

Asia

AI in Southeast Asia: New innovations breaking down healthcare barriers, but tech not a cure-all, warn experts

From detecting disease to driving diagnoses, AI is streamlining systems and changing approaches to patient care. But for doctors "entrenched in traditional methods" the technology may take time to go mainstream, say experts.



Dr Azzeem Shahren uses AI tools to help him in his diagnostics. (Photo: CNA/Fadza Ishak)



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KUALA LUMPUR: Dr Azzeem Shahren, a Kuala Lumpur-based physician, used to find himself distracted during consultations.

Like many fellow medical professionals, his time and attention were torn between the patient and typing up their notes.

Overwhelmed at times, he turned to technology for a solution.

Since May of this year, Dr Azzeem has been relying on an artificial intelligence (AI) operating system to transcribe patient conversations in real time.

It also assists in identifying potential conditions by suggesting a variety of differential diagnoses.

The software integrates historical information from electronic health records so an algorithm can make sense of the data.

In addition, it scans patient profiles, detecting abnormalities and diagnoses doctors might have missed and gives suggestions to physicians on potential misdiagnoses.

"I can focus fully on my patient without the interruption of typing. This allows me to capture more details and provide better care," Dr Azzeem told CNA.

When he was a medical officer in the government, he recalled having to manually input all his conversations with his patients.

"This takes up a lot of time and can lead to errors. Writing everything down manually increases the risk of missing specific doses or numbers, which can potentially cause problems.

"A system in place could catch these mistakes and correct them. More and more, those in the private sector are embracing these new technologies," said Dr Azzeem, who worked in the public sector for about five years before moving to the private sector.

Dr Azzeem's clinic, which offers a range of wellness therapies, is a testament to the spread of AI innovation in Southeast Asia's modern healthcare sector. The region's digital healthcare market is expected to grow to reach just under US\$6.1 billion in revenue in 2024, fuelled partly by new developments in AI.

These technologies can transform Southeast Asia's rehabilitation efforts, aid critical diagnoses and streamline administrative processes.

But for some in the sector, technology is not a cure-all. For those "entrenched in traditional methods" trust will take time to build, say experts.

REAL-TIME DATA FOR REHABILITATION AND CALCULATING RISK

In Singapore, interactive floor tiles are transforming traditional rehabilitation methods for those who suffer from dementia, mainly in physical therapy clinics and elderly care facilities.

Moto tiles were designed for physical exercise and rehabilitation, with AI algorithms adjusting the intensity and type of exercises based on real-time data to provide personalised and adaptive therapy.

