have been effective and returning to conventional treatments. For example, in Taiwan, patients undergoing advanced therapies

face a challenging process wherein they must revert to conventional treatments after a few years and reapply for advanced therapies if their condition worsens. This requirement for periodic reviews to continue advanced therapies adds complexity to the treatment journey. Physicians then monitor the patient's condition on conventional treatment, and if the condition remains severe or worsens, patients can reapply for reimbursement for advanced therapies. However, this reapplication process can take six months or more for approval.

"The evaluation of new drugs or treatments tends to focus on three aspects - efficacy, safety, and cost-effectiveness. If this treatment can provide a high value, as well as being a breakthrough treatment with no existing alternatives, perhaps this process can be expedited so that the treatment is available sooner."

- HK Payer

Upon commencement of advanced therapies, the patient's QoL improved due to the improvements in their physical symptoms, which contributed to a better psychosocial, social, and work life. However, should patients discontinue, this may result in the return of anxiety and a negative impact on QoL due to having to cope with the disease's symptoms again. Despite the substantial impact AD and AA have on



patients' QoL, the lack of perceived life-threatening nature often results in limited prioritization of resources towards its treatment. Advanced therapies, which demonstrate higher efficacy and faster response rates, can greatly enhance patients' clinical outcomes and overall QoL. However, due to budget constraints, these therapies are often only available after conventional treatments have failed over a period of up to two years or deprioritized compared to treatments for life-threatening conditions.

I visited the doctors in both [public and private] sectors because JAK was not offered in public hospitals. It's self-financed and not something offered there. I had to pay for it myself even if I switched to the private doctor."

- HK AA Patient

In response to these barriers to care, some patients opt to pay for advanced therapies out-of-pocket (OOP) rather than wait to exhaust conventional treatments. Consequently, patients who wish to access these treatments earlier in their treatment journey must bear the financial burden, placing significant strain on their finances. Patients facing AD and AA not only deal with the high expenses of medical treatment but also shoulder additional financial burdens for managing their conditions. These extra costs, known as OOP expenditures, include various items like over-the-counter (OTC) medications,

specialized clothing such as vests, bandages, wigs, medical devices like humidifiers, and supportive therapies like counseling or alternative treatments such as Traditional Chinese Medicine (TCM). In Taiwan, these therapies can reach up to NTD 15,000 (USD 540) monthly, while in Hong Kong, costs can escalate to HKD 31,250 (USD 4,000) monthly.

Whilst some individuals resort to private insurance coverage to alleviate expenses, this often exacerbates their financial strain due to the additional burden of insurance premiums. Those unable to afford treatment either endure prolonged waiting times within the healthcare system, explore alternative financing avenues like pharmaceutical or government assistance programs, family support, or private insurance, or reduce treatment frequency. This may cause a reduction in the effectiveness of advanced therapies and trigger a fear of relapse. Additionally, alongside treatment costs, AA patients must bear miscellaneous costs, such as alternative therapies, specialized clothing, over-the-counter medications, and supportive therapies. As such, patients face extreme financial stress, leading to emotional distress, such as anxiety and depression.

"...Patients may spend a lot on things that are not clinically proven effective things such as probiotics or other products claimed to be effective in improving physique."

- TW AD KOL

Generally, AD's economic cost can be divided into direct costs (such as medical visits or the costs of medical tests, procedures, and medications) and indirect costs (which include loss of earning for patients or caregivers, productivity loss, and transportation costs). Studies conducted in the Asia-Pacific region have reported varying direct costs per year, ranging from USD 199 to USD 1,250, along with household annual health costs for severe AD, ranging from USD 600 to USD 4,488.²⁵ To manage the change in appearance for patients with AA, many use strategies to conceal or camouflage their hair loss, such as wigs out of fear of negative evaluation from others and improve social confidence. They also believe that these are necessary expenses as they fear that their conditions may impact their employability. However, costs of wigs and other emerging aesthetic methods such as medical tattooing vary greatly in cost and quality, with higher quality often incurring higher costs.

"Needing to pay for the expensive drugs but not earning anything, it's truly an additional burden. Earning nothing but having to pay for the treatment and property mortgage loans and other fees. I used to wonder to myself, how far can go with the money left?"

- HK AA Patient

When patients begin advanced therapies for their condition, there is often an improvement in their physical symptoms,

leading to better psychosocial, social, and work lives. However, discontinuing these therapies can result in a return of anxiety and a negative impact on their QoL as they have to grapple with the disease once again. For those unable to afford advanced therapies, the options are limited and the stress of affording these therapies takes a toll on patients' mental and emotional well-being, leading to heightened anxiety, depression, and the need to explore ways to reduce other expenses. Some patients may encounter financial toxicity while

trying to continue their treatment with advanced therapies. To cope with this financial burden, they may adopt various strategies such as reducing the frequency of treatment, which can lead to non-compliance and a reduction in the effectiveness of the therapies, potentially triggering a fear of relapse and exacerbating anxiety.

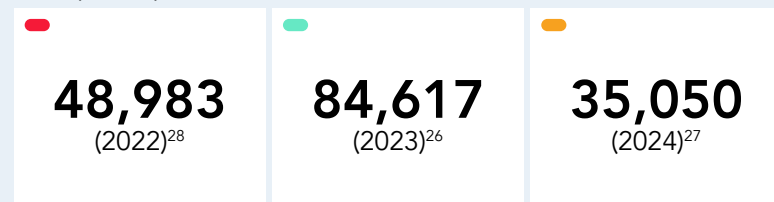
Alternatively, patients may seek alternative financing options, such as pharmaceutical or government assistance programs,

or rely on family support. They may also cut back on non-essential expenses like travel and entertainment to offset the costs of treatment. In some cases, they may even switch to more affordable alternatives such as conventional treatments to alleviate financial strain.

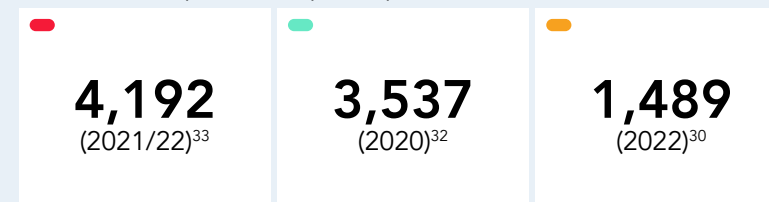
"The medication is very expensive, and patients might not be able to afford it, does not want to pay for it and/ or does not meet the criteria for funding."
- HK AD KOL

CHRONIC FINANCIAL BURDEN

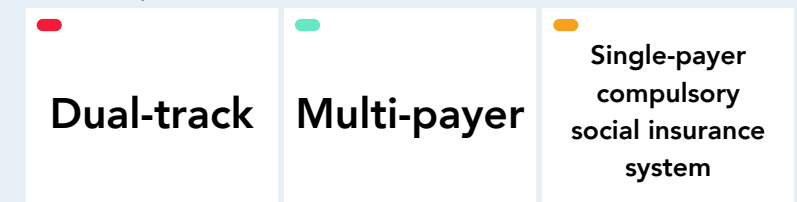
GDP per capita (USD\$)



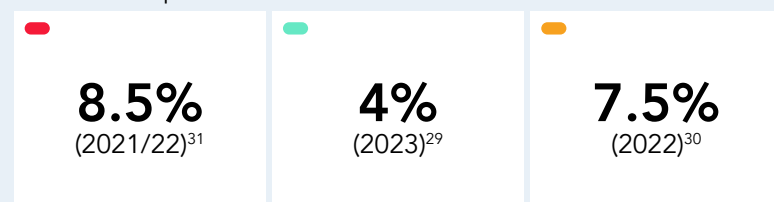
Healthcare expenditure per capita (USD\$)



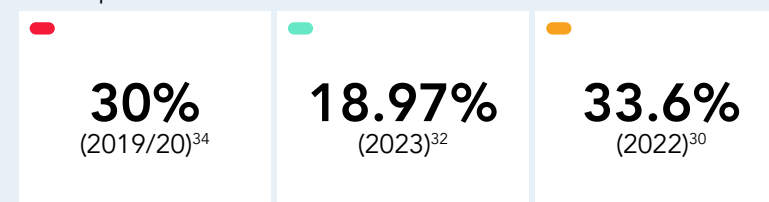
Market type



Healthcare spends as a % of GDP



OOP spends



● HONG KONG ● SINGAPORE ● TAIWAN



High recurring OOP costs associated with these chronic conditions, such as AD and AA, can lead to heightened stress and compromise patients' emotional and psychosocial well-being as they cope with the financial burden. This is especially true in Singapore, as all AD and AA patients are expected to pay all or part of the costs for their healthcare.

This could lead to a vicious cycle as patients develop anxiety concerning the switch back to affordable alternatives to advanced treatments, such as conventional treatments, which may or may not have been previously effective for patients. The disruption in receiving advanced therapies can worsen patients' conditions, impacting their overall QoL negatively. Conventional treatments may be less effective in addressing symptoms such as itchiness and dry or red skin compared to advanced therapies. Additionally, conventional treatments may come with significant side effects, further exacerbating the challenges faced by patients during the transition period. Streamlining the re-assessment and reapplication process for advanced therapies could help mitigate these disruptions and ensure timely access to effective treatments for patients in Taiwan.

"I have already started taking an advanced therapy which is very effective in managing my condition... but I am required to switch back to conventional treatment whose side effects are quite significant for me, thus making me uncomfortable."

- TW AD Patient

The association of stress with high-recurring OOP costs is particularly important in the Singaporean context as the city-state's multi-payer healthcare system encourages residents to have a high level of personal accountability for their health and are expected to choose the quantity and standard of their treatment provided. In addition to the high cost of treatment, patients often incur miscellaneous costs to manage their conditions, which further adds to their financial toxicity.

"Many patients have difficulty affording new therapies even though these emerging therapies are great. Patients cannot afford new drugs by themselves, but they are not poor enough to get subsidy."

- SG AD KOL

These expenses are usually self-funded and are aimed at sustaining or alleviating their symptoms and maintaining their QoL. However, because AA and AD are long-term conditions, these recurring costs can significantly add to the financial strain already imposed by medical bills. This constant financial burden not only affects the patients' economic well-being but also

perpetuates their overall financial toxicity, leading to a further deterioration in their QoL. This reflects both the urgency of symptom relief and the limitations within the reimbursement system that hinder timely access to advanced therapies. Addressing these chronic financial challenges is crucial for improving the holistic care and well-being of individuals managing AD and AA.

