SMA news

For Doctors, For Patients

VOL. 58 NO. 3 | MARCH 2026 | MDDI (P) 022/12/2025

MEDICINE AND THE MACHINE

SCAN TO READ ONLINE

AI as Medical Devices – Building Trust

Skin and Soul: Doctor-Entrepreneurs

For Doctors, For Patients

SMA *Annual Dinner 2026*

Celebrating Excellence in Medicine

VENUE

Conrad Singapore Orchard
1 Cuscaden Road, Singapore 249715
Royal Pavilion Ballroom, Lobby Level

DATE

Saturday, 23 May 2026

GUEST OF HONOUR

Dr Ng Eng Hen

DRESS CODE

Formal attire
♀ Evening gown | ♂ Jacket and tie (optional)

Cocktails will be served from 6.15 pm
All guests to be seated by 7.15 pm

TICKETS

SMA Members	Non-SMA Members
$2,388 nett per table	$2,688 nett per table

For Vegetarian or Halal Set, please add $168 nett per pax
No sale of single seats

For enquiries and booking, please email
dinner@sma.org.sg

SMA news
Vol. 58 No. 3 | 2026

PUBLISHER
Singapore Medical Association
166 Bukit Merah Central
#04-3531 Eagles Center
Singapore 150166
Tel: (65) 6223 1264
Email: news@sma.org.sg
URL: https://www.sma.org.sg
UEN No.: S61SS0168E

DESIGN AGENCY
Oxygen Studio Designs Pte Ltd

PRINTER
Midas Asiapac Pte Ltd

CONTENTS

The Editors' Musings

DR TINA TAN

Editor

Dr Tan is a psychiatrist in private practice and an alumnus of Duke-NUS Medical School. She treats mental health conditions in all age groups but has a special interest in caring for the elderly. With a love for the written word, she makes time for reading, writing and self-publishing on top of caring for her patients and loved ones.

I have very mixed feelings about artificial intelligence (AI) technology.

Lest you think I am a technophobe or a wet blanket, hear me out. While we celebrate the technological advancements that have come in recent years and the exciting possibilities of how AI can help us, I would like those reading this to ask – what price are we paying for it?

My fellow mental health professionals can agree with me (as evidenced by Adj A/Prof Christopher Cheok's article) that there are pitfalls associated with the use of generative large language models that have been trained on a vast store of medical and therapeutic knowledge: our patients become their own diagnosticians and develop the fallacy that a machine can replace a real human.

Perhaps in some ways, it can. But in many other ways, it cannot.

Innovations have an important place in healthcare. They are crucial for the betterment of patients and, ultimately, for society as well. This includes the potential that AI has in streamlining processes, and in the assisting of diagnoses and all manner of procedures so that patients can access faster and optimal care. But there remains an urgent need for a proper regulatory framework to guide the legal, ethical and responsible usage of it.

Is it not better to prevent a fire than to fight it only when it happens?

With that, I leave you to chew over this issue.

DR TOH HAN CHONG

Guest Editor

Dr Toh is a senior consultant medical oncologist and Deputy CEO (Strategic Partnerships) at the National Cancer Centre Singapore. He was a former Editor of *SMA News*. In his free time, Dr Toh enjoys eating durians and ice cream, reading, writing, rowing and watching films. Thankfully, the latter four are not fattening.

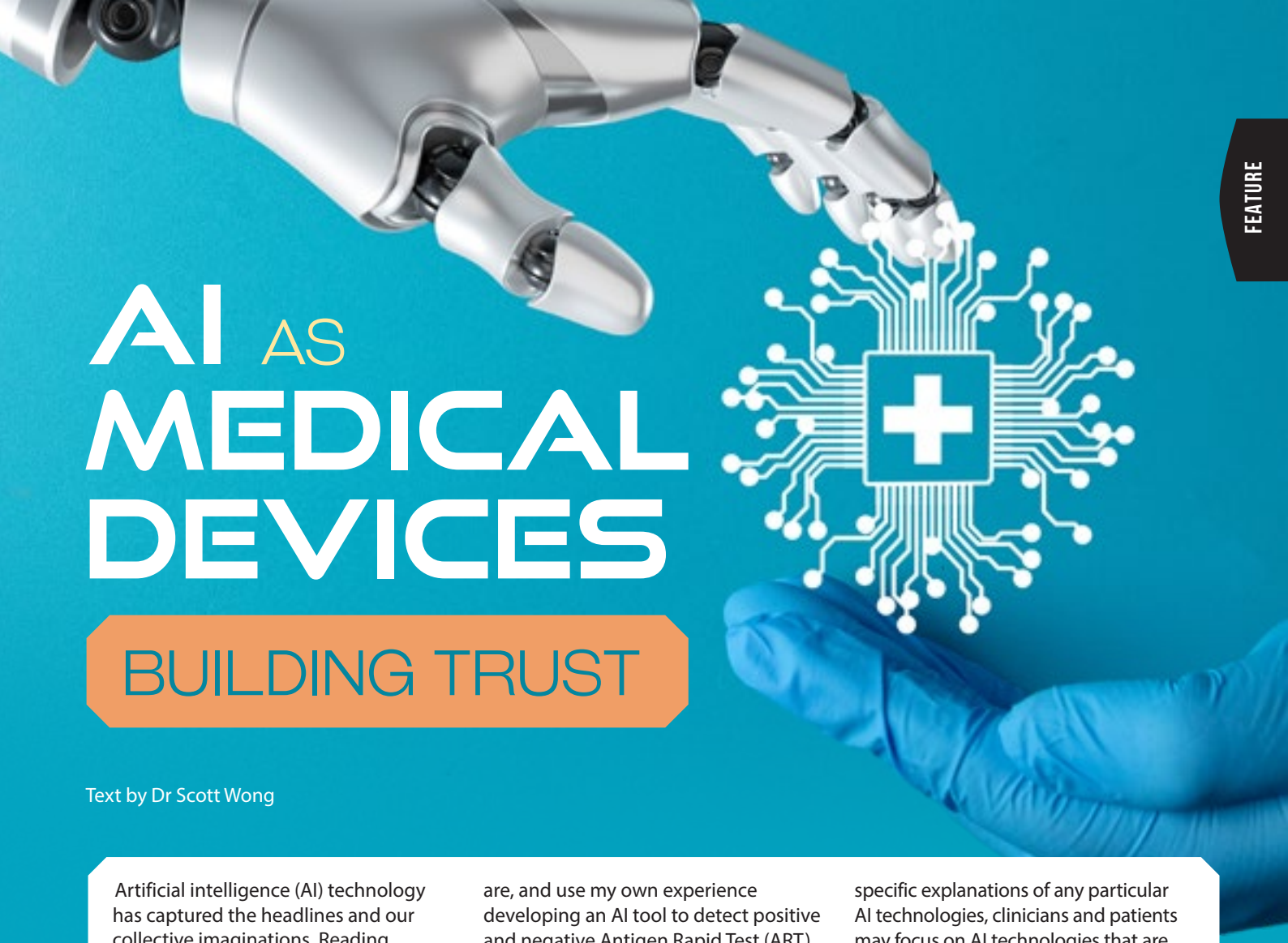
Ai Pia Cia Eh Yia (愛拼才會贏 in Mandarin Chinese) is a classic Hokkien song extolling hard work, determination and resilience as ingredients for success. Embracing AI to *pia* (Hokkien for fight) is powerfully necessary in medicine. I believe AI will not replace doctors and all healthcare workers but instead augment and improve our work. By 2022, over half of all American doctors reported burnout due to keyboard fatigue from clicking and box-checking electronic paperwork. AI will hopefully bring doctors and health workers to a digital promised land.

Titan AI companies are employing philosophers and ethicists to train AI to do good, be good and be trusted. But does AI have soul and empathy? Empathy is the vital quality for identifying future medical students by most medical schools. Recent studies have suggested that AI can actually be warmer, more understanding and more empathetic than human doctors across multiple simulated clinical scenarios. If doctors have been on their feet all day, have yet to eat, are fatigued and then have to clerk a patient at 2 am with confrontational, verbally abusive patient relatives, being empathetic can be hard compared to a no-emotion no-burnout AI bot. But AI empathy is mimicry, not real genuine emotion. Medical chatbots, while increasingly used, have recently been found to be no better than traditional ways of getting medical information, and can even give misleading, inconsistent and inaccurate advice including wrong diagnoses as often as 66% of the time.[1]

Just as fire and electricity have transformed civilisation and life and yet must be handled with care, so too will AI be a force that will now be with us to infinity and beyond. ◆

Reference

1. Bean AM, Payne RE, Parsons G et al. Reliability of LLMs as medical assistants for the general public: a randomized preregistered study. Nat Med 2026; 32:609-15.