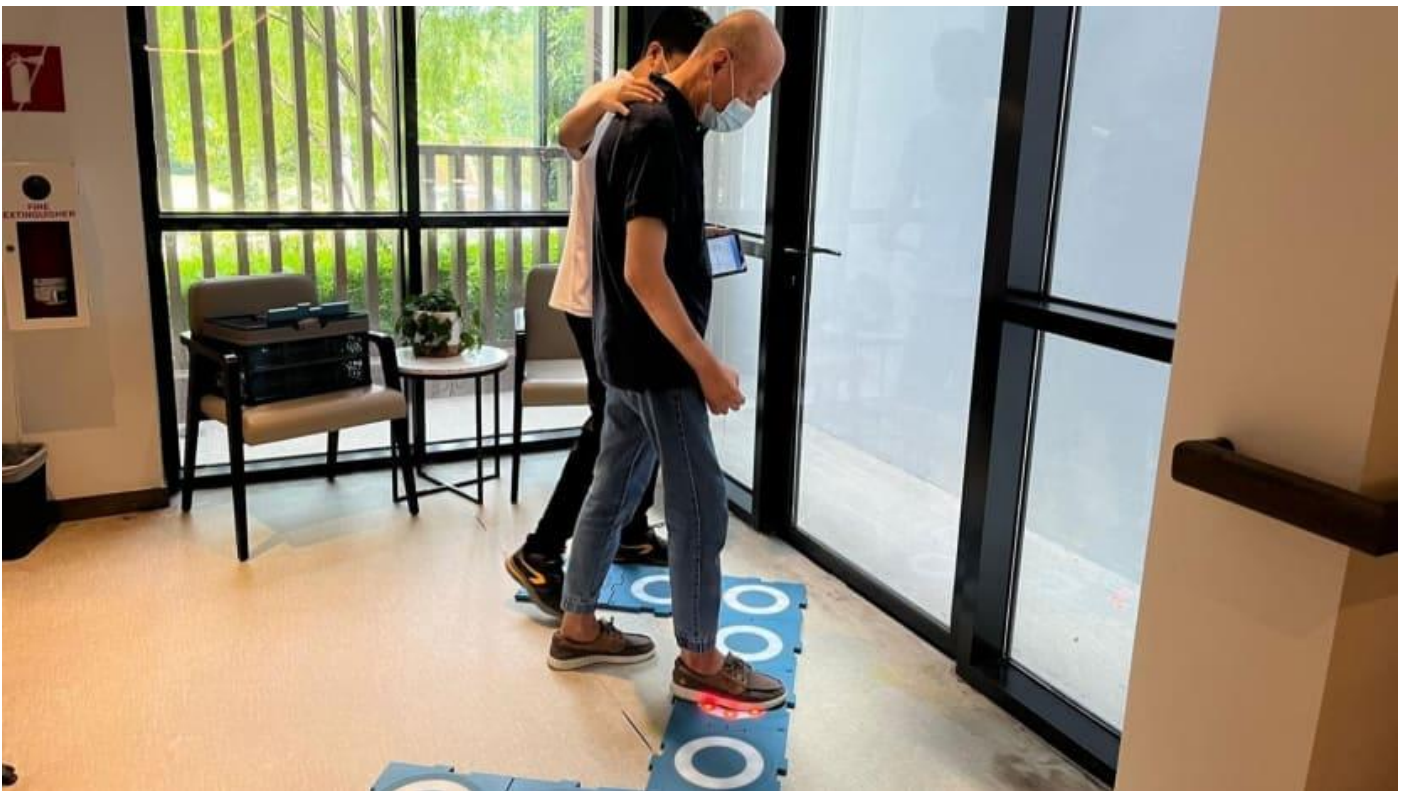
These tiles feature built-in pressure sensors and lights to create an interactive platform for various physical and cognitive activities.

A tile changes colour when it is stepped on and stepping on the tiles one by one creates a pattern.

"Users can select a variety of games and design the different combinations to target balance, brain training, memory, speed and coordination.

"Moto Tiles are often used in settings such as to promote active living and rehabilitation in a fun and innovative way," Madam Chalene Goh, Principal Occupational Therapist and Allied Health Coordinator at Allium Healthcare, told CNA.

Allium Healthcare is a Singapore-based healthcare provider that specialises in residential and home care for the elderly.



The Moto Tiles - designed for physical exercise and rehabilitation - make use of AI algorithms to adjust the intensity and type of exercises based on real-time data. (Photo: Allium Healthcare)

Mrs Kavita Rekhraj, Life Sciences & Health Care Leader at Deloitte Asia Pacific & Southeast Asia said that AI can be used in several settings, including clinical decision support services, citizen services, medical devices and point solutions - technology geared towards addressing a specific problem in an organisation or enterprise.

"The use of AI in clinical decision support services and citizen services requires a high degree of readiness in terms of the healthcare provider's organisational and technological systems and platforms," she told CNA.

She added that there were several instances where AI had been adopted in Southeast Asia.

Mrs Rekhraj cited the examples of the Singapore Eye Lesion Analyser (SELENA+) and the Community Acquired Pneumonia and COVID-19 Artificial Intelligence Predictive Engine (CAPE).