One major challenge is the absence of quantifiable measures for QoL, leading to concerns about patients providing inaccurate or exaggerated responses to obtain reimbursement for advanced therapies. Additionally, while physicians' assessments of patients' QoL could serve as supplementary validation, there are worries about physicians fabricating information to assist patients.

From the perspective of physicians, integrating the emotional and financial needs of patients when it comes to the management of skin conditions could expand reimbursement coverage for advanced therapies. This approach could enhance various aspects, including reducing financial burden and improving emotional and psychosocial well-being and occupational functioning, thus improving overall QoL. Ultimately, integrating patient perspectives into reimbursement decision-making processes holds promise for addressing the multifaceted needs of individuals with dermatological conditions.

In different regions, various concerns complicate the incorporation of QoL into reimbursement decisions for medical dermatology treatments. For instance, Singapore faces a lack of consensus on which QoL measure to use and difficulty in converting an AD-specific QoL measure into a universal rating for comparison with other conditions. Taiwan struggles with incorporating QoL as a key factor and translating it into tangible value for payer evaluation, with current assessments often neglecting disease severity. Hong Kong encounters challenges in presenting an accurate and objective depiction of AD.

Physicians face challenges in establishing a patient group to advocate for AA reimbursement, given the perception surrounding the condition. With AA classified as an outpatient disease, private funding for costly treatments is also a challenge, as insurance companies are unlikely to support them, especially in Hong Kong.

To address these concerns, various instruments such as health-related QoL, and the Dermatology Life Quality Index (DLQI) have been recognized as potential tools for payers. Physicians believe that incorporating patients' voices could help achieve reimbursement coverage for advanced therapies, ultimately improving all aspects of patients' QoL, including reducing financial burden and enhancing emotional and psychosocial well-being.

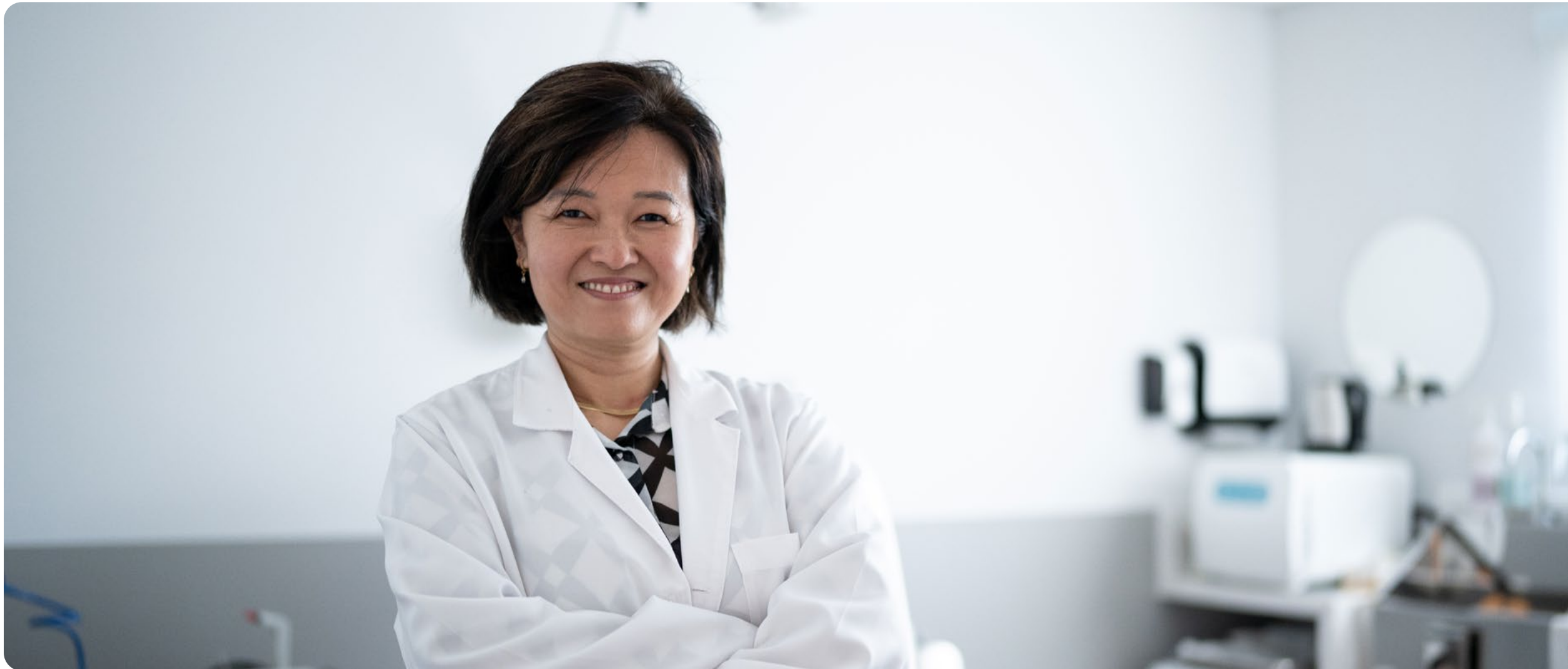
Whole-of-healthcare solutions have also been suggested to address these challenges. Insights from patients should influence reimbursement decisions, providing quantitative and qualitative insights that can enrich monitoring and surveillance (with enriched data) and help payers quantify these aspects. This said, collaboration between dermatological societies and patient organizations can significantly influence local reimbursement policies and clinical practice guidelines and facilitate Health Technology Assessments (HTA).³⁸ This in turn informs and could strengthen the provision of healthcare services and in turn may improve patient outcomes and QoL. Increasing awareness and correcting the perception of skin conditions such as AA as merely a cosmetic concern is crucial to creating a supportive ecosystem to address a condition that is biopsychosocial in nature, particularly if individuals are susceptible to psychosomatic triggers. Providing scientific evidence, including real-world clinical data and clinical trial results will demonstrate the efficacy of advanced therapies and support ancillary efforts to shift perceptions and support reimbursement efforts as well.

We have established that skin conditions profoundly impact individuals' lives, and access to quality care and treatment options can enhance health outcomes, providing relief and fostering productivity, wellness, and happiness.

Across Hong Kong, Singapore, and Taiwan, current healthcare systems help to ensure support for individuals managing skin conditions. However, as healthcare systems and financing methods evolve to address emerging public health issues and anticipate future needs, individuals with skin conditions face increasing susceptibility to physical and psychosomatic triggers due to factors like rapid urbanization, globalization, and climate change. The evolving landscape and technological advancements enable the transformation of health systems to better address personalized healthcare needs, recognizing that each individual's condition is unique. With these insights in mind, we delve into regulatory and policy interventions that can expedite change, ensuring that care provision remains people-centered and holistic.



POLICY RECOMMENDATIONS



A BIOPSYCHOSOCIAL APPROACH SHOULD BE ADOPTED TO IMPROVE PATIENT OUTCOMES AND QoL FOR DERMATOLOGY CONDITIONS

The World Health Organization has defined skin conditions to impact and reduce QoL due to physical, mental, and social well-being.³⁵ Skin conditions are often chronic diseases, and from the initial diagnosis to coping with the day-to-day regimen of skincare, skin conditions can create many challenges.

The interviews demonstrated an entrenched preference by physicians for low-dose regimens in conventional treatment and the lack of confidence and experience in advanced therapies may contribute to delays in initiating patients on advanced therapies.

Existing clinical guidelines do not factor psychosocial metrics into dermatology standards of care. Undermining the impact of intense physical symptoms (e.g., itch, discomfort, bleeding, pain, scabs) and delaying the dispensation of advanced therapies may exacerbate a patient's mental health and lead to stress, anxiety, depression, low self-esteem, and social isolation.

As validated in our interviews with individuals living with skin conditions, patients treated with one standardized set of clinical guidelines can experience completely different outcomes due to the psychosomatic nature of dermatology conditions. Physical symptoms associated with skin conditions have a profound impact

on various aspects of patients' lives and extend far beyond their physical symptoms.

It must be recognized that skin conditions can be triggered or exacerbated due to psychosocial factors, which are often not explained by the clinical severity of their condition. Psychosocial stressors can adversely affect patients' abilities to cope with and manage their illness. This limitation extends to their ability to access and receive appropriate healthcare resources, adhere to prescribed treatment regimens, and engage in behaviors necessary to manage illness and promote health.

Additionally, these stressors can create a loss of sense of self and isolation, affecting various aspects of their social, occupational, and emotional functioning. Moreover, when patients are distraught about the course of their illness, they may be more likely to forget health professionals' recommendations and less likely to ask questions about their care and participate in medical visits. These stressors impact patients' ability to monitor symptoms and adverse responses to treatment and affect their overall health-related QoL.

To bridge this gap, the Hong Kong government introduced the Voluntary Health Insurance Scheme (VHIS), which provides coverage for psychiatric treatments. Initially, the VHIS focused on hospitalization expenses for psychiatric treatment, but now



many international and comprehensive medical insurance plans include coverage for psychological and psychotherapy treatments as part of their outpatient benefits, separate from medical consultations, under categories such as “Mental and Nervous Conditions benefit.”

“With no other co-morbidities, AA is a disease that affects the physical appearance and that affects psychological health, which in turn affects patient’s confidence, happiness and social relationships. Taking care of these aspects is important. These elements are interrelated.”
– HK AA Patient

While dermatologists have sought different ways to optimize patient care and reduce the burden of skin disease, the psychosocial aspect of management remains largely overlooked. It has been observed in many studies that how an individual copes with their skin condition can be hindered by subjective stress factors, such as a sense of helplessness and leads to negative compliance. In this whitepaper, we have established through the interviews that patients express a strong desire for their questions and concerns regarding treatment goals and effects to be addressed by physicians, emphasizing the importance of itch relief, emotional well-being, and overall QoL improvement. They also desire access to centralized and credible sources of information on AD, AA and treatment options, patient experiences, financial support,

emotional and mental support, and links to PAGs.

The use of psychosocial tools in dermatology does not preclude the use of clinical judgement but rather enhances it. This is because the use of these tools can enhance consultations and assessments, as well as inform clinical decision-making. It provides an opportunity to explore the depth and breadth of the psychosocial implications of skin disease, which can be easily overlooked in a busy clinic where the focus is usually on addressing condition-related symptomatology.