AI AS MEDICAL DEVICES

BUILDING TRUST

Text by Dr Scott Wong

Artificial intelligence (AI) technology has captured the headlines and our collective imaginations. Reading through news and academic articles, it would seem that AI is an impending and inevitable silver bullet that will transform healthcare. However, many clinicians may find it difficult to fluently define AI or its capabilities, or describe its uses in the clinical setting. This poses a challenge for doctors to identify the AI *koyok* (slang for snake oil) and allow us to protect ourselves and our patients from potential harms. Furthermore, AI can be directly used in medical and clinical care and are officially classified as AI medical devices (AI-MDs). A look at the US Food and Drug Administration (FDA) shows 1,015 such AI-MDs from 2020 to 2025 that have achieved FDA regulatory clearance,[1] including AI-MDs that can analyse ECGs or diagnose cancer from CT scans. These AI-MDs carry a greater risk of harm to patients compared to AI tools used for administrative, research and policy development purposes, and hence have a higher regulatory requirement before clinical adoption. I hope to provide a common-sense understanding of what AI and AI-MDs are, and use my own experience developing an AI tool to detect positive and negative Antigen Rapid Test (ART) results from photos to review how clinicians can implement and deploy AI in a safe and ethical manner.

How do we define AI?

AI is an umbrella term for several loosely related technologies, allowing computers to perform tasks we normally associate with human intelligence and cognition – think of recognising complex patterns, making predictions, understanding language and creating new art and music. A definition is provided by the Ministry of Health's first Artificial Intelligence in Healthcare Guidelines (AIHGle), where AI is a set of general-purpose technologies allowing machines to (i) model and optimise, (ii) automate, (iii) forecast and (iv) classify/detect a required result. The AIHGle 2.0 guidelines released on 13 March 2026 moved toward focusing on the subsets of AI called machine learning (ML) and deep learning, which are involved in clinical practice and clinical operations which can directly influence clinical care. Given that these definitions lack specific explanations of any particular AI technologies, clinicians and patients may focus on AI technologies that are currently in vogue such as ChatGPT and self-driving cars, while paying less attention to AI tools already being used, such as for facial recognition in patient gantries or autocomplete in a search bar.

Three common AI models explained

There are three common approaches to AI technology: ML, neural networks and large language models (LLMs). ML is the most popular form of AI that can make future predictions based on past data. A model is created largely using statistical methods (eg, linear regression, support vector machines, random forests) to identify patterns and classifications in large amounts of data. These models then predict outcomes based on new data, with actual outcomes fed back to the model so that it can further correct itself. Compared to computer programs that need manual updates to improve the execution of specific tasks, ML models can self-improve without explicit programming and can become more

accurate (or less accurate in some cases) with large quantities of data. In theory, people can take a supervisory role to focus on getting more accurate and clean data for training, and decide on accurate and meaningful results for the model to retrain with. A common use case would be determining the length of stay of hospitalised patients, where ML models can analyse inpatient data (including presenting complaint and diagnosis, patient demographics, vital signs, medications and investigations), to predict the estimated length of stay and resource utilisation.

Neural networks are a subset of ML that are loosely inspired by how our brains work. Basic computer units called nodes simulate a neuron; every node takes an input, processes it with an ML algorithm, and then fires the output to the next neuron if it meets a threshold. By connecting many nodes side by side and stacking them hundreds or thousands of layers deep, we create a computational network that seems to simulate how a brain learns and makes decisions, similar to how we may recognise patterns and solve problems. Image recognition, such as analysing chest X-rays or classifying negative and positive ART test kits, benefits greatly from this method.

LLMs, such as generative pre-trained transformers (GPTs), are neural networks designed to understand and generate human language. Training focuses mostly on text scraped from the Internet, with the models learning patterns and structures of language. In the medical context, LLMs may be further trained on research papers, guidelines and even referral replies to produce novel hypotheses and provide research papers, or summarise medical notes to provide a somewhat coherent blue letter response. Two key innovations allow easy LLM interaction with everyday spoken language, where LLMs can understand our context and reply in an eerily human-like manner. The first is by converting text into smaller "tokens" which are assigned numerical IDs. For example, the sentence "A chest X-ray showed a consolidation" can be split into tokens "A", "chest", "X", "ray", "showed" and "consolidation". The LLM assigns relationships between each token based on the probability they are used together in sequence (eg, "chest X-ray" rather than "chest ray X", and often followed by "consolidation"), and the context these tokens may tend to appear in (eg, desaturation with chest X-ray, and consolidation with pneumonia). For context, the GPT-5 model was trained on almost 20 trillion tokens. The second innovation for LLMs is the concept of "attention", where the model weighs the importance of different tokens when processing sentences, similar to how we focus on key terms when listening to our patient's presenting complaint. LLMs then generate novel and coherent responses to our questioning by analysing the tokens and relationships of the question and outputting the words with the highest probability of appearing.

How about AI-MDs?

As defined by the Health Sciences Authority (HSA), AI-MDs are AI solutions meant for the investigation, detection, diagnosis, monitoring, treatment or management of any medical condition, disease, anatomy or physiological process. Compared with AI meant for clinical, administrative, research and in policy development, AI-MDs typically have a direct or indirect impact on patient safety and outcomes and are therefore regulated as medical devices.

Safety and efficacy – what matters for clinicians

Clinicians play a pivotal role in ensuring the efficacy and safety of AI-MDs throughout their development and deployment. The critical considerations of data hygiene and cybersecurity have already been covered in the November 2024 *SMA News* issue, and I will elaborate here on seven key guiding principles in the MOH AIHGLE 2.0 guidance, as well as how clinicians can apply them in practice. These seven principles are:

1. **Safety to patients/Patient-centricity** – Safeguards in the design, development and implementation of AI-MDs allow us to uphold the ethical principle of non-maleficence, and ensure that patients' interests, including their safety and well-being, are protected.
2. **Fairness** – AI should not be a dividing force, resulting in discriminatory or unjust clinical outcomes for patients across different demographic groups.
3. **Transparency** – End-users of AI-MDs (eg, medical practitioners, patients) should be adequately informed that they are interacting with an AI-MD, upholding patient and physician autonomy.
4. **Explainability** – Decisions and/or recommendations from an AI-MD should be explainable and reproducible. End-users should be consulted during development or adoption of the AI-MD to ensure that the level of explainability meets their expectations. Examples include knowing the data sets, testing protocols, and algorithmic model uses.
5. **Robustness** – AI-MDs should perform consistently when deployed in different circumstances.
6. **Security and data protection** – AI-MDs should be secure-by-design, to maintain confidentiality, integrity and availability to the patients we care for.
7. **AI alignment to human values or goals**

The crucial task of the clinician is in identifying the unmet clinical needs amid current clinical practices. We are well placed to see the clinical problem as it affects our patients, and to be responsible for the outcomes that can be achievable by AI-MDs. At the beginning of the Delta wave of the COVID-19 pandemic in 2021, I was asked to help patients understand how to do self-testing with an ART kit and also to track the results of positive or negative ART results based on their phone photos. While I was able to rapidly produce a working progressive web application that explained the steps for self-ART testing, the challenge remained how to accurately track thousands of ART results. I was the only person manually classifying thousands of ART images a day, and it was clear that to have the capability of detecting emerging COVID-19 hotspots in real time and verifying ART results before patients are released from quarantine, I needed a way to detect thousands of ART test kit results from photos with around 95% accuracy.
A clear need statement defining the problem, population and outcome is key to defining the intended use of an ART image recognition AI-MD. This helped to define the technical ground work for the engineers and allowed clinicians to understand the responsibilities associated with ensuring that patients who were found to be newly positive via self-ART testing could be given appropriate medical advice and quarantine if needed.

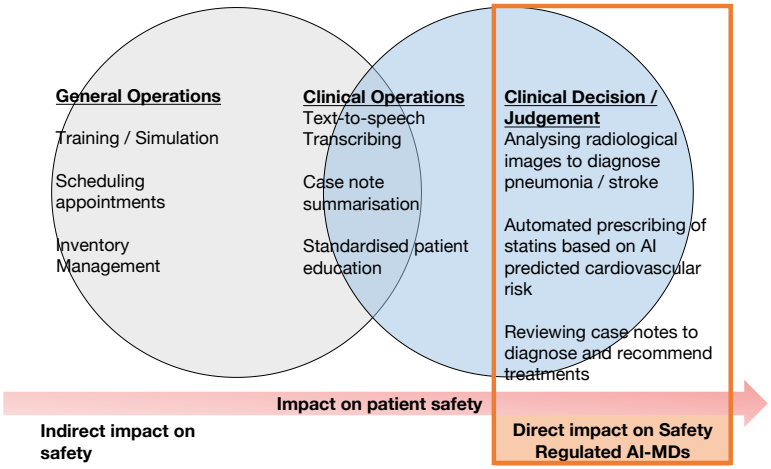


Figure 1: Examples of AI in healthcare and their impact on patient safety. AI-MDs that have the most direct impact on clinical decision-making and judgement are regulated by the Health Sciences Authority

I place patient-centricity as the core guiding value as it enables clinicians to provide transparency, explainability and fairness in its execution. I initially thought that it would surely be easy to create an accurate image classifier that can distinguish one red line from two on an ART kit. After all, I used the positive and negative control swabs of ARTs, to create thousands of positive and negative ART images for training. However, pictures from patients told a different story, with some pictures showing ART kits placed on the instruction sheet containing a drawing of a positive ART test. Some patients even took selfies with their ID and a clock showing the current date and time. Migrant workers also had cameras with lower definition in poor dormitory lighting, with around 30% to 40% of them being illiterate in their native tongue. No AI-MD solution can work if the training photos contains too much data that is **not** the ART test kit. I had to sit down with patients young and old, foreign or local, to co-develop clear instructions and ensure that most people are able to take the best image. The best accuracy happened when patients were simply asked to crop the ART kit, with the cropping tool being an upright rectangle, like cropping a shopping receipt. This subconsciously made patients place ART kits in an upright position, and minimised the image file size while ensuring that only the ART kit was in the image.