Jointly developed by the Singapore Eye Research Institute (SERI) and National University of Singapore (NUS), SELENA+ is a deep-learning AI software system that can detect potential critical eye conditions such as diabetic eye disease, glaucoma, and age-related macular degeneration.

According to Synapxe – Singapore’s national health technology agency – the system potentially reduces the workload of medical professionals by up to 50 per cent, with patient results made available in minutes instead of hours or days.

“In studies conducted to date, the AI-powered image reader has proven to be faster and as accurate compared to human graders. For patients, this means earlier, more targeted treatment, cheaper medical bills and better quality of life,” it said on its website.

“The use of the AI system also allows clinicians to reach out to patients earlier, make better decisions supported by AI and manage patient conditions more efficiently.”

CAPE meanwhile is an AI-enabled tool that can predict the severity of pneumonia in patients based on the image of a chest X-ray.

The system - co-developed by Synapxe and a multi-disciplinary team at Singapore’s Changi General Hospital - utilises both radiology images and electronic medical records data to create a deep learning algorithm which predicts how serious a patient’s case is.

“Using more than 3,000 CXR images and 200,000 data points, CAPE was trained to generate a score based on indicators of pneumonia severity,” Synapxe said on its website.

It added that initial validation tests showed that CAPE had an approximate accuracy of 80 per cent in predicting severe pneumonia.

The risk score generated by CAPE can serve as a decision support for doctors, where patients likely to require critical care can be closely monitored and receive treatment in a timely manner, the website said.

STREAMLINING PROCESSES AND BREAKING DOWN BARRIERS

Though she is based in Malaysia, Mrs Rekhraj said that AI opens up possibilities for new healthcare models across Southeast Asia, citing AI-driven telemedicine platforms that can expand access to quality healthcare to remote locations.

“In Indonesia, for example, a telemedicine platform provider uses a chat-based virtual AI assistant to pre-screen patients through a series of questions, and then provide pre-diagnosis recommendations to its doctors.

“This results in a streamlined and efficient consultation experience for patients in remote areas who would otherwise face significant physical barriers to access healthcare,” she said.

Mrs Rekhraj said that AI can streamline tedious and error-prone administrative processes with precision and efficiency.

Indonesia’s Ministry of Health in May this year announced a collaboration with Google Cloud to support the development of healthcare generative AI innovations, in line with the goals set out by the Indonesian government’s blueprint for digital health transformation.

It said that the collaboration was to improve healthcare access, experience and outcomes for every individual in the country, complementing ongoing efforts with Google Cloud to improve processes in Indonesia’s healthcare sector.

DETECTING CANCER AND BOOSTING BIRTH RATES

Primary care clinics in Asia meanwhile have adopted AI-powered diagnostic tools to help diagnose lung cancer and tuberculosis.

Ms Sylvia Varela, Area Vice-President Asia of AstraZeneca, a global pharmaceutical and biotechnology company, said that the use of AI-assisted chest X-rays can help identify individuals with suspicious lung markers and support their referral to confirm a diagnosis.

VAI technology is integrated with portable X-ray systems to allow algorithms to interpret radiology images.

“This technology can help doctors identify lung nodules in less than a minute and automate the detection and localisation of up to 29 cancer markers, including those indicating potential lung cancer, thus saving time, costs, and resources for the healthcare system,” she told CNA.

She said that since the start of the project, over 2.5 million scans have been performed globally, with more than 1.5 million scans coming from Asia, namely in India, Indonesia, Malaysia, Philippines, Thailand and Vietnam.

She said that based on data from seven geographies, including Singapore, Taiwan and Thailand, projections from their recently launched Saving Lives from Lung Cancer platform suggest that early lung cancer screening programmes and timely intervention could increase the five-year survival rate of patients by 73 per cent in the first year of implementation.