The finding argues that there is a need for more engagement and formalized pathways that address the biopsychosocial nature of dermatology conditions and the support necessary across the full cycle of care. In addition, the focus should shift from a step-based protocol for patients to integrating psychosocial metrics into treatment decisions by physicians.

“...in AD patient management, we are seeing visible problems occurred in a certain proportion of patients, such as serious infections and some side effects, or tangible harm and burden caused by conventional therapies. Also, there are some invisible parts that are often overlooked in Taiwan, such as the work and life-related problems”

– TW AD KOL

This means systematic detection and treatment of the physical and psychosocial factors attributing to a flare-up and providing advanced pharmacotherapy, psychological support, and counseling, as needed and as appropriate to local practice and populations.





INVEST IN CAPACITY BUILDING TO IMPROVE COORDINATED MANAGEMENT OF DERMATOLOGY CONDITIONS FROM A CLINICAL AND PSYCHOSOMATIC PERSPECTIVE TO UPLIFT HEALTHCARE SYSTEM COMPETENCIES

Reasons for the current lack of appropriate psychosocial care are numerous. Consultation time is limited, particularly in nationally funded healthcare systems or when there are insufficient trained dermatologists in public healthcare to cater to the population.

Even when the existence of these issues is recognized, healthcare professionals may not be equipped with the necessary training and confidence to discuss and subsequently appropriately deal with psychosocial issues. Appropriate sources of advice and referral are also not available.

“In moderate and severe cases, I would not debate with the patients because their feelings are important too... I will try my best to move on to the next-level treatment for them. That’s why I don’t always stick to the guidelines, patients’ feelings are very important”
– HK AD KOL

Over the last few years, work has been done to promote and increase people’s awareness of the psychological impact of skin disorders, which has helped support changes in clinical practice

and service developments.³⁶ Psychotherapeutic treatment has also been proven to be effective in mitigating exacerbations prescribed for individuals suffering from AD.³⁷

Despite the availability of validated diagnostic and monitoring assessments like the Eczema Area and Severity Index (EASI) and guidance from books like Fitzpatrick’s Dermatology, not all physicians utilize them consistently. Some physicians interviewed may not regularly consult them due to perceived limitations or because they believe their clinical experience is sufficient.

“There may be QoL tests or scores available, but I did not utilize them. I asked patients open-ended questions. When patients expressed extreme unhappiness, it raised concerns for potential depression or even suicidal thoughts.”
– HK AD KOL

Tools, when appropriately used, provide an opportunity for practitioners to ask the right, yet often sensitive questions, and for patients to highlight their concerns, as they generate a non-threatening discussion about key issues. Questionnaires can facilitate communication with the healthcare team, as they can be used as a common ‘language’ to highlight key patient concerns and clinical issues, as well as identify appropriate clinical pathways.

It is crucial that dermatologists, psychologists, and ancillary health professionals are competent in appropriate psychosocial interventions and all components of the healthcare system that are involved in dermatology care should explicitly incorporate attention to psychosocial needs into their policies, practices, and standards addressing clinical medical practice. Furthermore, involving dermatologists in reimbursement discussions as patient advocates could be beneficial. Dermatologists are well-positioned to articulate the challenges and unmet needs faced by patients, potentially advancing the cause for reimbursement. Practices and standards for the management of skin conditions should cater to the provision of psychosocial health services to all patients who need them. This helps to ensure that patients' conditions are better managed, enabling them to integrate back into society more effectively and become more productive. Consequently, this improvement contributes to enhancing overall QoL. By reducing the impact of chronic diseases on a patient's daily life and productivity, overall public health will improve and the burden on healthcare and socioeconomic systems can be significantly alleviated. There is also a need to pilot value-based care models for dermatology conditions that integrate quality metrics of patient-centered care delivery, including thresholds for mental health screening, and tracking of delivery of integrated behavioral care, in such a way that these metrics can affect

equitable access to services and treatment necessary to alleviate intense symptoms for patients suffering from a flare-up. Investments in program building and care coordination among health administrators and care teams regarding the scope of practice of clinical (health) psychologists, psychiatrists, and allied behavioral health practitioners should also be scaled up to promote integrated care for a condition that has multifactorial triggers, with special awareness to broaden access to outpatient settings and for those experiencing barriers in accessing care.

Formalizing addressing behavioral health as routine components of care and expanding system capacity to address health disparities and behavioral health conditions establishes the expectation for a collaborative, team-based care model across the health system. It also moves away from hierarchical systems of care delivery and promotes and routinizes interprofessional team-based training to improve standards of care for biopsychosocial conditions.



PEOPLE WITH CHRONIC DERMATOLOGY CONDITIONS SHOULD HAVE ACCESS TO HIGH-QUALITY TREATMENTS AND PROTECTION AGAINST THE COSTS OF CARE THAT MEET THEIR HEALTHCARE NEEDS IN THE SAME WAY THAT ANY OTHER HEALTH NEEDS ARE ADDRESSED

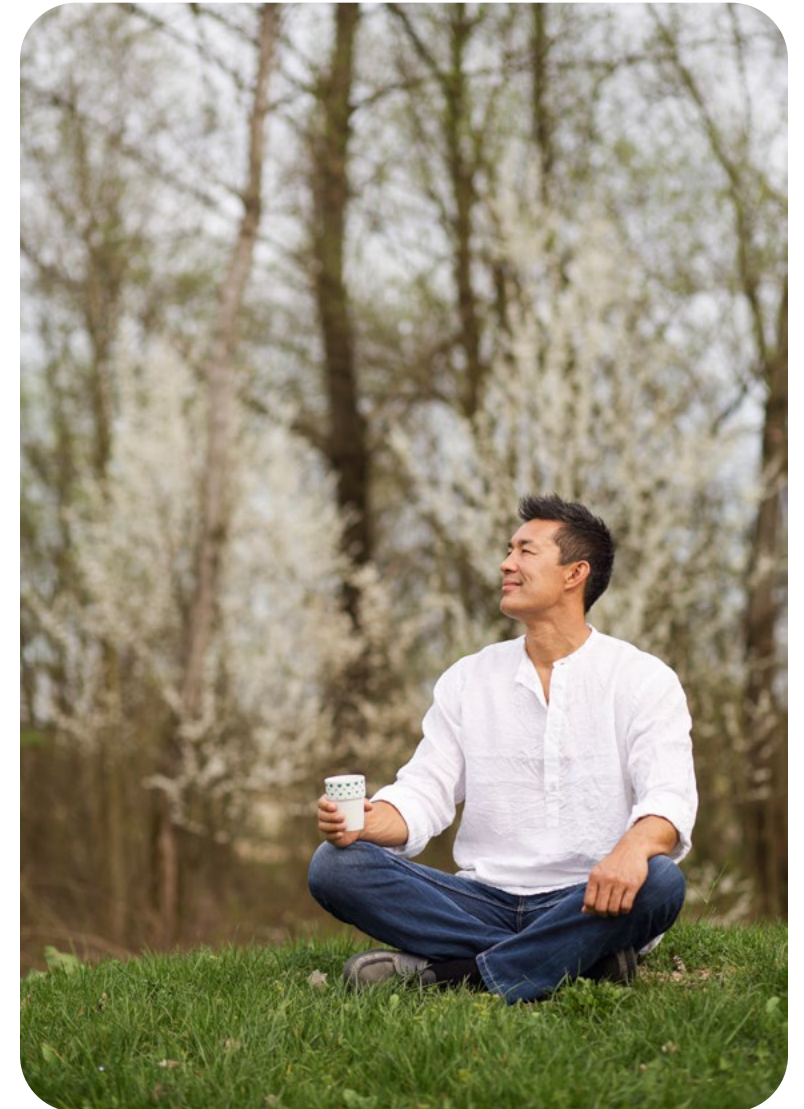
In addition to these reforms, there is a need for piloting value-based dermatology care models that integrate quality metrics of patient-centered care delivery, including thresholds for appropriate mental health screening, linking to psychological healthcare, tracking of delivery of integrated behavioral care, in such a way that these metrics can facilitate the non-linear availability of treatment options, and comprehensive coverage of clinical and ancillary dermatology services and procedures. The complex interplay between dermatology conditions and mental health requires a change in the current fragmented model of care, to a model of care integration that is dynamic, accountable, and allows for whole-person, multidisciplinary interventions.

Embedded within the Sustainable Development Goals (SDGs), universal health coverage aims to ensure health security and access to essential care services for all individuals, families, and communities, fostering a transition to more equitable and productive societies and economies.

While Hong Kong and Taiwan stand out for their impressive single-payer healthcare system, Singapore has arguably

the most robust and progressive dermatology care regime in the three markets surveyed. The system encourages individuals to adopt healthy practices and seek early medical intervention. Specialist consultations are heavily subsidized and accessible, and patients are given the flexibility to choose their treatment in the public or private health system using their MediSave accounts as an outcome of deliberate policy design. At the fundamental level, despite the comprehensive reimbursement coverage across Hong Kong, Singapore and Taiwan, it is still insufficient to ensure that patients with AD and AA can access timely healthcare services affordably or equitably. The concept to provide more extensive coverage for many similar autoimmune or allergic conditions which are also biopsychosocial in nature, including irritable bowel disease, Crohn's disease, arthritis, and psoriasis amongst others to provide greater patient support and equitable access to treatment.

Stringent criteria for reimbursement eligibility present significant hurdles through current reimbursement frameworks in Hong Kong, Singapore and Taiwan. This can cause delays in getting the treatment option that the patient may feel works better and enable them to lead normal lives (thus improving productivity and QoL). Current reimbursement frameworks also do not include coverage for psychosomatic comorbidities that may require support from a psychologist or psychiatrist.





“Doctors, based on their clinical practice, don’t recognize SoC - in such cases, they may not prescribe complete full-dose SoC to patients since they believe small-dose medication is effective... patients may fail to reach requirements when it comes to advanced therapy reimbursement approval.”

- TW AD KOL

The barriers to equitable access to healthcare services for a patient suffering from a chronic dermatology condition are further compounded by what is being covered by public health systems. Regarding reimbursement for dermatology services, the current system prioritizes highly technological and procedural care over preventive and psychosocial interventions. This disparity in reimbursement and code availability limits the sustainability of managing a chronic condition that has established psychosocial impact on an individual’s QoL within a fee-for-service model. While primary care in many healthcare settings has adapted coding to integrate behavioral care services, similar reimbursement reforms have yet to occur in specialty care.