Throughout the AI-MD deployment, transparency and explainability was important between not just patients but also with the parties involved in its deployment. This should not be limited to just the AI portion or its technicalities but should be extended to the entire solution and what it means for the patients and clinicians. For example, I had to liaise closely with patients and providers on the ground to determine how a positive ART test kit could be verified and acted upon. This was even more important when things went wrong, with false positives potentially meaning a work site closure, or the system crashing when overloaded with the activation of contingency screening measures. In the dynamic nature of deploying AI-MDs, regular post-deployment monitoring and constant engagement should be taken to ensure its continued safety and efficacy. If the above principles are not followed, we may end up with poor validation and performance, and end up relying on a poorly performing AI-MD such as the Epic Sepsis Model.[2]

Ethics and AI-MDs – the era of emerging artificial general intelligence

In medical ethics, there are four core tenets: beneficence, non-maleficence, autonomy and justice. They serve as overriding duties for all medical practice, and the ethical considerations always precede the adoption of AI regardless of the promise that it can hold. While the promise of artificial general intelligence that can exceed the performance of medical doctors is present, we must be more mindful of the current reality that AI as a technology is backed by large technological corporations with their own vested interests and marketing.

Clinicians should adopt continuous learning and seek to update our understanding of AI and its clinical uses. By first learning to understand, we can then fulfil our responsibility in ensuring that AI-MDs actually support beneficial treatments and not cause harm, either inadvertently or by design. Medical confidentiality is also a key consideration, especially when the training of AI-MDs involves extensive use of the patient's healthcare and social data. We should be able to explain the purpose of the AI-MD before its use and let the patient know if their data is being used for training. The process of obtaining informed consent is key, and patients should be allowed to voluntarily withdraw consent from being treated with any AI-MD or have their data removed from any training.

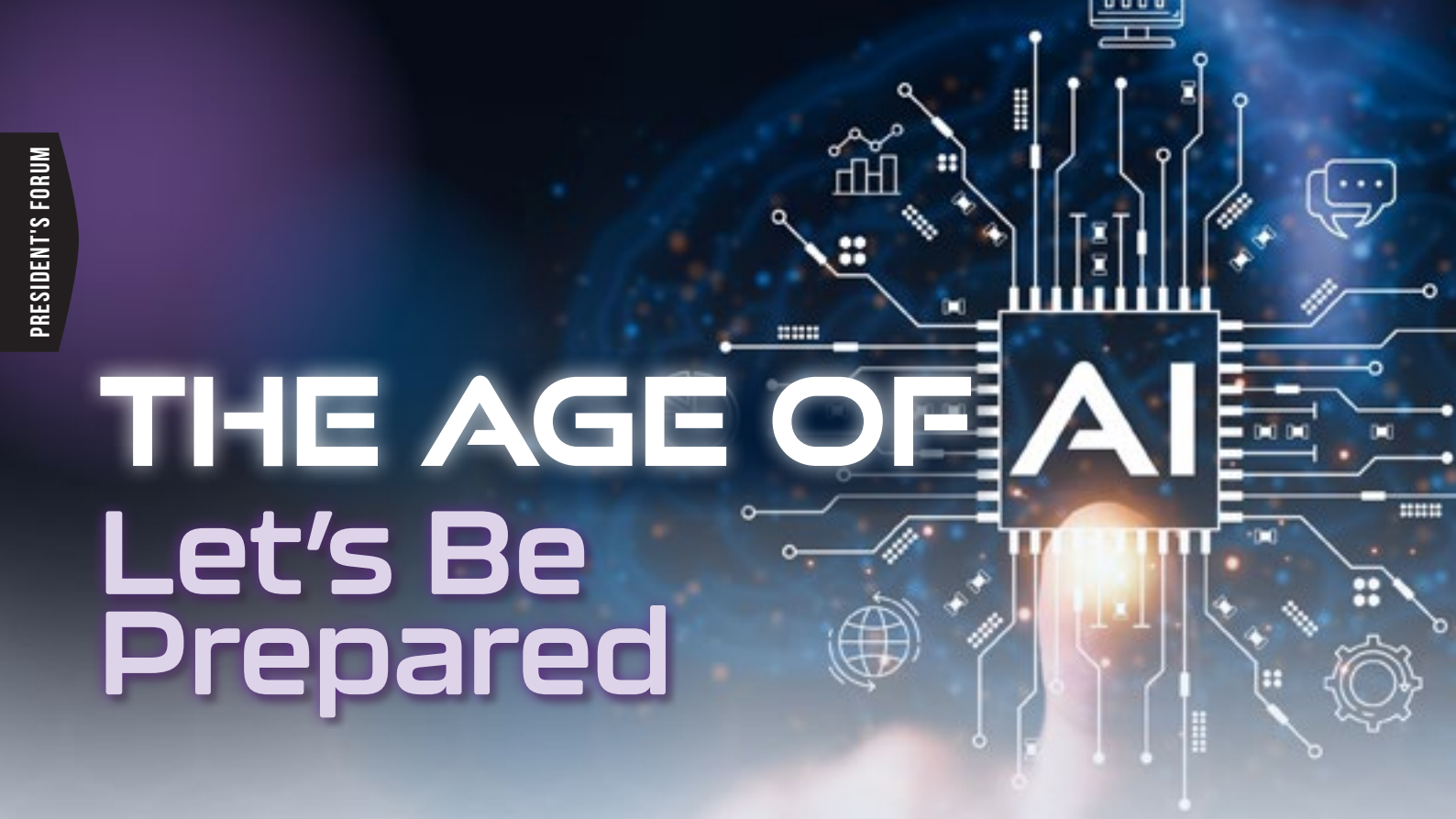
However, the only certainty is that AI will rapidly change, along with innovations in processing power and its generative capabilities that seem otherworldly. It may be that modern medical practice starts to resemble a constantly evolving tango between technological innovation and our humanistic values. Maintaining open communications through professional advocacy, transparency and consultation both within and beyond the medical fraternity will be key to maintaining our duty of care towards our patients. ◆

References

1. Artificial Intelligence-Enabled Medical Devices. In: US Food and Drug Administration. Available at: https://bit.ly/4cEFxNg. Accessed 13 March 2026.

2. Wong A, Otles E, Donnelly JP, et al. External Validation of a Widely Implemented Proprietary Sepsis Prediction Model in Hospitalized Patients. JAMA Intern Med 2021; 181(8):1065-70.

Dr Wong is an avid clinician-innovator and a Singapore-Stanford Biodesign fellow focusing on digital medical devices. He focused on regulatory and policy work previously with the Ministry of Health (MOH) and the MOH Office for Healthcare Transformation, and hopes to help patients with neuro- and cardiovascular diseases on the ground and with AI-MDs. Aside from work, he loves lifting weights and drinking good coffee.



THE AGE OF AI
Let's Be Prepared

Text by Dr Ng Chee Kwan

I first wrote about artificial intelligence (AI) technology in medicine in my October 2023 column. Since then, restructured hospitals in Singapore have been leading the way in the use of AI for clinical documentation and in certain aspects of diagnosis and outcome prediction. Similarly, in the private sector, clinic management systems have begun to incorporate AI scribes into their offerings to aid in documenting clinic consultations. I have not embarked on the use of an AI scribe yet, as I am still wondering how to tell my patients that their voices will be recorded and stored. Currently, I use AI mainly for research – I sometimes use ChatGPT to help in searching for the medical information that I require for managing my patients.

In 2025, I attended a SkillsFuture course on utilising generative AI for improving productivity. Among other points, I learnt about the principle of prompt engineering, which is the process of designing text inputs to guide the AI model to produce optimal responses or answers. I also realised that there were other generative AI platforms that could also produce images, music and even slide presentations, and I learnt about the limitations of AI in terms of potential biases and their tendency to provide incorrect information (commonly referred to as AI hallucination). Lastly, I was reminded not to upload private or confidential information when using AI.