Integrating AI into existing lung screening programmes can help classify and potentially distinguish between different respiratory diseases such as tuberculosis, chronic obstructive pulmonary disorder (COPD), asthma, and lung cancer more accurately, according to Ms Varela, who is based in Singapore.

“For instance, patients with lung cancer are sometimes misdiagnosed with pulmonary tuberculosis. AI-powered screening tools can help ensure patients get the right diagnosis at an earlier stage of the disease, potentially transforming lung cancer from a fatal to a treatable condition,” she said.

Ms Varela added that lung cancer is the leading cause of cancer death worldwide and recently surpassed breast cancer in incidence.

AI has also entered certain countries’ efforts to tackle falling fertility rates.

Virtus Fertility Centre Singapore (VFCS) uses the technology in embryo selection during the in vitro fertilisation (IVF) process, claiming that the task of embryo selection is 10 times faster than the embryologist.

VFCS scientific director Dr Liow Swee Lian in a press release on Aug 13 said that during an IVF cycle, embryos are grown in an incubator equipped with time-lapse cameras to monitor them non-invasively throughout the five days of incubation.

“Traditionally, embryologists use a standard grading system to assess the appearance of each embryo under a microscope.

“The AI-based software now analyses extensive time-lapse imaging data, captured every 10 minutes, to identify the embryos with the highest potential for developing a foetal heart by assigning each an embryo score.

The embryo graded with the highest score is then selected for transfer by the embryologist.

BUILDING TRUST IN NEW TECHNOLOGIES

According to experts, one main hurdle in integrating AI into healthcare is adapting to and trusting a new technology.

An international study led by Nanyang Technological University (NTU) in Singapore found that doctors in gastroenterology practice generally trust and accept AI medical tools.

A survey of 165 gastroenterologists and gastrointestinal surgeons in the Asia-Pacific region found that eight in 10 say they accept and trust the use of AI-powered tools in diagnosing and assessing colorectal polyps (benign growths in the colon that could become cancerous).

The survey found that the number of years of experience was a crucial factor, with gastroenterologists with fewer than 10 years of clinical experience perceiving a higher risk from these AI-powered medical tools than their colleagues with more than 10 years of experience.

“More clinical experience ... may have given these clinicians greater confidence ... in exercising clinical discretion when new technologies are introduced,” said NTU Senior Vice-President (Health & Life Sciences) and Director of Centre for AI in Medicine, Joseph Sung.

However Mdm Goh of Allium Healthcare said there is uncertainty regarding the accuracy of AI as it does not consider certain subjective aspects such as joint or muscular pain, as well as user fear or anxiety when using rehabilitation technology.