Physicians express uncertainty regarding the consideration of patients’ experiences and QoL in reimbursement decision-making, while payers struggle to measure and quantify these aspects. Many patients who prefer to get earlier access to advanced therapies, or to better manage their psychosomatic

triggers and psychosocial comorbidities may either see a specialist at their own cost, turn to workplace insurance or purchase private health insurance. However, alternative financing options for patients suffering from dermatology conditions are still limited.

While most workplace insurance plans typically cover inpatient hospital care, visits to general practitioners, and diagnostic imaging, they may offer limited coverage for outpatient surgery or repeated outpatient consultations. Additionally, some insurance policies may not cover dermatological conditions, often labeling them as “cosmetic” since they are not considered life-threatening. Many interviewed patients reported having to pay OOP for necessary healthcare services, leading to increased expenditures and significant financial strain.

The ongoing OOP expenses can significantly increase stress levels and impact the emotional and psychosocial well-being of patients. This heightened stress stems from the financial burden they face while trying to cope with their condition.

Universal health coverage should not be discussed and planned, let alone implemented, without a focus on quality. All dimensions of quality should be measured. A person’s

health is often complex, nuanced and unstructured. The root causes of a patient's health challenges may not immediately emerge from their interactions with dermatologists or from an analysis of clinical records or claims data, which is why healthcare financing approaches for dermatology conditions should start from a person-centric lens and ensure that patients feel empowered and in control of their treatment.

Individuals living with chronic dermatological conditions deserve access to high-quality treatments and financial protection against healthcare costs that align with their specific healthcare requirements, just as any other health needs are addressed. Payment reform for dermatology conditions should allow for more codes and compensation for integrated services that support psychosomatic comorbidities for dermatology conditions and biopsychosocial care models in specialty care settings. This may involve simplifying treatment options or broadening the availability of treatment choices for patients. Additionally, expanding reimbursed treatment options to encompass psychological consultations, when deemed necessary to address psychosomatic symptoms or psychosocial stressors, can enhance the management of dermatological conditions. This not only translates to direct cost savings for insurers and policyholders but also contributes to a more vibrant and productive economy.

In addition to these reforms, there is a need for piloting value-based dermatology care models that integrate quality metrics of patient-centered care delivery, including thresholds for appropriate mental health screening, linking to psychological healthcare, tracking of delivery of integrated behavioral care, in such a way that these metrics can affect payment of dermatology services and procedures.

Governments should also look at increasing the allocation of funding budgets for research to generate evidence for implementation models of integrated care delivery, tailored to the dermatology context. Quality efforts at the national level will also help collect benchmark data for the quality of dermatology care, integrating social determinants of health, and tracking the use of integrated care services for biopsychosocial conditions at large. Researchers need to address a range of outcomes relevant to multiple stakeholders, including clinical, operational, and financial (e.g., decreased cost of care for patients with psychological comorbidities) to address the missed opportunities to evaluate the qualitative benefits and opportunity costs of enhancing coverage for AD and AA to achieve public health and socioeconomic benefits writ-large.



CONDITIONS THAT ARE BIOPSYCHOSOCIAL IN NATURE REQUIRE WHOLE-OF-SOCIETY SUPPORT

All patients want to be listened to and treated with respect and empathy, but this is especially important for people with long-term conditions. Patients' goals in managing their condition may differ from those of professionals, but both are important.³⁸ The real-world challenges faced by clinicians and healthcare systems in delivering person-centered care should not be underestimated. Integration of health and social care and good coordination between medical specialists is a real challenge for many organizations, yet this is vital for delivering a good patient experience. Initiatives to promote better integration of care should start from an understanding of the patient's perspective, focusing on personalized care planning and care coordination rather than organizational integration. Patients should be invited to help redesign these systems.

Peer support programs and civil societies that provide community health services are increasingly relevant in today's healthcare landscape as health systems strive to enhance people-centered healthcare delivery. In settings where certain populations may be underserved due to a lack of integration of experiential insights, national responses are incorporating services provided by lay health workers, such as civil society members or community counselors. These individuals offer



information and guidance to navigate health systems, provide psychosocial support, and facilitate linkage to care.

In numerous healthcare environments, policymakers have acknowledged the importance of advocating for person-centered care. Currently, there are focused initiatives aimed at empowering patients through education, engagement, and empowerment. These efforts encompass various strategies, such as enhancing health literacy, fostering shared decision-making, facilitating self-care, and promoting collaborative service development.

Civil society helps the health system to connect with difficult-to-reach populations or isolated individuals and achieve wider coverage. Civil society organizations with their close connection with the community can play the part of a “gap-filler” and data messenger. Finally, they can refer people to appropriate health facilities minimizing OOP expenditure on health.

Peer support could be highly effective for those affected by long-term health conditions such as eczema and alopecia and complementary to professional healthcare services. Knowing that there are similar others out there can reduce the anxiety felt by individuals.³⁹ Those with visual differences have been found to normalize their experience through connecting with peers, decreasing loneliness and increasing hope and



confidence. Moreover, these programs establish a supportive community of individuals who share personal experiences with the same health condition and offer practical guidance on managing illness and assistance in accessing clinical and community resources.

Governments should look at integrating the views of patients living with dermatology conditions when reforming national approaches to provide equitable and quality access to care. Building accountable health communities through coalitions of partners from health, social service, and other sectors working together to improve population health and clinical-community linkages effectively addresses social determinants of health and expands the accessibility of formal health services.

Most importantly, civil societies provide a platform to help collect patient stories, which can provide valuable insights into patient experiences, and can lead to more effective and person-centered care plans. When collected and analyzed systematically, these narratives can highlight areas where the system falls short in delivering person-centered care. Such insights can drive quality improvement initiatives and innovations.

A multi-stakeholder and multi-criteria collective approach to delivery of healthcare services and management of dermatology care ensures that care is not only medically effective but also deeply compassionate and person-centered, leading to better outcomes and a more humane healthcare system for all.

CONCLUSION





The one-on-one interviews and roundtable discussions unearth crucial insights into the challenges and pathways forward for managing AD and AA. These discussions, involving KOLs, patients, and payers across Hong Kong, Singapore and Taiwan, reveal a nuanced understanding of the disease impact, treatment landscape, and systemic barriers that patients face. A major theme that emerged is the profound psychosocial impact of the disease. Patients report significant emotional distress, including anxiety, depression, and social withdrawal, driven by the visibility of their symptoms and societal stigma. The physical discomfort, such as itching and pain, exacerbates this



















distress, highlighting a critical need for treatments that address both the physical and emotional aspects of the disease. This insight underscores the importance of holistic care models that incorporate psychological support and counseling, alongside medical treatment. The financial burden of treatments, particularly advanced therapies that are often not covered by insurance, further compounds the challenges faced by patients, necessitating a call for better access to affordable care. There is a clear need for healthcare providers to adopt a more patient-centered approach, facilitating open discussions about treatment options, goals, and side effects. This can

empower patients, improve adherence to treatment plans, and ultimately enhance patient outcomes. The whitepaper illuminates the multifaceted challenges in managing AD and AA. Addressing these challenges requires a concerted effort from all stakeholders, including healthcare providers, payers, policymakers, and patient advocacy groups, to develop and implement strategies that improve awareness, access to care, and support for patients living with these chronic dermatological conditions.

MARKET SNAPSHOTS: TARGETED POLICY STRATEGIES FOR CONSIDERATION



ISSUE DRIVERS ACROSS THREE MARKETS

			
Reimbursement for Dermatologic Conditions	 Although UHC coverage for dermatology conditions in Hong Kong is comprehensive, low no. of specialists in public health facilities limits access to health services.	 Funding for abrocitinib tablets to treat moderate-to-severe AD will commence in March 2024. However, this funding will not cover other treatments such as baricitinib, upadacitinib, or dupilumab.	 Taiwan's comprehensive NHI coverage and nascent primary care integration stresses the health system.
Mental Health Coverage as Healthcare Services	 Hong Kong approaches coverage for mental health conditions under a mixed funding model (VHIS). There is opportunity to expand this for QOL-impacting conditions.	 The emphasis to integrate mental health into Singapore's healthcare transformation and UHC coverage provides opportunity to expand coverage for QOL-impacting conditions.	 Currently, NHI only covers hospital visits for mental conditions. However, the Mental Health Act passed in 2022 can help provide political dialogue to expand coverage for QOL-impacting conditions.
Defined Guidelines on AD/AA at National Level	 There are no official national-level guidelines, providing an opportunity to reframe approach to moderate-severe dermatological conditions that impact QOL.	 In April 2024, the Agency for Care Effectiveness (ACE) released guidelines for the treatment of atopic eczema.	 There are no official national-level guidelines, providing an opportunity to reframe approach to moderate-severe dermatological conditions that impact QOL.
Proactivity of Professional Associations in Advocacy for Access to Care	 Proactive; but have not spoken on integrating QOL / mental health into treatment approaches and reimbursement.	 Proactive; but have not spoken on integrating QOL / mental health into treatment approaches and reimbursement.	 Proactive; but have not spoken on integrating QOL / mental health into treatment approaches and reimbursement.
Supporting patient advocacy groups (PAGs)	 The Hong Kong Allergy Association may provide limited exposure for only one of this report's key conditions.	 There is no consolidated local / regional PAGs in the market. However, ACE's CEE program can be a potential advocacy platform.	 There is no consolidated local / regional PAGs in the market.

HONG KONG

PREVALENCE:

5.6%⁴⁰

(AD)

Hong Kong has significantly higher rates of AD relative to other Asia-Pacific and Western markets.

1.7%⁴¹

(AA)

ENVIRONMENTAL TRIGGERS FOR SKIN CONDITIONS

- Hot and humid climate
- Air Quality

PSYCHOSOMATIC TRIGGERS FOR SKIN CONDITIONS

- Urban Pressure

MENTAL HEALTH

- Mental health issues are prevalent in Hong Kong, affecting approximately 1 in 7 individuals between the ages of 16 and 75, with anxiety, depression, and other disorders being common.
- VHIS extends health coverage to psychiatric treatments.
- Figures from the Hospital Authority also reveal that the waiting time for stable psychiatric cases in specialist outpatient clinics in public hospitals is 117 weeks, showing that the public have significant mental health needs.