I believe that just as the Internet provided the means for us to obtain information at our fingertips, AI can enable us to be more efficient in our work. Even if we prefer to do things the old-fashioned way (which I am guilty of, as I am writing this article without the use of AI), we should at least be aware of what AI can and cannot do, like what I learnt at the SkillsFuture course.

To illustrate the point, I recently had a patient who consulted me, looking for a particular medication for his condition. He had watched a video of a prominent political figure endorsing this medication as effective and safe. Naturally, my suspicions were raised, but for a person who is unaware of what AI can achieve, he could have ended up thinking that the video was genuine, as the AI-generated voice in the video was indistinguishable from that of the actual person.

AI literacy is already being incorporated into primary and secondary school education. While the younger generation of doctors is unlikely to need persuasion to use AI, the older generation may be slow to adopt it. Ultimately, the responsibility of patient care still rests with the individual clinician, not the AI. Nonetheless, we need to move forward with the times and learn how to harness AI correctly. ◆

Dr Ng is a urologist in private practice and current President of the SMA. He has two teenage sons whom he hopes will grow much taller than him. He has probably collected too many watches for his own good.

HIGHLIGHTS

From the Honorary Secretary

Report by Clinical Asst Prof Benny Loo Kai Guo

Dr Loo is a paediatrician in public service with special interest in sport and exercise medicine. He serves to see the smiles on every child and athlete, and he looks forward to the company of his wife and children at the end of every day.

Highlighting advocacy on HIB

SMA has consistently advocated for the profession regarding the proposed Health Information Bill (HIB), which has since been gazetted and come into force as the Health Information Act. On 19 and 20 January 2026, SMA sent two emails to Members highlighting our advocacy efforts, which can be viewed at the following links:

- 19 January 2026: https://mailchi.mp/sma/sma-response-hib
- 20 January 2026: https://mailchi.mp/sma/addendum-hib

SMA remains committed to helping Members navigate the complexities of the Act, and we will continue to work with the Ministry of Health to prepare Members for the Act's implementation. We hope to announce the initiatives that will address these needs soon.

SMJ-DIT Lunar New Year celebration

The *Singapore Medical Journal* (*SMJ*) Editorial Board and the SMA Doctors-in-Training (DIT) Committee came together on 24 February 2026, the eighth day of the Lunar New Year, for a joint *yu sheng* toss. The gathering coincided with *SMJ*'s annual editorial board meeting, providing a meaningful opportunity for collegial exchange and festive celebration. At the same time, DIT Committee members convened for a masterclass, making the occasion a timely convergence of learning, mentorship and community. The event fostered intergenerational engagement and strengthened ties, setting a positive tone for the year ahead. ◆

Legend

1. Group photo with members from the SMJ Editorial Board and SMA DIT Committee

2. Yu sheng *tossing in progress*

SMA Golf Trip: Par-Tee in Bangkok

Text by Joanne Ng, Deputy Manager, Membership Services

SMA recently concluded its inaugural overseas golf event to Bangkok, Thailand, held from 14 to 18 January 2026. The five-day, four-night trip was a resounding success, with 20 golfers teeing off at three of Bangkok's finest golf courses: Siam Country Club Bangkok, The RG City Golf Club, and Nikanti Golf Club.

Led by convenor Dr Charles Tan, the group consisted of both Members and non-Members who came together to enjoy some fantastic golf, great company and cultural experiences. The trip was a masterclass in camaraderie, with participants bonding over their shared love of golf and exploring the city's culinary delights.

The golfers had nothing but praise for the event, with many commenting on the excellent organisation, superb golf courses and exceptional service provided by their drivers and local guides. Dr Adrian Tan said, "It has been an overwhelming success. Everyone enjoyed themselves. The golf courses were very good, the drivers and local guides excellent, and the camaraderie plain to see. A definite thumbs up for the event."

Other participants echoed similar sentiments, thanking the organisers, guides and fellow golfers for making the trip an unforgettable experience. The group's enthusiasm was palpable, with many calling for a repeat event.

The trip was not just about golf but also about building relationships and having fun. As Dr Chen Sze Sin put it, "It was a great trip, catching up with old friends, and I made a lot of new ones too!" Dr Ng Kheng Hong added, "Thanks everyone for the trip! We should do it again!"

The trip's success is a testament to SMA's commitment to fostering friendships and networking among our Members. We thank all participants for helping make this trip a success and look forward to more exciting events in the future!


TEEING OFF IN THAILAND
SMA GOLF TRIP 2026 – BANGKOK EDITION
14 – 18 January 2026

Skin and Soul: WHY DOCTORS MAKE STUBBORN ENTREPRENEURS

Text and photos by Dr Huren Sivaraj

"Wow, so you're going to be Steve Jobs?" one of my senior medical oncologist colleagues joked when he saw me along the corridor during ward rounds. After I announced my decision to leave full-time practice, another colleague reminded me, half in jest, to let her know when my company would launch its initial public offering (IPO). I am neither on the *Forbes* list nor ringing the bell on the Nasdaq index, but the company remains standing more than seven years on and I am grateful to the *SMA News* Editors for being sufficiently interested to allow me to share my reflections on this journey.

My startup, Oncoshot, is a technology company that works with public and private cancer centres. Originally intended to assist patients with clinical trial matching, it has evolved to support clinical research teams with evidence generation, clinical trials matching and cross-border clinical research by automating data extraction from deidentified clinical notes. Compared to manual chart abstraction, data automation has improved data collection and pre-screening workflows by 60% to 80% across projects in Singapore. Cancer patients at one of our local sites are being screened across five to ten trials on a daily basis across a complex set of eligibility criteria to improve their chances of accessing trials during the narrow window of opportunity they generally have.

Two moments that changed everything

I have always been enamoured with the Internet. In Secondary 1, I was already obsessed with the dot-com bubble, and I admired the likes of Jeff Bezos for his vision and ability to solve a "knowledge gap" for consumers without being either the creator or owner of the asset. I found the world of platforms and marketplaces fascinating. Now, my first love was always medicine (possibly a byproduct of some subtle but highly effective Indian parental preconditioning), but over the next few decades, I always found myself getting drawn to the world of technology, and later to the intersection between technology and healthcare.

There were two distinct moments that changed my mental model on how technology could improve healthcare and clinical research. The first moment was during my time serving National Service as a medical officer. Among the roles that were available after our cadet course was that of a project officer supporting the daily operations of the Singapore Armed Force's second-generation electronic medical record (EMR) system. Working with the EMR, not as a doctor-user but at the backend, taught me to recognise the challenges with how patient information was recorded yet largely unanalysable, and how patient journeys were disconnected as they moved across different sites of care, such as from a military medical centre to a specialist unit in a public hospital. This gave me a profound appreciation for how healthcare as a whole had built deeply entrenched, regulated systems that focused almost singularly on the interaction between a doctor and patient. Today, systems globally struggle to see the interaction between patients and their larger care ecosystem (eg, GPs, specialists, insurers and even fitness/health-monitoring applications). I also realised the inevitability of our systems of record transforming into systems of learning over the coming decades, and the opportunities for clinicians familiar with data and technology to be a part of this change.

With our computer science and business interns from the University of Melbourne

The second moment of realisation came during my time as a registrar when I was working on establishing a unique database of some 130 breast cancer patients with industry support to perform DNA sequencing of specimens with the typically aggressive triple-negative subtype. What I struggled with most was manually piecing together the clinical and outcomes data and drawing insights from the genomic profiling. The inability to automate outcomes data collection made me question the sustainability and utility of research investments beyond the typical key performance index of a publication. It would be easy to say that going through such challenges would be part and parcel of performing research. My view was that research systems across the world needed to move away from wasting trained individuals on manually collating information, which inadvertently became stale and unusable when data needed to be refreshed. Manual systems would become untenable at some point, given that our world was already experiencing an explosion in the volume and speed of healthcare data generation. I was convinced at the time that the requisite technology was sufficiently mature to improve clinical research processes and translate these improvements into better patient outcomes with greater efficiency – only to learn that it would take several more years.

Preparation for the long grind

During my 20s and early 30s, I dabbled in investing a significant amount of my personal time, and a small amount of capital, in start-ups that some of my non-medical friends and extended family had pursued. While none of these succeeded, I consider these failed experiments an important period that taught me the basics of risk-taking, pivoting quickly, recognising product-market fit, and, most crucially, building a set of personal principles to know when to call it quits.

I was grateful then (and even more so now) for my bosses at National Cancer Centre Singapore who recognised that I was probably an oddball treading on a space that was more technology than oncology, and who supported my intent of building technology to improve cancer research. In one of the discussions, I recall explaining how I had found Ruslan, my cofounder originally from Russia, and that I had already convinced him to leave his leadership role at a UK-listed e-commerce platform. It was a daunting idea to sacrifice my work with patients, but it was also clear to me that I had to dedicate my energy to the start-up or risk failure for both of us. Skin in the game? Check. I guess it was at that moment that my bosses realised that I was "all in" and were graciously willing to allow me to give it a go.