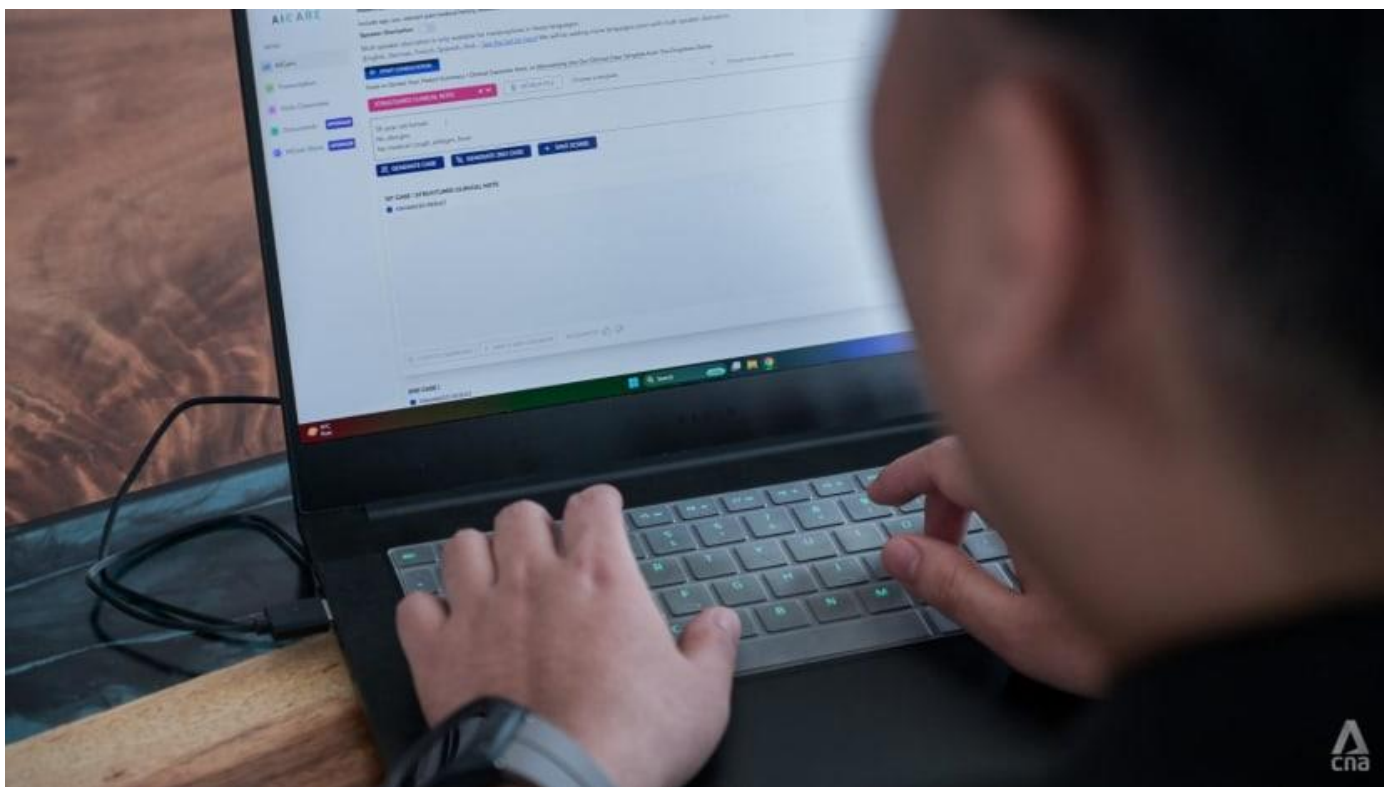
“These subjective factors influence user performance abilities. Additionally, some therapists may not be comfortable with using AI due to their preference for traditional methods that have proven effective over many years,” she said.

Mr Ahmed Sochin, CEO and founder of Docspe (MY) – the EHR software used in Dr Azzeem’s clinic – said that they currently have more than 500 doctors, including some clinic chains using the software.

He admitted that there were challenges initially to get doctors to sign up with him.

“This is healthcare and we know there is a barrier in innovation as we deal with regulations and the level of understanding of technology adoption.

With doctors, they are the end users. This has always been a challenge. What we managed to do was to explain the technology in a simple way,” he told CNA.



Dr Azzeem Shahren demonstrating the use of AI at his clinic in Kuala Lumpur. (Photo: CNA/Fadza Ishak)

Dr Azzeem for one believes that many in the medical fraternity, particularly in government institutions, remain entrenched in traditional methods.

"This reluctance to embrace innovation is unfortunate, as technology can significantly streamline processes and improve patient care.

Many hospitals now utilise electronic systems, but some still rely on manual methods. In private practice, incorporating technology such as AI into patient care is crucial for staying competitive and providing optimal services," he said.

He added that while every doctor is trained to question everything, trust in AI is essential. He admitted that he himself took a while to trust AI.

"It serves as a valuable tool, guiding us to expand our differential diagnoses. For example, a sore throat can have numerous causes, and AI can help us identify potential red flags.

"AI encourages us to investigate further or consider different approaches, ultimately making us better doctors and reducing the risk of misdiagnosis," he said.

Source: CNA/rv(ao)