- Department of Social Work and Social Administration of the University of Hong Kong (HKU) notably conducted a **controlled study on the efficacy of psychosocial intervention program for parents and children with eczema.**⁴²
- QoL indicators for Hong Kong AD patients exist, with exceptions. There is the Cantonese-language version of the Children's Dermatology Life Quality Index (C-CDLQI), which measures the QoL for AD patients aged 5 – 16 years-old, and the Mandarin-language version of the Family Dermatology Life Quality Index (M-FDLQI), which measures the QoL of families of

children with AD. Both were found to have strong internal consistency and test-retest reliability. However, there is no Cantonese-version for the FDQLI that is approved or validated for use in Hong Kong. However, according to a 2010 research paper, the clinical assessment of atopic eczema (AE) severity in Hong Kong is not sensitive enough to assess the health-related quality QoL of AD patients and SCORAD was measured because it is the primarily tested severity index.^{43,44}

HONG KONG

ACCESS AND LINKAGE TO CARE

- **Dermatologist to Patient Ratio** 1: 1,932
- **Average appointment waiting time:** 9 months
- In 2018, more than 236,000 patients attended Social Hygiene Service unit clinics for skin problems.⁴⁵ Still, until 2018, there were only about 30 doctors working in the unit. Only half of them have specialist qualifications in dermatology, meaning a patient could wait more than three years to see a doctor.
- Hong Kong has a dual-track healthcare system, with the public sector providing free or low-cost healthcare services to eligible ID cardholders.
- AD treatment in Hong Kong follows international standards, including the use of emollients, avoiding triggers, and stress management through psychotherapy and counselling.
- **The demand for dermatology treatment is high and waiting times in the public sector may be long as there are only 9 public clinics with 36 specialists in the public sector.**⁴⁶ Tragically, the frustration with these conditions has led to at least two Hong Kong citizens with AD taking their own lives, shedding light on the flaws in Hong Kong's healthcare system.

REIMBURSEMENT REGIME

- The public healthcare system provides the Hong Kong population with equitable access to healthcare services at highly subsidized rates. Hong Kong subsidizes up to 95% of the medical service costs for holders of Hong Kong Identification Cards
- Depending on the individual private / corporate insurance plan and regardless of VHIS coverage, **medically necessary dermatology treatments and specialist fees may be reimbursed.** Some plans may introduce a reimbursement limit.
- **Most medical insurance plans in Hong Kong cover psychological and psychotherapy treatment under their outpatient benefits.** Such insurance cover is dissociated from medical doctor consultations and most often categorized under a separate outpatient benefit section, for example, the "Mental and Nervous Conditions benefit".

RECOMMENDATIONS



A BIOPSYCHOSOCIAL APPROACH IMPROVES OUTCOMES FOR SKIN CONDITIONS.

As validated in our interviews with individuals living with skin conditions, patients treated with one standardized set of clinical guidelines can experience completely different outcomes due to the psychosomatic nature of dermatology conditions. Biopsychosocial stressors can create a loss of sense-of-self and isolation, affecting various aspects of their social, occupational, and emotional function and overall health-related QoL.

The finding argues that there is a need for more engagement and a formalized pathway that addresses the biopsychosocial nature of dermatology conditions and the support necessary across the full cycle of care.

“AD significantly impairs various aspects of patients’ lives, including their social interactions. For students, it can lead to a lack of friends. Young adults may struggle to form romantic relationships. Those seeking employment face challenges as a prominent red appearance may limit their chances of getting hired.”

– HK AD KOL



INVEST IN CAPACITY FOR COORDINATED DERMATOLOGY CARE, ENHANCING HEALTHCARE COMPETENCY.

Despite the availability of validated diagnostic and monitoring psychosocial tools and assessments, not all physicians utilize them consistently.

Investments in program building and care coordination among health administrators and care teams provide an opportunity to explore the depth and breadth of the psychosocial implications of skin disease and promote integrated care for a condition that has multifactorial triggers, with special awareness to broaden access in outpatient settings, and to those experiencing barriers in accessing care.

“The progression from trainee to specialist, associate consultant and consultant is a lengthy process, resulting in an insufficient number of specialists. Consequently, due to the prolonged waiting time, around 90% of doctors eventually choose to enter the private sector.”

– HK AD Payer

5 minutes is all I have for the patient, and this is actually regarded as inefficient already. I am unable to talk more.”

– HK AD KOL



RECOMMENDATIONS



CHRONIC DERMATOLOGY CONDITIONS WARRANT QUALITY, AFFORDABLE CARE LIKE OTHER HEALTH NEEDS.

Stringent criteria for reimbursement eligibility present significant hurdles through current reimbursement frameworks in Hong Kong, Singapore and Taiwan. This can cause delays in getting the treatment option that the patient may feel works better and enable them to lead normal lives (thus improving productivity and QoL). Current reimbursement frameworks also do not include coverage for psychosomatic comorbidities that may require support from a psychologist or psychiatrist.

Health financing reform for skin conditions should facilitate the non-linear availability of treatment options, and comprehensive coverage of clinical and ancillary dermatology services and procedures so that individuals can have earlier access to advanced therapies that can help them, or to better manage their psychosomatic triggers and psychosocial comorbidities.

“I hope the treatment will help me resume a normal life, social life included. The reason for paying a large sum for the treatment is to return to the life when I didn’t have the disease. So yes, QoL [is my goal].”

– HK AA Patient

“There wasn’t any coverage for seeing a psychologist or for purchasing a wig. (For the wig) I paid out-of-pocket... for a few thousand HKD.”

– HK AA Patient



CONDITIONS THAT ARE BIOPSYCHOSOCIAL IN NATURE REQUIRE WHOLE-OF-SOCIETY SUPPORT.

Initiatives to promote better integration of care should start from an understanding of the patient’s perspective, focusing on personalized care planning and care coordination rather than organizational integration. Patients should be invited to help redesign these systems.

Governments should look at integrating the views of patients living with dermatology conditions through patient groups and civil societies when reforming national approaches to provide equitable and quality access to care.

Most importantly, civil societies provide a platform to help collect valuable insights into patient experiences, which can drive quality improvement initiatives and innovations and lead to more effective and person-centered care plans.

“With no other co-morbidities, AA is a disease that affects the physical appearance and that affects psychological health, which in turn affects patient’s confidence, happiness and social relationships. Taking care of these aspects is important. These elements are interrelated.”

– HK AA Patient

SINGAPORE

PREVALENCE:

**11% in adults
and 20% in children⁴⁷**

18,405 new cases per year

Eczema was the most common skin disease treated by Singapore's NSC from 2015 – 2018.

(AD)

ENVIRONMENTAL TRIGGERS FOR SKIN CONDITIONS

- Hot and humid climate
- House dust mites

PSYCHOSOMATIC TRIGGERS FOR SKIN CONDITIONS

- Urban Pressure

ACCESS AND LINKAGE TO CARE

- **Dermatologist to Patient Ratio** 1: 516
- Appointments can take up to six weeks.
- The NSC provides funded dermatology care and support for patients in need through its NCS Health Fund (NSCHF). Specialized dermatological services for AA are also subsidized for needy patients through an annual grant.
- With the emphasis to transform Singapore's healthcare system through the roll-out of Healthier SG, there are parallel focuses to ensure that healthcare services are equitable and affordable.

The intention to cap medicines costs at primary care level and the introduction of capitation funding in tertiary settings can hinder the progress towards value-based healthcare and in turn reimbursement structures for QoL-impacting conditions.

REIMBURSEMENT REGIME

- Despite having an existing nation guideline published in the Annals of Academy of Medicine (2016), AD is not covered under Singapore's Chronic Disease Management Program (CDMP) unlike Psoriasis or other chronic conditions e.g., major depression/anxiety.

- **Singapore offers subsidies (30%-70%) for outpatient specialist treatment based on the patient's income level.**
- Permanent residents (PR) are eligible for a 25% subsidy regardless of income.
- **Private health insurance may cover outpatient consultation and treatment costs, but referrals to dermatologists may not be covered or may require an additional premium.** Outpatient treatments for pre-existing conditions may also not be covered.

SINGAPORE

Biosychosocial conditions covered by Singapore's CDMP

- Allergic Rhinitis
- Anxiety
- Crohn's Disease
- Gout
- Osteoarthritis
- Psoriasis
- Ulcerative colitis