Some members of Oncoshot's Singapore team

Our early collaborations were fraught with challenges where the technology was immature and unable to embed in complex ecosystems where stakeholders could not realistically prioritise a collaboration with a start-up. It took us several years to progressively build different parts of the solution with partners across several countries before we could benefit from the new advances in artificial intelligence and large language models. This new wave allowed us to solve some of the most challenging aspects of data extraction that we struggled with earlier. We persisted long enough to benefit from this technological maturity.

Soul in the game and thinking long term

Today, I am more focused on achieving scale. Building a platform that services hospitals requires significant capital, and comparable infrastructure remains limited outside developed markets. But the value we create is intrinsically tied to the breadth of institutions we serve and the trust we build with each one. Almost all healthcare innovations from Singapore need to find an overseas path to commercialise early. We are grateful that beyond our regional partners, we now have customers in the European Union and also partner with leading cancer centres in New York and Texas, USA for cancer registry automation and cross-border research.

The jokes about Steve Jobs and IPOs still surface from time to time. There has been no explosive growth spectacle or bell-ringing to talk about. What has endured is a conviction that innovation in healthcare and research rarely comes from grand moments – it comes from staying close to the systems, the clinicians, the research coordinators and the patients. Nassim Taleb writes about "soul in the game" and how it encapsulates a greater sense of risk. I think it captures what doctor-entrepreneurs uniquely bring to the table: the determination to persist because we have seen firsthand what is at stake when we do not. ◆

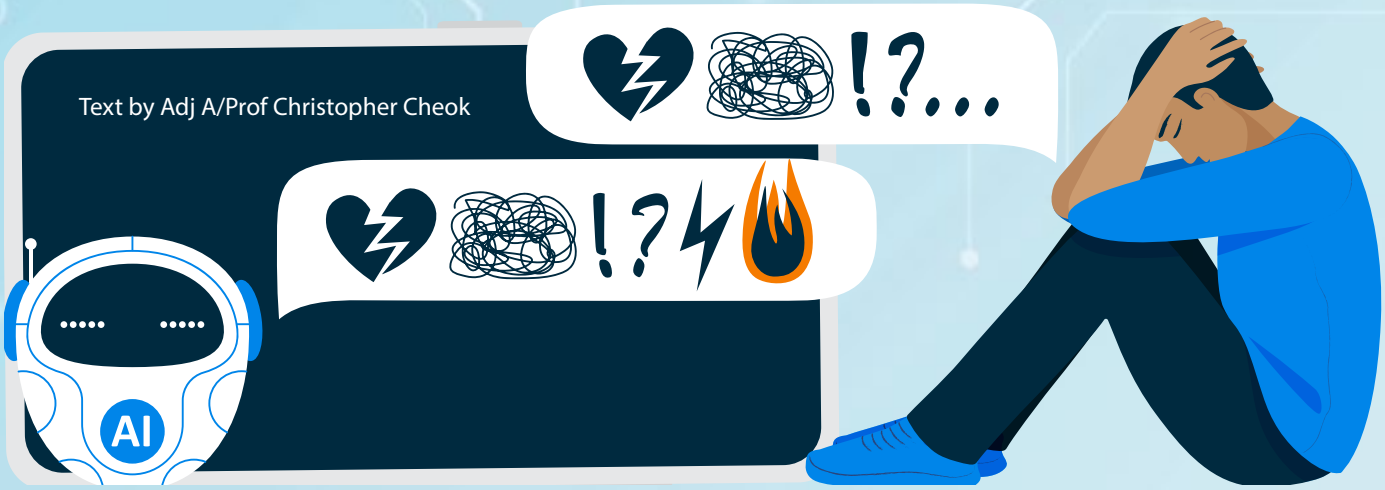
Dr Huren is CEO of Oncoshot, a cancer data company partnering across eight countries to advance clinical research and improve cancer outcomes. He remains deeply grateful to his wife Anuja, his family and mentors for their steady support. He continues caring for patients as a visiting consultant at National Cancer Centre Singapore.

SINGAPORE MENTAL HEALTH

Leveraging Technology

WHILE MAINTAINING SAFETY

Text by Adj A/Prof Christopher Cheok



Singapore's mental health situation has shifted markedly since the COVID-19 pandemic, with national surveys consistently indicating rising psychological distress across multiple demographic groups. Data from the past three National Population Health Surveys show that younger adults, particularly those aged 18 to 29, report the highest levels of anxiety, low mood and stress-related symptoms at about 25% of that demographic. These findings suggest that while awareness of mental health issues has improved, the psychological safety nets that protect against distress are not uniformly present.

The Singapore Mental Health Study 2010 and 2016 highlighted persistent treatment gaps. Delayed help-seeking remains common, driven by stigma, cultural norms around emotional expression and concerns about confidentiality. Among youths, the National Youth Mental Health Study presents a particularly concerning picture: roughly one in three young people report severe or extremely severe symptoms of depression, anxiety or stress. Digital overexposure, cyberbullying and body image pressures are key issues, with a substantial proportion of youths spending more than three hours daily on social media and demonstrating higher odds of psychological symptoms. For clinicians, these epidemiological signals point to a generational shift in both the drivers and manifestations of distress.

The explosion of mental health apps

The digital mental health ecosystem has expanded at a pace unmatched by traditional healthcare innovation. App stores now host thousands of mental health apps promising mood tracking, cognitive restructuring, mindfulness, crisis support and artificial intelligence (AI) technology-enabled companionship. Their appeal is intuitive: anonymity, immediacy and low cost. For the vast majority of individuals hesitant to seek formal care, these tools appear to offer a low-barrier entry point. Yet the overwhelming majority of these apps have no clinical validation. Few have undergone rigorous evaluation and even fewer have published evidence demonstrating efficacy. Many rely on persuasive design rather than research. Some provide advice that contradicts established guidelines, while others offer generic or superficial responses that fail to account for clinical nuances for the individual. Essentially, it is currently a free-for-all with no health authority oversight or regulation. For patients already ambivalent about seeking help, these tools can create false reassurance. They may delay appropriate intervention, reinforce maladaptive thinking or worsen distress through poorly calibrated feedback. Clinicians increasingly encounter patients who arrive with information from unvalidated apps or expectations shaped by commercial marketing rather than evidence-based practice.

Digital therapeutics: a regulated minority

Only a small subset of digital mental health tools undergo regulatory scrutiny. The digital therapeutics approved by

the US Food and Drug Administration (FDA) represent the minute minority and typically target specific conditions such as insomnia, attention deficit hyperactivity disorder or substance use disorders. These products are backed by clinical trials, defined therapeutic mechanisms and postmarket surveillance. They are designed to function as medical interventions rather than wellness products. Currently, this group of FDA approved apps number less than ten.

The contrast between regulated digital therapeutics and the unregulated mass of wellness apps is stark. For clinicians, this creates a challenging environment: patients often cannot distinguish between evidence-based digital interventions and commercially driven products. The risk of conflating wellness tools with therapeutic tools is substantial, particularly for individuals with moderate to severe symptoms.

The clinical risks of AI in mental health

The rapid integration of AI technology into mental health tools adds another layer of complexity. Large language models and conversational agents can simulate empathy, maintain extended dialogue and offer coping suggestions. For individuals experiencing loneliness, anxiety or low mood, these interactions can feel supportive. The conversational fluency of AI systems can create an illusion of companionship, the perfect supportive friend always available. But simulation is not equivalent to therapeutic presence. AI cannot reliably detect risk, interpret nuance or provide the containment that trained clinicians offer. Pattern-matching can inadvertently reinforce maladaptive thinking. Advice may be inconsistent, superficial or inappropriate. AI systems lack the capacity for clinical judgement, moral reasoning or relational accountability.

For vulnerable individuals, these limitations can have real consequences. AI may reinforce cognitive distortions through uncritical mirroring, provide advice misaligned with clinical best practice, fail to recognise escalating risk or crisis situations, create emotional dependence on a system that cannot reciprocate, and blur the line between support and simulation, leading to relational confusion. Anecdotal reports even suggest that AI can induce psychotic states and encourage suicide.

The artificiality of AI "friendship"

AI companions are increasingly marketed as friends, confidants or partners. For individuals who feel isolated, this can feel comforting. But the relationship is inherently asymmetrical. AI does not possess lived experience, emotional depth or the capacity for genuine reciprocity. The "friendship" is a projection shaped by the user's needs and the model's training data, and the majority of training data is based on data from men.

This artificial closeness can displace real human relationships, reduce motivation to seek professional help, distort expectations of interpersonal interaction and create emotional dependence on a system that cannot provide genuine care. In mental health contexts, where trust and authenticity are core therapeutic ingredients, this artificiality becomes a clinical liability.

