BioSpectrum the business of Bio & Health Sciences ASIA EDITION

How technology and AI are democratising healthcare

August 1, 2024 | Opinion | By Adam Chee, Associate Professor, Saw Swee Hock School of Public Health, National University of Singapore

As Artificial Intelligence (AI) continues to shape the way we work and live, we must ensure that we are tapping into its full potential when it comes to the healthcare space. By leveraging its unique capabilities to address the accessibility barriers that we see in our healthcare centres in the APAC region and equip policymakers and industry leaders with the knowledge, tools and information to change and democratise our healthcare systems.



The healthcare sector, like many others, has not been immune to the technological shift brought about by artificial intelligence (AI). Touted as a great tool to aid in streamlining operations, AI and generative AI are predicted to contribute to around $100 billion in savings for the already burdened healthcare sector.

Yet, the applications and potential of the technology expand beyond just enhancing efficiency for day-to-day workplace tasks: it has also shown great promise in reducing barriers to access for healthcare knowledge and for supporting the complex analysis of data in drug trials and research. AI's data processing capabilities, while not unexpected, are precisely what is needed when we look to democratise healthcare and focus on an equitable future in healthcare.

The Asian Context

Historically, in Asia, the healthcare sector is one where social and economic disparity is placed under a microscope. Around 1.6 billion people in Asia and the Pacific lack effective access to social health protection due to a variety of legal and systemic issues.

Infrastructure issues in less developed economies means that local healthcare centres and systems are simply unable to accommodate patients in need. Even if private healthcare options exist for some conditions, many patients may not have access to treatments or care.

According to OECD data , the number of health resources and personnel available to populations across the APAC region is highly dependent on the number of resources allocated to the sector as well as population growth rates and density.

In an average low- to middle-income country in Asia, a person in need of medical care would have to compete for the attention of 1.1 doctors and less than 2 nurses per 1000 people. Depending on which country they are in, they would be faced with either 1 hospital bed per 100 people or even less than 1. And if they were living in a rural part of the country, they would have to travel to an urban centre to access any health resources at all.

A study showed that up to 81 per cent of people living with non-communicable diseases, such as diabetes and cardiovascular diseases in South Asia have inadequate health literacy. While in China, about 28 per cent of adults in 2022 were able to do the same, with disparity among provinces and regions. As these regional differences and disparities stack on top of one another, we see a plethora of unmet needs in the region that must be addressed before they worsen further.

The AI solution

When it comes to issues around lack of manpower, AI and other automations provide some relief. Remote monitoring and telehealth tools are able to provide both patients and doctors with streamlined ways of attending consultations and accessing medical data that break down accessibility barriers. For instance, by reducing wait times and reducing accessibility barriers for patients who cannot travel to medical centres in person, these tools boost goal-centred patient engagement.

These tools that encourage goal-centred patient engagement and in the care delivery process can counterbalance the health disparities experienced by socially and economically disadvantaged populations.

They can also aid in the management of chronic conditions with data being readily available for review either by healthcare administrators or by the patients and their caretakers themselves.

The wealth of data that can be mapped out by AI through predictive analytics and data processing also encourages the development of holistic treatment plans that do not view a disease in isolation. Additional data about where a person lives or how they live can provide a great starting point for diagnoses but can also trigger subconscious biases in medical staff. For instance, external factors such as lifestyle habits, community infrastructure and access to clean drinking water can even impact the prevalence of certain diseases in communities.

While they can provide unique insights into medical history and complaints, they can also preemptively colour a doctor or nurse’s opinion about a patient’s condition and cause them to over or under diagnose them. Incorporating more representative data in AI development can minimise bias to ensure that patients, regardless of geography and socio-economic conditions, are treated equally and objectively.

Governments and policy makers can also leverage the technology’s data processing capabilities to ensure that they are able to efficiently bridge the gaps that we currently see in health access from a legislative and health policy perspective. Such data can support the development of not just public health facilities and policies but also boost infrastructure development and environmental protection efforts that can undoubtedly become aggravating factors for chronic conditions in the long run.

Working together

AI developers and medical personnel must also look to working in tandem with patient groups, policy makers, and the wider healthcare industry as a whole to truly understand how best to serve the unmet needs in a community.

In a region as diverse as APAC, there is a need for providers to strive to be as hyper-local as they can be. The unmet needs of populations can change drastically within a 50-mile radius in the same province; there can be no one-size-fits-all approach to healthcare solutions. By partnering with health/patient organisations, providers across the ecosystem adapt to the changing landscape, as well as ensure that solutions are more accessible and create a stronger impact for more patients.

The Alliance & Partnerships for Patient Innovation & Solutions (APPIS) platform and its Innovator Program exemplify successful collaboration in improving healthcare access. This program supports patient organisations in the Asia Pacific, Middle East, and Africa regions, bringing them together with various stakeholders to foster collaboration and find solutions for patients' access to healthcare.

The Breast Health Foundation is a compelling example of an organisation that has benefited from this program, winning the APPIS Innovator Program in 2024. With the assistance of APPIS, the foundation is expanding its efforts to address health literacy gaps and early screening for breast cancer in South Africa, utilising its AI-based Health Awareness Assessment Tool.

Driving the discussion together with policymakers on the immediate or priority needs of a community would be largely beneficial in broadening access and advocating for health equity. For instance, are the patients who need the treatment the most able to have access to it? Are they able to receive it in a timely manner? What additional medical support or applications do they need to have access to in order to monitor the effectiveness of the treatment? All of these are essential questions that must be addressed through mutual dialogue and knowledge sharing between different stakeholders.

AI will need to have access to a wealth of data in order to turn these visions into reality. Given this, it is critical to develop ethical guidelines on AI use in the medical space. The guidelines should ensure that patient and practitioner data are safe through appropriate data security protocols and anti-virus software.

At the same time, we must also ensure that the information we are training our AI models on is bias-free. Societal disparities that come about through human bias and stereotyping can very well be exacerbated if those same views are fed into our software. Therefore, we must review and cross-check the initial data sources to mitigate this risk and maintain objectivity.

Adam Chee, Associate Professor, Saw Swee Hock School of Public Health, National University of Singapore