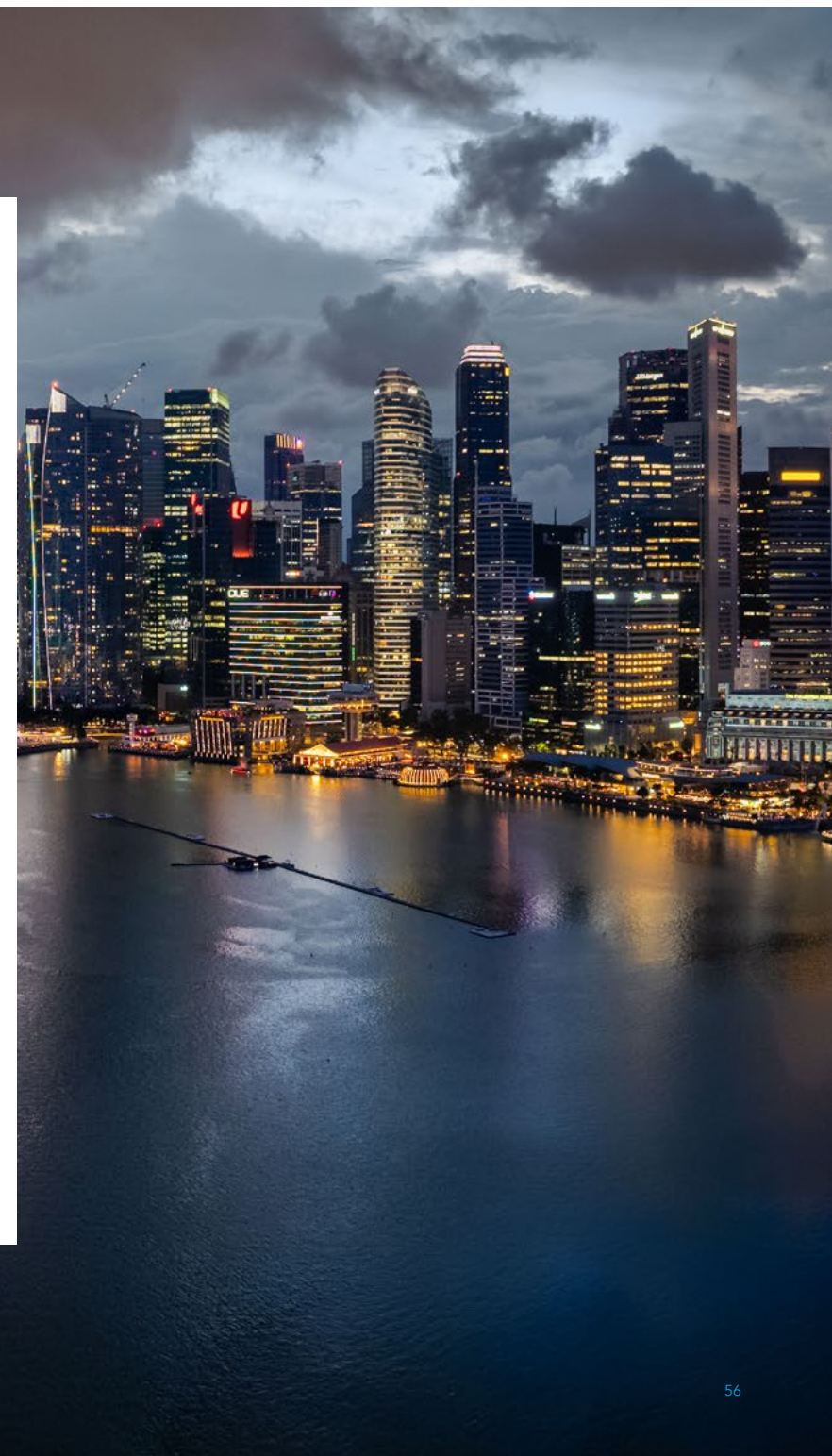
MENTAL HEALTH

- Singapore has taken steps to integrate mental health services into primary care. Initiated in 2007, **Singapore's National Mental Health Blueprint** seeks to integrate and improve mental health services in healthcare and broader settings, improving mental health literacy, and developing workforce and research capabilities in community-based services.
- For example, schizophrenia, major depression, bipolar disorder, and anxiety are covered under the CDMP, but there is a cap of SGD 500 (USD 377) per year, with each claim subject to a 15% co-payment in cash.

- **The roll-out of Healthier SG in tandem with the increased focus to strengthen provision of healthcare and mental health services at a primary care level will see policy shifts in UHC for treatments, grants, and subsidies for mental health-related conditions.**

ECZEMA AND QOL

A community-based study among Singaporeans demonstrated a high prevalence of AD and a low QoL in adults and children compared with other skin conditions.



RECOMMENDATIONS



A BIOPSYCHOSOCIAL APPROACH IMPROVES OUTCOMES FOR SKIN CONDITIONS.

As validated in our interviews with individuals living with skin conditions, patients treated with one standardized set of clinical guidelines can experience completely different outcomes due to the psychosomatic nature of dermatology conditions. Biopsychosocial stressors can create a loss of sense-of-self and isolation, affecting various aspects of their social, occupational, and emotional function and overall health-related QoL.

The finding argues that there is a need for more engagement and a formalized pathway that addresses the biopsychosocial nature of dermatology conditions and the support necessary across the full cycle of care.

“A lot of itch can affect the sleep quality, frequently to scratch and they get a lot of broken skin, and it gets much worse. Because they don’t get enough sleep hence increase stress hormone and skin get more inflame and it’s like a vicious cycle.”

– SG AD KOL



INVEST IN CAPACITY FOR COORDINATED DERMATOLOGY CARE, ENHANCING HEALTHCARE COMPETENCY.

Despite the availability of validated diagnostic and monitoring psychosocial tools and assessments, not all physicians utilize them consistently.

Investments in program building and care coordination among health administrators and care teams provide an opportunity to explore the depth and breadth of the psychosocial implications of skin disease and promote integrated care for a condition that has multifactorial triggers, with special awareness to broaden access in outpatient settings, and to those experiencing barriers in accessing care.

“I believe that it’s not just about presenting treatment options 1, 2, and 3 for the patient to choose from on their own. Patients come to us for our opinion. I try to put myself in the patient’s shoes and empathize with what they are going through to come up with more personalized options.”

– SG AD KOL



RECOMMENDATIONS



CHRONIC DERMATOLOGY CONDITIONS WARRANT QUALITY, AFFORDABLE CARE LIKE OTHER HEALTH NEEDS.

Stringent criteria for reimbursement eligibility present significant hurdles through current reimbursement frameworks in Hong Kong, Singapore and Taiwan. This can cause delays in getting the treatment option that the patient may feel works better and enable them to lead normal lives (thus improving productivity and QoL). Current reimbursement frameworks also do not include coverage for psychosomatic comorbidities that may require support from a psychologist or psychiatrist.

Health financing reform for skin conditions should facilitate the non-linear availability of treatment options, and comprehensive coverage of clinical and ancillary dermatology services and procedures so that individuals can have earlier access to advanced therapies that can help them, or to better manage their psychosomatic triggers and psychosocial comorbidities.

“The high cost of advance therapy actually doesn’t cause the fear and anxiety, is the assurance and the happiness they get from the outcome of the therapy. To continue treatment is the higher financial burden.”
– SG AD KOL



CONDITIONS THAT ARE BIOPSYCHOSOCIAL IN NATURE REQUIRE WHOLE-OF-SOCIETY SUPPORT.

Initiatives to promote better integration of care should start from an understanding of the patient’s perspective, focusing on personalized care planning and care coordination rather than organizational integration. Patients should be invited to help redesign these systems.

Governments should look at integrating the views of patients living with dermatology conditions through patient groups and civil societies when reforming national approaches to provide equitable and quality access to care.

Most importantly, civil societies provide a platform to help collect valuable insights into patient experiences, which can drive quality improvement initiatives and innovations and lead to more effective and person-centered care plans.

“I used to cover my eczema wounds although these draws attention because I think it’s better than others noticing these wounds.”
– SG AD Patient



TAIWAN

PREVALENCE:

6.7%
(AD)

0.22%⁴⁸
(AA)

Skin conditions account for 5.1% of all outpatient care visits
In 2013, there were 31,547 visits to dermatologic clinics in Taiwan, accounting for 5.1% of all outpatient care visits.

ENVIRONMENTAL TRIGGERS FOR SKIN CONDITIONS

- Work-related
- Hot and humid climate

PSYCHOSOMATIC TRIGGERS FOR SKIN CONDITIONS

- Urban Pressure

MENTAL HEALTH

- Taiwan has been actively promoting mental health, including support in community mental health, patient assistance and prevention measures, the establishment of crisis management mechanisms etc.
- A dedicated independent department was established in May 2022 to oversee mental health programs, which were previously integrated with other medical specialties. **There is opportunity to advocate for the needs to expand this approach to include QoL-impacting dermatology conditions.**
- MOHW's plan involves the establishment of 71

community mental health centers across the island within four years, with a long-term goal of reaching 100 centers in ten years. **This can provide data points to reinforce the need to provide more comprehensive thinking of AD/AA as QoL- impacting conditions and expand coverage.**

- It is suggested that 50% of psychiatric disorders precede the diagnosis of AA, including major depressive disorder, anxiety, OCD, social phobia, paranoid disorder, and sleep disorders.⁴⁹
- In Taiwan, AA is also associated with other autoimmune or autoimmune-linked conditions, including rheumatoid arthritis and endometriosis, with one study finding that

AA risk was 2.64 times (95% CI) higher in patients with rheumatoid arthritis compared to the control group.⁵⁰

ACCESS AND LINKAGE TO CARE

- Dermatologist Patient Ratio 4.27: 100,000
- Appointments can take up to three months.
- Overall, **Taiwan is advancing access to dermatologic care** and offering effective treatments for various skin conditions.
- **The NHI, in collaboration with the Taiwan Dermatological Association and potentially the Taiwanese Association for Psoriasis and Skin**

TAIWAN

Immunology (TAPSI), establish guidelines for the treatment of AA and other dermatology diseases in Taiwan.

- There is no national guideline on treatment protocols for AD / AA, but the Taiwanese Dermatological Association has published consensus on the management of AD and AA respectively in 2020 and 2023.

REIMBURSEMENT REGIME

- Starting from August 2022, medication, including biologic injections for moderate-to-severe AD patients will be covered under the NHI with the covering age extended from adults over 18 years old to over 12 years old.
- Specialists or Consultant Dermatologists providing services to patients located in remote areas can receive extra fees from the NHI per person or visit.
- NHI also covers the majority of costs incurred while seeking psychiatric assistance, including doctor's visits and medication.
- Most salaried employees have to co-pay 30% of their premiums, with their employers paying 60% and the government paying 10%. The government subsidizes 100% of the premiums for low-income households and military conscripts.

Immunomodulatory drugs were approved by Taiwan's NHI reimbursement system for the treatment of rheumatoid arthritis in December 2014 and has been used in clinical trials and off-label prescription for AA treatment in adults and children.



RECOMMENDATIONS



A BIOPSYCHOSOCIAL APPROACH IMPROVES OUTCOMES FOR SKIN CONDITIONS.

As validated in our interviews with individuals living with skin conditions, patients treated with one standardized set of clinical guidelines can experience completely different outcomes due to the psychosomatic nature of dermatology conditions. Biopsychosocial stressors can create a loss of sense-of-self and isolation, affecting various aspects of their social, occupational, and emotional function and overall health-related QoL.

The finding argues that there is a need for more engagement and a formalized pathway that addresses the biopsychosocial nature of dermatology conditions and the support necessary across the full cycle of care.

“When my hair loss reaches a certain extent of severity, it really affects my confidence, especially in various social situations, such as at work or even when just going home for the holidays. It seems like doctors are less focused on a patient’s QoL.

– TW AA Patient



INVEST IN CAPACITY FOR COORDINATED DERMATOLOGY CARE, ENHANCING HEALTHCARE COMPETENCY.

Despite the availability of validated diagnostic and monitoring psychosocial tools and assessments, not all physicians utilize them consistently.

Investments in program building and care coordination among health administrators and care teams provide an opportunity to explore the depth and breadth of the psychosocial implications of skin disease and promote integrated care for a condition that has multifactorial triggers, with special awareness to broaden access in outpatient settings, and to those experiencing barriers in accessing care.