Singapore's approach to technology in mental health

Singapore has taken a more structured and cautious approach to integrating technology into mental health care. Current Government-funded initiatives emphasise evidence-informed design, clinical oversight and human-centred implementation.

Two such initiatives include mindline.sg and let's talk, (available at https://letstalk.mindline.sg), which provide curated digital platforms offering psychoeducation, self-assessment tools and guided exercises grounded in validated frameworks. It is designed to complement, not replace, professional care. The platform avoids the pitfalls of unregulated apps by ensuring that content is clinically reviewed and aligned with established therapeutic principles. mindline.sg has had over one million users since its launch in 2022.

national mindline 1771 (nm1771) is Singapore's first national mental health helpline and textline, available by dialling 1771 or via WhatsApp at 6669 1771, and integrates digital triage with human responders. This 24/7 hybrid model ensures that individuals in distress are connected to trained professionals rather than automated systems. It reflects an understanding that while technology can facilitate access, crisis support requires human judgment. Since nm1771 launched in June 2025, it has served over 39,000 users.

Currently, other Singapore-developed clinical mental health apps such as AmDTx and HOPES are being subjected to clinical trials in order to validate their effectiveness in the local population.

Conclusion

Digital tools will continue to expand, and patients will increasingly integrate them into their help-seeking behaviours. The task for clinicians is not to reject technology but to critically appraise it, guide patients toward evidence-based resources, and remain vigilant to the risks of unregulated tools and AI-mediated interactions.

Singapore's strategy, leveraging technology for accessibility while maintaining a strong human-centred foundation, offers a model for balancing innovation with safety. Mental health care remains fundamentally relational, contextual and human. Technology should complement that reality, not attempt to replace it. ◆

Adj A/Prof Cheok is the director of national mindline 1771 and chief of the National Addictions Management Service at Institute of Mental Health. He has a passion for digital mental health and hopes to deliver more digital interventions to persons in distress, especially those not wanting to seek professional help.

EVALUATING DISABILITY PROGRAMMES

Low Vision AS A Case Study

Text by A/Prof Christopher Ang, Dr Audrey Looi, Adj A/Prof Carol Tang and Dr Eddy Pang

James Ang, 24 years old, is a para-athlete, national record holder and law graduate whose journey has been defined by constant adaptation and forward momentum. Diagnosed with Stargardt macular dystrophy, he represents Team Singapore in the T13 sports classification and holds the national records in the 200m and 400m sprints. As he trains towards the 2028 Los Angeles Paralympic Games, James also draws on his legal education from the Singapore Management University School of Law, pursuing ambitions beyond the track with the same discipline that defines his sport.

James' early years in school were shaped by learning how to access print independently. Through iC2 PrepHouse, a charity that supports children with low vision, he was introduced to electronic magnifying units from primary school through junior college, enabling him to read, write and keep pace in mainstream classrooms. As academic demands shifted in university and later into professional life, iC2 supported his transition to assistive technologies that became integral to how he studies, works and engages with an increasingly digital environment. More recently, as his visual challenges evolved, iC2 provided orientation and mobility training, supporting his adjustment to using a white cane as part of daily living.

Alongside these tools, iC2's teachers walked closely with James through moments of uncertainty, patiently guiding him through unfamiliar systems and working through challenges as they arose. Equally formative were the relationships built through iC2. Meeting Prof Wong Meng Ee offered James a living example of navigating life with confidence and purpose, and encountering fellow para-athlete Sophie Soon taught him that sporting excellence was not only possible but attainable. These encounters, paired with consistent guidance over the years, shaped how James learned to approach both obstacles and ambition – steady in resolve, confident in direction and unafraid to pursue goals once thought beyond reach.

Visual impairment in Singapore and the need for support services

The setup of iC2 PrepHouse was first announced in the March 2015 issue of *SMA News*, 2015. Dr Audrey Looi, then an oculoplastic surgeon at the Singapore National Eye Centre and caregiver for her son, James, explained the motivation and need for specialised care management by trained vision teachers. The type of care needs and early intervention programmes for such children were subsequently described in the January 2019 issue of *SMA News* by the principal vision teacher at iC2 PrepHouse, Ms Lee Lay Hong. James' personal account highlights two pivotal capabilities of iC2 PrepHouse: individualised lifelong learning, and a need for compliant data infrastructure to capture longitudinal information of the individual.

In this article, we expand the use of a predictive data-driven analysis that allows for the evaluation of our unique early intervention programmes. This endeavour is in line with the recent SG 60 Towards Sustainability Fund announcement by the National Council of Social Service. This seed funding encourages social service agencies (SSAs) to kickstart their capabilities in measuring, monitoring and reporting the effectiveness of their programmes. Ultimately, this translates to establishing trust and confidence in stakeholders by producing quantifiable outcomes and ultimately facilitating objective funding.

Conditions leading to low vision in a rapidly ageing population include macular degeneration and glaucoma. As these conditions worsen, support programmes at various SSAs provide the individual with skills to manage and adapt. The use of assistive technology comprising screen readers, magnifiers, mobility white canes or Braille devices facilitates the habilitation process. However, in children with low vision, it becomes critical to implement programmes geared towards both education and habilitation.

Data-driven approach for programme evaluation

Launched in 2022, Singapore's Enabling Masterplan 2030 lists important milestones towards building an inclusive society, among which include bolstering inclusive employment opportunities and fostering an inclusive community.

Monitoring and follow-up of clinically verified persons with disabilities is limited due to the absence of medical-social integration, yet we know that lifelong learning is an important component contributing to the quality of life of the child. For many disabilities, employment outcomes may not be sustainable, so it is critical for SSAs to adopt objective methods that are disability-specific and extend beyond attitudes-based surveys to quantify their programmes. This often involves a community of clinical, allied healthcare professionals, specially trained teachers and adequate caregiver support.

We leveraged our colleagues' expertise to explore well-curated global disability datasets. The National Disability Insurance Scheme (NDIS) Australia dashboards facilitate fund utility monitoring across 15 types of disabilities. It includes over 646,000 participants to-date.[1] Such a pre-emptive approach alerts us of programmatic criteria correlated with beneficial outcomes to be included in iC2 PrepHouse's evaluation framework. The types of disabilities and outcome measures in NDIS are illustrated in Figure 1, with further analysis showing that individuals with visual impairment stretch across all age bands.

Next, we used multivariate analysis to identify key parameters associated with beneficial outcomes. Figure 2 shows the widely adopted Principal Component Analysis map method to accommodate for multiple parameters and their interrelatedness. It depicts how participants with different disabilities are associated with important life outcomes such as childhood development, learning opportunities, social inclusion, post-school qualifications, and open/assisted employment. By mapping these relationships, the figure highlights which areas of support are most significant for each disability group and how they influence long-term opportunities and/or outcomes. Individuals with visual impairment can engage in open/sustainable employment if they are provided with learning opportunities, childhood development and post-school education. Currently, local government-driven efforts are being stepped up to close the gap, also known as the "post-18 cliff", when persons with disabilities leave school but are not yet well equipped to seek employment or more independent living.

Early intervention is critical for lifelong learning

iC2 PrepHouse has achieved significant recognition and milestones, including winning the APAC Insider Singapore Business Award for Best Visually Impaired Children's Educational Programmes and the Charity Governance Award in 2022. To date, iC2 PrepHouse has helped 301 clients. To add more granularity to these encouraging numbers, the charity is committed to data acquisition and evaluation that specifically reflect the quality of its intervention programmes. For example, our vision teachers have adopted the

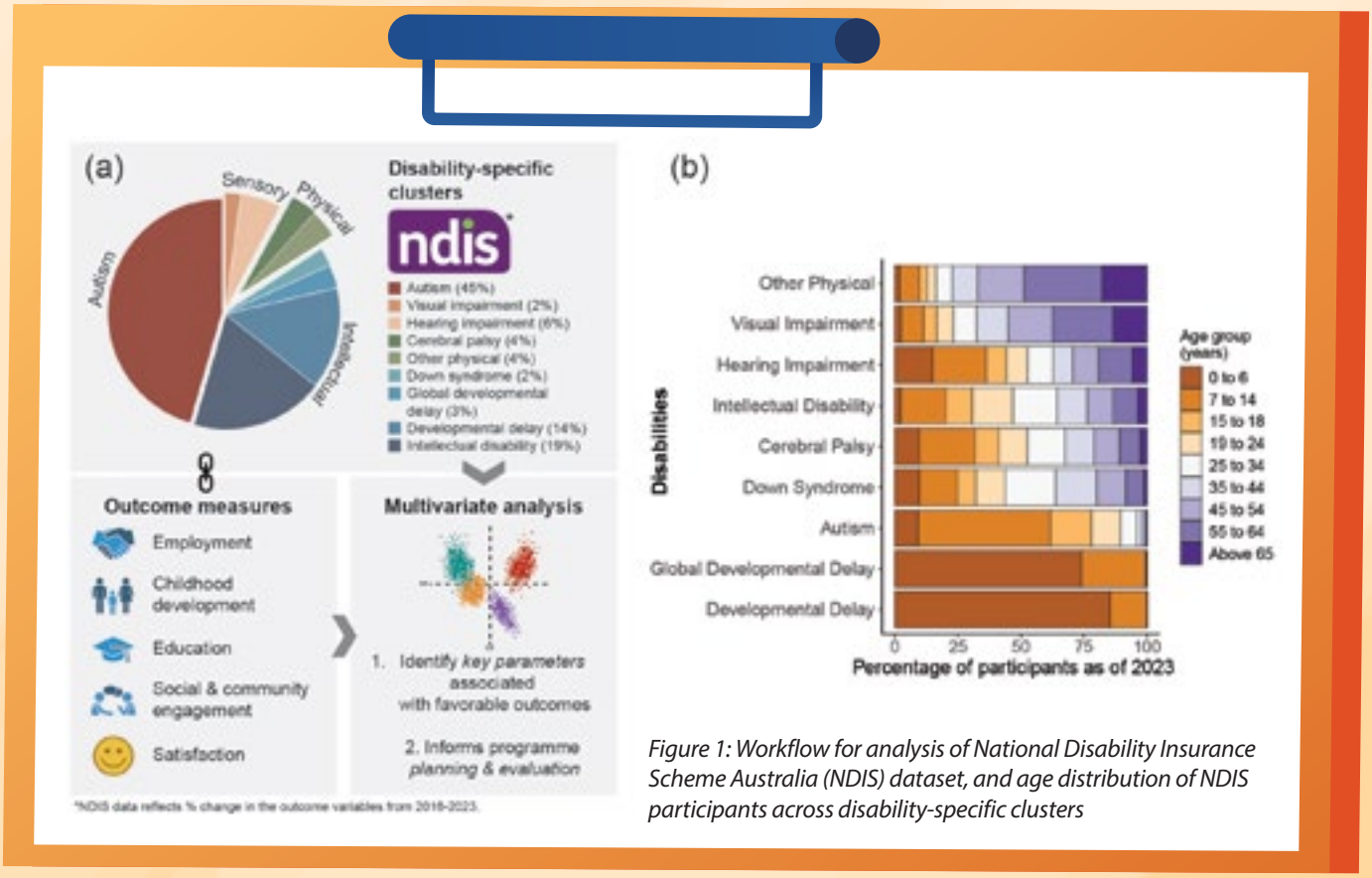


Figure 1: Workflow for analysis of National Disability Insurance Scheme Australia (NDIS) dataset, and age distribution of NDIS participants across disability-specific clusters

Figure 2: Programme features distinguish individuals with visual and hearing impairment. Arrows indicate the life outcome directions to which each disability group is most strongly linked

Goal Attainment Scaling method, which has since been extended to a variety of conditions including visual impairment,[2] dementia and other comorbidities. It is a person-centred and collaborative approach incorporating functional data and clinical diagnosis, thereby facilitating assessment of the effectiveness of an intervention on personally relevant goals. Life goals are broken down into smaller, stepwise goals as no child or disability are the same. This longitudinal profiling thus reflects the true progress of the individual. We are also establishing a database and visualisation portal that will empower sharing and communication as the child progresses through life.

Conclusion

In Singapore, disability care and management are outside the purview of healthcare institutions. Often, this means that as the person with disability progresses through life, information that might be beneficial such as early intervention programme quality is lost and/or cannot be shared due to non-compliant data governance and infrastructure. This is especially damaging for such children. We hope that our thoughts and experiential journey at iC2 PrepHouse in this update will motivate more professionals in the social service sector, healthcare institutions and researchers to collaborate and achieve greater clarity that will guide programme planning and more directed and sustainable funding. ◆

References

1. Carey G, Dickinson H. A longitudinal study of the implementation experiences of the Australian National Disability Insurance Scheme: investigating transformative policy change. BMC Health Serv Res 2017; 17:570.

2. Sharp C, Read P. Goal Attainment Scaling in Early Childhood Intervention: Issues for Implementation and Evaluation. Eval J Australas 2011; 11(2):31-41.

A/Prof Ang is a senior consultant neurosurgeon at Singapore General Hospital, with a subspecialty practice in endonasal skull base surgery and radiosurgery. He co-leads the Neuro-Oncology Research Programme, focused primarily on defining precision medicine strategies for treatment of malignant gliomas. He is also a board director of iC2 PrepHouse.

Dr Looi is a senior consultant oculoplastic and orbit surgeon, and is the medical director of Ava Eye Clinic. She was head of the Oculoplastic Service at Singapore National Eye Centre from 2007 to 2016. She is also a founding board director of iC2 PrepHouse.

A/Prof Tang is a scientist by training and has been the co-lead of the Neuro-Oncology Research Programme with A/Prof Christopher Ang for the past 19 years. She recently spent two years at SG Enable, the focal agency for disability management under the Ministry of Social and Family Development.

Dr Pang is a research fellow at the National Neuroscience Institute whose work centres on cancer genomics, single-cell omics and computational approaches to advance precision medicine in glioblastoma. His research examines molecular drivers of tumour cell-state plasticity and leverages patient-derived cancer models to uncover clinically relevant therapeutic vulnerabilities.

From Canvas To Care

Text and photos by
Dr Shashendra Aponso

Skin, in all its varied colours and contours, textures and tones, tells us a story about what lies beneath and beyond its surface. As a dermatologist, caring for patients with skin disease calls for me to decipher these stories. Some of my own most valuable lessons in reading skin come from one of my fondest pastimes – painting.

Growing with art

The joy of painting was something that I was fortunate to be exposed to as a child. From the potato prints I made with my grandmother to the whimsical watercolour illustrations of the bedtimes stories my mother used to read to me, I was surrounded by art. I believe this is what ignited my passion for painting.

Under the guidance of an inspiring art tutor, I was exposed to a variety of media: oil pastels, oil paint, watercolour, acrylic, pen-and-ink and charcoal. Though art has always been a hobby rather than a profession, I have kept it alive through the years, finding moments here and there to immerse myself in a painting. In return, art has enriched my practice of medicine.

Wrapping up my internal medicine junior residency, serendipity led me to a dermatology posting which I enjoyed enough to pursue a dermatology senior residency. Of the many aspects of dermatology that I was drawn to, one that resonated particularly strongly with me was the visual nature of the specialty.

From a diagnostic perspective, reading a patient's skin is much like appreciating artwork – we observe and decipher form, colour, texture and patterns, piecing together all these elements and diagnostic clues in the right context. Art and dermatology both require the observer to interpret layers of visual information, which may at times be ambiguous. Working with inspiring clinical mentors is similar to learning from the work of the great masters of painting – there are always more details to notice, more clinical clues to appreciate. In short, there is always room to sharpen our observational skills.

From a therapeutic perspective, it is satisfying to see a patient's skin condition improving during long-term follow up. Take for example the clearance of psoriatic plaques on a patient who recently started biologic therapy, the re-pigmentation of vitiligo patches, or a barely visible surgical scar. Like seeing a painting come to life with each brushstroke, the visible proof of successful treatment is immensely rewarding.

Appreciation and empathy

Formal training programs have also acknowledged the importance of using fine art in developing visual intelligence and observational skills. For example, Harvard Medical School's dermatology residency programme has partnered with the Museum of Fine Arts Boston to offer a course that teaches observational skills to dermatology residents.

While the science of medicine requires us to measure, categorise and analyse information, the art of medicine urges us to listen, observe and understand our patients as fellow human beings. Paintings are laden with emotion and steeped in history. This makes it impossible to fully understand an artwork without knowing the artist's background and cultural context. Perfect examples are Claude Monet's famous waterlily paintings which became increasingly abstract as his eyesight deteriorated due to cataracts, and the turbulence of Vincent van Gogh's inner world that whirls and swirls up in the skies of *The Starry Night*, which he painted during his time recovering at a psychiatric hospital in Saint Remy.

I have learnt that appreciating art teaches us to deepen our empathy and perceive diseases from the patient's perspective, to understand the psychological impact and quality of life burden that lies beneath the visible skin lesion. Tuning in to the human side of medicine requires us to develop patience. Like medicine, painting is a practice where patience is essential (we must wait for each wash of watercolour to dry before applying

the next) and richly rewarded (Leonardo da Vinci famously layered multiple thin transparent oil paint "glazes" to render human skin with remarkable depth and luminosity).

It was only during my dermatology training that I realised how traditional textbooks are often biased in terms of skin colour, underrepresenting non-Caucasian skin tones in clinical images. Brushwork appears different based on the colour of the canvas. Psoriatic plaques that appear salmon pink in fairer skin often appear purplish, brown or even grey in darker skin. Clinicians have recognised the importance of inclusivity and increasing efforts are being made to depict skin conditions in multiple skin colours and various races, to allow us to diagnose them across all skin types.