“In Taiwan, doctors don’t have much time during appointments. The focus is usually on the current treatment progress, any discomfort or unusual conditions. If everything seems okay, it’s mostly routine, like coming in for medication and a follow-up next month.”

– TW AA Patient



RECOMMENDATIONS



CHRONIC DERMATOLOGY CONDITIONS WARRANT QUALITY, AFFORDABLE CARE LIKE OTHER HEALTH NEEDS.

Stringent criteria for reimbursement eligibility present significant hurdles through current reimbursement frameworks in Hong Kong, Singapore and Taiwan. This can cause delays in getting the treatment option that the patient may feel works better and enable them to lead normal lives (thus improving productivity and QoL). Current reimbursement frameworks also do not include coverage for psychosomatic comorbidities that may require support from a psychologist or psychiatrist.

Health financing reform for skin conditions should facilitate the non-linear availability of treatment options, and comprehensive coverage of clinical and ancillary dermatology services and procedures so that individuals can have earlier access to advanced therapies that can help them, or to better manage their psychosomatic triggers and psychosocial comorbidities.

“However, after discontinuing advanced therapies, there was a slight relapse, prompting another review process, which took almost another 6 months. Now, I am once again undergoing advanced therapies, and the situation is much improved.”

- TW AD Patient



CONDITIONS THAT ARE BIOPSYCHOSOCIAL IN NATURE REQUIRE WHOLE-OF-SOCIETY SUPPORT.

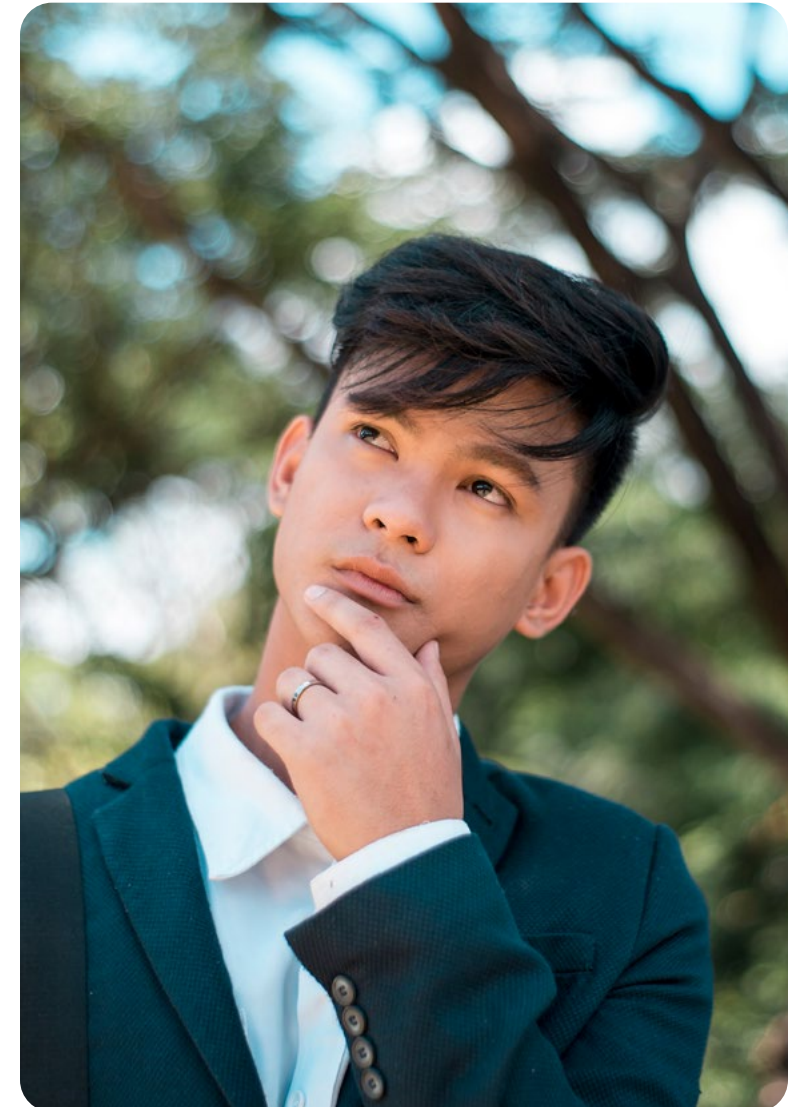
Initiatives to promote better integration of care should start from an understanding of the patient’s perspective, focusing on personalized care planning and care coordination rather than organizational integration. Patients should be invited to help redesign these systems.

Governments should look at integrating the views of patients living with dermatology conditions through patient groups and civil societies when reforming national approaches to provide equitable and quality access to care.

Most importantly, civil societies provide a platform to help collect valuable insights into patient experiences, which can drive quality improvement initiatives and innovations and lead to more effective and person-centered care plans.

“The biggest problem here is disease awareness. Perhaps due to limited healthcare resources, payers might not consider AD as a significant disease. How to increase disease awareness or enhance the importance of this condition within the entire medical insurance framework is a challenge.”

- TW AD KOL



APPENDIX

Abbreviation	Term
3Ms	MediShield Life, MediSave, and MediFund
AA	Alopecia Areata
AAA	Asthma & Allergy Association
ACE	Agency for Care Effectiveness
ACG	ACE Clinical Guidelines
AD	Atopic Dermatitis
AllergyHK	Hong Kong Allergy Association
AMS	Academy of Medicine Singapore
C-CDLQI	Cantonese-language version of the Children's Dermatology Life Quality In-dex
CME	Continuing medical education
CDMP	Chronic Disease Management Program
CHAS	Community Health Assist Scheme
CPF	Central Provident Fund
DALYs	Disability-Adjusted Life Years
DH	Department of Health

DLQI	Dermatology Life Quality Index
FDA	The United States Food and Drug Administration
GDB	Global Disease Burden
GP	General Practitioner
HA	Hospital Authority
HK	Hong Kong
HKAS	Hong Kong Asthma Society
HKCD	Hong Kong College of Dermatologists
HKDF	Hong Kong Dermatology Foundation
HK SAR	Hong Kong Special Administrative Region of the PRC
HKSDV	Hong Kong Society of Dermatology and Venerology
HSG	Healthier Singapore
HTA	Health Technology Assessments
IDI	In-Depth Interview
IHiS	Integrated Health Information Systems

IODS	Institute of Dermatology, Singapore
JAK	Janus Kinase Inhibitors (jakinibs)
KOL	Key opinion leader
MDA	Medical Device Authority
M-FDLQI	Mandarin-Family Dermatology Life Quality Index.
MOH	Ministry of Health (Singapore)
MOHW	Ministry of Health and Welfare
MTAC	Medical Technology Advisory Committee
NCD	Non-communicable diseases
NEHR	National Electronic Health Records
NESS	Nottingham Eczema Severity Score
NGO	Non-Governmental Organization
NHG	National Healthcare Group
NHI	National Health Insurance
NHS	National Health Service (UK)

NICE	National Institute for Health and Clinical Excellence
NRHI	National Health Research Institute
NSC	National Skin Center
NSCHF	National Skin Center Health Fund
OA	Osteoarthritis
OCD	Obsessive-compulsive disorder
OTC	Over-the-counter
PCT	Pulse Corticosteroid Therapy
QoL	Quality of Life
RTD	Round-Table Discussion
SAF	Singapore Armed Forces
SALT	Severity of Alopecia Tool
SALVE	Skin Aid for the Vulnerable and Elderly
SASSAD	Six Area Six Sign Atopic Dermatitis
SCORAD	SCORing Atopic Dermatitis Index
SESG	Singapore Eczema Support Group (SESG)

SF	Samaritan Fund
SG	Singapore
SOC	Standard of care
SHS	Social Hygiene Service
TW	Taiwan
TAAACI	Taiwan Academy of Allergy, Asthma, and Clinical Immunology
TAPSI	Taiwanese Association for Psoriasis and Skin Immunology
TCM	Traditional Chinese medicine
TDA	Taiwanese Dermatological Association
TFDA	Taiwan FDA
TSID	Taiwanese Society for Investigative Dermatology
UHC	Universal Health Coverage
VHIS	Voluntary Health Insurance Scheme

REFERENCES

- Ständer S. Atopic Dermatitis. *N Engl J Med.* March 25, 2021 2021;384:1136-43.
- Kash S. Exposing Eczema: Why is it so Common in Asia? Medical Channel Asia. Updated 28 March 2023. Accessed 14 April 2024, <http://medicalchannelasia.com/why-is-eczema-so-common-in-asia/>
- Zhou C, Li X, Wang C, Zhang J. Alopecia areata: an update on etiopathogenesis, diagnosis, and management. *Clinical reviews in allergy & immunology.* 2021;61(3):403-423.
- Tzur Bitan D, Berzin D, Kridin K, Cohen A. The association between alopecia areata and anxiety, depression, schizophrenia, and bipolar disorder: a population-based study. *Archives of Dermatological Research.* 2022;314(5):463-468.
- Urban K, Chu S, Giesey RL, et al. Burden of skin disease and associated socioeconomic status in Asia: A cross-sectional analysis from the Global Burden of Disease Study 1990-2017. *JAAD international.* 2021;2:40-50.
- GADA) GADA. Global Report on Atopic Dermatitis 2022. Accessed June 2023, <https://www.eczemacouncil.org/assets/docs/global-report-on-atopic-dermatitis-2022.pdf>
- Li SJ, Mostaghimi A, Tkachenko E, Huang KP. Association of out-of-pocket health care costs and financial burden for patients with alopecia areata. *JAMA dermatology.* 2019;155(4):493-494.
- Kullab J, Schielein MC, Stuhlmann CF, et al. Out-of-Pocket Costs in Alopecia Areata: A Cross-Sectional Study in German-speaking Countries. *Acta Dermato-Venerologica.* 2023;103:adv00838-adv00838.
- Tsai TF, Rajagopalan M, Chu CY, et al. Burden of atopic dermatitis in Asia. *The Journal of dermatology.* 2019;46(10):825-834.
- Cho Y-T, Hsieh W-T, Chan TC, Tang C-H, Chu C-Y. Prevalence of baseline comorbidities in patients with atopic dermatitis: a population-based cohort study in Taiwan. *JAAD international.* 2020;1(1):50-58.
- Tay YK, Chan YC, Chandran NS, et al. Guidelines for the management of atopic dermatitis in Singapore. *Ann Acad Med Singapore.* 2016;45(10):439-450.
- Chan TC, Wu N-L, Wong L-S, et al. Taiwanese Dermatological Association consensus for the management of atopic dermatitis: A 2020 update. *Journal of the Formosan Medical Association.* 2021;120(1):429-442.
- Leung T, Cheng J, Chan S, et al. Management of atopic dermatitis in children: 2020 review by the guidelines development panel of Hong Kong college of paediatricians. *Hong Kong Journal of Paediatrics.* 2021;26(1):42-57.
- Urban K, Chu S, Giesey RL, et al. The global, regional, and national burden of atopic dermatitis in 195 countries and territories: An ecological study from the Global Burden of Disease Study 2017. *JAAD International.* 2021/03/01/2021;2:12-18. doi:<https://doi.org/10.1016/j.jdin.2020.10.002>
- Capozza K, Vastrup A, Proctor A, et al. The sound of silence: where are the voices of patients in eczema guideline development? *British Journal of Dermatology.* 2022;187(6):1005-1006.
- Yang J-S, Liu T-Y, Chen Y-C, et al. Genome-Wide Association Study of Alopecia Areata in Taiwan: The Conflict Between Individuals and Hair Follicles. *Clinical, Cosmetic and Investigational Dermatology.* 2023;2597-2612.
- Chu SY, Chen YJ, Tseng WC, et al. Psychiatric comorbidities in patients with alopecia areata in Taiwan: a case-control study. *British Journal of Dermatology.* 2012;166(3):525-531.
- Sánchez-Díaz M, Díaz-Calvillo P, Soto-Moreno A, Molina-Leyva A, Arias-Santiago S. The Impact of Sleep Quality on Mood Status and Quality of Life in Patients with Alopecia Areata: A Comparative Study. *International Journal of Environmental Research and Public Health.* 2022;19(20):13126.
- (NUH) NUH. Health Information: Hair Loss. National University Health System (NUHS). Accessed May 2023, <https://www.nuh.com.sg/Health-Information/Diseases-Conditions/Pages/Hair-Loss.aspx#:~:text=Alopecia%20areata,-First%20line%20treatment&text=This%20involves%20a%20weekly%20application,discuss%20this%20with%20your%20doctor.>
- Chi C-C, Wu Y-W, Chao T-H, et al. 2022 Taiwanese Dermatological Association (TDA), Taiwanese Association for Psoriasis and Skin Immunology (TAPSI), and Taiwan Society of cardiology (TSOC) joint consensus recommendations for the management of psoriatic disease with attention to cardiovascular comorbidities. *Journal of the Formosan Medical Association.* 2023/06/01/ 2022;122(6):442-457. doi:<https://doi.org/10.1016/j.jfma.2022.10.010>
- Drug Office DoH, Hong Kong. Drugs for Alopecia. Updated March 2016. Accessed May 2023, https://www.drugoffice.gov.hk/eps/do/en/consumer/news_informations/dm_35.html
- Statista Research Department. Number of dermatology specialists registered in Singapore from 2014 to 2022. Updated August 23. Accessed 15 April 2024, <https://www.statista.com/statistics/1069488/singapore-medical-specialists-dermatology/#:~:text=Number%20of%20registered%20dermatology%20specialists%20in%20Singapore%202014%2D2022&text=In%202022%2C%20a%20total%20of,physicians%20was%20around%20six%20thousand.>
- The Government of Hong Kong SAR. LCO17: Provision of diagnoses and treatments for eczema patients. Updated 8 November 2023. Accessed 15 April 2024, <https://www.info.gov.hk/gia/general/202311/08/P20231108000410.htm>
- Dai Y-X, Chen T-J, Chang Y-T. Urban-rural disparities in office-based dermatological services in Taiwan-a nationwide survey. *Rural and Remote Health.* 2018;18(3):1-9.
- Olsson M, Bajpai R, Wee LWY, et al. The cost of childhood atopic dermatitis in a multiethnic Asian population: a cost-of-illness study. *British Journal of Dermatology.* 2020;182(5):1245-1252.
- Department of Statistics Singapore. Infographics - Singapore Economy. Accessed 20 March 2024, https://www.singstat.gov.sg/modules/infographics/-/media/Files/visualising_data/infographics/Economy/singapore-economy2022024.pdf
- International Monetary Fund (IMF). GDP per capita, current prices (U.S. dollars per capita). Accessed 20 March 2024, <https://www.imf.org/external/datamapper/NGDPDPC@WEO/ADVEC/WEOORLD/CHN/TWN>
- World Bank. GDP per capita (current US\$) - Hong Kong SAR, China. Accessed 20 March 2024, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=HK>
- Ng A. Singapore must ensure healthcare fiscal burden does not spiral out of control: Ong Ye Kung. *Channel News Asia.* Updated 10 May 2024. Accessed 20 March 2024, <https://www.channelnewsasia.com/singapore/ong-ye-kung-health-ministry-healthcare-costs-spending-3478476>
- Ministry of Health and Welfare T. 2022 NHE Statistical Tables. Updated 14 March 2024. Accessed 20 March 2024, <https://www.mohw.gov.tw/cp-130-77991-2.html>
- Health Do. Health Facts of Hong Kong. Government of HKSAR. Updated 11 July 2022. Accessed May 2023, https://www.dh.gov.hk/english/statistics/statistics_hs/files/2022.pdf
- World Bank. Current health expenditure per capita (current US\$) - Singapore. Updated 7 April 2023. Accessed 20 March 2024, <https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD>
- Department of Health HK. Health Facts of Hong Kong - 2023 Edition. Accessed 20 March 2024, https://www.dh.gov.hk/english/statistics/statistics_hs/files/2023.pdf
- Health Bureau HK. Statistics - Domestic Health Accounts. Updated 30 June 2021. Accessed 4 April 2024, https://www.healthbureau.gov.hk/statistics/en/dha/dha_summary_report.htm
- Organization WH. Recognizing neglected tropical diseases through changes on the skin: a training guide for front-line health workers. 2018;
- Lowry C, Shah R, Fleming C, Taylor R, Bewley A. A study of service provision in psychocutaneous medicine. *Clinical and experimental dermatology.* 2014;39(1):13-18.
- Harth W, Gielier PDMU. Multifaktorielle Dermatosen. *Psychosomatische Dermatologie.* 2006:83-133.
- Coulter A, Oldham J. Person-centered care: what is it and how do we get there? *Future hospital journal.* 2016;3(2):114.
- Iliffe LL, Thompson AR. Investigating the beneficial experiences of online peer support for those affected by alopecia: an interpretative phenomenological analysis using online interviews. *Br J Dermatol.* 2019 Nov;181(5):992-998. doi: 10.1111/bjd.17998. Epub 2019 Jul 1. PMID: 30972732; PMCID: PMC6899973.
- Chow, C., et al., Clinical Guidelines. *HK J Paediatr (new series).* 2013. 18: p. 96-104.
- Hon KL, Leung AK. Alopecia areata. *Recent Pat Inflamm Allergy Drug Discov.* 2011 May;5(2):98-107. doi: 10.2174/187221311795399291. PMID: 21453266.
- Yat, L.F. Survey findings on prevalence of allergic diseases among Hong Kong primary and secondary schoolchildren. 2022 13 January 2022 May 2023]; Available from: https://www.hku.hk/press/news_detail_23934.html
- Cheng, N.S., et al., Measuring the quality of life of the families of children with eczema in Hong Kong. *Asia Pacific Allergy.* 2019. 9(3).
- Lam, K., Quality of life assessment among patients with atopic eczema attending dermatology clinics in Hong Kong. *Hong Kong J Dermatol Venereol.* 2010. 18(4): p. 181-188.
- Cheung, E. More resources needed to improve 'grossly inadequate' health services for skin disorders in Hong Kong, dermatologist warns. 2018 16 July 2018 May 2023]; Available from: <https://www.scmp.com/news/hong-kong/health-environment/article/2155352/more-resources-needed-improve-grossly-inadequate>
- Daily, O. 公營皮膚科 僅得36醫生 [Public Dermatology only has 36 Doctors]. 2018 25 June 2018 May 2023]; Available from: [https://orientaldaily.on.cc/cnt/news/20180625/00176_060.html#Check,S.,et.al.,PrevalenceanddescriptiveepidemiologyofatopicdermatitisanditsimpactonqualityoflifeinSingapore.BritishJournalofDermatology,2018.178\(1\):p.276-277.](https://orientaldaily.on.cc/cnt/news/20180625/00176_060.html#Check,S.,et.al.,PrevalenceanddescriptiveepidemiologyofatopicdermatitisanditsimpactonqualityoflifeinSingapore.BritishJournalofDermatology,2018.178(1):p.276-277.)
- Cheok, S., et al., Prevalence and descriptive epidemiology of atopic dermatitis and its impact on quality of life in Singapore. *British Journal of Dermatology.* 2018. 178(1): p. 276-277.
- Yang JS, Liu TY, Chen YC, Tsai SC, Chiu YJ, Liao CC, Tsai FJ. Genome-Wide Association Study of Alopecia Areata in Taiwan: The Conflict Between Individuals and Hair Follicles. *Clin Cosmet Invest Dermatol.* 2023 Sep 21;16:2597-2612. doi: 10.2147/CCID.S428788. PMID: 37752970; PMCID: PMC10519225.
- Dai, Y.-X., et al., Bidirectional association between alopecia areata and sleep disorders: a population-based cohort study in Taiwan. *Sleep Medicine.* 2020. 75: p. 112-116.
- Chang, Y.-J., et al., Impact of rheumatoid arthritis on alopecia: a nationwide population-based cohort study in Taiwan. *Frontiers in Medicine.* 2020. 7: p. 150.

ACKNOWLEDGEMENTS

Oracle Life Sciences is responsible for the primary market research insights in this whitepaper while APCO is responsible for the secondary research and development of whitepaper. The primary market research insights in this whitepaper represent the opinions of experts and patients, and are accurate as of 15 December 2023 (last day of data collection of the last market).

The study and whitepaper are commissioned and sponsored by Pfizer. The contents and insights are wholly independent, not influenced by Pfizer, and are for informational purposes only.

ORACLE Life Sciences

James McManus

Regina Gowindah

Amanda Tan

Fionella Foo



Kandyce Ong

Kyunghee Kwak

Joy Kam

Bethanie Kwok

Mike Gilmour