Painting diverse subjects has taught me how my own observational biases show up in the most unexpected ways, while reminding me to stay attuned and culturally sensitive. For instance, vitiligo profoundly impacts our darker skinned patients' sense of self-identity, given the more visible contrast between normal and depigmented skin. Much like objects in a still life may have inherent symbolism that the artist needs to be aware of, communities may have strong cultural beliefs surrounding certain skin diseases. Educating patients requires us to respectfully navigate these beliefs.

An enriching journey

I am first and foremost a clinician, so painting to me is a fond hobby – an outlet that helps me relax and balance clinical rigour with reflection, and one that immensely enriches my experience of being able to truly understand my patients beyond their skin. Though a career in medicine and being the dad of a toddler means that I now have less time for art, I have come to truly cherish those rare moments when I do get to paint.

In many ways, art imitates life. The messiness and imperfections, the uncertainty until a clear form emerges and the devotion demanded of the artist to keep painting until they have achieved the desired effect by observing light and shadow, playing with colour and experimenting with composition – these mirror the feelings we all experience as we strive to better understand our patients, shape their treatments and guide them through the unfolding canvas of their treatment journeys. ◆

Legend

1. Hero

2. Duke-NUS Medical School

3. Double Happiness

4. Kissed by Moonlight

5. Dreams in Bloom

Dr Shashendra (known to his colleagues as Sashen) is a consultant dermatologist at Singapore General Hospital who loves to unwind outdoors in nature (albeit with a generous layer of broad-spectrum sunscreen) and treasures his time with his wife and daughter.

• SALE/RENTAL/TAKEOVER •

Singapore Clinic Matters Services: Singapore's pioneer clinic brokers and clinic succession planners. We buy and sell medical practices and premises. We also provide clinic succession and/or clinic continuation planning services. Yein – 9671 9602. https://singaporeclinicmatters.com.

Royal Square Novena. Prime medical suite for rent. 656 sqft. High floor with L-shaped panoramic views. Bright, north-facing. Near lift lobby. Suits medical, surgical, dental or allied health clinic. Avail April 2026. Reasonable asking price: $7800 per month. WhatsApp 8781 4403.

Well renovated clinic available for takeover in a convenient location near MRT. Modern interior, fully fitted consultation and treatment rooms, reception counter and comfortable waiting area. Ideal for doctors seeking a ready-to-operate clinic. Please contact for details: 9815 0506.

Three Storey Building at 156 Yio Chu Kang S(545610) for rent. Zoning- Health and Medical Care. Site Area - aprroximately 580 sqm. GFA - approximately 575 sqm. Interested parties can contact owner at 8299 7192 (Mandarin) or 9875 7881 (English). No agents please.

• POSITION AVAILABLE/PARTNERSHIP •

Well-located clinic opening in the North is recruiting a Lead GP (full-time resident) and Locum GP(s). Expected commitment is 44–46 hours/week, including at least 1 weekday evening session and 1 weekend session (schedule can be discussed flexibly). Applicants should have a minimum of 3 years post-graduate clinical experience; GDFM/Family Physician accreditation will be an advantage. Remuneration is performance-linked (KPI/profit-sharing structure), with potential shareholding for the right Lead GP candidate. Please email your CV to royal-medical@hotmail.com.

AIC SAYS

Introducing interRAI

Standardised assessments for seamless, patient-centred care

by the Agency for Integrated Care (AIC)

The community care landscape in Singapore used to be characterised by the adoption of multiple disparate assessment tools, each with its own framework and terminology. This lack of standardisation and a common language led to fragmented communication among providers and inconsistent care planning.

For patients like Mr C, an 82-year-old widower living alone, transitions between different care settings, such as from hospital to home care, often led to repeated assessments and the risk of critical details being missed.

Recognising the need for change, the Ministry of Health (MOH) mandated the sector-wide adoption of interRAI as the standardised assessment tool in the community. This decision underscored Singapore's commitment to elevating care standards and marked a pivotal shift in care delivery.

What is interRAI?

The International Resident Assessment Instrument (interRAI) is a globally recognised system of assessment tools designed to evaluate health, daily living abilities and psychosocial needs across different care settings. Developed by an international team of researchers and clinicians, interRAI is used in over 35 countries. It is supported by clinical algorithms embedded within the system, helping the healthcare system shift from isolated assessments to integrated, person-centred care.

interRAI provides a standardised approach to client care that minimises duplicative assessments, ensures consistent clinical interpretation, streamlines information sharing and supports evidence-based planning. For clients like Mr C, this is critical to minimise repeating of information and inconsistent interpretations as they move between care settings.

Adapting to local context

In Singapore, the interRAI instrument has been refined to better reflect common scenarios seen locally, facilitating the identification of issues pertinent to clients in the community. Notable enhancements include the addition of questions regarding caregiver availability, which captures the degree of support provided by family members and migrant domestic workers.

The assessment also incorporates medical conditions frequently encountered locally such as hypertension and hyperlipidaemia within the diagnoses section to improve clinical relevance.

interRAI assessments go beyond simple data collection. Through its built-in clinical algorithm, the system transforms information into actionable outputs which serve as valuable decision-supporting tools for clinicians. These outputs include:

Outcome Scales

What is it?	What is the impact?
• Summarise a person's functional, cognitive and health status • Allow clinicians to track changes and progress over time	• Early intervention, progress monitoring, tailored care

Collaborative Action Plans (CAPs)

What is it?	What is the impact?
• Alert clinicians to areas of concern • Offer evidence-based guidance for targeted interventions	• Decision-supporting tool to guide holistic person-centred care planning

From data to action

When Mr C was discharged from the hospital after a hip fracture, the community nurse assigned to him conducted an interRAI assessment during his first home visit.

What was observed about Mr C?	What care needs did interRAI identify?	What was recommended?
• Moved slowly with a walking aid • Had difficulty recalling names of his medications	• Mr C had declining mobility and memory • **Falls Collaborative Action Plan (CAP)** triggered, indicating Mr C is at risk of falls	Suggested interventions include structured physical activities such as physiotherapy sessions to improve balance, muscle strengthening and flexibility
• Reported feeling lonely • Demonstrated sufficient cognitive ability and understanding of those around him	• Mr C had the capacity to engage socially but lacked meaningful connections • **Social Relationship CAP** triggered, indicating Mr C is at heightened risk of social isolation, emotional distress and even depression	Suggested interventions include participation in community and peer support programmes such as Active Ageing and Buddying and Befriending Programmes to facilitate meaningful social engagements

Through this standardised assessment, his nurse was able to move beyond siloed evaluations, providing integrated and holistic care tailored to Mr C's unique needs. As the assessment would be entered by Mr C's nurse into the national interRAI IT system, all healthcare providers involved in Mr C's care will have a common view of Mr C's assessments.

The Journey Ahead

With interRAI, every stage of the care journey – from service referrals to ongoing care planning and funding decisions – is guided by a common framework and language that bridges gaps across providers and settings. There will be three interRAI instruments used in Singapore for needs assessment and to guide care planning. The choice of instrument will depend on care needs and care settings.

The nationwide rollout of interRAI began in October 2024, starting with the subvented Nursing Homes. By April 2025, all subvented nursing homes have adopted interRAI, marking a significant milestone in Singapore's healthcare journey. This phased rollout ensures smooth adoption, with the next stage extending to the wider community care sector by 1 April 2026.

Looking ahead, there will be exciting developments for interRAI – from moving into potential new settings such as primary care, to more efficient ways of assessment such as using artificial intelligence and self-reporting.

Recommended interRAI tool for each setting

Community Care

- **Check-Up (CU)**
- **Home Care (HC)** – Will be used by clients with more complex needs

Residential Care

- **Long Term Care Facilities (LTCF)**

Did you know?

To date, over 24,000 interRAI assessments have been conducted in Singapore since its rollout. More than 80 subvented nursing homes are currently using the LTCF interRAI.

Click or scan the QR code to discover how interRAI transforms client care!

Interested to find out more about interRAI implementation? Email us at **interRAI-support@aic.sg.**

ALL THE OTHER PROVIDERS IN SINGAPORE OFFER INSURANCE.

WE PROTECT YOU WITH DISCRETIONARY INDEMNITY, WITHOUT LIMITS OR EXCESSES – FOR LIFE.*

We've been supporting doctors in Singapore since 1972, as the leader in medical defence.

With insurance, fixed terms and conditions mean there is a limit on how much is covered and an excess to pay. Our discretionary medical indemnity has no financial limits and no excesses, giving you comprehensive protection and peace of mind.◊

GET THE FACTS

medicalprotection.org
Always there for you

Medical Protection

*Occurrence-based membership protects you against claims arising from incidents that happened while you were a member, even if the claim is made after you leave or retire. For a small number of obstetric, gynaecology, and paediatric members, we offer claims-made membership, which does have limits. For members with claims-made membership, ongoing protection requires active membership.

◊Limits apply to a small number of obstetric, gynaecology and paediatric members.

2508266778 12/25